

THE UNIVERSITY OF LONDON

**MANPOWER PLANNING AND LABOUR SHORTAGES IN AN
UNDERDEVELOPED ECONOMY: AN EMPIRICAL ANALYSIS OF
MANPOWER POLICIES AND PRACTICES OF THE INDUSTRIAL
DEVELOPMENT CORPORATION LIMITED (INDECO) OF ZAMBIA**

**A Thesis Submitted in Fulfilment for the Degree of
Doctor of Philosophy in Labour Economics**



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ABSTRACT

This study focuses on the extent and adjustment to labour shortages in a large, publicly owned, industrial holding company (INDECO) operating in an underdeveloped economy--Zambia--whose labour market experiences severe shortages of skilled manpower. In taking an empirical approach, we sought to test the applicability of the conventional labour market adjustment theory in the context of an underdeveloped economy.

It is suggested that a systematic management of human resources through manpower planning can help to reduce the incidence of either labour shortages or surplus and thereby minimise the implied costs of either situation. We, therefore, sought to find out whether the concept of manpower planning has been adopted in INDECO and, if so, how it is viewed and practised and the problems which are encountered in its implementation.

Evidence presented in this thesis suggests that skilled manpower shortages, as exemplified by recruitment difficulties and high labour turnover, are experienced in technical, engineering, accounting and managerial occupations. Skill deficiency problems also obtain among existing employees, especially those in direct production occupations. The causes of such shortages are historical, technical and institutional: colonial educational and labour policies; high demand from increased manufacturing activity after independence; inelastic supply; poor manpower utilization policies; and, for parastatal companies, a bureaucratic pay structure.

In addition to reduced efficiency, the shortage of local skilled manpower have forced many companies to depend on expatriates. This is costly both in terms of foreign exchange and its distortional effects on the economic structure. While many companies favour increased supply (training) as the main adjustment instrument, the relatively cheaper forms of increasing supply (on-the-job and local training) are, however, underrated when compared to foreign training.

In most companies manpower planning is synonymous with training and development. We attribute such a narrow view to the government's indigenization policy, the lack of appropriate manpower planning skills, and that increasing supply may be the most effective way of adjusting to labour shortages. Implementing comprehensive manpower planning is also constrained by the bureaucratic pay structure, government intervention, foreign exchange problems, and, the lack of suitable manpower data. Given such constraints, we suggest some approaches to manpower planning which the INDECO companies could adopt.

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LIST OF ABBREVIATIONS AND ACRONYMS USED

| | |
|---------|---|
| AAT | Technician Accountancy Certificate |
| ACCA | Association of Chattered Accountants |
| AFC | Agricultural Finance Company Limited |
| BA | Bachelor of Arts Degree |
| BAc | Bachelor of Accountancy Degree |
| BAgric | Bachelor of Agricultural Sciences Degree |
| BEng | Bachelor of Engineering Degree |
| BSc | Bachelor of Science Degree |
| CABS | Certificate of Accountancy and Business Studies |
| CISB | Copper Industry Services Bureau |
| CLS | Completed Length of Service |
| CMM | Cost Minimization model |
| COZ | Credit Organization of Zambia Limited |
| CSO | Central Statistical Office |
| CTS | Consolidated Tyre Services Limited |
| DCs | Developed Countries |
| DTEVT | Department of Technical Education and Vocational Training |
| FINDECO | Financial Development Corporation Limited |
| FNDP | First National Development Plan (1966-70) |
| GDP | Gross Domestic Product |
| GFCF | Gross Fixed Capital Formation |
| GNP | Gross National Product |
| GPL | General Pharmaceutical Company Limited |
| GRZ | Government of the Republic of Zambia |
| HMSO | Her Majesty's Stationery Office |
| IAS | Inventory Analytical System |
| ICMA | Institute of Cost and Management Accountants |
| IDAT | Industrial Development Advisory Team |
| ILO | International Labour Organization |
| IMF | International Monetary Fund |
| IMS | Institute of Manpower Studies |
| INDECO | Industrial Development Corporation Limited |
| IPM | Institute of Personnel Management |
| JASPA | Jobs and Skills Programme for Africa |
| JEC | Job Evaluation Committee |
| K | Zambian Kwacha (currency) |

| | |
|----------|---|
| LDCs | Developing (Underdeveloped) Countries |
| LENCO | Lusaka Engineering Company Limited |
| LMA | Livingstone Motor Assemblers Limited |
| LME | London Metal Exchange |
| LS | Length of Service |
| MCL | Marginal Cost of Labour |
| MGS | Imports |
| MIAS | Manpower Inventory and Analytical System |
| MINDECO | Mining Development Corporation Limited |
| MPD | Manpower Planning and Development |
| MPDC | National Manpower Planning and Development Committee |
| MPU | Manpower Planning Unit |
| MRP | Marginal Revenue Product |
| MSC | Manpower Services Commission (UK) |
| NAMBOARD | National Agricultural Marketing Board |
| NCCM | Nchanga Consolidated Copper Mines Limited |
| NCDP | National Commission for Development Planning |
| n.d. | No Date |
| NEDO | National Economic Development Office (UK) |
| NES | National Employment Service |
| NICs | Newly Industrialized Countries |
| NVGECS | National Vocational Guidance and Employment Counselling Service |
| RCM | Roan Consolidated Copper Mines Limited |
| RD | Recruitment Difficulty |
| ROP | Refined Oil Products (1975) Limited |
| SATEP | Southern Africa Team for Employment Promotion |
| § | Section |
| SNDP | Second National Development Plan (1971-76) |
| SOC | Structurally Overemployed Counterparts |
| SOE | State Owned Enterprise |
| TNDP | Third National Development Plan (1979-83) |
| TTIs | Trades Training Institutes |
| UBZ | United Bus Company of Zambia Limited |
| UDI | Unilateral Declaration of Independence |
| UK | United Kingdom |
| UN | United Nations |
| UNDP | United Nations Development Programme |

| | |
|--------|--|
| UNIP | United National Independence Party |
| UNZA | University of Zambia |
| US | United States |
| US\$ | United States Dollar |
| XGS | Exports |
| ZAMEFA | Metal Fabricators of Zambia Limited |
| ZAMOX | Zambia Oxygen Limited |
| ZCCM | Zambia Consolidated Copper Mines Limited |
| ZDA | Zambia Diploma of Accountancy |
| ZIMCO | Zambia Industrial and Mining Corporation Limited |
| ZSBS | Zambia Steel and Building Supplies Limited |

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INTRODUCTION

Skilled labour both in terms of its quantity and quality are of fundamental importance in economic development for it includes technical, entrepreneurial and manual 'know how' (skills) which are necessary for both individual firms or nations. Despite this, the neo-classical theory has tended to view labour as being no different from other tradable commodities whose supply and demand is determined by market forces. Moreover, the neo-classical theory assumes that labour in a given sub market (occupational category) is homogenous and that such labour is adequately available in the market at the right price. To the extent that the neo-classical theory has failed to take account of empirical problems experienced by firms out of equilibrium, it has failed to put forward a coherent body of knowledge which would guide firms in adjusting to disequilibrium (Fisher, 1971; Thomas and Deaton, 1977). Even at the macro (general equilibrium) level the neo-classical theory has been found to be wanting in its theoretical underpinings. Thus Kaldor (1972:1247)¹ commented that

in the rarefied world of Walrasian perfection where markets are continuously in equilibrium, the question of how the market responds to 'disequilibrium' does not arise because all such 'disequilibrium' are ruled out--all equilibrating adjustments are assumed to be instantaneous, either because changes are timeless or because all changes have been perfectly foreseen.

It is perhaps because of the influence of the neo-classical theory that, until recently, many firms did not see the need for a coherent and consistent management and planning of human resources. As such they tended to place undue attention on planning and managing physical and financial capital resources almost to the total exclusion of

¹N. Kaldor, "The Irrelevance of Equilibrium Economics", in Economic Journal, LXXXII, pp. 1237-55, quoted in Barry Thomas and David Deaton, Labour Shortages and Economic Analysis: A Study of Occupational Labour Markets, (Oxford: Basil Blackwell for the Social Science Research Council, 1977), p. 12.

manpower issues. It is only when firms experience problems in meeting increased demand for their products or having excess labour during periods of economic slow down that the issues of manpower resources come to the fore. In the former case, a firm would suddenly realise that it could not meet placed orders because labour of a given quality (at the going wage rates) could not be recruited in the local labour market. Such a failure to meet existing demand could lead to a loss in profits or market share--both of which are costly to the firm, both in the short- and long- terms. In the latter case, adverse changes in the external environment may leave a firm with excess labour and where employment protection legislation exists, it would not be easy to dispose of such labour at will and, as a consequence, a firm would be made to bear unnecessary costs. In a nutshell, having either excess or shortage labour entails real costs to the firm. It is for this reason that manpower planning models suggest that a systematic and coherent approach to the management of human resources would help firms to foresee some of these problems and enable them to react in good time before such problems come to the head.

At the national level, it is suggested in the literature that those countries with higher literacy rates and a more educated labour force are more productive and thus enjoy better standards of living than those with low literacy rates and a less educated and skilled labour force (Blaug, 1970). This implies that if the underdeveloped countries want to become more productive and developed, they should increase the supply of educated and skilled labour in their labour markets. Since the production of skills (human capital as it has come to be known since Becker, 1962) involves both real and opportunity costs, underdeveloped countries find themselves in a policy dilemma (trade-off): to

increase expenditure on human capital formation would mean less is spent on other, equally, important policy areas which affect the welfare of the general population in these countries; not to do so might mean the persistence of the vicious circle of poverty and, more likely, increased dependence on the more expensive expatriate skills. It is because many of these countries have failed to strike a reasonable balance between these conflicting objectives that we continue to observe severe skilled manpower shortages in some of them.

What is true for nations is also true for individual firms: a sacrifice in terms of increased investment into a firm's human capital would reduce current profits but would, most probably, lead to higher productivity and thereby higher profits in future when the work force becomes more effective. On the other hand, a low investment in training would reduce the current costs but that may be false economy for a firm may be unable to recruit the necessary labour in future and, as a consequence, profitability would be reduced.²

It is because of these trade-offs, complexities, constraints, etc. which are associated with adjusting to skilled manpower shortages that the present study concentrates on how a government owned conglomerate, the Industrial Development Corporation Limited (INDECO), has adjusted to the widespread skilled manpower shortages which obtain in the Zambian labour market. At issue is whether it is possible for INDECO,

²Lester C. Thurow, "Redistributional Aspects of Manpower Training Programs" in Lloyd Ulman, (ed.), Manpower Programs in the Policy Mix, (Baltimore and London: Johns Hopkins University Press, 1973), pp. 93-4 argues that both profit-maximising firms and public agencies require individuals with human capital--skills, talents, and knowledge--so as to increase or maintain their level of output. Such human capital can be obtained in the marketplace as firms can rent individuals, as they do physical capital, with the necessary human capital. However, some types of human capital like those acquired through on-the-job training or experience cannot be rented from the labour market. These latter types of human capital can only efficiently be created by firms as they have monopoly on training capabilities. That is, they may possess the equipment or environment in which certain types of training can be given.

under conditions of skilled manpower shortages, to achieve its ultimate objective of creating a dynamic and self-sustaining industrial sector in Zambia. In this regard, the study tests the applicability and adequacy (or inadequacy) of the conventional labour market theories in a context of an underdeveloped economy where market forces are said to be distorted and thus fail to correctly price the various factors of production.

In particular the study sought to address itself to the following specific issues:

(a) to find out the extent to which the problems of skilled manpower shortages (recruitment difficulties in the local labour market and skill deficiency among existing employees) affect INDECO and its subsidiary companies;

(b) the causes of any such shortages both from the internal (manpower policies, structure of production, techniques used, etc.) and external (educational and training policies, government policies, etc.) perspectives;

(c) to find out the methods the conglomerate and its subsidiary companies have adopted in adjusting to such skilled manpower shortages. In this regard, our main interest was to find out whether the concept of manpower planning has been adopted both as an adjustment to labour shortages and as a tool for a more systematic management of human resources (regardless of whether a firm is in disequilibrium or not), how the concept is viewed and implemented, etc.; and

(d) to find out the role of costs and institutional constraints in the choice of adjustment instruments and determine whether supply adjustment instruments, because they are usually permanent and less costly when compared to demand adjustment instruments like increased

wages, are preferred.

In tackling the above issues the thesis is organised as follows: chapter I traces the historical background of INDECO and in so doing demonstrates the role of the state in its formation and subsequent growth. Its importance in the national economy in general and in the industrial policy (manufacturing sector) in particular is critically analysed. We show that its operations have been adversely affected by a host of factors like dependence on foreign inputs, capital goods and expatriate managerial skills; choice of unsuitable techniques; and a production structure which is dominated by consumer and intermediate goods. We present evidence which suggests that this has been necessitated by the type of import-substitution industrialization policy hastily chosen in the wake of the Unilateral Declaration of Independence in Rhodesia (UDI) in 1965. The high world copper prices (huge foreign exchange reserves) at the time also made it seem cheaper to import all the necessary capital goods and inputs. However, following a sustained fall in world copper prices, foreign exchange has become scarce and as a consequence many INDECO subsidiary companies are experiencing slack capacity problems. We also demonstrate the problems of government intervention on efficiency and profitability of INDECO.

In chapter II we set out the theoretical background and review the literature on adjustment to labour shortages and manpower planning. We present and discuss the definitions of the concepts of skill and labour shortages. The choice of adjustment instruments and the importance of manpower planning are discussed. In particular, we look at the cost-minimizing model suggested by Thomas and Deaton (1977) and show why it has limited applicability both in developed and underdeveloped countries. Empirical evidence on adjustment to labour shortages

presented in this chapter show that firms would usually prefer supply adjustment mechanisms for they are both cheaper and permanent while the demand ones are expensive and usually temporary.

Chapters III and IV respectively, review the Zambian economy and the labour market. In these chapters we put into context some of the problems affecting INDECO discussed in chapter I. In chapter III we examine the impact of fluctuating and falling export earnings on economic growth and the uncertainty it creates in the economy. Like in chapter I (with regard to the industrialization strategy), we also examine evidence which suggests that the neglect of local agricultural production has made it almost impossible to insulate the domestic economy from some of the adverse effects originating from the external sector. In chapter IV we demonstrate the extent of skilled manpower shortages in the local labour market, the causes and the effects on the economic structure and foreign exchange costs (occasioned by the high dependence on expatriates). The implications of the rapid increase in nominal wages (especially for the less skilled labour) and a fall in real earnings of the high-level manpower (when compared to that of the less skilled labour groups) is considered and its impact on employment creation and skill formation assessed.

Chapter V is on the research methods used and describes the design, scope and administration of the survey which was used to collect data on which most of this thesis is based. It thus acts as a point of departure from background analysis of chapters I to IV.

We present our empirical findings and analyses from chapter VI to chapter VIII. In chapter VI we discuss the incidence of labour shortages and impact of skilled manpower shortages in the local labour market on recruitment difficulties in certain high level occupational

categories like engineering, technical, accounting and managerial occupations; the use of less qualified or inexperienced personnel; the educational, age, and length-of-service distributions which are mostly skewed to the left and the problems of labour turnover. Evidence considered in this chapter suggests that the main cause of labour shortages is the persistent increase in the demand for skilled labour, inelastic supply, choice of skill intensive techniques, and a bureaucratic and centrally determined pay structure (which tends to be inflexible) and poor manpower utilization policies. We show that the main effect of skilled labour in the local labour market has been to increase dependence on expatriates and that given poor skill deficiency among direct production workers, misuse of machinery and inputs either result in loss of physical output (if not its quality) or both. However, the loss in output and its quality is mainly attributed to the problems of foreign exchange availability and not necessarily to labour shortages.

In chapter VII we present the supply and adjustment instruments employed by the various INDECO companies. We show that supply adjustment mechanisms are used more often than demand ones. However, their success in dealing with labour shortages are constrained by the ZIMCO pay structure which does not allow individual subsidiary companies to adjust their pay so as to adapt to changes in circumstances. In addition, we show that because of the government's egalitarian policies, INDECO companies on average tend, in relative terms, to pay to the less skilled more than they do to the highly skilled labour categories. With regard to whether cost is the major determinant in choosing a set of adjustment policies, we present evidence which shows that this is not the case. For example, the

cheapest type of training--on-the-job training--is underrated when compared to formal external training. Within formal training, the relatively cheaper local training is also underrated when compared to foreign training. While foreign technical training may be preferred because the technologies used are imported, other types of foreign training which do not relate directly to the technology in question are also highly rated when compared to the equivalent local ones. Social and institutional values are, therefore, very important in the choice of adjustment instruments regardless of the costs involved.

We take up the demand and supply adjustment in chapter VIII but this time we concentrate on manpower planning processes both at the enterprise and subsidiary levels. We show that at both levels, manpower planning is viewed to be synonymous with training and we attribute this view to effects of the government's indigenization policy which encourages firms to increase training of local personnel; the bureaucratic ZIMCO pay structure which forces many firms to rely on quantity adjustments; and the lack of manpower planning skills in many of the companies visited. However, we show that there has been a realization recently to improve manpower utilization and for this reason, job evaluation and performance appraisal practices are increasingly becoming common in many subsidiary companies. The lack of a detailed and accurate manpower system is recognised to be one of the major impediment to implementing manpower planning in the INDECO Group and for this reason we suggest that even if manpower planning specialists were in ample supply, their task would be made very difficult by the lack of the necessary data.

Chapter IX considers the possible approaches to manpower planning in INDECO and reviews the existing models to determine how these could

be adapted to suit the needs of INDECO. The chapter stresses the importance of reasonable quality manpower data and therefore suggests some ways of improving the manpower information system. We also suggest a general framework for manpower planning which could be adapted by INDECO companies. The chapter also addresses the question of reforming the ZIMCO pay structure and debates the implications of a decentralized pay structure in a labour market which is said to be imperfect and where real wages have been falling for a long time. We cast doubt on the likelihood of the government approving such a reform which, in effect, will reduce its power in the affairs of ZIMCO and its subsidiaries. While we recognise the need for reforming the pay structure, we are also conscious of the fact that wage adjustments, on their own, would not be enough (just like training on its own) to deal with the problems of labour shortages.

Chapter X provides a summary and conclusion of the thesis.

CHAPTER I

INDECO: HISTORICAL BACKGROUND, IMPORTANCE IN THE INDUSTRIALIZATION STRATEGY AND PERFORMANCE

1.0 INTRODUCTION

In this chapter we analyse the historical background of INDECO and demonstrate its importance in the industrialization strategy and economic growth of Zambia. Being a state-owned enterprise (SOE) and an instrument of government industrial policy we also discuss the implications of these on operational efficiency.

Government participation in business either alone or through joint ventures with private firms has been one area of constant debate in the literature. The debate centres on whether the state can be an efficient entrepreneur for its social and egalitarian objectives lead to wasteful use of resources--at least, from the perspective of the neo-classical school of thought which stresses the efficiency of competitive markets. The main argument of the neo-classical theory is that governments should concentrate on traditional functions of maintaining law and order and other stabilising functions (like monetary and fiscal policies) which are necessary for a smooth conduct of business. Rarely is consideration given to the economies of the underdeveloped countries where the entire private sector may be foreign owned and where inequitable income distributions exist. If such governments choose not to participate directly in economic activities, then only certain sections of the society (those already better-off) would benefit. In global terms, the fact that private firms which dominate in the private

sectors of underdeveloped countries originate from the more developed industrialized countries would, in itself, further increase income inequality between the rich and poor countries. Market forces, left to their own devices, would not correct this imbalance and hence the need for government participation. For these reasons Glade (1969)¹ had the following to say about state participation in Latin America:

state participation decisions have had at their core one essential rationale...Every one of these cases has reflected on a dissatisfaction with the decisions that automatically result from the free play of market forces, and everyone of them documents an instance in which the social decision was taken to abridge or suspend the market mechanism by organizing resources through the major public institution that stands most independently above the market: the State.
(Italics mine)

In the case of Zambia, we list below some of the reasons which contributed to the government's decision to participate directly in economic activities. Even in developed economies the issue of national interest is usually used to prevent foreign governments or institutions from owning strategic companies. For example, when it was revealed in 1988 that the Kuwait Investment Office in London owned about 20 percent stake in British Petroleum, a controversy ensued--despite the British government's market oriented economic policies--and it was only resolved after the former agreed to sell off part of its shareholding.

If a government decides to assume an economic role, its functions may be broken into two main broad categories (Trobat p 10):

(a) the state as a regulator of economic activity through monetary, fiscal, trade, exchange controls and other policies which allocate and distribute resources and stabilise the economy

(b) the state as a direct participant in economic activity by

¹William P. Glade, The Latin American Economies: A Study of their Institutional Development, (New York: American Book, 1969, p. 409, quoted by Thomas J. Trobat, Brazil's State Owned Enterprises: A Case Study of the State as an Entrepreneur (Cambridge: Cambridge University Press, 1983), p. 2. It is however argued that the existence of mixed-economy and state capitalism runs contrary to both the liberal neo-classical theory and Marxist conception of the role of the state.

owing enterprises.

Since state-owned (parastatal) enterprises are formed to further government policy in their areas of operation, it is plausible to argue that when a government participates in economic activities it will modify its regulatory policies to promote and strengthen the parastatal sector.² It is in this process of trying to achieve both equity and commercial objectives (through monopolistic companies), coupled with manpower and skill problems (in the case of underdeveloped countries) that the wasteful use of resources obtain (Shirley, 1983).

This chapter is organized as follows: in section 1.1 we present the historical background of INDECO, its objectives and its role in determining the nature of the industrialization policy; in section 1.2 we look at its performance and discuss some of its operational problems.

1.1 THE HISTORY AND OBJECTIVES

What becomes obvious in discussing the history of INDECO is that from its outset it has been a government-owned enterprise with a specific objective of executing government industrial policy.³ Later on we show why the government social objectives are inherently incompatible with the commercial objectives which INDECO is expected to achieve as well.

²There are two types of parastatal bodies in Zambia: (a) statutory boards or corporations set up by acts of parliament and wholly-owned by the government. These are usually autonomous and outside government ministries. Their main function is to provide services, especially in agriculture and transport sectors. The National Agricultural Marketing Board (NAMBOARD) is a good example; (b) limited liability state-controlled companies incorporated under the Companies Act. The INDECO Group falls under this category.

³For a list of INDECO subsidiary companies, their location in Zambia and equity structure, see appendix I.

The Northern Rhodesia Industrial Development Corporation Limited was incorporated in 1960 as a public company and owned by the then Northern Rhodesia Government. It assumed and extended the functions of the former Northern Rhodesia Industrial Loans Board, which was formed in 1952. At the time the reasons for forming INDECO were twofold: to appease some European settlers who felt that their territory was lagging behind Southern Rhodesia in industrial development; and that increased industrial activities would make it less likely for the British government to grant the territory independence (Martin, 1972).

INDECO then was largely a finance company whose main objectives⁴ were to attract foreign investors to the territory; help the existing ones with extra finance and advise the government on industrial matters. It was not a policy for INDECO to take permanent majority interests in those firms it helped found (Martin, 1972:60). In May 1963, the Corporation was reorganized and transferred to private ownership, with the government retaining minority voting shares. However, in August 1964, with only two months to independence, INDECO reverted to government ownership. In 1965 the new government bought out all the remaining private shareholders (Turok, 1979:73) to make INDECO a fully state-owned enterprise.

The role and status of INDECO greatly changed after independence as it became the main instrument for government industrial policy. Through it the government channelled funds to industry by providing loans, share capital and provision of factory buildings and other infrastructure. Although INDECO sought to spur industrial development by making feasibility studies and going into joint ventures with

⁴The historical analysis here draws from Johns (1971), Martin (1972), Enterprise Magazine, (Third Quarter, 1972) and INDECO Annual Reports (1969-71).

foreign partners, it was not government policy up to 1968 to manage nor control industry (Martin, 1972; Johns, 1971). INDECO's direct participation in industry was made necessary by two factors: the effects of the common market policy of the Federation of Rhodesia and Nyasaland (1953-63) and the Unilateral Declaration of Independence in Rhodesia in November 1965.

Due to the Federation's common market policy Zambia had no basic industries in 1964 necessary for economic development. Under this policy many important manufacturing industries were located in Southern Rhodesia which had a large market, better services and infrastructure, nearer to the ports, close to the centre of the Federal government and a "white man's haven" (Martin, 1972:55). By contrast, Northern Rhodesia was mainly a market and the only industries located there were those producing low value but bulky goods which needed to be manufactured nearer to the market; for example, maize-milling, sugar-refining, brewing, cement, building materials, etc. As a consequence the manufacturing industries in Zambia had no outside markets, not even in the former federal partners.

Until UDI, Rhodesia and South Africa were, respectively, the major suppliers of manufactured goods and trading routes to the sea for Zambia. With the economic sanctions which followed UDI and the consequent closure of the southern border, Zambia embarked on a hasty, inward-looking, import-substitution industrialization.⁵ The government, through INDECO established an alternative route through Tanzania:

⁵Between 1965 and 1968 INDECO, in partnership with foreign firms, initiated the following projects in which its stake ranged from 2 to 100 per cent: Nitrogen Chemicals (ammonium nitrate for fertilizers and explosives), Kafironda (explosives), Kafue Textiles (integrated cotton-textiles mill), Zambia Sugar Company, Dunlop (tyres and tubes), Zambia Clay Industries (clay pipes and bricks), Metal Fabricators of Zambia (copper fabrication), and Kabwe Industrial Fabrics (grain bags and hessian manufacture). Adapted from "Expanding for Progress: Change and Growth in the Role of Indeco", Enterprise: The Indeco Journal, first quarter, 1969, p. 3.

an oil pipeline was built between Tanzania and Zambia and INDECO owned 66.7 per cent of the Tazama Pipelines Limited; a road haulage company, Zambia-Tanzania Road Services Limited, (INDECO stake, 35 per cent) was also formed. Both companies were operational by 1968. INDECO's activities also extended to hotels, manufacturing, wholesale trading and growing of tobacco.

Thus up to 1968 INDECO only participated directly in strategic projects like the oil pipeline and projects which influence prices by increasing competition:⁶ it established the Zambia Steel and Building Supplies (ZSBS) and the National Wholesale Corporation Limited to compete with private companies in the wholesale of building materials and consumer goods, respectively.

The Mulungushi reforms of 1968 further increased the activities of INDECO and thereby its importance in the national economy. The president asked, hitherto, private owned companies to offer at least 51 per cent of their shares for purchase by the state. INDECO negotiated the acquisition of these shares which it came to hold on behalf of the state. The change in the government's liberal attitude towards the foreign-owned private sector may have been necessitated by the following factors:

(a) it became increasingly apparent that a foreign-owned and oriented industrial sector was not in the national interest. For example, in the wake of UDI, foreign-owned companies were not keen to increase local production; neither were they interested in investing in strategic projects like the construction of the oil pipeline--their main interest were in those projects with quick and high profit

⁶For a discussion of how some private companies colluded to keep prices high, see Enterprise, *ibid.*, p. 4.

margins and in exploiting the supply problems created by the UDI.⁷

(b) Foreign-owned companies tended to use more capital-intensive techniques which, given Zambia's factor endowments, were not suitable. Given the chronic shortage of indigenous skilled manpower, such techniques could not be exploited by using local labour. Neither could employment opportunities for the abundant unskilled labour be increased as such techniques are labour-saving.

(c) Foreign investors were reluctant to reinvest their profits for future expansion but instead relied on bank finance. However, this had a negative impact on the balance of payments as interest payments to foreign creditors, repatriation of profits and dividends abroad and the payments of expatriates' salaries proved to be a major drain on foreign exchange reserves (see chapter IV).

(d) It was initially expected that private- and foreign- owned firms would train more Zambians to take over from expatriates. This however turned out not to be the case. It was also expected that such firms would adopt vertical integration policies to further productive linkages in the economy but this, again, was never to be the case. It may have, however, been naive on the part of the Zambian authorities to expect international companies to take up the initiative for national development--unless it helped further their own commercial interests.

(e) For a newly politically independent country, there was little national pride in having a foreign (privately) owned industrial sector.

⁷According to Martin (1972:65) many British owned companies refused to cooperate with the government during the UDI crisis. This, more than anything else, demonstrated the vulnerability of relying on foreign capital. It were Italian, and not British, companies which set joint ventures with INDECO to construct the Tanzania-Zambia oil pipeline and road haulage companies, respectively.

1.1.1 INDECO'S Objectives and Nature of Industrial Policy

As an instrument of government industrial policy and at the forefront of industrial development, INDECO was expected to pursue the following objectives:

(i) within the limits of government policy and national interest to generate enough profits for future expansion and new investment;

(ii) to institute a comprehensive training programme so as to effect rapid Zambianization of the workforce, thereby transferring the running of the economy into Zambian hands;

(iii) to promote a self-reliant import-substitution industrialization which was to be both inward and outward looking so as to diversify the economy away from reliance on copper mining and exporting;

(iv) to make Zambia's industrial development balanced and self-sustaining by exploiting local resources in the production process, and thus create more employment opportunities, both in the urban and rural areas, and thereby integrate the economy. A balanced investment policy of investing both in the rural and urban areas (to check rural-urban migration) was envisaged; and

(v) to strengthen the role of the public sector in the national economy by improving the sector's overall economic performance.

As we show below and in the chapters which follow, INDECO has not been able to achieve many of the above objectives--especially with regard to genuine import substitution, increased use of local raw materials and intermediate goods, investment in the rural areas and increased profitability.

Since 1968/69 INDECO has occasionally undergone reorganization. In 1970 INDECO's mining activities were transferred to a newly created parastatal organization, Mining Development Corporation (MINDECO); its

financial activities transferred to the new Financial Development Corporation (FINDECO) and hotel interests to the National Hotels Corporation. A super parastatal holding company--to oversee all other parastatal enterprises--was created: the giant, Zambia Industrial and Mining Corporation (ZIMCO).

Up to 1974 INDECO operated through a system of sub-holding companies which were wholly owned by INDECO Limited: Indeco Breweries Limited (four companies); Indeco Industrial Holdings Limited (six companies), Indeco Chemicals Limited (ten including four petroleum companies), Indeco Real Estate Limited (three companies), Indeco Trading (seven companies) and Rucom Holdings Limited (seven milling and rural based companies), Steelbuild Holdings Limited (nine companies).

In another reorganisation in April 1974, the president in his capacity as the chairman of ZIMCO, moved oil companies out of INDECO to the newly-created Energy Corporation; the companies under INDECO Trading were all moved to the National Import and Export Corporation (NIEC). The Lakes Fisheries was also moved out of INDECO. This last reorganization narrowed INDECO's activities to the manufacturing and real estate sectors. The need to cut on overhead costs and minimise duplication of such functions as personnel services, marketing, purchasing and accounting operations (Bank of Zambia, 1976:32) forced INDECO to phase out the sub-group holding companies in 1975 and hold shares directly through operating divisions.

In the 1979 reorganization, the divisions were abolished and the influence of cabinet ministers on the board of directors and chairmen of INDECO (and other ZIMCO subsidiary) companies along with the direct day-to-day control from ZIMCO were reduced--they were replaced by executive directors. ZIMCO was to influence INDECO indirectly through

policy guidelines, review of operations, etc. (World Bank, 1984:57). INDECO was to supervise and monitor its subsidiary companies through a system of corporate planning, annual budgeting and quarterly monitoring of performance. This gave managers of the subsidiary companies some autonomy in running their businesses. They were accountable to INDECO through quarterly board meetings chaired by an INDECO director.

While the foregoing sets out the chronological history of INDECO, it says very little about the nature of the industrial policy. Before we analyse the performance of INDECO we, brief, discuss the industrial policy. The state's main objecting in acquiring majority shareholding (51 per cent) in some private companies and then vest them into INDECO was to achieve 'commanding heights' of the economy by transferring economic power into Zambian hands. The vesting of partially nationalised companies into INDECO was also a recognition by the government of the lack of indigenous 'know-how' and the need to rely on existing structures (INDECO) to mobilise the necessary leverage in industrial development (Chileshe, 1986). Chileshe also argues that buying up of foreign commercial interests, in itself, does not amount to effective indigenization for it only represents a change in ownership of the same capital stock. Moreover, the compensation paid to the foreign owners of the nationalized industries represent an outflow of resources from the country and this tended to worsen the balance of payments situation.

The political pronouncements at the time show that the transfer of economic power into Zambian hands did not extend to the private citizens but to the state. There was a limit to which private individual citizens were allowed to operate and above which their businesses would be nationalized. President Kaunda thus declared at Mulungushi in April 1968:

I shall be the first to congratulate and admire a [Zambian] businessman who managed to create a very large enterprise. It shows initiative and ability. But... when they get very big then they must come and work for the state, for the benefit of Zambia as a whole. *I do not want to create capitalism here.*

In stark contrast to the 1968 economic reforms, the post-1968 industrial policies created monopolies as it was thought that the Zambian market was too small to support many producers. The president made this clear in November, 1970:

In our industrial development we have also no choice but to make use of monopolies. By world standards our market for industrial products is extremely small. In relation to some products it simply cannot sustain more than one factory. If we tried to establish more than one, this would result in operations below capacity and thus even more expensive products while the nation will have paid more than necessary in foreign exchange for machinery. Concern over monopolies is therefore misplaced and we are in danger of adopting attitudes that are not relevant to Zambia.⁸

In a nutshell industrialization has suffered from an adoption of inconsistent and contradictory policies. Conceptually, it is plausible to argue that, if the industrialization objectives specified in the three previous development plans were actually implemented the character and the structure of the Zambian economy could have been greatly transformed.⁹ In the actual implementation of the industrialization policies, a case can be made that there was a noticeable

⁸Kaunda, "Speech to the National Independence Party National Council," Mulungushi Hall, Lusaka, 7-10 November, 1970, p. 22.

⁹The Second National Development Plan (pp. 93-4) specifically refers to the substitution of imported consumer goods which, at K149 million in 1969 accounted for about half of the value of total imports. Minimising the importation of foodstuffs was another major objective for the industrialization strategy, thence "the substitution of processed food imports is, therefore, one of the major objectives of the manufacturing sector in SNDP." The problems of being a land-locked country were recognised, for the SNDP observed that "with the land-locked position of the country and with consequent high transport costs, it seems obvious that priority must be given to the development of those branches of industry which can find their essential raw materials from local sources, that is from agriculture or mining. The further processing of local raw materials provides a powerful stimulus to the growth of the primary sectors, and in the case of agriculture, significantly contribute to rural development." In the real world, it is rare that the intentions coincide, exactly, with the outcome. The fragmented nature of Zambian industry along with its dependence on the external sector and its concomitant effects on capacity utilization and efficiency are a glaring demonstration of the fundamental weaknesses of the type of import-substitution industrialization adopted in Zambia.

failure to explicitly define the position of the following:¹⁰

(a) how much emphasis to place on import-substitution and exports: industrial policy in Zambia placed too much emphasis on import-substitution at the expense of exports. The hasty import-substituting industrialization implemented in the wake of UDI set as its main objective meeting the increased local demand for consumer goods. The huge foreign exchange reserves generated by high world copper prices were used to import capital goods, often capital-intensive, raw and intermediate materials and expatriate personnel. Zambia, in effect, became a net importer of both manufactured goods on the one hand and raw materials, intermediate and capital goods, etc. on the other.

When foreign exchange problems later arose from lower world copper prices it increasingly became difficult to import the required inputs and, as a consequence, problems of capacity underutilization obtained. For example, with 1969 as the base year, the index for total manufacturing production fell from 141.1 in 1974 to 136.5 in 1975 (the year copper prices fell significantly), 129.6 in 1976, and to 111.2 by 1984. We discuss this problem further below in the context of INDECO.

While the ultimate objective of the industrial policy was to save on foreign exchange by substituting for imports and, where possible, to increase exports the actual production turned out to have a high import-content (see section 1.2 below). For this reason, the World Bank has argued that saving foreign exchange has not, generally, been possible. The World Bank (1984:66-68) also maintains that in the past, investment decisions were made with little regard to the potential competitiveness of activities in terms of international

¹⁰Ravi Gulhati and Uda Sekhar, Industrial Strategy for Late Starters: the Experience of Kenya, Tanzania and Zambia, World Bank Staff Working Paper No. 457, (Washington: World Bank, May 1981) pp. 6-7.

prices and the efficiency in utilising domestic resources, especially labour relative to capital and raw materials relative to imported inputs. Their study shows that high domestic resource costs (DRCs) are associated with higher capital- and import- content intensity. For example, their regression analysis for parastatal companies (mainly INDECO subsidiaries) indicate that a one per cent increase in capital-labour ratio is associated with an increase of 0.2 per cent in DRC; and a one per cent rise in import-content is associated with a rise of 0.5 per cent in DRC. The World Bank also found that Zambia's heavy dependence on imported inputs and the high protection industry is afforded, though attractive to some investors, has however been heavily biased against exports.

(b) the extent to which industrial production was to cater for basic needs for the majority of the population instead of only responding to the effective demand of the minority in the modern sector: the structure of industrial output in Zambia is such that luxury goods like tobacco and beverages have increased their share significantly in total manufacturing output than intermediate goods, basic foodstuffs, textiles and apparel manufacturing. If we adopt Bhagavan's (1978) definitions of mass basic goods to include processed foodstuffs, textiles and wearing apparel; luxury goods to include beverages and tobacco; and intermediate goods to mean the rest of other manufacturing outputs and construction, table 1.1 shows that the share of beverages and tobacco in the total manufacturing output, at 1970 constant prices, increased from 18 per cent in 1964 to 42 per cent in 1984. Over the same period, the share of basic metals fell from 12.8 per cent in 1964 to 0.5 per cent in 1984--which is tantamount to a run-down of basic industries to the extent that they are now almost non

existent in Zambia. The share of food manufacturing fell from 15.0 per cent to 8.8 per cent, and that of textiles and wearing apparel increased from 8.1 to 17.5 per cent, respectively.

(c) how much emphasis to place on the productive sector, that is,

Table 1.1 Sectoral shares in Total Manufacturing for some Selected Years, 1964-1984.
(in millions of kwacha at constant 1970 prices)

| | 1964 ^a | | 1970 | | 1975 ^b | | 1980 ^b | | 1984 ^b | |
|---|-------------------|--------------|--------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | K | % | K | % | K | % | K | % | K | % |
| Total Manufacturing^c | 61.9 | 100.0 | 127.5 | 100.0 | 165.4 | 100.0 | 162.9 | 100.0 | 178.7 | 100.0 |
| Food | 9.3 | 15.0 | 17.5 | 13.7 | 12.9 | 8.0 | 13.6 | 8.3 | 15.8 | 8.8 |
| Beverages and tobacco | 11.1 | 17.9 | 51.6 | 40.5 | 65.4 | 39.5 | 66.8 | 41.0 | 75.0 | 42.0 |
| Textiles & wearing apparel | 5.0 | 8.1 | 10.7 | 8.4 | 14.4 | 8.7 | 28.1 | 17.2 | 31.3 | 17.5 |
| Wood & wood products incl. furniture | 3.5 | 5.7 | 5.0 | 3.9 | 7.8 | 4.7 | 4.6 | 2.8 | 2.8 | 1.6 |
| Paper, printing & publishing | 2.5 | 4.0 | 4.6 | 3.6 | 4.2 | 2.5 | 4.0 | 2.5 | 3.4 | 1.9 |
| Rubber, chemicals, petroleum, & plastic products | 4.4 | 7.1 | 9.5 | 7.5 | 24.2 | 14.6 | 18.0 | 11.0 | 15.5 | 8.7 |
| Non-metallic products | 9.5 | 15.3 | 10.6 | 8.3 | 8.2 | 5.0 | 8.6 | 5.3 | 9.5 | 5.3 |
| Basic metals products | 7.9 | 12.8 | 2.5 | 2.0 | 2.3 | 1.4 | 1.4 | 0.8 | 0.93 | 0.5 |
| Fabricated metal products | 5.6 | 9.0 | 15.2 | 11.9 | 25.3 | 15.3 | 17.4 | 10.7 | 19.5 | 10.9 |
| Other manufacturing | 0.15 | 0.2 | 0.3 | 0.2 | 0.7 | 0.4 | 0.4 | 0.2 | 0.29 | 0.16 |

Notes: ^a1964 figures are at factor cost

^bLikely to undergo revision

^cDoes not add up to 100.0 per cent due to rounding.

Source: Republic of Zambia, Central Statistical Office, Monthly Digest of Statistics, various issues.

steel and other capital-goods producer industries which are essential for self reliance and a source of external economies: the Zambian experience has been to gradually run-down basic metals industries ever since independence (table 1.1);

(d) emphasis on the spatial distribution of industries and the promotion of small-scale industries: industries have concentrated on

the Copperbelt and large urban centres along the-line-of-rail (see figure A1.1 in appendix I on the location of INDECO companies). The objective of setting industries in the rural areas is, perhaps, one which has least been successful. Other than a few maize milling plants by INDECO Milling Limited, at Mongu, Kaoma, Kabompo, etc; Rucom industries' bakeries at Chipata, Mongu, Kasama, etc.; Mwinilunga pineapples cannery; and Mansa batteries factory in Luapula Province, the previous three development plans have little else to show for rural industries. What is more, over the FNDP and SNDP periods, the investments which were located in the rural areas like the Zambia clay industries' brickworks at Nega-Nega and Kalulushi "were either too capital intensive given Zambia's surplus unskilled labour or heavily dependent on imported materials and intermediate goods, like the Mwinilunga cannery, to make envisaged integration of various domestic productive sectors possible" (Republic of Zambia, 1979).

And since the imported technologies are associated with the modern sector, it is therefore not surprising that INDECO's objective of a balanced investment policy has turned out to favour the urban areas. The few times attempts have been made to locate such projects in the rural areas (Mansa Batteries, Luangwa Industries and to some extent Livingstone Motor Assemblers and Kapiri Glass Products) have only succeeded in increasing the operating costs and making the viability of such companies questionable. The location of industries in the urban areas increased both rural-urban migration and the rate of urbanization.

(e) the roles of (i) the parastatal sector, (ii) the private (local) sector, and (iii) foreign capital in investment and production: from 1968 the role of the parastatal sector (in partnership with

foreign firms) has been paramount--the basis of the operations of INDECO;

(f) whether to rely on administrative controls and licensing in encouraging and regulating industry or to rely on price instruments like taxes and tariffs: there has been considerable confusion here as legislation like the Industrial Development Act of 1976 and its successor, the 1986 Investment Act have proved unsuitable to Zambian conditions and difficult to administer.

1.2 PERFORMANCE AND OPERATIONAL PROBLEMS

We have demonstrated the importance and role of INDECO in Zambia's industrialization in the preceding section. In the early 1970s INDECO accounted for about half of the manufacturing GDP and this proportion rose to about three-quarters by 1980 (World Bank, 1977 and 1984; Bank of Zambia, 1980). For example, table 1.2 demonstrates that with real manufacturing GDP at K177.6 million in 1974 about K100 million of that originated from INDECO manufacturing companies. With regard to employment, table 1.2 demonstrates that INDECO accounts for about half of total manufacturing employment; it is the third largest employer after the government and ZCCM.

The dominance of INDECO in the manufacturing sector does not, however, extend to basic metals (capital goods), but is instead confined to consumer and intermediate goods. Table A1.1 in appendix I demonstrates the impact of the industrialization strategy on INDECO's output structure:

- a high proportion of INDECO's production is concentrated in foodstuffs and other consumer goods--maize meal, refined sugar, beer,

Table 1.2 CONTRIBUTION OF INDECO TO GDP, SHARE OF MANUFACTURING EMPLOYMENT
AND SOME PERFORMANCE INDICATORS: 1974-1986

All financial statistics in millions of kwacha

| | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---------|---------|---------|---------|---------|---------|----------|----------|--------|--------|---------|---------|---------|
| GDP at 1970 prices | 1463.9 | 1434.2 | 1548.7 | 1484.6 | 1480.5 | 1435.4 | 1479.0 | 1570.2 | 1526.1 | 1496.1 | 1490.7 | 1541.7 | 1519.6 |
| GDP at 1970 prices adjusted for terms of trade | 1359.2 | 1047.0 | 1102.3 | 942.2 | 898.1 | 981.3 | 953.7 | 940.1 | 841.0 | 863.7 | 902.2 | 926.7 | - |
| Contribution by manufacturing to GDP at 1970 prices | 177.6 | 157.6 | 151.9 | 141.4 | 150.5 | 159.6 | 155.8 | 174.8 | 168.6 | 156.2 | 158.1 | 172.2 | 170.6 |
| Contribution by INDECO | 97.7 | 86.4 | 85.1 | 82.0 | 94.8 | 119.7 | 116.9 | 131.1 | 126.5 | 117.2 | 118.6 | 129.1 | 127.9 |
| Total manufacturing employment | 44 070 | 44 670 | 44 560 | 40 810 | 45 980 | 44 960 | 47 760 | 48 000 | 48 000 | 49 000 | 48 000 | 48 500 | 48 860 |
| INDECO total employment | 20 000 | 20 947 | 21 277 | 22 731 | 24 970 | 24 727 | 23 207 | 24 330 | 24 017 | 24 284 | 23 908 | 26 259 | 24 582 |
| As % of total manufacturing employment | 45.4 | 46.9 | 47.7 | 55.7 | 54.3 | 55.0 | 48.0 | 50.6 | 50.0 | 49.6 | 49.8 | 54.1 | 50.3 |
| INDECO Group Turnover | 329.67 | 292.41 | 308.04 | 347.64 | 397.86 | 406.01 | 465.7 | 526.93 | 604.91 | 713.18 | 827.7 | 972.65 | 1373.0 |
| Group Profits/(loss) before tax | 28.895 | 8.690 | 3.197 | 8.802 | 9.204 | (12.14) | (7.364) | 3.504 | 32.529 | 11.532 | 10.200 | 11.702 | 103.574 |
| Group profits/(loss) after tax | 17.817 | 2.840 | (3.065) | 3.868 | 1.167 | (20.67) | (15.796) | (6.616) | 13.217 | 4.018 | (1.601) | (1.430) | 75.644 |
| Profit/(loss) before tax as % of Turnover | 8.8 | 3.0 | 1.0 | 2.5 | 2.3 | -3.0 | -1.6 | 0.7 | 5.4 | 1.6 | 1.2 | 1.2 | 7.5 |
| Value Added | 250.86 | 196.81 | 220.03 | 260.60 | 396.48 | 442.69 | 492.33 | 525.97 | 583.35 | 503.46 | 536.34 | 575.02 | 670.46 |
| Net current assets/(liabilities) | (3.082) | (7.194) | (18.94) | (27.40) | (38.12) | (64.0) | (56.5) | (33.584) | 8.945 | 22.208 | 4.173 | 68.205 | 81.412 |
| Total Assets | 247.78 | 189.61 | 201.09 | 233.20 | 358.36 | 378.72 | 435.80 | 492.38 | 592.30 | 525.67 | 540.52 | 643.22 | 751.88 |
| Debt-equity ratio (times) | 0.92 | 0.92 | 1.06 | 1.28 | 2.40 | 3.52 | 3.75 | 2.31 | 1.38 | 0.91 | 0.97 | 0.91 | 0.94 |

Notes: 1. 1980-1984 GDP likely to undergo revision; 1985-86 are preliminary.
2. Financial year of INDECO ends on 31 March, but that for national accounts (GDP) on December, 31.
We chose the period from 1974 onwards because from that date INDECO's activities were confined mainly to manufacturing and some real estate activities. Before then INDECO limited had more than eighty subsidiary companies spanning from oil refining, retailing, fisheries, etc.—see text for details.

Sources: For GDP, Republic of Zambia, Central Statistical Office, Monthly Digest of Statistics, various issues; and Bank of Zambia Annual Reports.
For INDECO—its annual reports.

dry batteries, textiles, soaps, etc;

- intermediate goods for the construction and mining sectors-- timber, cement, window and door frames, explosives, industrial gases, crushed stones, copper rods and cables, etc;

- light engineering products--buses, trailers, wheel barrows, etc;

- medical supplies--intravenous fluids, oxygen, etc;

- packaging materials--polypropylene bags, bottles, beer crates, and cans;

- until 1985, agricultural inputs--fertilizers.¹¹

- other than fabricating copper, INDECO does not engage in any other basic metals producing capital goods.¹²

The production of consumer products (which dominate) have, however, been fluctuating with a declining trend, especially for wheat flour and wheat products, stockfeeds, edible oils, lager beer, etc. Production of cars, passenger vehicles and steel products have also been on the decline, with Lusaka Engineering Company (Lenco) producing no buses in 1985, Livingstone Motor Assemblers (LMA) closed from December 1986, and the production of window/door frames, etc. by both Lenco and Monarch falling between 1982 and 1985. The fall in production of vehicles is, in the case of LMA, due to lack of foreign exchange to import CKDs (completely knocked-down kits) for assembly and increased

¹¹The firm which produced fertilizers, Nitrogen Chemicals of Zambia, was taken out of INDECO in 1985 to become a direct subsidiary of ZIMCO because of its persistent loss-making and financial drain on the entire INDECO Group.

¹²There is currently a bill going through parliament to establish the Iron and Steel Authority. The bill emphasises the strategic and not the viability of such a body. This means that it will go the same way as other parastatal bodies before it whose commercial objectives were not clearly defined. Times of Zambia, April 7, 1989. Meanwhile, a report by Indian consultants suggests that a 30 000 tonnes per annum sponge iron plant, utilizing iron ore reserves near Mumbwa and Kabwe and coal from Maamba and local limestone could be viable. Zambia Daily Mail, April 22, 1989.

competition from cheaper and better-quality imported cars; and in the case of Lenco the smallness of the Zambian market, especially since its major customer, the United Bus Company of Zambia (UBZ), has had financial difficulties lately. The fall in both the production of consumer and steel products is due to the lack of foreign exchange needed to import the necessary inputs or spare-parts.

All told, the importance of INDECO in the manufacture of consumer goods is exemplified by the fact that a reduction in its production in recent years has occasioned a widespread shortage of consumer goods and probably helped in lowering the standard of living.

Despite its importance in the economy INDECO's performance has however not been very impressive. Table 1.2 shows that its average gross return on capital (the percentage ratio of gross profits to turnover) declined from 8.8 per cent in 1974 to minus (outflow) 3.0 and 1.6 per cent in 1979 and 1980 respectively. Because of such lower profitability, it had to rely on short- and long- term borrowing but this has resulted in liquidity problems: the debt-equity (capital gearing) ratio rose from 0.92 in 1974 to 3.75 in 1980 and then improved to 0.94 by 1986. Total interest payment on both short- and long- term loans rose from K16 million in 1977 to K34.442 million in 1983 and K56.812 million in 1986 (INDECO Annual Reports). Value added, at current market prices, increased from K168.2 million in 1980 to K564.3 million in 1986 and K1.3 billion in 1988 (Republic of Zambia, 1989). At constant 1980 prices, it fell to K144.21 million in 1986 (equivalent to a fall of about 14 per cent over the period).

The poor performance of the INDECO Group can be attributed to its dependence on imported technologies and inputs; skilled manpower problems and political intervention.

1.2.1 Foreign Dependence

Many of the projects which have been implemented by INDECO since 1969 have been in partnership with foreign firms. Even where such projects are wholly owned by INDECO foreign, firms have been instrumental in the supply of plant, machinery and inputs. In fact Shivji (1973) (cited by Tangri, 1984) has suggested that many investment decisions in African countries have been based on the existence of foreign companies willing to recommend and carry out a project. In the case of INDECO many of its projects fall in this category. For example, Livingstone Motor Assemblers, Nitrogen Chemicals, Mansa Batteries, Luangwa Industries, etc. were initiated at the suggestion of foreign firms or technical aid arrangements. Table A1.2 in appendix I demonstrates further that even in the Fourth National Development Plan (1989-1993), foreign capital still plays a major role in both rehabilitation of old machinery and in new projects. However, the main problem with imported technology is that it is usually not suitable for a country like Zambia which has surplus unskilled labour and skilled manpower shortages. And since such techniques are capital-intensive and have to use imported inputs, little or no domestic linkages are ever created. This undermines economic growth and consequently economic development.

It is ironic that foreign influence should have continued to predominate in INDECO for the economic reforms of 1968/69 specifically sought to reduce such dependence. It would therefore seem that the lack of local 'know-how', foreign minority shareholding in many INDECO subsidiary companies, management and technical contracts, and the use of sophisticated foreign technologies have all contributed to the continuance of this dependence. It is also ironic that an organization

which is responsible for industrial development does not produce capital goods which are necessary to achieve its ultimate objective. The lack of technical skills and basic industries locally have made it impossible to assimilate or modify the imported technologies to suit the Zambian conditions; not even to increase the use of local raw and intermediate materials in the production process.

The dependence on imported inputs, in the case of the nineteen subsidiary company respondents, is demonstrated in table 1.3. Except for maize (i.e. when the harvests are good, otherwise imported), yeast, sugar-cane, hard timber, cotton, limestone, pyrite and clay, nearly all other raw materials and intermediate goods are imported (in one form or another). Even for wheat flour, tyre retreads, gyser and car components which are shown to be partially obtained locally, the materials on which they are made are mostly imported. It is this heavy dependence on imports which is largely responsible for the observed low rates of capacity utilization in the INDECO Group of companies.

In comparison to what it spends, INDECO generates very little foreign exchange by way of exports. For example, while its foreign exchange earnings rose from about US\$7 million in 1983 to US\$18 million in 1986, its foreign exchange allocation rose from US\$100 million in 1983 to US\$114.7 in 1985 and fell to US\$73.6 in 1986 (see table 3.4 in chapter III). Its high cost-structure and the fact that it was specifically designed to meet local demand makes its products internationally uncompetitive. The relative increase in exports of refined sugar, industrial gases, cement, etc. in recent years has been at the expense of local consumption. INDECO continues to rely on ZCCM as the major foreign exchange earner.

From tables 1.4 we can infer that:

(a) Within the INDECO Group, the sources of inputs and capital goods seem to greatly influence the rates of capacity utilization. Only two companies which obtain most of their inputs locally were

Table 1.3: SOURCES OF RAW MATERIALS AND OTHER INTERMEDIATE INPUTS FOR 19 INDECO COMPANIES: FIRST QUARTER, 1987

| <u>SECTOR</u> | <u>TYPE OF INPUTS</u> | <u>NUMBER OF FIRMS</u> | <u>Sources of Inputs in Percent</u> | |
|--------------------------------------|--------------------------|------------------------|-------------------------------------|----------------|
| | | | <u>LOCAL</u> | <u>IMPORTS</u> |
| Food, Stock- feeds & beverages | Maize | 5 | 100 | 0 |
| | Yeast | | 100 | 0 |
| | Chemicals | | 0 | 100 |
| | Sugar cane | | 100 | 0 |
| | Fertilizers | | 10 | 100 |
| | Wheat flour ^a | | 95 | 5 |
| Transport & farm equip- ment | Farm equipment | 3 | 10 | 90 |
| | Rubber/other inputs | | 33 | 67 |
| | Tyre retreads | | 99 | 1 |
| | CKD (Fiat) | | 33 | 67 |
| | Other models (CKD) | | 0 | 100 |
| Engineering | Steel | 2 | 0 | 100 |
| | Gyser components | | 56 | 44 |
| | Hard timber | | 100 | 0 |
| Chemicals | Chemicals | 3 | 0 | 100 |
| | Cotton seed | | 100 | 0 |
| | Vegetable Oil | | 10 | 90 |
| | Tallow | | 0 | 100 |
| | Caustic soda | | 0 | 100 |
| | Sodium Triphosphate | | 0 | 100 |
| | Sodium sulphate | | 0 | 100 |
| | Hydrogen ^b | | 100 | 0 |
| | Dyes & chemicals | 1 | 0 | 100 |
| Textiles | Cotton | | 100 | 0 |
| | Polyester | | 0 | 100 |
| | Polypropylene | 2 | 0 | 100 |
| Packaging | Other inputs | | 0 | 100 |
| | Plastic/chemicals | | 0 | 100 |
| | Limestone/pyrite | 3 | 100 | 0 |
| Construc- tion | Vaneers | | 0 | 100 |
| | Plywood | | 0 | 100 |
| | Door cores | | 0 | 100 |
| | Clay | | 100 | 0 |
| | Glaze | | 0 | 100 |

Notes: ^a about 90% of the wheat is imported by another INDECO milling company

^b before April 1987, hydrogen was imported.

Source: Main Questionnaire, Question A1-5.

operating at full capacity. The other ten companies with capacity utilization rates of between 51 and 75 percent obtain some of their

Table 1.4

A: LEVELS OF CAPACITY UTILIZATION BY THE SOURCES OF RAW MATERIALS

| <u>Levels of Capacity</u> | <u>Sources of Raw materials & intermediate goods</u> | | | | |
|---------------------------|--|----------------|---------------------|-----------------------|------------------|
| | <u>Local</u> | <u>Imports</u> | <u>Mostly Local</u> | <u>Mostly Imports</u> | <u>Row Total</u> |
| Below 25% | - | - | - | 1 | 1 (5.9%) |
| 26-50% | 1 | - | 1 | 2 | 4 (23.5%) |
| 51-75% | 3 | 2 | 1 | 4 | 10 (58.8%) |
| Over 75% | 1 | - | 1 | - | 2 (11.8%) |
| TOTALS | 5 | 2 | 3 | 7 | 17 (100%) |

B: CAPACITY UTILIZATION LEVELS BY SOURCES OF CAPITAL GOODS

| <u>Levels of Capacity</u> | <u>Sources of Capital Goods</u> | | | |
|---------------------------|---------------------------------|----------------|-------------|------------------|
| | <u>Local</u> | <u>Imports</u> | <u>Both</u> | <u>Row Total</u> |
| Below 25% | - | 1 | - | 1 |
| 25-50% | - | 4 | - | 4 |
| 51-75% | - | 9 | 1 | 10 |
| Over 75% | 1 | 1 | - | 2 |

Source: Main Questionnaire, Questions A1-5 and A1-6.

raw materials locally. The other five firms with capacity utilization rates of less than half import almost all of their inputs. The company which obtains all its inputs locally in this category is due to the quota system used by the cabinet contingency planning committee in allocating maize.

(b) INDECO companies rely, almost entirely, on imported capital goods and spare parts. Theoretically, it has been argued that such dependence on imported technologies may result in three possible

outcomes:¹³ firstly, assimilating such technology by increasing the proportion of locally supplied components; secondly, increasing the use of locally produced inputs; and thirdly, innovating and adapting the imported technologies to suit local conditions. A failure to achieve such technological dynamism would only mean a transfer of the technology in question; in which case Rajeswaran maintains that two situations may arise: (i) if assimilation is a short-lived phenomenon (*if it happens at all*), affected firms may revert to imported technological inputs to take advantage of the technical progress in other countries; and (ii) if the government intervenes to curb imported technologies by protective tariffs, inefficient methods would be chosen and if the market for final goods is protected, domestic consumers will have to bear the cost of such enforced inefficiency. In Zambia, assimilation of imported technologies has not been attained and the choice of technology continues to be influenced by foreign partners in joint projects; the result in (ii) is not due to government restrictions on imported technologies but on imported consumer and other manufactured goods. Thus the failure to increase the use of local components, inputs, and to adapt imported technologies to local needs are as a result of government policies which encourage foreign investors with no restrictions on the types or suitability of the technologies involved.

(c) Foreign exchange availability is the major factor accounting for the low rates of capacity utilization--affecting fifteen of the nineteen subsidiary companies. Only those companies obtaining their

¹³K. Rajeswaran, "Performance Aspects of Mansa Batteries Ltd, Mansa, Zambia: Some Comments", Technological Cooperation Research Project No. 7, (Helsinki: University of Helsinki, Institute of Development Studies, 1986) pp. 3-4.

inputs locally said foreign exchange was not a major problem. The problem of old machinery is also related to foreign exchange availability as new machinery or spare-parts cannot be had without the necessary foreign exchange.

Given the relatively large and capital-intensive nature of the firms taken over by INDECO, and equally capital-intensive projects undertaken later in joint-ventures with foreign capital saving foreign exchange has not been possible (World Bank, 1984; Rajeswaran, 1986). Under the social and political environment in which INDECO operates, such a dependence on imported capital-intensive technologies may have given rise to a policy dilemma:¹⁴ the scope for increasing employment is limited but the government objective of increasing employment has to be met at the same time. As a consequence, overemployment in capital-intensive plants often operating at about half the rated capacity have only increased costs. For example, while total employment rose from 20,000 in 1974 to 25,000 in 1978, Group gross profits fell from K29 to K9 million over the same period (table 1.2).

¹⁴The following table adapted from Nyamazana (1985:4) and Republic of Zambia (1989:525) shows that the high capital-intensity of some projects initiated by INDECO (in partnership with foreign firms) from 1969 onwards have limited scope (given capital-labour substitution) for increasing meaningful wage employment for the massive unskilled labour.

| | Cost of Plant (in K million) | Number Employed | Cost per job (K/L ratio) in Kwacha |
|-------------------------------------|------------------------------|-----------------|---------------------------------------|
| Kafue Textiles (1969) | 8 | 960 | 8,300 |
| Nitrogen Chemicals (1970) | 18 | 600 | 30,000 |
| Kafironda Explosives (1970) | 8 | 400 | 20,000 |
| Nakambala Sugar Estates (1970) | 13 | 1,800 | 7,200 |
| Kabwe Industrial Fabrics (1970) | 2.2 | 570 | 3,800 |
| Zambia Metal Fabricators (1971) | 2.3 | 80 | 28,000 |
| Indeni Petroleum Refinery (1971) | 21 | 350 | 60,000 |
| Livingstone Motor Assembler (1974) | 2.5 | 250 | 10,000 |
| Nitrogen Chemicals Extension (1980) | 228 | 570 | 400,000 |
| Choma Maize Mill (1980) | 5.01 | 140 | 35,793 |
| Luangwa Industries (1982) | 10.6 | - | - |
| United Milling (1983) | 5.2 | - | - |
| Zambia Ceramics (1984) | 11 | 206 | 53,398 |

1.2.2 Political Intervention

Being state-owned and instrument of government policy, INDECO's policy parameters are bound to be subservient to the political process more so given the supremacy of the ruling party. But because the extent to which politicians and government officials intervene in the day-to-day running of parastatal companies is not well documented (Johns, 1971), it becomes difficult to exactly ascertain their influence and the form it takes.

It is however possible to ascertain political and social influences when projects which are not profitable are chosen or when projects which require a fairly development infrastructure are located in rural areas short on such facilities--Mansa Batteries, Luangwa Industries, etc. are cases in point (both of which face serious operational and financial problems and, consequently, the management of the latter company had to be contracted to a foreign firm on the hope that this would improve its performance). The lack of explicit and consistent government industrial, employment and incomes policies does not help the situation either for long-term investment planning is impaired.¹⁵

Political imperatives in a country with low incomes both in the urban and rural areas forced the government to impose price controls on many of the INDECO Group products so as to make them affordable.

Shirley (1983:18) cites evidence which shows that although the price controls imposed on products of SOEs seek to help the poor members of society or to help in counter-inflationary policies, major

¹⁵For a discussion of the implications of increasing labour costs for the less skilled labour relative to imported capital and skilled manpower in the early years of independence, see Richard Jolly, "The Skilled Manpower Constraint" in C. Elliot (ed), Constraints on the Economic Development of Zambia, (Nairobi: Oxford University Press, 1971).

customers of SOEs are either large industrial users or high income groups mainly concentrated in urban areas. It is therefore not the poor (who mostly reside in rural areas or in slums in the urban areas) who benefit from such controls. This sums up the INDECO situation.

Although such price controls were lifted in December 1982 on all products but essential commodities like mealie-meal, bread, soap, and candles (Bank of Zambia Annual Report, 1982:43), they were however reimposed in 1987 after the break with the IMF structural adjustment programme.¹⁶ As demonstrated in table 1.1, such a policy of keeping the prices artificially low when production costs were rising rapidly has had a devastating impact on the profitability and liquidity position of the Group.

Due to persistent loss making in six subsidiary companies (Crushed Stones Sales, Kapiri Glass Product, Livingstone Motor Assemblers, Luangwa Industries, Rucom Industries, and Zambezi Sawmills), INDECO Limited commissioned the Industrial Development Advisory Team¹⁷ (IDAT) to carry out a diagnostic study of these companies. Apart from the perennial problems of foreign exchange availability, IDAT found that the six companies faced the following operational problems:

(i) marketing was not given high priority by the management. Marketing managers had little training and expertise and, in addition, the quasi-civil service rules and regulations made it difficult to train and motivate them. As we have shown above, this may be expected because under conditions of supply inelasticity and rising demand (in a protected market), marketing and quality controls become irrelevant.

¹⁶Price controls have just been lifted this year, except on maize meal, Times of Zambia, 10-11 July, 1989.

¹⁷Industrial Development Advisory Team (IDAT), INDECO Ltd. Industrial Reorientation Programme, Report No. 3: Covering Report to the Diagnoses and Action Plans for INDECO's Priority Group of Subsidiaries, (Lusaka: IDAT, 1986) pp. 1-2; cited here with the kind permission of INDECO Ltd.

Actually, because IDAT did their survey in 1986 while the IMF restructuring programme--which increased the supply of imported goods and thence competition with local products--was underway, poor product quality coupled with poor marketing techniques were bound to be limiting factors on some of the INDECO subsidiary companies.

(ii) the equity bases of five of the six companies were being eroded because of the continued losses. This, they argue, implies that they in turn become excessively dependent on INDECO and its bankers. Such a state of affairs was seen to distract the attention of management from other duties like marketing, financial controls and technical aspect of production and, thus, made it even difficult to focus attention on the development of long-term business strategies.

(iii) equipment and facility maintenance was generally poor--except for Livingstone Motor Assemblers and Luangwa Industries (where the plant was relatively new). They suggested the need for the systematic training for foremen, workers and the young engineers.

The problem of liquidity problems came to a head in 1980 when ZIMCO and the Ministry of Finance, as direct and ultimate shareholders respectively, had to come in with a capital restructuring programme which involved the injection of cash in equity towards the cost of new projects and repayments of certain loans. Some of the loans to the INDECO Group from the above two institutions had to be capitalised in the 1980/81 financial year. (INDECO Annual Reports, 1982 and 1983).

The political intervention in INDECO affairs does not only end at price controls and implementing the government's social objectives--it extends to the appointment, transfer, promotion, demotion or sacking of senior management by the president, with little or no consultation with the affected companies. The rate at which this happens depends on

the political circumstances and justification at the time.¹⁸ It is acknowledged in Zambia that many of the senior Zambian managers in the parastatal organizations lack academic and professional qualification and that they owe what they know to practical experience in particular jobs and in specific company environments (specific skills according to Doeringer and Piore, 1971). Transfers between different companies would help to widen the experience and horizons of the affected managers, but if this is externally determined and happens too often, with no reference to the needs of both the affected managers and companies, uncertainty would be the consequence as managers would be reluctant to make long-term plans as they would not be sure that they will be around to see such plans executed. Moreover, politically motivated transfers would only benefit those who are politically loyal and not professionally committed managers. If managers, as it is usually claimed, are transferred from one company to another either due to their inefficiency or corrupt practices, this begs the question of whether transfers per se would improve their performance or attitudes.

1.2.3 Skilled Manpower Problems

Perhaps the skilled manpower problems are the most critical ones affecting the performance of INDECO. Actually the lack of local technical and managerial skills contributed to the choice of unsuitable technologies and to the consequent low profitability of such projects.

¹⁸Some INDECO subsidiary and other ZIMCO companies were taken by surprise when the president announced at a press conference on 17 April, 1987 that a total of twenty senior and chief executives in the parastatal companies were to be sacked with immediate effect. Eight of the twenty were from the INDECO Group: "Twenty Top Men Retired", Zambia Daily Mail 16 April, 1987. As it happened a number of those 'retired' were below forty years old and in good health and this added to the perplexity; the next day a spokesman at State House clarified that the aforementioned were 'relieved of their duties' and not 'retired' as had originally been reported. In Zambia, this phenomenon of making surprise political announcements without prior consultation with the affected parties, be it in the civil-service or the parastatal sector, is quite common and it contributes to senior managers' sense of insecurity and uncertainty.

From the outset, INDECO has relied on expatriate skills and in the immediate years following independence, the government had to rely on the conservative expatriates (who were resentful of the new government) to implement its industrial policy. Such a state of affairs in fact made INDECO's suitability as an aggressive entrepreneur and agent for economic development doubtful (Martin, 1972; Seidman, 1979).

To reduce the reliance on expatriate management skills, the Management Services and Training Department at INDECO Limited¹⁹ occasionally sent experts to the various subsidiary companies to analyse their organizational charts and evaluate jobs so as to determine which could be Zambianized. However, expatriates remained dominant at the top level of management in many of the subsidiary companies. Burnham (1972) suggested that owning an enterprise through shareholding does not, in itself, amount to actual control. More often than not, the real control lies with the management of the enterprise. And in a country short on skilled manpower and reliant on imported technology, the government's ability to control the activities of such expatriate personnel is limited. To this effect, Subramanian (1973)²⁰ observed that

Zambia is among the very few countries which have to face a combination of part-local ownership and near complete foreign management...To put it bluntly, there is no obvious way in which owners of even a high proportion of capital can control the daily decisions of the managers of an enterprise--whether in Zambia or abroad...In Zambia, the non-Zambian management may be expected to observe a modicum of managerial ethics out of self-interest but it is too much to expect them to orient every decision towards Zambia's economic development.

¹⁹"Expanding for Progress: Change and Growth in the Role of Indeco" Enterprise, op. cit, p. 5

²⁰V. Subramanian, "Do the Owners Control the Managers", Enterprise, March, 1973, p.22. And according to Turok, (1979:76), "...even where the government is dominant on the board of a capital-intensive parastatal, lack of experience in the industry leaves decision-making in the hands of the foreign corporations which are called in to run them."

The dominance of expatriates in managerial positions has declined over time in absolute terms but they continue to dominate in professional accountancy, engineering and other technical occupations. Where expatriates continue to hold positions of chief executive, it is also largely due to the management contracts signed between INDECO and the minority shareholders at the time of nationalization (take-over) so that the latter continue to appoint key personnel in the companies concerned--in many cases this is to look after the interest of the minority shareholder. This echoes Subramanian's argument.

The Zambianization of the low-grade clerical and junior executives staff have progressed to required levels. Efforts to Zambianize the accountancy, engineering and technical professions have, however, been frustrated by the insufficient numbers of senior school leavers with the necessary entry requirements, and the higher failure rates for those sponsored for such training.

Although INDECO attaches some importance to manpower development and training, its total expenditure on training in real terms has fallen over time. For example, spending on training at constant 1980 prices fell from K1.9 million in 1974 to K1.3 million in 1981 (a fall of about 4.5 per cent per annum), and K0.96 million in 1983 (about 5.5 per cent decline per annum from 1974) (INDECO Annual Reports).

In addition to falling expenditure on training in real terms, INDECO's ability to attract and retain the necessary skills has been undermined ever since 1975. When the Corporation was reorganized in 1975 and the sub-holding companies abolished, a uniform pay structure was introduced to replace the different pay structures which existed before for each sub-holding company. For those employees who lost out in the reorganization, increased turnover was the likely consequence.

In the same year the Mwanakatwe Salaries Commission recommended narrowing the gap between the parastatal and civil-service pay structures. When this particular recommendation was implemented in 1976, it sparked-off high labour turnover, especially among expatriate personnel. To reduce this incidence of labour turnover, new allowances had to be paid to expatriates a year later. For the other local employees, the Corporation has tried to improve their earnings ever since 1978, but its pay structure for shortage occupations like accountancy, engineering and technical professions remains inferior by comparison to the private sector. Moreover, the pay structure has been contracting in real terms (see chapter IV) and as a consequence, recruiting and retaining such professional skills has not been easy (see chapter VI). The failure to retain the personnel trained at INDECO's expense increases the costs of labour turnover and further complicates the Zambianization policy objectives. We discuss these issues in some detail from chapter VI onwards.

Thus the manpower problems have been the main constraint on the operations and effectiveness of INDECO as an agent for industrial development. Specifically referring to the manpower problems in INDECO, Martin (1972:68) observed that

What was needed was one organisation with enough commercial ability to deal with international business on equal terms, enough political sensitivity to translate Zambia's national requirements into practical action, and above all, capable of getting things done.

That INDECO failed to attain such an ideal role because of skilled manpower problems forms the core of our investigation. Although it is not possible to clearly demonstrate *expost* that INDECO would have performed better under conditions of adequate supply of skilled and professional manpower, we present empirical evidence in chapter VI which shows the extent of the shortages. Since labour shortage is a relative

concept, we consider theoretical issues of defining the concept and adjustments in chapter II.

1.2.4 Employment

One of INDECO's main objective was to create more employment opportunities for local Zambians. From a total of 20,000 employees in 1974, total employment in the INDECO Group reached its peak, at 26,259 in March 1985 but fell to 24,582 by March 1986. Table 1.5 demonstrates that some subsidiary companies registered falls in employment between 1985 and 1986/87 ranging from 1 to 44 per cent--mainly due to the IMF/World Bank structural adjustment programme and the continued foreign exchange problems. The fall in employment can also be attributed to the fact that from 1985, the government wanted INDECO to operate on a strict commercial line and this helped to streamline the workforce.

Table 1.5 Employment Growth for Selected INDECO Subsidiary Companies: 1980-87

| Company Number | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | ..Average Annual % Changes.. | | | |
|----------------|------|------|------|------|------|------|------|------|------------------------------|---------|------------------|------------------|
| | | | | | | | | | 1980-83 | 1983-85 | 1985-87 | 1980-87 |
| 2 | 375 | 372 | 391 | 402 | 393 | 368 | 235 | 235 | 7.2 | -8.5 | -36.1 | -37.3 |
| 3 | 435 | 459 | 492 | 471 | 513 | 515 | 449 | 448 | 8.2 | 9.3 | -13.0 | 3.0 |
| 5 | 373 | 390 | 380 | 398 | 361 | 379 | 385 | - | 6.7 | -4.8 | 1.6 ^a | 3.2 ^b |
| 6 | 561 | 636 | 640 | 654 | 649 | 652 | 647 | 653 | 16.6 | -0.3 | 0.2 | 16.4 |
| 7 | 417 | 511 | 530 | 562 | 590 | 569 | 419 | 350 | 34.8 | 1.2 | -38.5 | -16.1 |
| 10 | 825 | - | 883 | 866 | 898 | 879 | 810 | 681 | 5.0 | 1.5 | -22.5 | -17.5 |
| 12 | 894 | - | 964 | 981 | 1022 | 1081 | 1007 | 1012 | 9.7 | 10.2 | -1.0 | 13.2 |
| 13 | 827 | - | - | 840 | 842 | 847 | 833 | 840 | 1.6 | 0.8 | -0.8 | 1.6 |
| 14 | - | - | - | - | 176 | 196 | 199 | 198 | - | - | - | 1.0 |
| 15 | 314 | 307 | 300 | 296 | 313 | 310 | 269 | 175 | -5.7 | 4.7 | -43.5 | -44.3 |
| 16 | 72 | 72 | 74 | 71 | 82 | 94 | 87 | 86 | -1.4 | 15.5 | -8.5 | 19.4 |
| 17 | 1365 | 1378 | 1385 | 1358 | 1468 | 1424 | 1395 | 1398 | -0.5 | 4.9 | -1.8 | 2.4 |

^a 1985-86

^b 1980-86

Source: Main Questionnaire, Question 81-3

On the whole, employment creation has been limited by the choice of capital-intensive methods of production for both the new projects initiated by INDECO in partnership with foreign capital and the highly capital-intensive firms initially taken over in 1968 (see footnote 14 above). It is suggested (Tangri, 1984) that foreign partners in such capital-intensive and technologically sophisticated project profit from contracts for the provision of spare-parts and technical services in the form of management and consultancy agreements. For example out of the nineteen responding INDECO companies, eleven of them either had technical consultancy or management contracts with foreign companies. Management contracts, in most cases, are with the minority shareholders of the respective companies. Technical consultancy agreements, on the other hand, are usually with suppliers of the machinery, if different from the minority shareholders.

The choice of capital-intensive and inappropriate technologies cannot solely be blamed on foreign firms or expatriates. Winston (1979: 840) suggests that even where no foreign firms or expatriates are involved, many managers in underdeveloped countries would choose ultra modern technologies as they desire to be identified with power, wealth, glamour and advancement. Winston cites, among others, Erikson (1969), Scitovsky (1976), Hirschman (1973) and Sen (1975) who suggest that the choice of technology may be determined by the pursuit of cultural identity and status. In Winston's words (p. 840):

A manager's choice of production technology is often in part a statement about cultural identity embodying his assessment of his peoples's characteristics and competence in dealing with technological sophistication, something the world values highly and to which international power accrues. If a manager follows the economist's admonitions and invests in a new plant with simple, labour-intensive, uncomplicated techniques of production, he accepts his peoples's ethnic inferiority, casting it in steel and concrete. The advocacy of appropriate technology, then, becomes an ethnic slur proclaiming the technical inadequacy of the society in an especially visible and tangible form; only a nation with a strong ego could do without pause. To reject appropriate technology, to choose instead the sophisticated 'high technology' (in the laudatory words of Nigeria's

Third Plan, 1975) is to assert the power, equality and technical competence of one's people. This is the appeal of Boulding's 'Heroic Man' with his cost-be-damned assertions of identity, pride and power and his contempt for the bloodlessly rational and cautious Economic Man.

In Zambia the classic example of this desire for technical sophistication is represented by the Nega-Nega and Kalulushi brickworks which were capital-intensive, ultramodern and automated. Despite the existence of cheap and appropriate labour-intensive methods, the ultramodern technique was mainly chosen for glamour and status reasons.²¹ But because such type of technology is not 'home-grown' but imported, the lack of local expertise, spare-parts and finance made the project uneconomic and costly to the nation.

In Nigeria Winston found that "... prideful assertions of competence were made by Nigerians and never by 'resident aliens'". For example, it was only a Lebanese and Englishman who each had imported appropriate (to the Nigerian conditions) second-hand machines from the developed countries. He however acknowledges that there are formidable costs associated with second-hand machinery like lack of information as to their whereabouts and availability; lost operating manuals and the lack of after-sales back-up. Implicit in this argument is the assertion that the more resident aliens there are in an underdeveloped economy, the more likely is the choice of second-hand and/or appropriate technology for that country. The facts do not, however, seem to support this argument. For example in the case of Zambia where the proportion of expatriates in key decision-making positions is very

²¹On evaluating the performance of the manufacturing sector during the SHDP (1972-76), the Third Plan (p. 235) acknowledges that there were a lot of capital-intensive industries established over the SHDP which were also sensitive to the availability of foreign exchange. For example, while manufacturing output grew at an annual rate of 4.5 per cent between 1972 and 1976, employment grew at 0.5 per cent over the same period. What is surprising is why inappropriate technologies continue to be implemented when their adverse effects are officially acknowledged--see Republic of Zambia, National Commission for Development Planning, Third National Development Plan: 1979-83, (Lusaka: Government Printers, 1979), ch. X.

high, there is no evidence to suggest that there has been a tendency to choose appropriate techniques. Actually judging by the state of the economy at present, the contrary seems to be the case. To make a generalization from two individuals may, therefore, be claiming too much.

The objective of increasing employment creation by INDECO has even become difficult to fulfil in recent years. For example, the current employment policy is to minimise recruitment from outside the Group and to rely, instead, on internal promotions and/or lateral transfers first before considering any external recruitment. Subsidiary companies who decide to reduce their workforce have to notify INDECO Central first so that the latter may look around for possible redeployment of such excess labour in the other operating companies (INDECO Manual, n.d., p. 8).

1.4 CONCLUSION

We have examined arguments in this chapter which suggest that governments in underdeveloped countries may be justified in participating directly in economic activities. It is argued that the imperfect market systems, left on their own, would not correct features such as the predominance of foreign owned companies. Such a recognition in the case of Zambia increased the role of INDECO in the post independence period for it was used by the government to channel funds to industry and initiate projects in joint ventures with foreign firms. This, especially became evident in the wake of UDI when it had to invest in strategic projects like the construction of the oil pipeline. The behaviour of foreign owned companies and the supply constraints created by the UDI demonstrated the weaknesses of relying on such firms

and the need for direct government participation in economic activities. Thus the government decided, in 1968, to acquire majority shareholding in existing private companies and vest them in INDECO. This move increased both the macro and micro importance of INDECO in the industrialization strategy and the macroeconomy to the extent that INDECO's investment pattern and performance dictate the structure and character of the manufacturing industrial sector.

We have demonstrated, however, that both the firms initially taken over and the subsequent ones created in partnership with foreign capital were both capital and skill intensive. Given Zambia's lack of skilled manpower and abundant unskilled labour such techniques made it difficult for INDECO to achieve its ultimate objectives of transferring economic power into Zambian hands and of increasing employment opportunities. Moreover INDECO also depends on imported inputs and in the wake of foreign exchange constraints its ability to obtain such inputs has been curtailed and as a consequence both output and its quality have fallen. This has had the effect of reducing the standard of living of the whole population.

As a direct consequence of relying on imported capital goods and inputs INDECO, and consequently the industrial policy, has failed to increase the use of local resources and thus contributed to the run-down of basic metals industries in the national economy. This mismatch of priorities also originates from government intervention which forces INDECO to implement government social objectives at the same time. The impact of such intervention, coupled with the industrial structure of INDECO, on efficiency, profitability, liquidity and investment have been discussed. We also argued that perhaps the most critical problem affecting the operations of INDECO has been the shortage of skilled

manpower in the local labour market and the consequent dependence on expatriate technical and managerial skills. To put the operations of INDECO and its problems in perspective we analyse, in the next three chapters, the theoretical framework and literature review on labour shortages and adjustment policies; the Zambian economy; and the labour market, respectively.

CHAPTER II

LABOUR MARKETS: THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.0 INTRODUCTION

In this chapter we set out to take a close but brief look at the theoretical and empirical background of labour markets and in so doing demonstrate both the conceptual and empirical issues associated with defining, measuring and adjusting to labour shortages. Since labour is but one factor of production, it is employers who have to adjust and seek solutions to the problems of labour shortages both in the internal and external labour markets.¹ Although labour shortages represent a disequilibrium, there is neither a theory nor empirical work which specifically deals with adjustment to disequilibrium (Fisher, 1971; Thomas and Deaton, 1977). For these reasons Thomas and Deaton (p. 13) observed that "A satisfactory model of adjustment should have a discussion of the rules which market participants follow when out of equilibrium, a description of how a market system in which individuals follow these rules works, and a convergence theorem." The absence of such rules may, however, be necessitated by differences in environments, management styles, costs involved, etc. For these reasons, our main interest in this chapter is to analyse how individual firms adjust to labour shortages, especially with regard to the costs of such adjustments, and how manpower planning can help to adopt a comprehensive strategy to the problems of labour shortages.

¹Barry Thomas and David Deaton, Labour Shortages and Economic Analysis: A Study of Occupational Labour Markets, (Oxford: Basil Blackwell for the Social Science Research Council, 1977), p. 12

We begin by defining the concepts of skill and labour shortage and then analyse the problems of measurement and effects of labour shortages. In section 2.2 we concentrate on how individual firms adjust to labour shortages and whether cost is the major factor in the choice of adjustment instruments.

2.1 THE CONCEPTS OF SKILL AND LABOUR SHORTAGE

In everyday language, the term skill has been used in industry to classify workers into categories of 'skilled', 'semi-skilled' and 'unskilled'. At a technical level however, skill has been defined to mean "the ability to perform a task to required standards, with a minimum of unnecessary energy."² The operational characteristic of skill is the ability to perceive slight changes in the task and to respond appropriately from time to time. A skilled person can thus anticipate changes so as to maintain a stable performance in the face of changing requirements.³ Since there are, in industry, different skill categories like 'manual', 'visual' and 'management' at different levels of an organization, it is necessary, say for training purposes, to "break a skill down into its components of vision, touch, etc. and to understand the process in which a person receives information from the task and in turn act upon it." This is because acquiring a skill implies improving one's performance of a task.

²David King, Vocational Training in View of Technological Change, (Paris: European Productivity Agency, OEEC, 1960) cited in David King, Training Within the Organization: A Study of Company Policy and Procedures for Systematic Training of Operators and Supervisors, (London: Tavistock Publications, 1964), p. 112.

³H. Kay, "Information Theory in the Understanding of Skills", Occupational Psychology, 31, 4, 1957 and A. T. Welford, Ageing and Human Skill, (London: Oxford University Press, 1959), cited by King, *ibid*, p 112.

Since skills are acquired through the learning process we can distinguish between two types of knowing (King, 1964:109-111):

(a) knowing through direct experience, that is expanding human consciousness. This kind of knowledge is difficult to transmit to others as it mostly cannot be explained (embodied knowledge). For example, a highly skilled operator knows his operation although he may not be able to put it into words.

(b) knowing about something--for example scientific knowledge is concerned with knowing about facts, that is, symbolic knowledge and not direct knowing (disembodied knowledge).

Having made such a distinction, King then suggests that for purposes of training, a company must provide different conditions for 'getting to know' and for 'getting to know about'. For example, to be successful as an enterprise a firm has to depend both on symbolic knowledge, that is, knowledge about the market and the general economic, social, and political environment; and detailed direct knowledge of its own production processes and customers.

We can also distinguish between specific and general skills (Doeringer and Piore, 1971) and between general and specific training (Becker, 1964). Becker defined specific training as "training that has no effect on productivity of trainees that would be useful in other firms" and general training as "that which increases the marginal productivity of trainees by exactly the same amount in the firms providing training as in other firms". Doeringer and Piore on the other hand use the concepts of *specific* and *general* skills in the context of an internal labour market: "A completely specific skill is unique to a single job classification in a single enterprise." Such skill specificity may be job or technology determined. They argue that nearly every job has some elements of skill specificity:

Even the simplest custodial tasks are facilitated by familiarity with the physical environment specific to the workplace in which they are performed. The apparently routine operation of standard machines can be importantly aided by familiarity with the particular piece of operating equipment...In some cases workers are able to anticipate trouble and diagnose its source by subtle changes in the sound or smell of the equipment. Moreover, performance in some production and most managerial jobs involves a team element, and a critical skill is the ability to operate effectively with the given members of the team. This ability is dependent upon the interaction of the personalities of the members and the individual's work 'skills' are specific in the sense that skills necessary to work on one team are never quite the same as those required on another. There are no true examples of a completely general skill.⁴

In the light of the foregoing we adopt, in this thesis, an occupational and not educational definition of skilled manpower: to include both those with formal academic qualifications like university degrees, professional qualifications, school certificates and those who are literate and acquired their skills through on-the-job training and experience without necessarily possessing any such formal educational qualifications. This definition is wide enough to include skilled manual workers on the shop floor, artisans, technicians, professional and engineering, management, etc. in an organization whose shortage would adversely affect an organization's performance.⁵

It follows from the above definition of a skill that at any time, there will be occupations in which the supply of the necessary skills are not adequate to meet the demand for such skills at the *current*

⁴Peter B. Doeringer and Michael J. Piore, Internal Labour Markets and Manpower Analysis, (Lexington, Mass.: Lexington Books, D.C. Heath, 1971), reprinted in J.E. King (ed), Readings in Labour Economics, (Oxford: Oxford University Press, 1980), p. 109.

⁵This definition is similar to the one used by Gail Cook Johnson, High-Level Manpower in Iran: From Hidden Conflict to Crisis, (New York: Praeger, 1980), p. 3 who rejects the traditional definition of high-level manpower as those holding at least a university degree for it excludes people who occupy high-level positions but who possess no such degrees. To omit such personnel in a developing country like Iran can have serious implications for higher education is a very recent phenomenon. For the same reason, we reject Bardouille's (1983) definition of high-level manpower in Zambia to mean only those with university degrees; and we also reject the definition adopted by Sanyal et al. (1976), i.e., those with at least one year formal training after their senior school (form V). This latter definition is also limiting for it excludes on-the-job training and courses which are less than one year in duration.

ruling market prices (Hunter, 1978:12).⁶ Thomas and Deaton (1977:22) who sought to model how employers adjust to skill shortages suggest that statements about a shortage⁷ of certain types of labour are not made in the abstract (however, Arrow and Capron, 1959 and Hunter, 1978 think that this is possible) but refer to

...the demand for labour of a specified minimum quality at some specified wage exceeds the supply of that labour at that wage. If the minimum acceptable quality of labour is lowered or the wage increased, then demand and supply could balance. Hence, before measuring the extent of a shortage one has to specify the ruling wage rate and the required quality of labour. When employers talk of a shortage of a particular kind of labour, they have some idea of the normal wage which is paid for that type of labour and the normally acceptable quality of labour. We shall term these values, on which the measurement of supply and demand depends, norms.

These norms are extensive for they cover methods of recruitment, the length of the working periods, working conditions, dismissal policy, the productivity and production techniques, etc. which will affect the supply and demand for labour. They therefore suggest that "...it is realistic to talk of a shortage, in the sense of *ex ante* demand and *ex ante* supply, only if all norms are stated. Simple definitions of shortage in terms of the excess demand over supply at the prevailing wage level fail to recognize this." They thus distinguish between formal and working norms (p. 23):

(i) formal norms are the theoretically 'ideal' standards or targets which an organization would formally strive to achieve. For example, for a chief engineer a firm would specify that it requires somebody with a bachelors degree with eight years previous work experience. The formal relate to the demand side and, therefore, form the basis for

⁶In England and other industrialised countries the problems of skilled labour shortages have existed ever since the Industrial Revolution. C. Mulvey, A. W. Thompson and J. Fyfe, "Labour Shortages: A Literature Review", Draft Report Prepared for the Manpower Services Commission, 1975, p. 1 cite Lipson (1956) who noted that the problem was so severe in the early 18th century to the extent that legislation was passed to make it illegal to encourage skilled craftsmen to emigrate.

⁷In this thesis, we use the terms 'labour shortages', 'skill shortages' and 'skilled manpower shortages' interchangeably to mean a shortage of skilled (experienced, educated or professional) labour either in terms of quantity or quality or both.

calculating the formal establishments.

(ii) working norms are those which are *actually* adopted and take into consideration both internal and external constraints which determine the *ex ante* demand and supply. For these reasons the actual demand may divert from the establishment.⁸

From our discussion so far, it is possible to argue that there are different types of labour shortages which may manifest themselves in different forms and degrees. Among these we can identify the following as the major types of skill shortages:⁹

- (a) a general shortage of skilled labour both in boom and slump;
- (b) shortages of skilled labour in certain regions while surpluses of skilled labour exist in others;
- (c) shortages of certain types of skilled labour coexisting with surpluses of other types of skilled labour;
- (d) shortages of unskilled labour in certain industries and occupations, mainly in metropolitan areas (or agricultural sector in underdeveloped countries), despite overall surplus of labour; and
- (e) shortages of labour in the manufacturing sector while a surplus of labour exists in the service sector.

In the context of an underdeveloped economy like that of Zambia, we can add one more item to the above list: a severe shortage of skilled manpower coexisting with surplus unskilled labour. We demonstrate in chapter IV that nearly all the above types of skill shortages exist in

⁸Thomas and Deaton cite the National Board for Prices and Incomes, Pay and Conditions of Business, Cmd 3012, Report No. 16, (London: HMSO, 1966) para. 61 which said that "Establishment figures necessarily reflect a historical pattern of service and are therefore a very uncertain measure of staff shortage."

⁹Mulvey et al., *ibid.*, p. 3. emphasise that this listing is neither exhaustive nor mutually inclusive but that it serves to demonstrate the general types of skill shortages.

the Zambian labour market in one form or another.

For an individual firm the problems of labour shortages can either be caused by recruitment difficulties in the external labour market or a failure to retain the necessary labour or both. The firm's main interest lies in achieving the desired manning level and if this is met then it will be in a stock balance (Pettman (ed.), 1975; Thomas and Deaton, 1977; Bartholomew and Forbes, 1979; and Edwards et al. (eds), 1979). If over time the firm's net manpower losses (wastage) are equal to the net inflows (accessions) then it will be in flow balance irrespective of whether it experiences a stock balance, stock shortage or stock surplus. The manpower system thus behaves as a Markov chain process: the stock in time T is made up of remaining employees from the previous period and new accessions over the time interval $T-1, T$.

For a firm with stock shortage, any attempts to improve the inflow or outflows of labour would change the flow patterns (Thomas and Deaton 1977:15). It is also possible for some firms to experience stock balances while the whole labour market experiences excess demand which may increase labour turnover within such firms and possibly lead to recruitment difficulties.

One major outflow which influence manpower stocks is wastage and labour turnover (wastage is that component of manpower losses which does not need to be replaced, labour turnover is, on the other hand, the other component which needs to be replaced--hence its expensiveness in terms of recruitment, orientation, training, etc. costs). It is suggested in the literature (Rice et al., 1950; Silcock, 1954; Hedberg, 1961; and Young, 1971) that wastage and labour turnover are both decreasing functions of increasing age, length of service, and skill and responsibility; and that they are higher among females than males

and that they tend to decrease, slightly, when the levels of unemployment rises. We present evidence in the subsequent chapters which shows that some of these predictions are less applicable to the Zambian situation, especially in the professional and engineering labour market where dynamic labour shortages are experienced.

Labour turnover has been modelled as a social process, with time as the major factor influencing the interaction between employee and employer characteristics (Rice et al., 1950; Silcock, 1954). Thus losses from any cohort of entrants would decline over time in three stages: induction crisis, differential transit and settled connection. The measuring and prediction of labour turnover however presents both theoretical and practical problems, not least because it is very difficult to predict human behaviour. The crude rate of labour turnover is often used (that is the percentage proportion of leavers to average employment in a given period) without distinguishing between the different types of workers involved and between the controllable and uncontrollable turnover. To lump together employees who are less skilled with the highly skilled or those with less than three months of service with those above twelve months would, by any standard, be misleading. As we have mentioned above both time and skill influence turnover. If the labour turnover data are classified according to homogeneous groups according to age, length of service and occupational categories, they would be more helpful in showing whether the labour turnover is a serious problem--especially if the various measures are read jointly and attention is paid to the trend and not necessarily absolute values (van der Merwe and Miller, 1975).

From an individual company's perspective the following factors are uncontrollable: age retirement, illness, death, pregnancy, and

retrenchment caused by sudden external factors. In chapter VI we also classify the transfer of high-level manpower in INDECO to be uncontrollable for they are either done by the government or INDECO Central with little or no consultation with the affected companies. Voluntary leaving (resignations, quits), dismissals and, to a certain extent, the expiry of expatriate contracts can be classified as uncontrollable variables.

Various studies in the engineering-scientist occupational labour market attribute the existence of labour shortages in these markets to the slow changes in the salaries, lengthy training periods (inelastic supply) and persistent increases in the demand. The first major study on shortages in the engineering-scientist labour market in the US was done by Blank and Stigler (1957).¹⁰ They assumed the market to be competitive and thought that under such a market a shortage would exist

when the number of workers available (the supply) increases less rapidly than the number demanded at the salaries paid in the recent past. Then salaries will rise, and activities which were once performed by (say) engineers must now be performed by a class of workers less well trained and less expensive.

This definition was later criticised by Arrow and Capron (1959) for its reliance on comparing earnings of engineers with those of other professional groups in testing the hypothesis--without stating the degree of competitiveness of the other markets which were used for comparisons. A shortage would, by definition, exist if the relative earnings for engineers rise but this, on its own, is not sufficient to have 'a salary rise shortage'. Blank and Stigler are also criticised

¹⁰David M. Blank and George J. Stigler, The Demand and Supply of Scientific Personnel, (New York: National Bureau of Economic Research, 1957), pp. 29-30; cited by Kenneth J. Arrow and William M. Capron, "Dynamic Shortages and Price Rises: the Engineer-Scientist Case" in Quarterly Journal of Economics, 73, (1959), p. 305.

for paying too much attention to the trend; a detailed analysis of the short-term would have shown that if there are imperfections in the market, there will be considerable lags in the adjustment of salaries in response to changes in the demand.

In the Arrow and Capron (1959) model, the existence of dynamic labour shortages for engineers and scientists in the US in the 1950s were blamed on salaries adjusting with a lag to a sustained increase in the demand which continuously exceeded the supply. They, therefore, defined (p. 301) dynamic labour shortages as

...a steady upward shift in the demand curve over a period of time will produce a shortage, that is, a situation in which there are unfilled vacancies in positions where salaries are the same as those being currently paid in others of the same type and quality.¹¹

They (pp. 301-305) attributed the existence of dynamic labour shortages to the following:

- (a) a rapid steady rise in the demand;
- (b) a low elasticity of supply (given lengthy training periods in these occupations) , especially for short periods; and
- (c) a low reaction speed necessitated by the prevalence of long-term employment contracts; the greater job security associated with long tenure; the slow diffusion of information due to the labour market heterogeneity; and the dominance of a relatively small number of firms in research and development--especially the US government which, in 1951, accounted for over 50 per cent of the total demand--which could slow down salary rises. Under such conditions, any one firm would be reluctant to bid up wages in order to attract more scientists because

¹¹Richard Jolly, "The Skilled Manpower Constraints" in Charles Elliot (ed), Constraints on the Economic Development of Zambia, (Nairobi: Oxford University Press, 1971), pp. 30-1, adopts almost the same definition but distinguishes between scarcity, shortage and relative scarcity. He argues that in Zambia there was a marked failure by the market system in the years following independence to reconcile the supply of and demand for skilled labour. Then the supply of skilled manpower when compared to other resources was the one in shortest supply.

this may set off a competitive bidding which may end up with no substantial improvement in the total supply, except to considerably increase the salary bill. The main weakness of the Arrow and Capron model is that it assumes employers would only adjust through wages. We show below that this is not always the case as non-wage adjustment instruments are usually preferred.

In another study of the engineering-scientist labour market in the US, Folk (1970) (cited by Whitfield, 1982:234) suggests that because of bureaucratic controls, certain salaries were not free to rise in response to excess demand ('controlled price shortage') and that new entrants to the profession (students) were slow to respond to the changes in the salaries because of imperfect information.¹² This study is largely similar to that of Arrow and Capron for it attributes the shortage to a lag in changes in the salaries and inelastic supply.

On the other hand, Freeman (1971) suggested that shortages in the engineering-scientist market were largely due to the lengthy training periods and that the decision to enter these professions by students were based on the starting salaries and not the discounted lifetime earnings.¹³ The cobweb models suggested by Freeman demonstrated that,

¹²For a literature review of similar studies in the UK, see K. Whitfield, "Professional Labour Markets" in John Creedy and Barry Thomas (eds), The Economics of Labour, (London: Butterworth Scientific, 1982), pp. 219-273. He argues that due to data problems the UK studies could not achieve the same econometric sophistication of the American ones. Richardson (1969) found that there had been a salary rise shortage of engineers in the UK in the 1950s and early 1960s; but Wilkinson and Mace (1973) who extended the analysis found that there was neither a 'salary rise shortage' nor a 'dynamic shortage' of engineers in the 1960s. Later Mace (1979) suggested that the market for engineers in the UK depicted the characteristics of an internal labour market and not the competitive one as had previously been assumed.

¹³It is recognised, however, in the literature that given the imperfect information on wages and opportunities, it is less likely that such students would be in a position to have a detailed information on the salaries which obtain in the market even in one geographical area. It is because of this that the search theory suggests that both employers and employees would engage in collating more data up to a point where the marginal cost equals the returns. See George J. Stigler, "Information in the Labor Market", Journal of Political Economy, vol. 70 (supp.), October, 1962, reprinted in J.E. King (ed), op. cit., pp. 32-47.

depending on the elasticities of supply and demand, it is possible in certain instances, to observe a supply response to an initial increase in the wage rate to either overshoot or undershoot the desired employment level.¹⁴ Mace and Wilkinson (1977) criticised the Freeman model for the following reasons:¹⁵

(a) the results were based on a trial and error method without a coherent underlying theory of how the labour market operates;

(b) the model was susceptible to identification errors: supply and demand are both functions of the wage rate and as such single equation estimates are likely to include both demand and supply factors; and

(c) Freeman's model was not about the professional labour market but about entry to such a market.

To sum up the section, the analysis of the professional labour markets suggest that where supply is inelastic instantaneous increases in the demand would give rise to labour shortages and given slow changes in the salaries either due to heterogeneity of the market or institutional constraints, such shortages would tend to persist.

2.1.1 Measurement of Labour Shortages

Being a relative concept and that labour shortages are a constant feature of many labour markets, its measurement therefore presents both theoretical and practical problems. As we have just seen a definition of the shortage along the Blank and Stigler line would make labour shortages synonymous with an increase in relative earnings for a

¹⁴The cobweb adjustment (where supply overshoots the desired employment) is likely to obtain where demand is inelastic but supply elastic, short training periods, and where expectations are based on simple extrapolations and not adaptive processes. Incomplete adjustment (where supply undershoots the desired employment level) obtains where demand is elastic but supply inelastic, long training periods and smaller adaptive expectations coefficients--for details see Freeman (1971).

¹⁵J. Mace and G. C. G. Wilkinson, "Are Labour Markets Competitive?", British Journal of Industrial Relations, 15, 1970, pp. 50-63, cited by Whitfield, op cit. p. 235.

particular occupation. In order to test the Arrow and Capron model we would need to compare actual supply with actual demand to determine whether excess demand exists or not. Because such a direct comparison is not possible, it is suggested in the literature that proxies like the rate of unemployment or vacancies or a combination of the two may be used instead (Mulvey et al., 1975; Hunter, 1978). Direct surveys can also be used but their main weakness is the subjectivity involved in constructing and interpreting the questionnaire and the possibility of respondents supplying inaccurate information (Deaton and Thomas, 1977; Hunter, 1978).

Within individual firms, comparing the establishment and the actual employment attained may be a misleading measure of labour shortages for certain measures like the recruitment of expatriates in Zambia makes it difficult "to observe directly the *ex ante* shortage" (Thomas and Deaton, 1977:22) and this may give rise to "suppressed disequilibrium" (similar to a failure to observe a critical balance-of-payments situation from *ex post* figures because certain types of 'unsatisfactory' adjustments like import controls were used).¹⁶

Archibald (1954) (cited by Mulvey et al.) applied the monopsony model to show that 'phantom' vacancies can exist in a large company (especially publicly owned) which is not prepared to pay more than the going wage so as to reduce the problem of labour shortages. A profit maximizing monopsonist would employ labour up to a point where the marginal cost of labour (MCL) is equal to the marginal revenue product (MRP). When the wage rate is equal to the average cost of labour but below the marginal cost of labour, such an employer would be prepared to hire more labour at the going rate. "However, since it is assumed

¹⁶B. Tew, International Monetary Cooperation, 1945-65, (London: Hutchinson University Library, 1965), pp. 59-61; cited by Thomas and Deaton, 1977, p. 22.

that the supply curve of labour is positively sloped, he cannot do so since hiring more labour would increase the wage rate. Hence the monopsonist may believe and report that he has unfilled vacancies on hand." Such vacancies cannot be filled at the going rate and are therefore 'phantom' vacancies because they do not affect the wage level.

Wilkinson and Mace (1973) (cited by Whitfield, 1982) in a survey of engineers employed in twelve public and private companies in Britain found the labour market for engineers to be uncompetitive as "none of the firms used the salary adjustment as the principal adjustment mechanism...two-thirds of the firms interviewed stated that if non-salary measures were unsuccessful they would leave vacancies unfilled rather than adjust the salaries that they offered." Thus vacancy statistics, on their own, should be further validated where monopsonist practices may be prevalent.

Attempts by Hunter to measure shortages in west-central Scotland found conflicting evidence: complaints of labour shortages by employers while official data showed an overall surplus of labour in the sub-region. Not only is unemployment difficult to measure but it is also open to different interpretations, definitions and classifications in different countries. In Britain, for example, to be classified as unemployed and seeking work, a person must register at an employment office and this, definitely, underestimates the "true" number of the unemployed (see Hughes and Perlman 1984, ch. 1 for the different methods of measuring unemployment in Britain and the US).

The problem of reported vacancy data is that unfilled vacancies statistics do not record transactions nor register decisions, but represent a queue. The size of this queue is not real in that those with unsatisfied demand may duplicate orders or join many queues or give up

trying altogether. That is, vacancy data understate the true number of vacancies:¹⁷

- i) Not all companies notify all vacancies or type of vacancies, and
- ii) Companies do not always notify additional vacancies when large or open orders already exist.

It is argued, however, that time series vacancy statistics show the changes in the pressure of demand for labour, and that they are relevant for total figures and not for specific industries or occupations.

To determine the dimension of labour shortages, Hunter did not use a direct method of supply and demand due to the above problems. He did, however, use a simple method under which employers were asked a series of questions about the difficulties of recruitment over a period of time, and the consequences of any such difficulties, including the methods of adaptation. He asked employers whether they had recruitment problems over the previous two years, and this helped to show changes in the shortages over time. As indicated above, the main weakness of this method is its subjectivity and the fact that shortages are a relative concept. To overcome this problem, a number of tests and cross-checks were used to build up a picture of recruitment difficulties by industry, occupation and location, and as such, official and survey data were used side by side.

Hunter's emphasis was on actual and experienced difficulties, and not the hypothetical shortage which would be difficult to substantiate, and was achieved by distinguishing between two aspects of labour shortages:

- (a) Under-manning: existing capital equipment is undermanned as

¹⁷United Kingdom, Department of Employment, Employment Gazette, March 1974; cited by Hunter (1978), p. 16

compared with the manpower needs for current production of goods and services;

(b) Anticipated future demand (the *ex ante* under the Thomas and Deaton model): this would require new investment to test its reality; i.e., new investment in future is seen to have no adequate supplies of labour.

2.1.2 Effects of labour Shortages

Since labour combines with other factors in the production process, this makes it difficult to identify clearly the effects of skill shortages. However, where skill shortages are pronounced, the resultant effect on output and its quality, delivery period and investment may become obvious. For example data from Hunter (1978) presented in table 2.1 below show that the main effect of labour shortages were: lengthening the delivery period, actual reduction in output, reducing

Table 2.1 Effects of Recruitment Difficulty

| <u>Type of Effect Experienced</u> | <u>Number of cases reported</u> | <u>Percent</u> |
|---|---------------------------------|----------------|
| Actual reduction in output from previous levels | 45 | 35 |
| Had to turn down desirable orders | 21 | 16 |
| Delivery periods lengthened | 71 | 55 |
| Orders lost due to long delivery dates | 28 | 22 |
| Postponement or curtailment of investment | 9 | 7 |
| Short in "key occupation" prevented expansion of other employment | 29 | 22 |

Note: Percent are those affected out of N = 130.

Source: L. C. Hunter (with P. B. Beaumont), Labour Shortages and Manpower Policy (London: Her Majesty's Stationery Office for the Manpower Services Commission, 1978), table 3.2, p.19

expansion of employment (of supporting labour), losing orders due to long delivery periods, etc. Recruitment difficulty however seem to have had little effect on investment in west-central Scotland.

In underdeveloped countries, one major effect of skill shortages in the local labour market has been to increase the reliance on expatriate skills. These however have a negative impact on the balance of payments and tend to distort the economic structure and growth potential of the affected economies (see chapter IV).

2.2 ADJUSTMENTS TO LABOUR SHORTAGES

Since labour shortages are a supply or demand problem (or both) it follows therefore that adjustment policy instruments have to influence both the supply of and demand for labour. Thomas and Deaton (1973 and 1977) formulated the cost-minimization model (CMM) which sought to show that employers would choose a blend of adjustment instruments which are least expensive.¹⁸ The model was then applied to three occupational labour markets: bus drivers, draughtsmen and teachers.¹⁹ The various adjustment instruments suggested in table 2.2 seek to achieve the following:

- (1) to reduce the desired total man-hours;

¹⁸The X-efficiency theory of Harvey Leibenstein, "Some Aspects of the X-inefficiency Theory of the Firm", Bell Journal of Economics, vol. 6, Autumn 1975, reprinted in King (1980) suggests that firms do not perform as effectively as they could and there is no reason to suppose therefore that they will choose the least expensive adjustment policies. Besides the cheapest, say in the short-run, may not be in the best interest of the firm in the long-run.

¹⁹Thomas and Deaton chose these occupations because two of them belong to the highly qualified white-collar labour force and involve a greater investment in training and thus greater occupational attachment; it was both conceptually and empirically convenient to study a well defined group with a high degree of homogeneity--bus drivers and teachers. The draughtsmen market was chosen for its lack of standardized job content across industries and plants which has given rise to different employers changing job content and job titles in response to labour shortages in this particular labour market.

Table 2.2 Possible Adjustments to Labour Shortages^a

| <u>INSTRUMENT</u> | <u>OPERAND</u> | <u>CONSTRAINTS</u> | <u>SIDE EFFECT</u> | <u>COMMENT</u> |
|---|--------------------------------------|---|---|--|
| <u>1. Reduction of desired total hours</u> | | | | |
| Capital substitution | L* | Union, technical | On demand for other types of labour perhaps | May be residual (e.g. teachers). ^b |
| Increasing productivity | L* | Union, technical | | |
| Sub-contracting | L* | Union, technical, state of sub-contract market | | |
| Output curtailment | L* | Organisational, government policy, union, technical | May be residual | |
| Inventory changes | L* | Technical | L* in other periods increases | Residual perhaps. Includes any adjustment where work is done at a different time. Including using trainees and moving location. |
| Transfer of responsibility to another group | L* | Union, technical, organisational, government policy | L* in other groups increases | |
| <u>2. Increasing the average hours worked per employee</u> | | | | |
| (Increased) overtime working | H | Legal, supply, union | Increasing average weekly pay | |
| Overtime payments increased | H _g | Government policy, union, organisational, employers association, "fairness" | Increasing average weekly pay (if overtime is worked) | See pay under 4. |
| Improving conditions | H _g | | | See also 'conditions' under 4. Improved holidays would tend to reduce H _g directly but this may be offset by lower absenteeism and higher overtime working. |
| Persuasion or compulsion | H _g | Union | Declining attractiveness of the job | |
| <u>3. Reduction of labour outflows (see also type 4 operand)</u> | | | | |
| Promotion opportunities | q | Technical | Involves loss internally | |
| Relaxing dismissal policy | s | Union | Output/quality may fall | |
| Keeping on older workers | r | Union | Output/quality may fall | |
| Improving "job satisfaction" | q | | | e.g. by "more appropriate training" or induction courses |
| <u>4. Increasing potential inflows (and part of 3 Reducing outflow)</u> | | | | |
| Hiring standards reduced | f ₅₋₈ | Union | Possibly lowering production | No training required or no change in training. |
| Training capacity increased | f ₅₋₈ | Union, time | increasing q | In order to recruit more untrained people. In order to reduce the hiring standards of trainees. |
| Training length increased | f ₅₋₈ | Union, time | | |
| Relaxing rules for taking outsiders | f ₂₋₄ f ₆₋₈ | Union, organisation | | For a detailed discussion of allocative rules see Doeringer and Plore, 1971:ch.3, and pp. 99-101 |
| Job redesign | f ₅₋₈ | Technical, union | | In order to reduce hiring standards without side-effects. See Doeringer and Plore, ch.6 and Scoville (1972) for a treatment of job design in relation to the labour market |

| <u>INSTRUMENT</u> | <u>OPERAND</u> | <u>CONSTRAINTS</u> | <u>SIDE EFFECT</u> | <u>COMMENT</u> |
|---|----------------|--|--|---|
| Permission for internal transfer | $f_{1,5}$ | Organisational | On position elsewhere in the organisation | |
| Breaking or rescinding a non-poaching agreement | $f_{2,6}$ | Other firms, employers association | q increases | |
| Pay | $f_{1-8,q}$ | Government policy, union, organisational, "fairness" employers association | Depending on income and substitution effects hours supplied may increase or decrease | |
| Conditions | $f_{1,8,q}$ | | | Greater impact on q than f as employees know more about conditions inside firm |
| Search activity | f_{1-8} | Image or job ^c | | May be used for political reasons where it is not an ideal instrument. This instrument includes the reporting of job vacancies ^d |
| Selection procedure | f_{1-4} | | P5-8 fall | More intensive selection shows more people who meet hiring standards ^d |
| Increasing hours | $f_{1-8,q}$ | Union | | As a means to paying more |
| Providing more convenient hours of employment | f_{1-8} | Technical, union | Impact on other hours adjustments | Particularly to induce people to join the labour force (i.e. on operands f_4 and f_8) |
| Forced or induced transfer of employees | $f_{1,5}$ | Technical, union | | |

NOTES:

- a. The following symbols are used: L^* , the desired labour services; H , the number of hours worked per man; q , the flow of voluntary quits; s , dismissals; r , retirement; f_{1-8} , inflows of labour as shown below.

| Meeting hiring standards: Yes No | Source of Potential Inflows | | | |
|-------------------------------------|------------------------------|--------------------|------------|----------------------|
| | Employed by the Organization | Employed Elsewhere | Unemployed | Outside Labour Force |
| | f_1 | f_2 | f_3 | f_4 |
| | f_5 | f_6 | f_7 | f_8 |

- b. We distinguish between residual and positive adjustment... Briefly what we mean by 'residual' is the effect of shortage where positive action by the firm does not eliminate it.
- c. The level of search activity is normally thought of as being one of the least constrained instruments. However, the Guardian (15 June, 1973) carried a brief article on the shortage of priests. This led us to suppose that a church, because of the image of the job, would avoid the kinds of advertising that an industrial concern might indulge in. It has since been reported that one church has gone in for intensive display of advertising for ministers. Nevertheless, we still feel the image of a job might be a restraining influence. See Vincens and Robinson (1974:111).
- d. Doeringer and Piore (1971) list job vacancies as a residual adjustment. They do, however, admit that other residual adjustments will take place as well as job vacancies existing. For this reason we do not list job vacancies as a separate adjustment. It does not affect any of the operands.
- e. Without altering hiring standards, the number of people in the potential inflows f_{1-4} may be increased by more intensive selection procedure. This adjustment would mean that there were less errors in the selection process. For a more detailed discussion of this instrument see Doeringer and Piore, (1971:102-106).

Source: Barry Thomas and David Deaton, Labour Shortages and Economic Analysis: A Study of Occupational Labour Markets, (Oxford: Basil Blackwell for the Social Science Research Council, 1977), Appendix A, pp. 218-221.

- (2) to increase the average hours worked (supplied) per worker;
- (3) to reduce the outflows of labour; and
- (4) to increase the inflows of labour.

While the main objective of the various instruments is to influence both the supply of and demand for labour, only instrument type 1 seek to affect demand by reducing the total man-hours required, all the other instruments seek to influence the supply. Given such a diverse set of adjustment instruments firms would, under conditions of limited information, pick a mixture of those considered to be effective and least expensive. The use of different instruments is necessitated by the fact that one instrument, on its own, may not be enough to deal with the problem of labour shortages.

Because of constraints (trade unions, technical, organizational, government policy, etc.) attempts to eliminate an *ex ante* shortage may fail and we would thus have a residual adjustment. It follows then that certain measures may seek to eliminate the shortage while others only suppress it. The measures which seek to eliminate the shortage are referred to as permanent measures which, once implemented, are difficult to remove and are rarely reversed. What comes to mind here is long training in a given occupation or pay increase awards which are rarely rescinded.

Temporary measures like raising the retirement age or reducing the hiring standards are used either because the permanent measures take time to implement or where a firm is uncertain about the outcome of a given instrument.²⁰ The costs which a firm has to minimise relate to both the permanent and temporary instruments. While the costs

²⁰Where a temporary or residual adjustment is used for a long time it may become permanent, e.g. the use of over time and non-running of certain scheduled bus services in passenger transport industry are cases in point, see Thomas and Deaton, pp. 24-5 for a detailed discussion.

associated with a wage or recruitment campaigns in permanent instruments are easier to measure, those associated with reduced hiring standards take time to be felt and may therefore be difficult to measure for they may manifest themselves as "reduced productivity, poor time-keeping, higher absenteeism or turnover, or reduced quality of output."²¹

On testing their model, Thomas and Deaton (p. 194) found it to be robust enough "...to include all questions relating to the acquisition and utilization of labour even in the absence of shortage." However they found that the CMM hypothesis had limited applicability for they conceded (p. 195) "we could find no mechanism whereby such diverse adjustments as pay, capital substitution, and recruitment costs were compared as if they were alternative ways of achieving the same end." They attributed this to the problems of organizational structure and the uncertainty which makes firms confine themselves to the tried and familiar methods.

However, Thomas and Deaton found that in none of the three markets did pay changes appear, at the market level, to be an exclusive or even a dominant adjustment process. This, they argue, is due to the constraints and expensiveness associated with the instrument. In the Hunter study employers in the engineering industry were asked to rank the various methods used in adjusting to recruitment difficulty according to their success in easing the problem. For technical (non-managerial) skills the following methods (from the most to the least successful) were used: increasing on-the-job training, overtime, and

²¹Under the cost-minimizing model, the firm's task is to minimise the discounted present value of the costs associated with a chosen plan; choose the discounting factor; and be prepared to revise the estimates as more information become available or circumstances change. It is further suggested that firms may not follow a cost minimisation strategies given the divergence of goals at the different levels of management; uncertainty about particular instruments make adoption of risk avoidance strategies necessary; and constraints on certain policy actions. See Thomas and Deaton, pp. 20-21.

apprentice intake, respectively, and improving working conditions. For skilled workers: more overtime, on-the-job-training, improving working conditions, and subcontracting the work requiring shortage labour. Among the semi- and unskilled labour, the most common methods of adjustment were upgrading less-skilled workers, use of part-time/temporary labour, and improving the working conditions. By and large, Hunter found that increased use of overtime, on-the-job training and improved working conditions ranked highly among the responding firms, while the reduction in the standards and increases in relative earnings ranked lowly. Since Hunter, unlike Thomas and Deaton, used the conventional theory of the labour market, he admits that such findings were quite surprising.

That supply adjustment methods were used more often made Hunter (p. 45) to formulate a tentative hypothesis that: "...when faced with difficulties firms will begin by operating on the supply side, but that the more pressing the problem, the greater the likelihood they will be encouraged to think in terms of demand adjustments." This may, especially, be the case where the minimum quality of output is specified--as was the case in the markets of teachers and drivers (in the Thomas and Deaton study) where most of the effort was directed towards expanding the supply and not altering the demand for labour

Both Thomas and Deaton, and Hunter argue that the use of supply instruments and not demand ones may be necessitated by technical, institutional and high costs associated with the latter. This led Hunter (p. 45) to speculate the implications of such findings:

It is possible, for example, that the use of supply adjustment methods in the case of skilled labour is less appropriate for technological reasons, or less acceptable perhaps to the trade unions who may object to increases in apprenticeship and upgrading or the use of temporary or retired labour. It may also be that the relative unimportance of increases in relative earnings for shortage categories is due to the sheer difficulty of changing internal earnings or rates differentials, certainly on a long term basis. Any such change might immediately

be used as a bargaining lever for other groups in the plant--shortage or not--with the result that the whole earnings structure would rapidly be lifted to a new higher level.

Thus costs were found to play a very important role in choosing the adjustment instruments. For example, with regard to the shortage of particular types of teachers Thomas and Deaton found that given the uniform pay structure of the teaching profession, it was not possible to raise the pay of maths and science teachers without raising the pay of the whole profession.

Despite these problems, Hunter points out that it is possible, within certain limits "to make differential changes in working conditions designed to prove more attractive to new labour or more able to retain existing employees." It follows therefore that firms would be forced to adopt measures which are feasible and generally acceptable to the employees: overtime, on-the-job training and better working conditions. And because of the existence of internal labour markets or other institutional constraints, firms may respond to external market pressures by giving disguised wage increases in the form of merit pay (Mulvey et. al, 1975).

Since the affected firms were not keen to reduce the hiring standards, Hunter wondered as to whether "...firms in the region have become too inflexible as a result of long-term labour surplus in the majority of occupations? or ... technological or production reasons ... which mean that a lowering of hiring standards will result in higher costs through greater wastage of materials, poor quality output and so on." Although Thomas and Deaton also recognise these problems, they further argue that where the elasticity of demand with respect to quality is low, a deterioration in the quality of output may be more acceptable than where the elasticity is high. For example, because the

quality of bus services is very apparent as opposed to the quality of education, employers in the latter case could let the teacher-pupil ratio fall but in the former case, cancellation of services or poor trained drivers could force the public to switch to other alternative means of transport.

All said, the most successful adjustment methods seem to be increased supply (increased on-the-job training, increased apprentice intake and increased overtime) than changes in the demand for labour.

2.2.1 MANPOWER PLANNING

Our analysis so far suggests that neither increasing wages nor reducing hiring standards are, on their own, sufficient to deal with the problems of skills shortages. In the case of the former, inflationary pressures may follow and in the case of the latter output quality may suffer. For these reasons, a comprehensive approach to the problems of skill shortages and management of human resources through manpower (human resources) planning is needed.

Being a relatively new concept,²² manpower planning has yet to be adopted by many companies. It has been shown that many companies do little to anticipate staffing bottlenecks; and those who do confine themselves to high-level occupational categories like technical and management (Doeringer and Piore, 1973). Under conditions of skilled manpower shortages the main purpose of manpower planning would be to try to ensure that the present and future manpower requirements (both

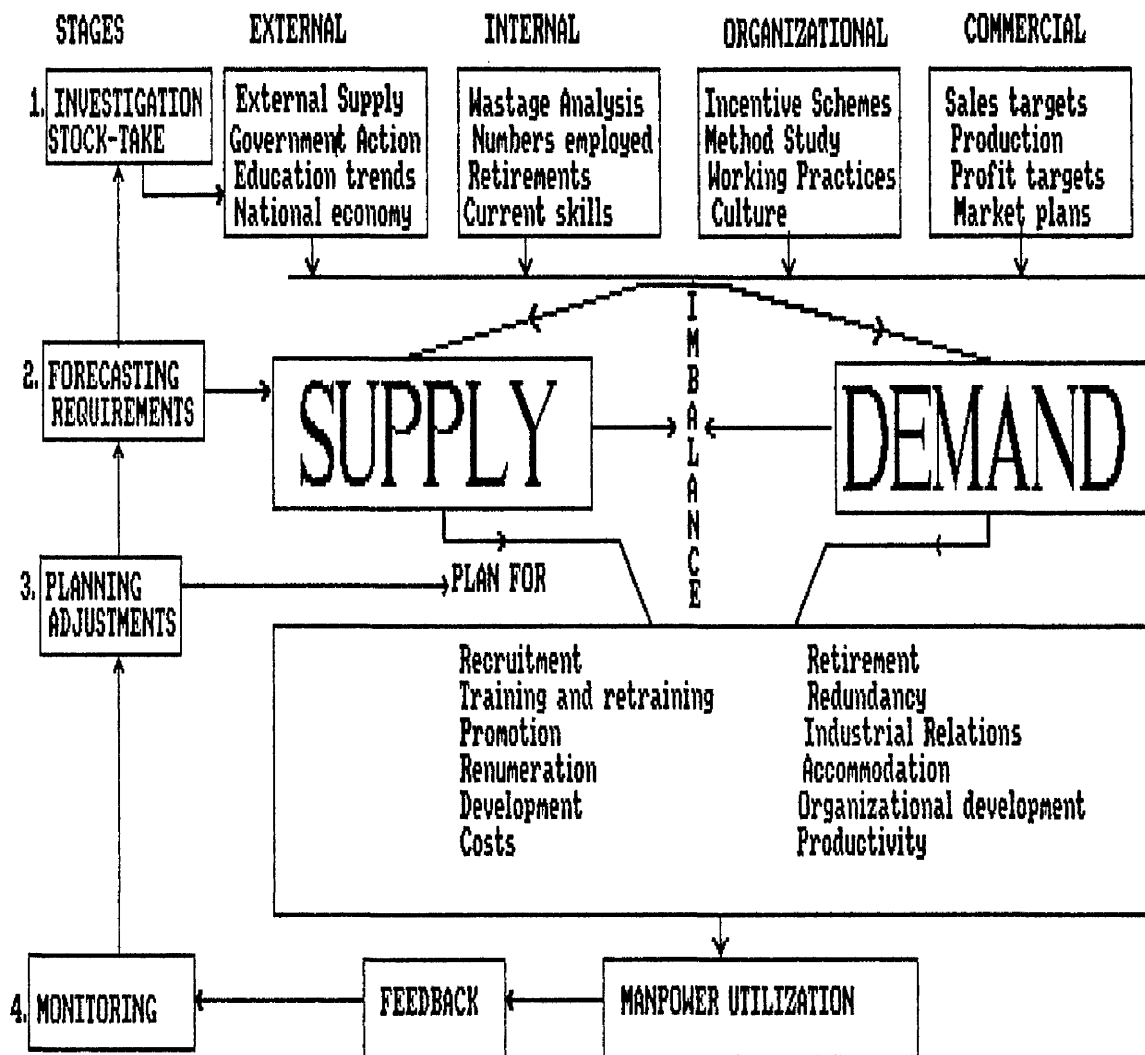
²²In a recent survey of its corporate members on human resources practices, the Institute for Personnel Management (IPM), "Follow up to the IPM Statement on Human Resource Planning, Initial Analysis of Survey Results", (London: IPM, 1988) found that although a large majority of the respondents obtained business benefits (improving identification of training needs, achieving more appropriate staffing levels and improving management development which led to improved productivity) from operating manpower planning, the main obstacle to formalized manpower planning practices was the low priority given to planning compared with immediate management concerns.

in terms of skill composition and numbers) are adequate so as to realise organizational objectives. Such an approach would minimise crises-management and ad-hoc decision making processes in the management of human resources.

The theoretical framework for planning human resources is represented in figure 2.1. From the various stages, what becomes apparent about the benefits to be had from formalized planning is its emphasis on basing decisions on detailed knowledge and understanding of both the external and internal environments. And since it is an on-going process which is constantly revised so as to take into account changes in circumstances (or as new information becomes available), its value in adjusting to labour shortages and managing human resources cannot be over emphasised.

It is recognised (Silcock, 1954; Clowes, 1973; Randell, Packard and Slater, 1984) that a worker-employer relationship involves "managing the interaction between what is inside people, ie human capacities, inclinations and needs; and what is within work, ie the quantity of output and the satisfaction that people get from their job." Failure to achieve a balance between employee and employer (job) characteristics may result in problems of alienation or conflict and this may give rise to lower job satisfaction and consequently to higher labour turnover. If a reasonable balance is achieved workers may be motivated and their productivity enhanced. In terms of figure 2.1, an analysis of the current skills, numbers employed, wastage, working practices, sales and profit targets, etc., would help a firm diagnose the status of this relationship and help it determine whether its overall objectives are likely to be achieved; if not, adopt policy actions which would prove beneficial to both the firm and the employees.

Figure 2.1 A Framework for Manpower Planning Process.



Source: J. Bramham, Practical Manpower Planning, 3rd ed., (London: Institute of Personnel Management, 1982), p. 16.

The supply of and demand for labour services in manpower planning can be thought of in terms of the two-gap theory (Yotopoulos and Nugent, 1976): both quality (skills) and quantity (numbers) should be of the required level if the problem of labour shortages is to be avoided. It follows therefore that in forecasting and planning manpower, particular attention must be paid to the type of the manpower gap identified so that a manpower plan can be addressed to reducing the gap. But since forecasts are statements about the future based on the assumption that certain conditions will hold; and planning seeks to choose between alternatives and deliberately affect the conditions on which the forecasts are based (Youdi and Hinchliffe, eds, 1985:22) it follows that there are competing means to reduce the problems of manpower shortages. This is illustrated in table 2.2 above. Manpower planning thus seeks to minimise the costs associated with labour shortages and the costs associated with adopting a particular adjustment strategy--that is, take into account both the internal and external factors which influence the costs likely to be incurred by the firm.

In particular Colclough (1972) has suggested that the inherent assumption in many manpower plans in Africa that training (job-based) was complementary to formal education is not borne out by empirical evidence for particular occupational groups.²³ For example, drawing on evidence from Zambia, he demonstrated the negative relationship between training and education within occupational groups (those highly educated would need less training after joining a given company) but a positive relationship across the occupational hierarchy (the higher one goes up the occupational hierarchy, the higher will be both the levels

²³For a discussion of how the newly industrialised countries (NICs) of Asia--Singapore, Hong Kong and Taiwan--use internal training to restructure their industrial structures and thus remain competitive, see Bernard Salomé and Jacques Charmes, In-service Training: Five Asian Experiences, Development Centre Studies, (Paris: OECD, 1988)

of educational attainment and training required). He defines education to mean the number of years spent in formal school-university educational system, and training as any courses (in months) an employee undertakes after joining a given company (or on-the-job training).

The foregoing implies that within a given occupational category, training and education (as Colclough defined them) can substitute each other in the formation of skills but that across occupations, they are complementary. Because recruiting highly educated personnel would reduce the costs of training incurred by the employers (given the substitution), evidence from Colclough suggests that employers tended to pay more for educational attainment than they did for training. As a consequence employers tended to inflate the educational requirements so as to reduce the potential training costs. We demonstrate, in chapter VI that such an insistence on unreasonable higher levels of educational attainment are major factors in the incidence of labour shortages in the high-level manpower occupations.

Colclough's distinction between training and formal education is both confusing and limiting. That is, if an employer sends an employee with a bachelors degree for a higher degree, that would constitute training. If, on the other hand, the employer recruits another employee with a higher degree already that would constitute formal education (and not training). That those with higher levels of educational attainment require little or no training (internal or formal) is, in itself, not surprising for in the formation of general skills, training and formal education may become synonymous. For lower level occupations and manual skills, on-the-job (internal) training may be the best method in forming the skills which have a higher degree of specificity both to the jobs performed and the technology used. Thus,

in the final analysis, Colclough's suggestions can be reduced to internal versus external formal training.

As we have demonstrated above, if the identified manpower gap is of skill shortages, a manpower plan may seek to address this problem by either increasing internal or external formal training (or both), increasing recruitment (if the problem is not of recruitment difficulty in the local labour market), redesigning jobs so that less skilled labour can substitute more skilled labour, improving working conditions (without upsetting the pay structure), etc. As a rule, the blend of the policy instruments chosen will depend on the circumstances of the company, costs involved, and the nature and extent of the problem at hand.

It is because the problems of labour shortages are either supply or demand, internal or external factor, etc. that Birks and Fyfe (1984 and 1987), and Fyfe (1988) have suggested the diagnostic approach to manpower planning--especially in the underdeveloped countries. They suggest, for example, that manpower problems (in column B of table 2.3) may be caused by economic slowdown (especially unemployment and provision of training facilities), a rapid growth of the parastatal and public sectors without regard to the organizational capacity and efficiency of the local manpower (dynamic labour shortages), poor recruitment and retention policies, etc. The suggested adjustment instruments in column D are similar to those already discussed above.

Evidence presented so far (and in chapter IX) suggests that it is not that the causes for manpower shortages are not always known but that there are particular institutional and other constraints which make it difficult to implement the necessary remedial actions. For example, while many INDECO subsidiary companies recognize that the

Table 2.3 LABOUR MARKET IMBALANCES IN AFRICAN COUNTRIES: SOME REASONS, CAUSES, AND POSSIBLE ADJUSTMENTS

| COLUMN A | COLUMN B | COLUMN C | COLUMN D | COLUMN E |
|--|---|---|---|--|
| EXTERNAL INFLUENCES | IMBALANCES IN DEMAND & SUPPLY | INTERNAL INFLUENCES | POSSIBLE REASONS BEHIND RIGIDITIES | POSSIBLE ADJUSTMENTS: |
| Terms of Trade Capital transfers Refugee movements | Manifest as unemployment critical skill- shortages under-employment informal sector employment out-migration at the various occupational levels | Labour market disequilibria at various occupa- tional levels, and in different sectors | 1. Slowing of economic growth (owed to external factors and recession) limiting growth of employment opportunities in informal and formal sector. 2. Changes in age or other demographic factors of labour market entrants or stocks 3. Unrealistic, inflexible social demand for education, out of step with economic realities. Other unrealistic political pressures to attain impossible objectives 4. Mismatch between education and Training systems outputs and the requirements of the labour market 5. Changes in migration flows, of rate and/or direction 6. Social & cultural factors influen- cing allocation of labour, mobility reliability and/or manpower stability 7. Pay relationships between public & private sectors; or within the public and parastatal sectors 8. Growth of public & parastatal sectors without regard to efficiency, capacity for organisation or economic output 9. Antipathetic attitudes towards informal sector employment 10. Poor or inadequate recruitment, retention, redeployment of labour and poor information for job seekers; ineffective job placement services 11. Inept labour market laws; other laws with unforeseen labour market impact 12. Inadequate or inappropriate training, pre-service or within employment 13. Poor or inadequate links between education & training & the labour market 14. Misleading or absent data leading to misguided or inappropriate actions 15. Expatriate manpower, influence and advice in private sector (tied in with externalities through international investment) 16. Expatriate manpower, influence and advice in the public sector-advisers and technical assistance, or lack of them. | DEMAND ADJUSTMENTS 1. Influence level of economic activity-subsidies, employee creation 2. Influence nature of economic activity and in particular capital/labour ratios on projects 3. Changes in methods and pattern of working 4. Modify recruitment, retention and re-deployment policies and wastage rate Change pay structures. 5. Sub-contract, delay orders/ projects, accept lower quality of service/output 6. Upgrading of workers in employ- ment-internal training and & manpower development 7. Import/export of labour- encouragement or control SUPPLY ADJUSTMENTS 1. Influence internal labour mobility & movement within a sector (industry/location) 2. Influence mobility from sector industries, regions, countri- es 3. Modify and manage education & training programmes and policies to meet labour market needs and influence supply patterns. 4. Adjust internal hiring, training, re-deployment policies 5. Influence social demand- participation rates, motivation and pattern of labour supply |

Source: J. Fyfe, Manpower issues: some emerging considerations highlighted in African Countries, mimeo, February, 1984.

ZIMCO pay structure and grading system to be inflexible and bureaucratic (and thus makes it difficult to attract and retain some of the necessary skills), there is very little they can do as individual companies to correct it. However, where the diagnosed problem can be addressed internally, the diagnostic approach would prove very invaluable.

In case studies of seven companies on manpower planning undertaken by the Manpower Services Commission (OMSC) and the National Economic Development Office (NEDO) in 1978, it became apparent that the main feature of manpower planning is its systematic approach to manpower management, whereby the regular monitoring of employment information makes it possible to forecast the future manpower requirements. Such forecasts are then used in the formulation of policies and deciding on such matters as recruitment, selection, development, deployment, utilization and retention of personnel. Evidence from these case studies suggests that a fundamental requirement for effective manpower planning is a fairly accurate and detailed information system which would make it possible to monitor manpower trends, help relate business activities to available manpower and highlight any problem areas.

The major objectives of manpower planning in the seven companies studied were found to be the following (OMSC/NEDO, 1978:6-7):

- (a) to increase stability of employment over the trade cycle;
- (b) to provide for future skilled labour requirements and give an indication of training needs;
- (c) to ensure that adequately qualified and experienced manpower was available to fill managerial posts and to match individuals correctly with appropriate vacancies in the organisation;
- (d) to improve efficiency in the utilization of manpower; and

(e) to monitor and control manpower levels and costs.

It has to be recognised however that the above listed objectives present a conflict between short-term financial pressures and long-term performance needs which require a retention of a skilled and experienced workforce (labour hoarding). However, evidence from the survey suggests that it is possible to maintain a reasonable balance between the conflicting objectives. It is because of its comprehensive nature that manpower planning has been defined as "a strategy for the acquisition, utilisation, improvement and retention of an enterprise's human resources."²⁴

2.3 CONCLUSION

In this chapter we have examined the theoretical background and review the literature on labour shortages at the micro level. In particular we looked at the concept of skill and distinguished between direct and symbolic knowledge components of a skill. We demonstrated the importance of having embodied and disembodied knowledge in an organization. What comes out of this chapter is the fact that labour shortages, being a relative concept, are a constant feature of any labour market and that they have always existed in one form or another. It follows then that we can only talk of a shortage if we have a particular wage rate, quality and quantity of labour required in mind.

We demonstrated the theoretical and practical problems associated with measuring labour shortages. In particular, we showed that some models defined occupational labour shortages as being synonymous with

²⁴United Kingdom, Department of Employment, Company Manpower Planning, Manpower Papers No. 1, (London: HMSO, 1974), first published 1968, p. 2.

an increase in the relative earnings of that occupation (salary rise shortage); others attribute it to a slow adjustment in the salaries and inelastic supply in the wake of a continued increase in the demand (dynamic labour shortages) and others to bureaucratic controls in adjusting the salaries (price control shortage). These various models suggest therefore that labour shortages are caused either by inelastic supply (which cannot match the rate at which demand increases) or inflexible wage rates or both. The 'salary rise shortage' has however received a lot of criticism for its equating a salary rise of a given occupation to a shortage.

Employers often forecast the future supply and demand for labour and if an *ex ante* shortage is identified, there are various adjustment instruments which they can adopt to deal with the problem. However, their choice of the adjustment instruments would be governed by the costs involved, the state of the internal and external labour markets, government policy and other institutional constraints like bargaining procedures with the trade unions. But since it is not possible in practice to compare the different adjustment instruments in detail, the cost-minimization model suggested by Thomas and Deaton was found to have little applicability in practice.

However, empirical evidence reviewed in this chapter shows that because of formidable constraints and costs associated with demand adjustment policies, many firms prefer using non-wage adjustment instruments which seek to increase the supply of labour. That changing wage rates is not the predominant adjustment to labour shortages have led some to question the validity of the neo-classical theory in solving practical problems. While the empirical evidence presented in this chapter emphasise the importance of non-wage adjustment, it does

not suggest a preclusion of changes in relative earnings where it is feasible. But we argue later in the thesis that in INDECO and ZIMCO, there has been a tendency to over-emphasise the supply aspects and to lower hiring standards in response to recruitment difficulties in the local labour market with little or no mechanism for adjusting wage rates in the short-term so as to attract and retain the necessary skilled and professional labour.

Given the costs and constraints involved in adjusting to labour shortages, we suggested that adoption of manpower planning, where adequate manpower data exists, would prove beneficial to many firms, shortage or not, for it would help firms to make informed manpower decisions which are considered and based on the understanding of both the external and internal factors. In anticipating future problems, manpower planning is essential, especially for those companies which experience labour shortage, as it seeks to find solutions to the anticipated problems well before they come to fruition. While it is not possible to predict human behaviour with a high degree of certainty, a rough knowledge of the nature and/or scale of the problem is, nevertheless, quite useful and beneficial. Since the external environment influences internal company environments we endeavour, in the next two chapters, to analyse the economic and labour market environments in which INDECO operates. Later we consider how these account for the incidence of manpower shortages experienced in INDECO companies.

CHAPTER III

THE ZAMBIAN ECONOMY: STRUCTURE AND PERFORMANCE IN THE POST-INDEPENDENCE PERIOD

3.0 INTRODUCTION

In recent years the Zambian economy has been characterized by falling living standards, rising inflation and unemployment levels, foreign exchange constraints and external debt problems. This contrasts with the boom and prosperity of the 1960s and early 1970s which was generated by high world copper prices. With the fall in world copper prices in 1975, the economy has continued to experience structural problems. These difficulties have had a telling effect on business confidence, operations and expectations. Without resorting to a lot of detail we present evidence in this chapter which demonstrate the extent to which falling export earnings have adversely affected economic growth in Zambia. Like in chapter I we examine the impact of low production in the agricultural sector and thereby demonstrate why it is not possible to shield the domestic sector from external fluctuations in the price of copper (and falling export earnings).

We begin by reviewing the performance of the economy and its structure in the post-independence period. In section 3.2 we examine evidence on how fluctuating and falling export earnings deter economic growth. We discuss the role of government policies towards the agricultural sector in section 3.3.

3.1 THE ECONOMIC PERFORMANCE INDICATORS AND STRUCTURAL CHANGES.

The economic structure determines the productive capacity of any country. In Zambia, the failure to alter the dualistic character of the economy (that is, copper mining and auxiliary activities not only dominate the modern sector but also co-exist with the subsistence and traditional agriculture of the rural sector) is largely responsible for the current economic problems. The agricultural and industrialization policies both neglected domestic production in preference to imports but with the rise in the cost of imports and falling export earnings, shielding the domestic economy from the adverse effects of the external sector has not been possible.

3.1.1 ECONOMIC PERFORMANCE INDICATORS

Table 3.1 demonstrates that while GDP (at constant 1970 prices) grew at an average annual rate of 8.15 per cent between 1965 and 1970 (actually between 1964 and 1970 the average annual growth rate was 10.6 per cent), it fell to 2.45 per cent between 1970 and 1975. Between 1975 and 1980, GDP fell at an annual rate of about 0.25 per cent. This trend however reversed between 1980 and 1984. When GDP is adjusted for the changes in the terms of trade, table 3.1 shows that it fell at an annual rate of about 1.7 per cent between 1970 and 1984--a fall of about 26 per cent over the period (at 1980 constant prices, GDP adjusted for terms of trade fell at an average annual rate of about 2.33 per cent between 1970 and 1986, see table A2.1 in appendix II). Such a fall in real GDP, coupled with a rapid annual population growth rate of 3.7 between 1970 and 1985 has had a severe negative impact on real per capita income--it fell at an annual rate of about 3.47 per cent over

Table 3.1 Some Economic Performance Indicators: 1965-1985
(At Constant 1970 prices in Kwacha Millions)

| Indicator | 1965 | 1970 | 1973 | 1975 | 1978 | 1980 | 1983 | 1985 |Annual Growth Rates..... | | | | |
|--|--------|---------|---------|---------|---------|---------|-------------------|----------------------|-------------------------------|---------|---------|---------|-------------------|
| | | | | | | | | | 1965-70 | 1970-75 | 1975-80 | 1980-85 | 1970-85 |
| GDP | 908.80 | 1279.00 | 1380.80 | 1435.50 | 1483.50 | 1417.10 | 1470.10 | 1486.55 ^a | 8.15 | 2.45 | -0.25 | 0.97 | 1.08 |
| GDP Adjusted for terms of trade | - | 1300.00 | 1325.00 | 1048.30 | 1004.70 | 1045.00 | 901.88 | 967.60 | - | -3.87 | -0.06 | -1.48 | -1.70 |
| Population in millions | 3.64 | 4.16 | 4.56 | 4.85 | 5.47 | 5.83 | 6.24 ^b | 6.45 ^b | 2.83 | 3.30 | 4.06 | 2.13 | 3.67 |
| GDP per capita adjusted for terms of trade | - | 312.58 | 290.63 | 214.61 | 186.47 | 178.90 | 163.94 | 150.02 | - | -6.27 | -3.33 | -3.14 | -3.47 |
| Gross fixed capital formation ^c | 174.70 | 372.0 | 333.07 | 345.98 | 119.05 | 122.45 | 79.97 | 45.37 | 22.59 | -1.40 | -12.92 | -12.59 | -5.85 |
| Government Finances ^d : | | | | | | | | | | | | | |
| Revenue | - | 457.20 | 409.40 | 416.50 | 371.10 | 371.20 | 371.80 | 335.60 | - | -1.78 | -2.18 | -1.92 | -3.30 |
| Total Expenditure | - | 360.30 | 407.90 | 611.00 | 431.50 | 533.00 | 469.10 | 524.70 | - | 13.92 | -2.55 | -0.31 | 2.39 |
| Surplus/Deficit | - | 96.90 | 1.50 | -194.50 | -60.40 | -161.80 | -97.30 | -189.10 | - | 60.14 | -3.36 | 3.37 | 19.68 |
| Capital Expenditure | - | - | 84.90 | 118.20 | 59.70 | 57.80 | 59.10 | 131.10 | - | - | -10.22 | 25.36 | 4.53 ^e |
| As % of Total Exp. | - | - | 20.81 | 19.35 | 13.84 | 10.84 | 12.60 | 24.99 | - | - | -8.79 | 26.08 | 1.67 |
| Price Indices (1970=100): | | | | | | | | | | | | | |
| Wholesale | - | 1.00 | 1.20 | 1.28 | 2.15 | 2.91 | 4.06 | 7.65 | - | 5.6 | 25.47 | 32.58 | 44.33 |
| Consumer | 0.74 | 1.00 | 1.19 | 1.41 | 2.34 | 2.87 | 4.39 | 7.25 | 7.02 | 8.20 | 20.71 | 30.52 | 41.67 |
| GDP Deflator | 0.79 | 1.00 | 1.15 | 1.11 | 1.55 | 2.13 | 2.87 | 4.70 | 5.31 | 2.20 | 18.38 | 24.13 | 24.67 |

^a Figures for 1985 are provisional

^b Estimates

^c Deflated by wholesale price index for gross fixed capital formation goods

^d Deflated by the GDP deflator; government revenue includes grants

^e 1973-1985

Sources: International Monetary Fund: 1987 International Financial Statistics Yearbook, pp. 736-37; 1987 Government Finance Yearbook, pp. 1000-1006. Bank of Zambia Annual Reports, Various issues. Republic of Zambia, Central Statistical Office, Monthly Digest of Statistics, vol. XX, nos. 4 to 6 April/June, 1984, p. 49 and vol. XXII, nos. 5 to 8 May/August, 1986, p. 49.

the same period (1970-85).

It is not difficult to see why GDP and per capita income fell as they did over the post-independence period: real gross fixed capital formation (GFCF) fell at an average annual rate of about 6 per cent between 1970 and 1985; and as a proportion of GDP, in real terms, it fell from 29 per cent in 1970 to 3 per cent in 1985. The government sector which accounts for a lot of the economic activity in Zambia did not escape the decline either: its budget position, in real terms, fell from a surplus of K97 million in 1970 to a deficit of K189 million in 1985--equivalent to an annual increase in the deficit of 20 per cent. The proportion of government capital expenditure to total expenditure fell from 21 per cent in 1973 to 13 per cent in 1983. The high figure for 1985 is not for new infrastructure but for repairs of past stock.

The standards of living have, in addition to the rapid population growth rate, been adversely affected by the high inflationary pressures experienced in the economy. For example, from 1975 onwards, the annual rate of inflation (table 3.1) has ranged from 18.38 per cent between 1975 and 1980 (using the GDP deflator) to 32.58 per cent between 1980 and 1985 using the wholesale price index. On the whole, between 1970 and 1985, the annual average rate inflation has ranged from 24.67 to 44.33 per cent, depending on the index one is considering.

With regard to the balance of payments, table 3.2 demonstrates that from a surplus of US\$108 million in 1970 on the current account, it reached a deficit of US\$721 million in 1975 (equivalent to an annual fall of about 153.52 per cent). The deficit slightly improved to US\$537 million in 1980 (a marginal surplus of US\$37 million was registered in 1979), US\$204 million in 1985 and a surplus of US\$21 million in 1987.

Table 3.2 Gross National Product, Foreign Debt and International Transactions: 1970-1987
in millions of United States dollars.

| | 1970 | 1975 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|--|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| National Foreign Debt: | | | | | | | | | | |
| Long-term debt | 653 | 1263 | 2274 | 2282 | 2423 | 2604 | 2716 | 3203 | 3782 | 4354 |
| Use of IMF credit | 0 | 89 | 393 | 731 | 635 | 666 | 698 | 762 | 825 | 957 |
| Short-term debt | - | - | 586 | 611 | 648 | 514 | 433 | 676 | 1018 | 1089 |
| Total Debt stocks (EDT) | - | - | 3253 | 3624 | 3705 | 3784 | 3847 | 4641 | 5625 | 6400 |
| Economic Aggregates: | | | | | | | | | | |
| Gross Nat'l Product (GNP) | 1742 | 2271 | 3595 | 3901 | 3637 | 3146 | 2539 | 2278 | 1411 | 1914 |
| Exports (XGS) | 999 | 880 | 1625 | 1169 | 1079 | 1025 | 973 | 867 | 732 | 955 |
| Imports (MGS) | 745 | 1474 | 1986 | 1826 | 1616 | 1286 | 1090 | 1043 | 1170 | 979 |
| Interna'l Reserves (RES) | 515 | 166 | 206 | 142 | 157 | 137 | 55 | 201 | 72 | 111 |
| Current Account Balance | 108 | -721 | -537 | -734 | -565 | -271 | -153 | -204 | -391 | 21 |
| Public and Publicly Guaranteed Debt | | | | | | | | | | |
| Outstanding and disbursed (DOD) | 623 | 1143 | 2187 | 2232 | 2379 | 2580 | 2693 | 3203 | 3782 | 4354 |
| Principal Repayments | 35 | 49 | 182 | 199 | 92 | 50 | 56 | 52 | 76 | 73 |
| Interest Payments (INT) | 29 | 47 | 107 | 94 | 84 | 75 | 59 | 43 | 64 | 56 |
| Total Debt Service (TDS) | 64 | 96 | 289 | 293 | 176 | 125 | 114 | 95 | 140 | 129 |
| Analytical Ratios (%): | | | | | | | | | | |
| Total External Debt | | | | | | | | | | |
| EDT/XGS | - | - | 200.2 | 309.9 | 343.5 | 369.3 | 395.5 | 535.3 | 768.4 | 670.2 |
| EDT/GNP | - | - | 90.5 | 92.9 | 101.9 | 120.3 | 151.5 | 195.2 | 398.6 | 334.4 |
| RES/EDT | - | - | 6.3 | 3.9 | 4.2 | 3.6 | 1.4 | 4.3 | 1.3 | 1.7 |
| RES/MGS (months) | 8.3 | 1.3 | 1.2 | 0.9 | 1.2 | 1.3 | 0.6 | 2.3 | 0.7 | 1.4 |
| Public and publicly guaranteed | | | | | | | | | | |
| DOD/XGS | 62.3 | 129.8 | 134.6 | 190.9 | 220.6 | 251.8 | 276.8 | 369.5 | 516.7 | 455.9 |
| DOD/GNP | 35.7 | 50.3 | 60.8 | 57.2 | 65.4 | 82.0 | 106.0 | 134.7 | 268.0 | 227.5 |
| TDS/XGS | 6.4 | 10.9 | 17.8 | 25.1 | 16.3 | 12.2 | 11.8 | 10.9 | 19.1 | 13.5 |
| TDS/GNP | 3.7 | 4.2 | 8.0 | 7.5 | 4.8 | 4.0 | 4.5 | 4.0 | 9.9 | 6.7 |
| INT/XGS | 2.9 | 5.3 | 6.6 | 8.0 | 7.8 | 7.3 | 6.0 | 4.9 | 8.8 | 5.9 |
| INT/GNP | 1.7 | 2.1 | 3.0 | 2.4 | 2.3 | 2.4 | 2.3 | 1.8 | 4.5 | 2.9 |
| RES/DOD | 82.7 | 14.5 | 9.4 | 6.4 | 6.6 | 5.3 | 2.0 | 6.3 | 1.9 | 2.5 |

Source: World Bank, World Debt Tables: External Debt of Developing Countries, 1988-89 edition, vol. II, Country Tables, (Washington: World Bank, 1988), pp. 438-441

More importantly, table 3.2 demonstrates the increase in the external debt between 1970 and 1987--most of which was to meet the export earnings shortfall. At more than US\$6 billion in 1987, the extent to which external debt further complicates the foreign exchange problems and investment is obvious. In percentage terms, the proportion of total external debt to total exports rose from 200.2 per cent in 1980 to 768.4 per cent in 1986 and 670.2 per cent in 1987. In relation to GNP, it rose from 90.5 per cent in 1980 to 398.6 per cent in 1986 and 334.4 per cent in 1987. Table 3.2 also shows that Zambia's international reserves are very small (actually according to the Bank of Zambia statistics, net foreign assets have increasingly been negative since 1975) in relation to total debt stock (EDT), public and publicly guaranteed long-term loans (DOD) and imports (MGS)--in terms of the months in which the reserves can pay for the imports. The public and publicly guaranteed loans component outstripped GNP from 1984 onwards.

Table A2.1 in appendix II demonstrates that, except for 1972, 1974, 1982 and 1986, export earnings have been falling. And when such export earnings are deflated by the index of import prices (capacity to import--CTI), they have been falling at a rate of about 4.6 per cent per annum between 1970 and 1986. The same table also shows that while the prices of exports increased at an annual average rate of about 0.2 per cent over the same period, those of imports rose at an annual rate of about 22.5 per cent. As a consequence the terms of trade fell at an annual rate of about 5.0 per cent. The net result of all this was to reduce gross domestic saving from K1.064 million in 1974 to minus K28 million (at 1980 prices) by 1986.

From the economic indicators considered so far, it becomes clear

that a combination of falling export earnings, falling gross fixed capital formation, rapid population growth, deteriorating terms of trade, rising debt burden and inflationary pressure, etc. have all contributed to a fall in the national income and consequently the standards of living.

3.1.2 CHANGES IN THE ECONOMIC STRUCTURE

In terms of sectoral contribution to GDP, table 3.3 demonstrates that mining and quarrying contributed about half of GDP in 1964; with the other sectors contributing the other half. By 1970 its contribution had fallen to 36.6 per cent; 29.8 per cent in 1975; 28.1 per cent in 1980 and 29.6 per cent by 1984. Thus the relative contribution of mining and quarrying sector to GDP has been declining. However, in absolute terms, the fall in the relative contribution of the mining sector does not mean diminished importance in the economy. For example, while agricultural and manufacturing sectors grew at average annual rates of 2.4 and 3.1 per cent, respectively, between 1970 and 1975; the mining sector registered negative growth over the same period of about 1.7 per cent per annum. But the contribution of the mining sector at nearly 30 per cent from 1970 onwards contrasts with that of agriculture and manufacturing with each contributing below 12 per cent of GDP.

Thus to-date, the mining sector still remains the dominant sector of the economy. Such dominance is further strengthened by its role as the major earner of foreign exchange and determinant of the exchange policy of the government. The decline in its relative contribution to GDP has not been as a direct result of government policy of diversifying the economy but rather, the result of external factors.

Table 3.3 Sectoral Contribution to GDP at 1970 Constant Prices
in kwacha millions and percentage shares.

| | 1970 | | 1973 | | 1975 | | 1978 | | 1980 | | 1983 | | 1984 | |
|--|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Kwacha | Share | Kwacha | Share | Kwacha | Share | Kwacha | Share | Kwacha | Share | Kwacha | Share | Kwacha | Share |
| Total GDP | 1279.0 | 100.0 | 1380.8 | 100.0 | 1435.5 | 100.0 | 1483.5 | 100.0 | 1417.8 | 100.0 | 1476.5 | 100.0 | 1456.9 | 100.0 |
| Agriculture, etc. | 136.1 | 10.6 | 143.9 | 10.4 | 157.0 | 10.9 | 169.2 | 11.4 | 166.4 | 11.7 | 172.3 | 11.7 | 189.1 | 13.0 |
| Mining and Quarrying | 467.7 | 36.6 | 463.1 | 33.5 | 427.9 | 29.8 | 494.1 | 33.3 | 398.7 | 28.1 | 469.6 | 31.8 | 431.9 | 29.6 |
| Manufacturing | 127.5 | 10.0 | 165.1 | 10.0 | 165.4 | 11.5 | 159.6 | 10.8 | 162.9 | 11.5 | 181.9 | 12.3 | 178.8 | 12.3 |
| Electrical, Gas & Water | 15.5 | 1.2 | 32.5 | 2.4 | 44.2 | 3.1 | 76.3 | 5.1 | 84.8 | 6.0 | 97.5 | 6.6 | 97.2 | 6.7 |
| Construction | 91.4 | 7.1 | 99.9 | 7.2 | 130.6 | 9.1 | 82.0 | 5.5 | 79.1 | 5.6 | 48.3 | 3.3 | 50.4 | 3.5 |
| Wholesale, Retail trade, Hotels, Bars/Restaurants | 137.0 | 10.7 | 130.1 | 9.4 | 123.8 | 8.6 | 114.0 | 7.7 | 118.7 | 8.4 | 109.7 | 7.4 | 100.8 | 6.9 |
| Transport, Communication & Storage | 49.9 | 3.9 | 51.7 | 3.7 | 57.6 | 4.0 | 60.9 | 4.1 | 56.5 | 4.0 | 58.1 | 3.9 | 54.8 | 3.8 |
| Financial & Insurance | 42.8 | 3.3 | 61.8 | 4.5 | 60.4 | 4.2 | 41.0 | 2.8 | 41.0 | 3.0 | 36.0 | 2.4 | 30.6 | 2.1 |
| Real Estate & Business Services | 44.9 | 3.5 | 59.5 | 4.3 | 72.5 | 5.1 | 81.1 | 5.5 | 91.1 | 6.4 | 97.9 | 6.6 | 98.2 | 6.7 |
| Community, Social and Personal Services | 150.5 | 11.8 | 159.4 | 11.5 | 182.8 | 12.7 | 198.1 | 13.3 | 210.7 | 14.9 | 200.4 | 13.6 | 201.6 | 13.8 |
| Import Duties | 32.1 | 2.5 | 24.8 | 1.8 | 26.9 | 1.9 | 16.4 | 1.1 | 17.1 | 1.2 | 12.8 | 0.9 | 10.4 | 0.7 |

Note: Figures for 1983 and 1984 are provisional.

Source: Republic of Zambia, Central Statistical Office, Monthly Digest of Statistics, various issues.

Bhagavan (1978) argues that this decline was against the wishes of the government. In a nutshell the economy at present, like in 1964, continues to be dominated by the mining sector. This failure to change the economic structure is, according to Good (1984:40), due to "the incapacity of the state to implement and manipulate change, not the non-availability of capital and foreign exchange--*especially up to 1970*" (italics mine).

The evidence we have analysed in this section suggests that the dominance of the mining sector, both in terms of its contribution to GDP and as the major earner of foreign exchange, has contributed to the economic problems which affect Zambia because of the fluctuating and falling prices of mineral exports. In the next section we present further evidence with the view to demonstrating how falling and/or fluctuating export earnings translate into lower actual and potential economic growth.

3.2 EXPORT EARNINGS AND ECONOMIC GROWTH:

EVIDENCE FROM ZAMBIA.

The conventional theory of economic development uses two hypotheses (the export earnings instability and the terms-of-trade deterioration), to explain how export earnings fluctuations translate into slow growth in primary commodity exporting countries.¹

(a) The export instability hypothesis states that unstable export

¹P. A. Yotopoulos and J. B. Nugent, Economics of Development: Empirical Investigations, (New York: Harper and Row, 1976), pp. 328-29). While this prediction is accepted, Yotopoulos and Nugent, however, suggest an alternative theory which uses the permanent income hypothesis: that is, since the marginal propensity to consume out of temporary (transitory) income when compared to that from permanent income is lower, higher savings and thereby higher investment would result from unstable export earnings and thus promote economic growth. For a detailed discussion of this hypothesis, see Yotopoulos and Nugent, pp. 330-40.

earnings resulting from either fluctuating export prices or volumes, (or both) translate themselves through multiplier effects into huge resource losses in developing countries (LDCs) and hence low economic growth. Since LDCs depend on imported capital, intermediate and consumer goods, falling export earnings would lead to a shortage of both foreign exchange and capital--the two gap theory (Todaro, 1981). Problems with foreign exchange and capital would lead to reduced investment and hence lower economic growth rates. More importantly, Yotopoulos and Nugent argue that the measures taken by LDCs governments to deal with unstable export earnings like currency devaluation, import-substitution, reduced public expenditure, etc. further worsen the economic growth prospects.

(b) The terms-of-trade deterioration hypothesis: this hypothesis states that while the prices of primary exports from LDCs to developed industrialised countries (DCs) are fluctuating and declining, their imports of manufactured goods and specialised services, on the other hand, from the latter are rising rapidly (in the case of Zambia see table A2.1 in appendix II). Since unstable export earnings result into foreign exchange shortages, it becomes increasingly difficult to import raw materials, intermediate goods, spare parts and capital goods for the domestic productive sectors. As such we observe falling incomes (GDP) in countries with falling export earnings. The Prebisch-Singer Thesis² attributes increased poverty in LDCs to deteriorating terms-of-trade with DCs and low wages in the former countries. Tables 3.1 and table A2.1 in appendix II exemplify the extent to which deteriorating terms-of-trade can lead to a substantial fall in absolute and per capita income.

²For a discussion of both the theoretical and empirical weaknesses of this thesis see Yotopoulos and Nugent, op. cit, pp. 342-345.

In Zambia, Obidegwu and Nziramasanga³ have shown that the fluctuating but declining world copper prices affect the economy through the profitability of the mining companies, the resultant effects on government revenue, and the uncertainty created among other economic agents. High copper prices means high export earnings (since copper accounts for over 85 per cent of total exports) and high profits for the mining companies. When profits are high in the mining sector, the government has a guaranteed source of revenue in terms of mining royalties and company taxes. For this reason, the mining sector accounted for more than 60 per cent of the government's total revenue in the 1960s. In a word, it is plausible to argue that like its colonial predecessor, the post-independence economy was based on high world copper prices. Available evidence shows that up to 1970, fluctuating copper prices and indeed exports earnings instability were not a constraint on economic growth in Zambia. Actually the main limit to growth then was the lack of skilled and professional manpower and infrastructure like transport and communications (see Elliot, ed. 1971). The problems of skill shortages and inadequate infrastructure continue to adversely affect the economy to-date (we discuss skill shortage issues in the next chapter).

The economic problems which became pronounced from 1975 onwards are as a result of the failure to adjust to persistent low world copper prices. The sustained fall in the world copper prices has been accompanied by a fall in international foreign exchange reserves, increase in foreign debt (see table 3.2) and a fall in the share of the mining sector's contribution to government revenue. For example, table A2.2 in appendix II demonstrates that the share of the mining sector to government revenue fell from about 58 per cent in 1969 to 13 per cent

³C. F. Obidegwu and M. Nziramasanga, Copper and Zambia: an Econometric Analysis, Lexington Books, (Lexington, Mass.: D. C. Heath and Company, 1981).

in 1975; zero in 1978 and negative contribution (that is the government had to bail out the mines) in 1977 and 1979. As a consequence both direct and indirect taxation had to be increased. Even more importantly, the government budget has largely been in deficit since 1975 (table 3.1).

In their study of copper and Zambia, Obidegwu and Nziramasanga (1981:103-132) formulated a simulation model which they used to test the response of the Zambian economy from exogenously imposed copper price shocks. This dynamic multiplier analysis was done for the period 1968 to 1976. They made four assumptions about the world copper prices shocks:

(a) a one-off 10 per cent rise in the world price of copper (London Metal Exchange prices--LME) in 1968;

(b) a one-off 10 per cent decrease in the LME price;

(c) a sustained 10 per cent increase in the price throughout the period; and

(d) a 10 per cent sustained price decrease over the period.

The multiplier effects of assumption (a) on selected variables showed that nominal GDP increased by K114.8 million for each K100 per metric tonne increase in the price of copper. This implies that price increase are stimulative to the economy--as real GDP, investment and employment, all increased. However, the increase in money supply resulting from high foreign exchange reserves had a negative effect on final demand after three years because it tended to increase the general price levels.

The assumption of a 10 per cent price decrease, as we would expect, had a contractional effect on the economy--especially on investment. A fall in government revenue from mining companies reduces

its investment and savings. The volatility and decline of government net lending from 1969 onwards (table A2.2) may serve to demonstrate the impact of falling world copper prices on investment. Investment in the mining sector itself was also found to suffer (due to lower profits) since it depends on the retained earnings for its investment. The fall in gross investments in the copper industry had a further negative effect on the real output in the non-copper sectors, especially in manufacturing which has high dependence on the former.

The assumptions of sustained price increases over the simulated period showed sustained substantial stimulative (for the price increase) and contractional (for the price decrease). However, both had sustained inflationary tendencies: the world copper price rise increased money supply (because of increased foreign exchange reserves); and the world price decrease forced the government to increase domestic borrowing to compensate for lost revenue--which increased money supply and hence inflationary pressures.

From the above short-run multiplier tests, Obidegwu and Nziramasa-nga concluded that the changes in the copper markets affect the Zambian economy through their direct impact on the balance of payments, foreign exchange reserves, copper-industry profits and investment--all of which have significant induced effects on government revenue, money supply and domestic prices. The non-copper sectors are affected through induced changes in investment and government spending. However, these responses were lagged, that is, government spending and capital stocks, respectively, responded to changes in revenue and investment with a lag. They also concluded that a fall, and not an increase, in the world price of copper had greater absolute effects on GDP, investment and total employment. Fluctuating export prices hinder economic growth

because a fall in world prices leads to a large fall in economic activity, especially in the real sector, than an increase in economic activity caused by a corresponding increase in the export prices.

Given the weaker linkages between the copper and non-copper sectors, Obidegwu and Nziramasanga (p. 132) thought that the impact of the world copper price changes on the non-copper sector were minimal. Although there may be weaker linkages in terms of physical production between the mining sector and the non-mining sector, they have a strong financial linkage in terms of foreign exchange.⁴ For example, table 3.4 demonstrates that between 1982 and 1987, only the mining sector in the ZIMCO Group earned more foreign exchange than it spent (allocated). All the foreign exchange spent by the other sectors was mostly earned by the mining sector. For this reason, a fall in the world price of copper has a telling effect on the other sectors. This has been evident in Zambia ever since the collapse in world copper prices in 1975, and is indicative of the fact that weaker linkages in terms of production are not, in themselves, enough to shield the non-mining sector from the adverse effects of falling export earnings.

Obidegwu and Nziramasanga were also able to reach the conclusion that unstable export earnings had no substantive impact on the economy because they excluded policy actions from the model. They felt that the rest of the economy was cushioned by the copper industry profits and partly by foreign shareholders who bore the brunt of price fluctuations, accumulated government reserves, and access to commercial

⁴After the collapse in the world price of copper in 1975, the government continued to spend as before on the assumption that the fall in the prices were temporary (and this runs contrary to the alternative theory's prediction). In the event they did not recover and, as a consequence, both domestic and external debt have been on the increase ever since 1975. Had Obidegwu and Nziramasanga included policy actions in their model it could have shown that the viability of the non-copper sector is adversely affected by the fall in world copper prices as the non-copper sector depends on the foreign exchange and capital generated by the mineral exports.

Table 3.4: FOREIGN EXCHANGE EARNINGS AND ALLOCATION FOR THE ZIMCO GROUP: 1982/83-1986/87
(in millions of United States dollars)

| | 1982/83 Actual | | 1983/84 Actual | | 1984/85 Actual | | 1985/86 Actual | | APRIL-SEPT 1986 Actual | | APRIL-SEPT 1986 Budget | | 1986/87 Budget | |
|---------------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|---------------------------|--------------|---------------------------|--------------|-------------------|--------------|
| | E | A | E | A | E | A | E | A | E | A | E | A | E | A |
| Sector | | | | | | | | | | | | | | |
| Mining | 962.4 | 211.5 | 1023.0 | 294.8 | 829.0 | 260.8 | 763.8 | 238.3 | 353.9 | 115.1 | 402.9 | 145.9 | 873.0 | 332.0 |
| Industry | 4.6 | 100.5 | 6.3 | 101.3 | 11.9 | 114.7 | 18.4 | 73.6 | 13.9 | 37.8 | 11.3 | 69.4 | 23.9 | 137.7 |
| Agriculture | - | 0.3 | - | - | 0.1 | 0.1 | 0.1 | 0.1 | - | - | - | 0.1 | 0.5 | 3.2 |
| Energy | 32.6 | 247.0 | 62.4 | 245.4 | 40.5 | 150.2 | 30.8 | 176.6 | 12.4 | 45.2 | 14.1 | 90.9 | 28.2 | 186.0 |
| Finance | 2.2 | 8.4 | 4.5 | 7.8 | 6.3 | 10.6 | 2.9 | 12.3 | 1.0 | 7.0 | 1.2 | 9.3 | 1.8 | 11.1 |
| Transport | 35.3 | 60.0 | 32.3 | 57.8 | 26.0 | 60.4 | 35.6 | 47.5 | 15.9 | 20.7 | 20.5 | 22.1 | 55.3 | 43.8 |
| Communications | 5.1 | 4.5 | 7.7 | 7.7 | 5.4 | 10.3 | 5.7 | 14.6 | 4.3 | 0.6 | 4.6 | 12.4 | 9.2 | 24.7 |
| Trading | 0.1 | 35.3 | 0.2 | 14.2 | 1.8 | 6.3 | 4.4 | 4.8 | 2.1 | 1.6 | 3.9 | 5.2 | 13.5 | 16.4 |
| Hotels | 2.0 | 1.6 | 1.8 | 0.5 | 2.5 | 3.7 | 5.0 | 2.6 | 1.9 | 0.9 | 1.9 | 0.9 | 3.8 | 2.4 |
| Real estate | - | - | - | 0.5 | - | 0.1 | - | - | - | - | - | - | - | 1.6 |
| TOTAL | 1044.3 | 669.1 | 1138.2 | 730.0 | 923.5 | 616.8 | 866.7 | 570.4 | 405.4 | 229.0 | 460.5 | 356.1 | 1009.2 | 758.1 |
| Net Earnings | 375.2 | | 408.2 | | 306.7 | | 296.3 | | 176.4 | | 104.4 | | 251.1 | |

KEY: E = Earnings
A = Allocation

Source: Republic of Zambia, National Commission for Development Planning, Economic Review 1986 and Annual Plan, 1987, Tables XXII.3 (a) and (b), pp. 405-6.

credit for private industry.

Ownership structure of the economy notwithstanding, it is difficult to see how the rest of the economy could be cushioned from the adverse effects of falling export earnings: minority foreign shareholders hold preferential shares and where management is contracted to them through management or technical agreements, they have to be paid in foreign exchange.

Although over their model period (1968-1976) revenue was not a binding constraint on government expenditure as it could draw on its substantial reserves and/or borrow locally and externally, this has not been the case from 1975 onwards as the government budget has largely been in deficit (table 3.1).

That commercial credit (at lower rates of interest) was to compensate for the fall in government net lending to the private sector so as to keep investment at planned levels is not supported by empirical data. Table 3.1 demonstrates that real gross fixed capital formation has been falling at an annual rate of about 6 per cent between 1970 and 1985--in which case the non-copper sector has not been cushioned but adversely affected by fluctuating and falling export earnings.

3.3 THE AGRICULTURAL DEVELOPMENT STRATEGY.

While the importance⁵ of the agricultural sector in diversifying

⁵Republic of Zambia, Second National Development Plan, 1971-76, (Lusaka: Government Printers, 1971), p. 14) attributed the importance of increased agricultural production in economic development to the following factors: (a) increase rural employment prospects and incomes, and thus improve income-distribution and also reduce rural-urban migration; (b) save foreign exchange through reduced imports of agricultural foodstuffs and goods, and most probably, even generate more foreign exchange through increased agricultural exports and thence reduce, somewhat, the dependence on copper as the main foreign exchange earner; (c) increased rural incomes would increase the effective demand and thereby the market for the expanding industrial and manufacturing sector; and (d) assist industrial development by increased availability of raw materials.

the lop-sided economy has been recognised, the government's policies towards the sector have often been contradictory and unfavourable.

Table A2.3 in appendix II demonstrates that the post-independence agricultural development strategy has failed to achieve its stated aims of increasing agricultural production, improving rural living standards, and reducing the country's dependence on copper mining and exporting. In particular table A2.3 brings out three main points:

(i) marketed agricultural production in the post-independence period has both been fluctuating and consistently below the nation's food requirements,

(ii) given the high rate of population growth over the post-independence period (table 3.1), per capita food production has been falling and hence the dependence on imported foodstuffs and other agricultural raw materials still continues. In per capita terms, food production may have fallen by a quarter since the mid 1970s (Good, 1988:47), and

(iii) the persistently low agricultural producer prices have effectively reduced rural living standards and increased income inequality in relation to the urban areas.

Government policies are largely responsible for the poor performance of the agricultural sector. For example, by confining its role to the provision of infrastructure and services, themselves inadequate, Klepper (1979) argued that the government has failed to motivate the small-scale and traditional farmers. Had the government participated directly in the decision-making processes of the agricultural sector, Klepper suggests that agricultural production could have been enhanced. The provision of marketing, credit, extension, education and health infrastructure and services which the government thought would

be adequate to encourage increased agricultural production have not been successful either because access was limited or those who had access could not use the services effectively.⁶

The government's agricultural pricing policy has also been detrimental to increased agricultural production. It has been demonstrated (Dodge 1977:123-130) that Zambian farmers who sold their crops, in the post-independence period, to the National Agricultural Marketing Board (NAMBOARD)⁷ and its agents (Provincial Co-operative Unions) had been taxed and not protected. For most of the crops sold, they have consistently received less than they would have got on an open market, which is free from government intervention. This negative protection, as termed by the ILO/JASPA Mission (1981:61), of paying Zambian producers less than the import parity amounts to using foreign exchange reserves to protect foreign producers. Such taxation of farmers, runs contrary to the government's stated objectives because it lowers the farmers' incomes and agricultural production and widened the rural-urban income differentials. Available statistics show that rural incomes have declined in the wake of falling rural-urban terms of trade to the extent that by 1980, "it required three times as much rural produce as in 1965 to buy the same urban goods" (ILO/JASPA, 1981:64). Such a fall in rural incomes encourages rural-urban migration and this, in turn, adversely affect agricultural production as it reduces the supply of productive (young) labour during the peak periods of cultivating and planting, weeding and harvesting.

⁶For a discussion of the problems associated with the administration of agricultural credit, marketing, etc. see Dodge, 1977; Klepper, 1979 and Quick, 1978.

⁷NAMBOARD has just been dissolved and its functions taken over by the Nitrogen Chemicals of Zambia Limited and the Co-operative Federation Limited, Times of Zambia, and Zambia Daily Mail, 6-8 July, 1989.

The low producer prices forced many large-scale commercial farmers to substitute crop production for ranching as the latter is free from government pricing restrictions (Klepper, 1979). As a consequence, crop production has been reduced because most of the land is now used for grazing pastures. The uniform agricultural pricing policy for the whole country without regard to comparative advantages or differences in climatic and soil conditions of the different regions--though justifiable on equity grounds--have proved expensive for they necessitate huge subsidies to NAMBOARD and its agents. Such costs would not be incurred if a differential pricing policy was followed for it would discourage growing maize in regions where climatic and soil conditions are not best.

The agricultural pricing policy has, among other, things, been influenced by the following factors (Dodge, p. 130):

(a) political power of the urban sector, with its organised labour and pressure groups, have necessitated lower producer prices to ensure lower consumer prices for food. High producer prices would either mean higher government subsidies to food manufacturers or increased wages to offset rising food costs. Such fears were confirmed in December 1986 when food riots on the Copperbelt broke out as a direct result of the government's withdrawal of food-subsidies and a 120 per cent increase in the price of refined maize meal.⁸ Even now when the government has introduced 'economic' maize meal prices, urban dwellers in formal employment are given coupons which in effect means that for this minority group maize meal is almost free. Such urban bias at the expense of the rural sector reflects the perpetuation of colonial policies which

⁸Again, in the wake of a sudden price decontrol, riots have recently been reported in some Copperbelt towns, Times of Zambia, 10-11 July, 1989.

treated agriculture as being secondary to mining.

(b) The companies which process agricultural commodities, that is, textiles, maize millers and tobacco manufacturers may have pressured the government to keep low producer prices so as to maintain high profit margins.

In summary the agricultural development strategy's objectives of increased agricultural production, increased rural incomes, improved rural living standards, checking rural-urban migration and diversifying the economy have failed. The failure can be attributed to the various government policies which emphasised provision of infrastructure and services without getting involved in the agricultural production process, inadequate price incentives, credit facilities and extension services.

3.4 CONCLUSION

Empirical data examined in this chapter suggest that the economic problems experienced in Zambia over the last two decades are largely due to the failure to change the economic structure away from copper mining and exporting to increased industrial and agricultural production. Like in the colonial period, the economy continues to be dominated by copper mining and exporting and the role of the agricultural sector still remains the same: to provide cheap foodstuffs to the urban sector. By confining its role to the provision of infrastructure, often inadequate, and adopting an agricultural pricing policy which effectively taxed farmers, the government's neglect of the agricultural sector has been very significant. The agricultural and rural sectors have not been integrated with the rest of the economy and, as a

consequence, the country continues to import foodstuffs and other agricultural raw materials. Rural-urban migration and income inequality have all increased in the post-independence period, while rural living standards have fallen.

In the wake of fluctuating and declining export earnings, both foreign exchange and capital necessary for investment and economic growth have, increasingly, become scarce and, as a consequence, national income have been declining and national debt (both internal and external) have been increasing. In that the agricultural sector has been neglected and the manufacturing sector depends on imports to be viable, the fluctuating and falling export earnings have had a pronounced adverse effect on economic growth in Zambia.

CHAPTER IV

THE ZAMBIAN LABOUR MARKET: SKILL SHORTAGES, EMPLOYMENT AND EARNINGS

4.0 INTRODUCTION

The Zambian labour market, like the economy, is currently undergoing some of its worst crises in its history. A rapid increase in the labour force has been accompanied by an equally rapid decline in wage-paid employment levels. As a consequence, unemployment (especially) among the young school leavers has been intensified. On the other hand, professional and skill shortages for categories like engineers, technicians, managers, accountants and many others continue to be experienced. Given the rising cost of living, increases in nominal labour costs resulting from higher nominal wage demands have become inevitable. While the urban sector experiences excess un-skilled labour on one hand and professional and technical skill shortages on the other, the agricultural (rural) sector experience severe shortages of both types of labour, especially unskilled during the peak periods of planting, weeding and harvesting.

The main objective of this chapter, therefore, is to set out clearly the imbalances in the Zambian labour market which affect the operations of the INDECO companies. We also attempt to show how the pay structure has been influenced by such labour market imbalances and the lack of government consistent and clear-cut pay and employment policies. More often than not, changes in the pay structures (in the public sector at least) have been as a result of recommendations by

salary review commissions. This piece-meal and ad-hoc approach to wage policy may have had an adverse effect on other economic variables like exports, imports, productivity, savings, income distribution, etc. (Knight, 1971).

The chapter is organised as follows: section 4.1 analyses the extent of dynamic skill shortages in Zambia, their causes, and effects on quality of output, structure and growth of the economy and on the net out-flow of resources due to the dependence on expatriates. In recent years, the unemployment problem has been increasing and for this reason, solutions have to be sought both for skill and unemployment problems.¹ In section 4.2 we, therefore, consider the policy options for increasing employment, especially the reforms which are needed to tap the employment potential of the urban informal sector. In section 4.3 we examine the impact of institutional factors like salary review commissions on the pay structure, substitution of capital for labour, and skill acquisition.

4.1 THE EXTENT OF SKILL SHORTAGES

In 1964, the year of independence, there were only about 1,200 indigenous Africans with secondary school certificates and about 100 with university education (Republic of Zambia, 1966). Since then, Zambia has continued to face the problems of skilled manpower. But despite this critical shortage of professional and educated manpower the economy grew, in real terms, by about 10.6 per cent per annum between 1964 and 1970. The growth rate, however, fell to 1.1 per cent

¹For example, it has been reported recently that there are only 100 fully qualified indigenous Zambian accountants, Zambia Daily Mail, 9 January, 1988.

per annum between 1970 and 1980, and to 0.97 per cent per annum between 1980 and 1985 (see table 3.1 in chapter III).

That it was possible to achieve such rapid economic growth immediately after independence, under conditions of severe skilled labour shortages, may tempt one to suppose that with adequate supplies of other resources like government revenue and foreign exchange reserves (generated by high world copper prices), manpower constraints may not be binding on economic growth. However, on closer analysis, it becomes clear that the structure and pattern of that growth was not as impressive as the above statistics suggest.² Since skilled labour shortages (in the local labour market) manifest themselves both in terms of vacancies and the number of expatriates employed, table 4.1 shows the vacancies in June 1975 and 1977; table 4.2 shows employment by occupation and nationality in June 1975, 1976, 1977 and 1980; and table 4.3 shows the ZIMCO Group training needs for Zambianisation for 1985/86.

From table 4.1, it becomes evident that the public and parastatal sectors had high numbers of vacancies than the private sector. Actually, in June 1977, the parastatal sector seem to be the worst affected by labour shortages than any other sector. This was probably as a result of the 1975 Mwanakatwe Salary Commission which recommended that the pay differentials between the public, and in particular the civil service, and parastatal sectors should be narrowed so as to

²Jolly, op. cit. pp 45-46 discusses this paradox whereby, despite severe skilled manpower problems, Zambia experienced rapid economic growth in the 1960s. If skilled manpower problems were not as serious as they were, he argues that this rapid growth could have been even much higher. He also points out that growth, as measured by national income statistics, leaves out other important factors like quality, standard-of-living and other changes in economic, political and social structures on which future development would depend. Since Zambia's growth then was at the expense of the rural sector and that output quality was poor--as was the inequitable distribution of income--he opines that in terms of consumption and investment, Zambia's growth of the national income over-stated the changes that had actually taken place.

reduce labour mobility from the former to the latter. We discussed the implications of this on labour turnover in chapter I--especially on expatriate personnel.

Table 4.1 Vacancies and their Percentage Distribution by Sector and Occupational Groups: June 1975 and 1977

| <u>OCCUPATIONAL GROUP</u> | | <u>PUBLIC</u> | <u>%</u> | <u>PARASTATAL</u> | <u>%</u> | <u>PRIVATE</u> | <u>%</u> | <u>TOTAL</u> |
|-------------------------------|------|---------------|----------|-------------------|----------|----------------|----------|--------------|
| Professional & Technical | 1975 | 1,549 | 77.6 | 355 | 17.8 | 92 | 4.6 | 1,996 |
| | 1977 | 182 | 37.9 | 284 | 59.2 | 14 | 2.9 | 480 |
| Admin., Managerial & Clerical | 1975 | 810 | 60.1 | 380 | 28.2 | 157 | 11.7 | 1,347 |
| | 1977 | 173 | 50.7 | 108 | 31.7 | 60 | 17.6 | 341 |
| Sales Workers | 1975 | 10 | 10.2 | 86 | 87.8 | 2 | 2.0 | 98 |
| | 1977 | - | - | 88 | 93.6 | 6 | 6.4 | 94 |
| Service Workers | 1975 | 242 | 73.8 | 69 | 21.0 | 17 | 5.2 | 328 |
| | 1977 | - | - | 141 | 95.9 | 6 | 4.1 | 147 |
| Agricultural | 1975 | 59 | 7.1 | 699 | 84.7 | 67 | 8.1 | 825 |
| | 1977 | - | - | - | - | 21 | 100.0 | 21 |
| Production | 1975 | 112 | 8.2 | 1,016 | 75.0 | 227 | 16.8 | 1,355 |
| | 1977 | 40 | 3.9 | 122 | 93.9 | 23 | 2.2 | 185 |
| Packaging | 1975 | 61 | 20.5 | 214 | 71.8 | 23 | 7.7 | 298 |
| | 1977 | 10 | 10.4 | 73 | 76.1 | 13 | 13.5 | 96 |
| General Workers | 1975 | 115 | 10.4 | 73 | 76.1 | 13 | 13.5 | 96 |
| | 1977 | - | - | 45 | 50.6 | 44 | 49.4 | 89 |

Source: Republic of Zambia, Central Statistical Office, Manpower Survey, Second quarter, 1975 and 1977.

Other than the relatively poor pay in the parastatal sector, when compared to the private sector, the growth of the parastatal and indeed the public sector had no regard for the availability of suitably qualified local manpower. For example, in 1968 only 19 per cent of professional and 59 per cent of technical and related occupational categories were Zambians (Zambian Manpower, 1969:6). Despite this apparent shortage of local professional and technical manpower in the civil-service, the government still went ahead with its nationalisation programme in 1968 and 1969. This disregard for the efficiency and organizational capacity of local manpower meant that sustaining the

viability of the firms taken over was not possible, in which case dependence on expatriate managerial skills increased. It may however be naive to suppose that the government should have waited for the supply of local skilled manpower to improve before nationalizing.

On the supply side, it was thought that complete Zambianization of the entire work force could be achieved by 1980. By definition, two things had to be done to achieve this objective: first, to replace the existing stock of expatriates with Zambians; and secondly, to produce other professional Zambian skills to fill up both the existing vacancies and new additional labour requirements. But tables 4.2 and 4.3 demonstrate that this objective has yet to be achieved. For example, in June 1975, five years before the target year only 70.8 per cent of professional, technical and related workers were Zambians and this proportion rose to 80.3 per cent by June 1977. However when broken down into specific categories, it becomes clear that Zambianisation in professional and technical jobs was far from being achieved. For example, in June 1977, out of 198 architects 159 of them, that is 80.3 per cent, were expatriates. The same high proportion of expatriates obtain in the engineering field: civil 70.2 per cent, mechanical 78.0 per cent, chemical 87.9 per cent, mining 70.1 per cent, other engineers 68.2 per cent and metallurgists 82.2 per cent.³

The extent of managerial skill shortages at the policy and decision-making management levels were demonstrated by the GRZ/UNDP/ILO 1977 Report,⁴ which covered 113 parastatal and 488 private companies which employed at least 25 employees (and whose combined employment

³Republic of Zambia, Central Statistical Office (CSO), Manpower Survey, Second Quarter, 1977, p. 17.

⁴Republic of Zambia, United Nations Development Programme (UNDP) and International Labour Office (ILO), Final Report of the Zambia Managerial Manpower and Training Needs Survey of the Private and Parastatal Sectors, (Lusaka: Government Printers, 1977) cited in Enterprise, no. 4, 1977, pp. 43-7.

was about 202, 877). Among other things the survey found that:

(a) Zambia's parastatal and private sectors had a serious shortage of trained and qualified managers. Out of an estimated 23, 413 people in management and supervisory positions, 34 per cent were expatriates, and in the mining industry the ratio was even higher, at 67 per cent. When broken down according to nationality, the dominance of expatriates was staggering: among managing directors and general managers, 69 per cent were expatriates, 81 per cent of works managers, 81 per cent of accounting managers, 75 per cent of company secretaries, and 69 per cent of deputy general managers. The only managerial position which was significantly Zambianised was that of personnel managers, of which 93 per cent were Zambians.

(b) Out of 4,000 Zambian managers, 38 per cent were either partially or not qualified for the posts they held. At the managing-director and general-manager levels, 80 of the 579 occupants had only Form V (senior secondary) education. And out of 5,000 managerial posts which required a three-year diploma, only 2,100 managers had such a qualification, and out of 2,400 managerial posts which required a university degree or better, only 1,550 were occupied by those with such qualifications. Most of those positions with educational gaps were held by Zambians.

The continued dependence on expatriate manpower into the 1980s and the continued incidence of professional skill shortages are further demonstrated in table 4.3. Expatriates, to-date, still dominate in engineering, data processing and accounting professions--to name but a few (see appendix III for ZCCM).

This means that given the low elasticity of the supply of skilled labour in Zambia, many vacancies will remain unfilled in ZIMCO and elsewhere for long periods of time. Thus the pattern of Zambia's

Table 4.2. Number of Employees by Major Occupational Category and Nationality
on 30 June, 1975, 1976, 1977 & 1980

| <u>Occupation:</u> | <u>1975</u> | | | <u>1976</u> | | | <u>1977</u> | | | <u>1980*</u> | | |
|---------------------------------------|---------------|---------------|-------------|---------------|---------------|-------------|---------------|---------------|---------------|--------------|---------------|-------------|
| | <u>ZN</u> | <u>NON-ZN</u> | <u>%ZN</u> | <u>ZN</u> | <u>NON-ZN</u> | <u>%ZN</u> | <u>ZN</u> | <u>NON-ZN</u> | <u>%ZN</u> | <u>ZN</u> | <u>NON-ZN</u> | <u>%ZN</u> |
| Professional | | | | | | | | | | | | |
| Technical & Related | 25817 | 10655 | 70.8 | 40968 | 12885 | 76.1 | 43878 | 10757 | 80.31 | 111 | 90 | 55.22 |
| Administrative, Managerial & Clerical | 45885 | 7075 | 86.6 | 50572 | 7272 | 87.4 | 53121 | 5876 | 90.0 | 976 | 724 | 73.19 |
| Sales Workers | 10199 | 733 | 93.3 | 7043 | 401 | 94.6 | 8125 | 303 | 96.4 | 23 | 43 | 93.54 |
| Service Workers | 23825 | 842 | 96.6 | 45465 | 43 | 99.9 | 47299 | 465 | 99.0 | 65 | 4 | 99.4 |
| Agricultural, forestry, etc. | 12655 | 334 | 97.4 | 10303 | 559 | 94.6 | 13670 | 948 | 93.5 | - | - | - |
| Production, Manufacturing, etc. | 84458 | 7284 | 92.1 | 80540 | 6032 | 93.0 | 79001 | 6255 | 92.7 | 12076 | 454 | 96.38 |
| Packaging, Storage and Transport | 21825 | 1290 | 94.4 | 21200 | 1801 | 92.2 | 18512 | 831 | 95.7 | 585 | 27 | 95.59 |
| General Workers | 140490 | 5214 | 96.4 | 90199 | 4097 | 95.6 | 81984 | 1875 | 97.8 | 7665 | 65 | 99.16 |
| Total | 365330 | 33510 | 91.6 | 346310 | 33090 | 91.3 | 345590 | 27128 | 92.623 | 701 | 1 407 | 94.4 |

* Private sector manufacturing only.

ZN Zambians

NON-ZN Non-Zambians

Source: Central Statistical Office, Manpower Surveys, Second Quarter, 1975, 1977 and 1980

economic growth and structure will continue to be influenced by expatriates. For this reason, the 1987 Annual Plan (p. 59) acknowledges that

though the proportion of non-Zambians (11,900--3.3% of total formal employment in 1986) seem small in quantitative terms, it is significant in terms of positions they occupy in critical skill areas like engineering, medicine, accounting, etc.

To further demonstrate the extent of skilled labour shortages, consider the projected and actual supply between 1970 and 1980.

Table 4.3 ZIMCO Group Training Needs for Zambianisation (Excluding ICCM): 1985/86

| TITLE/POST | CURRENT STOCK | | | | | | TRAINING NEEDS | | | | | |
|------------------------------|---------------|------|-----|-------|------|------|----------------|-------|-----|------|-----|------|
| | ZN | % | CNZ | % | NCNZ | % | E | 10% W | V | P | TP | TN |
| MANAGEMENT | | | | | | | | | | | | |
| Managing Director | 17 | 70.8 | 7 | 29.2 | 0 | 0 | 24 | 2.4 | 0 | 24 | 0 | 9 |
| General Manager | 50 | 89.3 | 6 | 10.71 | 0 | 0 | 56 | 5.6 | 1 | 57 | 0 | 13 |
| Manager Operations | 17 | 68.0 | 8 | 32.0 | 0 | 0 | 25 | 2.5 | 7 | 32 | 3 | 15 |
| Manager Area | 31 | 71.4 | 9 | 28.6 | 0 | 0 | 40 | 4.0 | 4 | 44 | 3 | 14 |
| Manager Purchasing | 10 | 66.7 | 4 | 33.3 | 0 | 0 | 11 | 1.4 | 2 | 16 | 2 | 5 |
| Manager Marketing | 1 | 100 | 0 | 0.00 | 0 | 0 | 1 | 0.1 | 1 | 2 | 1 | 0 |
| Manager Planning | - | - | 1 | 100 | 0 | 0 | 1 | 0.1 | 0 | 1 | 0 | 1 |
| Sub-Total | 126 | 78.3 | 35 | 21.7 | 0 | 0 | 161 | 16.1 | 15 | 176 | 9 | 57 |
| ACCOUNTS | | | | | | | | | | | | |
| Accountants | 118 | 32.8 | 241 | 66.5 | 1 | 0.3 | 360 | 36.0 | 48 | 408 | 73 | 253 |
| Banking and Finance | 72 | 76.6 | 21 | 22.3 | 1 | 1.1 | 94 | 9.4 | 2 | 96 | 3 | 30 |
| Data Processing | 1 | 16.7 | 3 | 50 | 2 | 33.3 | 6 | 0.6 | 2 | 8 | 1 | 7 |
| System Analyst | 9 | 47.0 | 11 | 52.4 | 1 | 4.8 | 21 | 2.1 | 9 | 30 | 1 | 22 |
| Sub-Total | 200 | 41.6 | 276 | 57.3 | 5 | 1.0 | 481 | 48.1 | 61 | 542 | 76 | 312 |
| ENGINEERING/TECHNICAL | | | | | | | | | | | | |
| Engineer: | | | | | | | | | | | | |
| - Civil | 4 | 44.4 | 5 | 55.6 | 0 | 0 | 9 | 0.9 | 2 | 11 | 0 | 0 |
| - Chemical | 8 | 53.3 | 7 | 46.7 | - | - | 15 | 1.5 | 5 | 20 | 4 | 10 |
| - Electrical | 37 | 39.4 | 57 | 60.6 | - | - | 94 | 9.4 | 17 | 111 | 16 | 67 |
| - Mechanical | 42 | 40.0 | 63 | 60.0 | - | - | 105 | 10.5 | 18 | 123 | 6 | 86 |
| - Mining | 8 | 72.7 | 3 | 27.3 | - | - | 11 | 1.1 | 9 | 20 | 1 | 12 |
| - Telecom | 7 | 24.2 | 19 | 65.5 | 3 | 10.3 | 29 | 2.9 | 12 | 41 | 8 | 29 |
| - Projects/Manager | 8 | 47 | 9 | 53 | - | - | 17 | 1.7 | 3 | 20 | 2 | 12 |
| - Plant/Works/Manager | 17 | 36.2 | 29 | 61.7 | 1 | 2.1 | 47 | 4.7 | 5 | 52 | 0 | 40 |
| - Technical/Manager | 4 | 19 | 17 | 81 | - | - | 21 | 2.1 | 6 | 27 | 0 | 25 |
| - Production/Factory | 23 | 67.6 | 11 | 32.4 | - | - | 34 | 3.4 | 4 | 38 | 2 | 16 |
| Foremen/Artisan | 107 | 53.7 | 91 | 45.1 | 1 | 0.6 | 199 | 19.9 | 20 | 219 | 2 | 130 |
| Technologist/Technician | 392 | 80.3 | 69 | 19.7 | - | - | 461 | 46.1 | 168 | 629 | 13 | 270 |
| Draughtsman | 1 | 50 | 1 | 50 | - | - | 2 | 0.2 | 0 | 2 | 0 | 1 |
| Sub-Total | 658 | 63.0 | 381 | 36.5 | 5 | 0.5 | 1044 | 104.4 | 269 | 1313 | 54 | 706 |
| GEOLOGY | | | | | | | | | | | | |
| Quality Controller | 3 | 75 | 1 | 25 | - | - | 4 | 0.4 | 1 | 5 | 1 | 1 |
| Chemist/Geochemist | 11 | 64.7 | 6 | 35.3 | - | - | 17 | 1.7 | 1 | 20 | 0 | 11 |
| Geophysicist | 1 | 50 | 1 | 50 | - | - | 2 | 0.2 | 2 | 2 | 0 | 1 |
| Geologist | 10 | 58.9 | 7 | 41.1 | - | - | 17 | 1.7 | 5 | 22 | 0 | 14 |
| Surveyor | 6 | 54.5 | 5 | 45.5 | - | - | 11 | 1.1 | 2 | 13 | 0 | 8 |
| Sub-Total | 31 | 60.8 | 20 | 39.2 | 0 | 0 | 51 | 5.1 | 11 | 62 | 1 | 35 |
| OTHERS | | | | | | | | | | | | |
| Agriculturist/Agronomist/ | | | | | | | | | | | | |
| Veterinary | 27 | 77.1 | 8 | 22.8 | - | - | 35 | 3.5 | 6 | 41 | 12 | 7 |
| Hotel Management | 17 | 70.8 | 7 | 29.2 | - | - | 24 | 2.4 | 0 | 24 | 2 | 7 |
| Medical | 12 | 63.2 | 7 | 36.8 | - | - | 19 | 1.9 | 6 | 25 | 4 | 11 |
| Real Estate | 4 | 50 | 4 | 50 | - | - | 8 | 0.8 | 1 | 9 | 0 | 5 |
| Other | 42 | 65.6 | 19 | 29.6 | 3 | 4.7 | 64 | 6.4 | 6 | 70 | 3 | 31 |
| TOTAL | 1117 | 59.1 | 757 | 40.1 | 13 | 0.7 | 1887 | 188.7 | 375 | 2262 | 163 | 1171 |

Key: Z = Zambian CNZ = Contract non-Zambian NCNZ = Non-contract non-Zambian E = Total employment
V = Vacant P = Total number of positions TP = training in progress TN = training needs
assuming 10% wastage (W)

Source: Muchangwe, I. H. "Manpower planning approach in the ZIMCO Group of companies-an overview"
Paper presented to the Workshop on Manpower Planning, 28th July-1st August, 1986, The
University of Zambia, Lusaka.

The 1969 Zambian Manpower report (pp. 46-7) projected that in 1980, 600,000 jobs were expected to exist in the modern sector requiring post secondary level of education. The report also estimated that between 1971 and 1980, an additional 66,316 Zambians were required to fill new additional vacancies in professional, technical, administrative and managerial occupational categories. And out of this number, 12,545 were to be university graduates with at least a bachelor's degree. To achieve the above objectives, it was envisaged that changes in the senior secondary school system would enable the University of Zambia (UNZA) to increased enrolment to 5,00 per academic year from 1975 onwards

Comparison of the projected and actual enrolment and degrees issued, as well as the distribution of graduates by subject between 1971 and 1980 (tables 4.4 and 4.5, respectively) show that the projections were very optimistic. For example, it was estimated that 1,142 degrees were to be issued in 1980, but in the event only 585 were actually issued in that year, a shortfall of 557.

Even by 1986, the total degrees issued by the University of Zambia, at 782, were still well below those projected for 1980. It has to be pointed out that the inaccuracy of the projections may stem from the fact that they were neither based on official government policy nor University targets. They were, however, based on an assumed "... pattern of degrees that is 'favourable' from the point of view of meeting the nation's manpower needs."

With regard to the diploma-level manpower, the report was equally optimistic as it assumed that the shortage of this type of manpower was to disappear within just a few years. It projected that the training institutions under the Department of Technical Education and Vocational

Training (DTEVT) were to expand their contribution of diploma-level manpower. It therefore estimated (excluding primary school teachers and nurses) that 17,176 diploma-level Zambians would be required

Table 4.4 Comparison of projected and actual enrolment of full-time students and numbers of degrees issued, University of Zambia 1970-1980

| Year | <u>TOTAL ENROLMENT</u> | | | <u>DEGREES ISSUED</u> | | |
|------|------------------------|---------------|-------------------|-----------------------|---------------|-------------------|
| | <u>Projected</u> | <u>Actual</u> | <u>Difference</u> | <u>Projection</u> | <u>Actual</u> | <u>Difference</u> |
| 1970 | 1,383 | 1,231 | -152 | 156 | 113 | -43 |
| 1971 | 1,920 | 1,566 | -354 | 171 | 136 | -35 |
| 1972 | 2,671 | 1,765 | -906 | 215 | 195 | -20 |
| 1973 | 3,281 | 2,244 | -1,037 | 297 | ** | ** |
| 1974 | 3,744 | 2,261 | -1,483 | 419 | 284 | -135 |
| 1975 | 3,989 | 2,354 | -1,635 | 646 | 447 | -199 |
| 1976 | 4,007 | 2,569 | -1,438 | 785 | 401 | -384 |
| 1977 | 3,891 | 3,102 | -789 | 818 | 477 | -341 |
| 1978 | 3,866 | 3,268 | -589 | 892 | 549 | -343 |
| 1979 | 4,345 | 3,399 | -946 | 973 | 467 | -506 |
| 1980 | 4,809 | 3,425 | -1,384 | 1,142 | 585 | -557 |

** The University calendar was changed in 1973 to extend over two calendar years, hence there were no graduates in 1973.

Sources: Projections from Zambian Manpower, p. 49; Actual from Ministry of Education and Culture, 1980 Education Statistics, pp. 111-3

Table 4.5 Projected and Actual Distribution of Zambian Graduates-1970-80 By Major-Subject

| <u>SUBJECT</u> | <u>PROJECTED</u> | <u>ACTUAL</u> | <u>ACTUAL-PROJECTION</u> |
|-------------------------|------------------|------------------|--------------------------|
| Natural Sciences | 702 | 344 ^a | -358 |
| Science, Education | 806 | 257 | -549 |
| Agriculture | 271 | 138 | -133 |
| Engineering | 589 | 215 | -374 |
| Human Biology | 56 | 269 | 213 |
| Medicine | 318 | 186 | -132 |
| Humanities | 542 | 831 ^b | 289 |
| Humanities, Education | 2,398 | 921 ^c | -1,477 |
| Business Administration | 460 | - | - |
| Law | 379 | 342 | -37 |
| TOTAL | 6,518 | 3,506 | -2,558 |

Notes: ^a Includes 78 Bachelor of Mineral Science from 1976 onwards.

^b Includes 56 Bachelor of Social Work

^c Includes 67 Bachelor of Library Studies.

Sources: As Table 4.4

between 1971 and 1980 to fill white-collar jobs. But statistics from the Ministry of General Education, 1980, show that a combined output of all DTEVT institutes, (including craftsmen from trades training institutes), between 1971 and 1980 was only 13,166--representing a shortfall of about 4,010.

Thus in the light of the above evidence, it is plausible to argue that Zambianization of the work force, especially among the professional, technical and accounting occupations, may not have been achieved by the turn of this century. To some extent the high-level manpower problems in Zambia are as a result of the colonial policies and practices but after twenty-four years of independence, it would be unjustifiable to attribute all the manpower problems to colonialism. We now turn to look at some of the main reasons for the continued incidence of skilled manpower problems in post-independence Zambia.

4.1.1 CAUSES OF PROFESSIONAL AND EDUCATED LABOUR SHORTAGES

Some of the skilled manpower shortages experienced in Zambia ever since independence originate from the various colonial educational and labour policies. For example, until 1959, it was illegal to apprentice an African, on-the-job training for Africans was also not possible because of racism. Under the Federation of Rhodesia and Nyasaland, African education was the responsibility of the ill-funded territorial governments while that for Europeans was a responsibility of the better-funded federal government (Mwanakatwe, 1974; Sanyal, et al., 1976). The migrant labour system was not conducive to skill acquisition. However, after the Second World War the mining companies started to stabilise this migrant labour force so as to improve their skills and thence improve productivity. For the bulk of their

technical, professional and other skilled manpower, the mining companies depended on recruiting on the international labour market--a dependence which continues to-date. Referring to this particular practice by the mining companies, Daniels (1979:121) points out that:

as long as skilled labour was supplied from outside and the only domestic requirement was unskilled labour, of which the supply was plentiful and highly elastic, no internal labour market would develop.

Thus a combination of legislation to restrict training for Africans, inadequate educational places and the reliance on the international labour market for the supply of skills resulted in few Africans having adequate qualifications to assume the roles and positions of running the Zambian economy after Independence.

In the post-independence period the following are some of the main causes of the professional and educated labour shortages:

(a) the lack of coordination between the labour market and the educational system;

(b) limited places and inadequate facilities in the educational system;

(c) the choice of capital- and skill- intensive technologies as well as the competition between the private and public sectors for the limited high level manpower available;

(d) the lack of confidence and trust in the local professional manpower in general and those trained locally in particular.⁵

⁵Gail, C. Johnson, High-Level Manpower in Iran: From Hidden Conflicts to Crisis (New York: Praeger, 1980), pp. 18-19, found similar causes of high-level manpower problems in Iran in the 1970s: lack of places in institutions of higher learning; 'brain-drain', as those Iranians who go to train abroad do not usually return home; competition between the public and private sector for the little available high-level manpower--high labour turnover in the former sector; unwillingness of employers to properly utilise the Iranian educated manpower--result of a development strategy aiming at rapid industrialisation dependent on imported as opposed to home grown technology. Since Iran's educational system was not well placed to provide quality instruction to manage western technology, high-level manpower shortages continue to be a feature of the labour market.

A. Lack of Coordination between the Labour Market and the Educational System

The commitment to expanding the provision of education in the post-independence period, measured by level of expenditure and the numbers enrolled in schools, has been quite impressive. Total expenditure on education rose from K12 million in 1964 to K116 million in 1976--an increase of about 867 per cent (Republic of Zambia, 1979:61). As there has been no agency to coordinate the activities of the various training institutions, multiplicity of effort obtains and for this reason, the benefits from increased expenditure on education have been limited. For example the training activities of the University of Zambia, the Department of Technical Education and Vocational Training (DTEVT), the Ministries of General Education, Health, Agriculture, etc., have so far not been coordinated by any one single agency. At the same time (as we have discussed above), there has been little or no interaction with the employers.

Recent evidence suggest that although the economy needs technical personnel, the educational system, especially the University of Zambia, has continued to produce more social than natural science graduates (table 4.5). However the University has, in recent years sought to admit 60 percent of the first year entrants to natural sciences, but the relatively small numbers of senior secondary school leavers with minimum science requirements continue to bedevil this policy (Annual Plan, 1987).

Sanyal, et. al. (1976:233-4) found that the quota system at the University related the manpower needs to the availability of government bursaries to the different faculties. In particular there were two main problems facing the quota system: (a) the quotas in agricultural

sciences and education to which the government attached utmost importance were not popular and were thus filled by weak and unwilling students. They suggested increased career counselling and incentives in these particular fields; (b) students sponsored by industry were not assigned to those courses which their sponsors wanted; they suggested that better coordination between the employers and the University could resolve this problem.

Sanyal et al. further demonstrated that the quota system's attempts to direct manpower in a free labour market was responsible for its failure. Although the University considered a degree in education to be equivalent to other degrees, the Zambian society did not think so as exemplified 'by the system of economic rewards'.

By contrast, the DTEVT institutes on the other hand produces relatively more science based graduates at technician/technologist and trades/craftsman levels. For example, table 4.6 shows that in 1980 trades/crafts and technician/technologist graduates represented 45 per cent of all the graduates and 38 per cent in 1981. If we add the other science related disciplines like air services, paramedical/science and teachers of science, the proportion of science or production based subjects becomes even more pronounced in these institutes.

However, evidence from interviews with ZIMCO, INDECO, ZCCM and other private sector employers revealed that most of the courses offered by the DTEVT fell short of their expectation and requirements. But because these organizations would like to reduce their training costs they may, therefore, overstate the educational requirements (Colclough, 1971). However, ZCCM in particular offers further intensive on-the-job-training to most of these graduates. The reason given for this was that there is a shortage of equipment and other

facilities in the DTEVT institutes.

Among the INDECO subsidiary and other private companies, their main complaint was that both the DTEVT and the University did not offer courses in certain important (to their respective operations) technical subjects like food, textiles, rubber and polymer technologies. To meet their skill requirements some of these companies have either to rely on internal (on-the-job), or foreign training which is much more expensive.

Table 4.6 Full-time Pre-employment Training Programmes and Graduates, All DTEVT Institutes, 1980 & 1981

| <u>PROGRAMME</u> | <u>1980</u> | | <u>1981</u> | |
|--------------------------|------------------|------------------|------------------|------------------|
| | <u>GRADUATES</u> | <u>ENROLMENT</u> | <u>GRADUATES</u> | <u>ENROLMENT</u> |
| Trades & Crafts | 463 | 1,471 | 272 | 10,309 |
| Technician/Technologist | 229 | 1,141 | 248 | 1,199 |
| Air Services | 93 | 95 | 109 | 238 |
| Paramedical/Science | 65 | 328 | 46 | 276 |
| Applied Arts | 59 | 245 | 112 | 266 |
| Business Studies | 62 | 462 | 40 | 554 |
| Secretarial | 310 | 968 | 395 | 988 |
| Teacher Training | 222 | 392 | 122 | 403 |
| English as foreign lang. | 28 | 30 | 33 | 29 |
| Academic | - | 206 | - | 240 |
| <u>Total</u> | <u>1,531</u> | <u>5,338</u> | <u>1,377</u> | <u>5,502</u> |

Source: Republic of Zambia, Ministry of Education and Culture, Educational Statistics, 1980 & 1981.

Recognising this apparent lack of coordination between the labour market and the educational system on one hand, and among the various institutions of higher-learning on the other, the National Commission for Development Planning (NCDP) proposed to set up the following during the Third National Development Plan (1979-83): the National Employment Service (NES), the National Vocational Guidance and Employment Counselling Service (NVGECS) and the National Manpower Planning and

Development Committee (MPDC).

The respective functions of the first two bodies would have been:

(a) NES to establish a network of employment service offices throughout the country; where employers were to register their vacancies and recruit through them (similar to the job centres in the United Kingdom). Its main function would have been to devise ways of matching the demand for and the supply of labour in the whole economy.

(b) NVGECS to advise students and graduates in higher institutes of learning on the choice of careers. Since this was not done, the 1987 Annual Plan concedes that career counselling service remains weak.

Finally, the MPDC would have had the following objectives:⁶

- (a) establish national manpower and Zambianisation guidelines,
- (b) collect and analyse data relating to manpower supplies, requirements and current stock,
- (c) monitor and coordinate Zambianisation,
- (d) rationalise and coordinate occupational specialisations offered by the various educational and vocational institutions, and
- (e) to coordinate admissions to all institutions of higher learning, technical and vocational training institutions.

Because none of the above institutions were established during the TNDP, the National Commission for Development Planning does acknowledge in the 1987 Annual Plan that (p. 103)

Manpower development and utilisation in Zambia has been characterised by lack of coordination and collaboration between trainers and users of trained manpower. Efforts have, therefore, been fragmented and have been implemented in an isolated and un-coordinated manner with no overall policy guidelines for common reference.

The NCDP, from 1986 onwards, was to play a coordinating role at the

⁶It was envisaged that the National Manpower Council was to be established in 1987--with similar functions to those of NES and MPDC. That did not happen, instead it is thought that it will be established during the Fourth National Development Plan (1989-1993).

national level in all matters relating to manpower planning. It also set up guidelines to be followed by all the agencies dealing with the manpower development programmes. To effectively do this, it was also to set up a data bank on human resources so as to improve information for the use in planning, monitoring, and evaluation of human resources. Such information, it was hoped, would help to assess the manpower requirements at the national level so that education and training programmes could be tailored to meet specific needs of the economy.

The lack of coordination is also exemplified by the rapid expansion of primary education without regard to the absorption capacities of secondary and tertiary education, respectively. For example, primary schools' total enrolment rose from 378,417 pupils in 1964 to 694,670 in 1970 (representing a rise of 83 percent in a little under six years), 1,041,986 in 1980 and 1,443,133 by 1986 (Republic of Zambia, 1980 and 1987). Despite this huge increase in school places, places in both Grade I (the first grade in primary education) and Grades VIII and IX (entry grades in junior and senior secondary schools, respectively) have increasingly become limited.⁷

Table 4.7 demonstrates that although Grade VII enrolment rose from 73,859 in 1971 to 129,360 in 1980, (an increase of about 75 per cent over ten years) the progression rate from Grade VII to Grade VIII fell from 23.4 per cent in 1971 to reach 19.3 per cent in 1979 (its lowest) and rose marginally to 21.6 per cent by 1985. As a consequence, the number of Grade VII drop-outs rose from 56,576 in 1971 to over 100,000 by 1980, and 177,300 in 1988.

The decrease in the progression rates are due to the increase in

⁷This is as a result of a combination of the effects of the declining economy, high population growth rate (at over 3.5 percent per annum) and the fact that over half of Zambia's population, of about six million people (1980 census), are below the age of fifteen.

Table 4.7: GRADE VII ENROLMENT AND PROGRESSION TO GRADE VIII (FORMERLY FORM I): 1971 TO 1988

| <u>YEAR</u> | <u>ENROLMENT</u> | <u>PROGRESSION RATE %</u> | <u>NOT SELECTED</u> |
|-------------|------------------|---------------------------|---------------------|
| 1971 | 73,859 | 23.4 | 56,576 |
| 1972 | 80,506 | 21.3 | 63,358 |
| 1973 | 85,213 | 21.8 | 66,636 |
| 1974 | 93,891 | 22.6 | 72,672 |
| 1975 | 99,693 | 22.9 | 76,863 |
| 1976 | 103,499 | 22.2 | 80,522 |
| 1977 | 107,145 | 21.9 | 83,638 |
| 1978 | 114,876 | 19.7 | 92,245 |
| 1979 | 121,279 | 19.3 | 97,872 |
| 1980 | 129,360 | 21.6 | 100,418 |
| 1981 | -- | 20.2 | -- |
| 1982 | -- | 20.8 | -- |
| 1983 | -- | 22.4 | -- |
| 1984 | -- | 19.8 | -- |
| 1985 | -- | 21.6 | -- |
| 1988 | 234,035 | 24.8 | 177,300 |

Source: Progression rates from Central Statistical Office: Country Profile, Zambia 1985; Enrolment from Ministry of General Education, Educational Statistics, 1980. For 1988 from Times of Zambia, Thursday, 28 January, 1988. The progression rate for 1988 could have been 10 percent were it not for self-help schools provided by churches, parents and others.

the number of primary schools in the 1970s and 1980s which was not accompanied by a significant increase in the number of secondary schools. For example, while the number of primary schools increased from 2,598 in 1971 to 3,055 in 1984, the number of secondary schools only rose from 114 to 194 over the same period (Central Statistical Office (CSO), Country Profile, 1985). Actually, the increase in the number of secondary schools from 144 in 1983 to 194 in 1984 was due to the increase in the number of fee paying but small and, often, low quality private secondary schools.

And for those who enter secondary schools, only 50 percent of them would progress to senior secondary education (CSO, Country Profile, 1985:79). From senior secondary to tertiary education, Sanyal, et. al.

in 1976 estimated that for those with good senior school certificate results, the progression rate lies between 0.20 and 0.53.

B. The Choice of Technology and the Competition for Limited Skilled Manpower between the Public and Private Sectors

Evidence considered in the previous chapters suggests that the import-substitution industrialization strategy adopted in Zambia has relied on imported raw materials, intermediate and capital goods. The capital goods imported from the developed countries are usually both labour-saving and skill intensive. As noted above Zambia had no adequate supply of the necessary skills. Even piece-meal solutions of relying on expatriate labour and increased use of unqualified manpower to fill some of the vacancies have failed to reduce the manpower deficit.

Intense competition for the limited supply of skills between the public and private sectors further contributes to the severity of the problem. Since the elasticity of skilled manpower supply in Zambia is very low when compared to the persistent outward shift in the demand for high-level skills, attempts by the private sector and multinational companies to attract such skills from the public sector by bidding up pay have only succeeded in raising the wage bill than in increasing the supply of manpower (Arrow and Capron, 1959).

In Zambia, the private and public sectors adopt different adjustment strategies to skill shortages. Given that the public sector's pay structure is bureaucratic and inflexible, adjustment through supply instruments (increasing training) are usually preferred to demand adjustment. The private sector, on the other hand, seeks to influence labour mobility by increasing relative earnings. However, since

resources are given at any time, an increase in training means that there is little left for other purposes and as such, the public sector may not usually be in a position to offer competitive pay packages at the same time.⁸ The private sector, which does not expose much of its resources to the risks associated with training is therefore in a better position to afford higher than competitive pay packages to attract and retain skilled labour (see chapter VI).

C Lack of Confidence in Indigenous Personnel

The lack of confidence in the technical capabilities of the indigenous personnel is due to the reliance on imported sophisticated technologies and historical factors (Johnson, 1980; King, 1977). In Kenya, as elsewhere in Africa, King (1977:72) found that many European and Indian employers had negative attitudes towards Africans. Such employers viewed Africans with secondary education as being "money-crazed, lazy, big headed and politically dangerous...no loyalty to the firm, and will walk out at a whim". King points out, however, that perhaps this stereotype reveals a great deal more about the employers than the Africans.⁹

Employers in Kenya and elsewhere in Africa, have a long established

⁸Between 1980 and 1987 out of a total of 1016 artisans trained by ZCCM, 864 left (i.e. 85 per cent); and out of 657 graduates recruited or trained at ZCCM's own expense over the same period, 379 (58 per cent) left. Training expenditure in ZCCM, at 1980 constant prices, rose from K5.6 million in 1980 to about K24 million in 1987 (K90.6 million at current market prices)(a rise of about 47 per cent per annum over the period). Zambia Daily Mail, March 21, 1989.

⁹In Nigeria, the first colonial governor referred to this misconception about Nigerians in particular and Africans in general: "It has long been the fashion to speak of the African as naturally lazy, leaving work to his women, and contented to lie in the sun and eat and drink. It would seem, however, that there are few races which are more naturally industrious". Sir Fredrick Lugard, The Dual Mandate in British Tropical Africa, London, 1922, p. 400. Quoted by Eno J. Usoro, 1982, p. 211.

tradition of employing Indians (or Europeans) in skilled jobs while Africans were confined to semi-skilled ones; the "Africans tended to be kept on very specific tasks, and thus never got such a wide competence that they could market it outside the firm" (King, p. 72). Even when the Kenyan government introduced stringent work-permit regulations to encourage the employment and training of nationals, King suggests that such employers frustrated the Africans deliberately so as to make them leave. Once local employees left, the employers could then use it as an excuse to justify renewing existing work permits for expatriates or applying for new ones.

Whereas the choice of capital-intensive and skill-intensive methods of production may have justified the employment of expatriates (say in Zambia) because of the shortage of local educated manpower and the lack of adequate local training facilities, it has been shown however that "... a European en route for Kenya used to sail in the top end of the Suez Canal as a technician and emerge as an engineer" (King, p. 73).

Notwithstanding the foregoing, Adam Smith argued that lawyers, physicians, and goldsmiths were all paid highly because society had high trust and confidence in them. In Zambia, this would imply that the employers would tend to place more trust and confidence, wrongly or rightly, into expatriates than they would in the local Zambians: the technology used in production processes originate from the industrialized countries where most of the expatriates come from. Since the employers perceive the expatriates, and not the local Zambian equivalents, to be technically skilled and competent, they are usually paid highly and given high-ranking positions. Although such high earnings may in part be due to scarcity rent and the high demand for such skills on the international market, confidence and trust accorded expatriates

may also be significant factors.

Whereas Smith's analysis was in a context of a singular society, its applicability in a plural society (where prejudices and discrimination (as noted above) may be important factors in determining both the employment and pay policies) is limited. This was evident when the author was visiting companies in Zambia when, more often than not, expatriates with similar attributes were placed in higher positions than their Zambian counterparts (see chapter VII, § 7.1)

4.1.2 EFFECTS OF LABOUR SHORTAGES

The effects of high-level labour shortages discussed above have been significant in Zambia. And since the availability and quality of manpower in any country determines the economic success of that country, it is plausible to argue that the present poor state of the Zambian economy is to a large extent reflective of this. Among other things, skilled manpower shortages have had the following effects:¹⁰

- (a) distorting the structure and quality of economic growth,
- (b) dependence on expatriates--which has resulted in an out-flow of resources due to externalisation of salaries and gratuities. Given the high concentration of expatriates in Zambia, their consumption and social patterns have had a negative demonstration effect on the local population, and
- (c) increased income inequalities between different occupations, individuals, groups and areas. We discuss this under section 4.3 when we shall be analysing the pay structure.

¹⁰Jolly, 1971, p. 46

A. Distorted Economic Structure and Poor Quality of Output

By assuming the principle of decreasing returns to factors, it has been possible to show that sub-optimal supplies of skilled manpower may lead to lower output and to a lower potential rate of future growth (Jolly, 1971:46). For this reason, it is suggested that despite the massive financial resources generated by the high world copper prices in the 1960s, the rapid economic growth experienced in Zambia was still below what it could have been were there adequate supply of educated and skilled local manpower.

Jolly, illustrates how Zambia's growth and economic structure have been held back by labour shortages. He argues that a combination of too little skills with too much capital and other resources may give rise to a wasteful use of raw-materials, inadequate maintenance and repair of capital goods, excessive imports, neglected entrepreneurial opportunities, etc.¹¹ Even in the mining industry where the quality of management is relatively high, rough use and poor maintenance of machinery has resulted in a significant reduction in the expected life of some underground machinery.¹²

At independence, Zambia adopted a balanced-growth approach to economic development but its success depended on having, at least, some structural prerequisites. One such prerequisite was the "administrative capacities of the bureaucratic structures".¹³ Ollawa further

¹¹In the case of building projects, for example, the lack of skilled local manpower was said to be responsible for the excessive insistence on standards, excessive use of materials and poor quality of finished products relative to costs.

¹²Jolly (p. 47) also argues that, in economic terms, the shortage of skills has generally not been balanced by a rational calculation of how much additional capital and other inputs to use, but has led to a marked decline in the application of rational management in the allocation of resources.

¹³Patrick Ollawa, Participatory Democracy in Zambia: the Political Economy of National Development, (Ilfracombe, England: Arthur H. Stockwell, 1979), p. 166. Usoro (1982) discusses similar problems in Nigeria.

argues that a major priority of a country after independence is "to adapt the style and structure of public administration to new priorities of government". At stake therefore were decisions and judgements of "how best to localise the objectives, procedures and structures of the civil service and not merely its personnel."¹⁴ At the time of launching both the First and Second National Development Plans, both Ollawa and Jolly, argue that no such prerequisites existed and as a consequence a massive recruitment of expatriates followed. The expatriates were needed to formulate and to assist in the implementation of the national development plans.

The extent and influence of expatriates on Zambia's economic structure is demonstrated by Ollawa (p. 166) who cites some statistics which show that in 1975, there were only four Zambians out of a total of 24 planning staff at the Planning Division. He thus argues that given the incompatibility of interests between expatriates and local Zambians, achieving the Zambian ideology's ultimate objective of equity was difficult.

The Lewis (1955) model, which suggested that concentrating investment resources in sectors with rapid growth potential would result in high rates of economic growth, had considerable influence on the choice of the development strategies in Africa in the 1960s. The model assumed that the rate of economic growth is a product of an interaction between the rate of savings and the capital-output ratio. However, applying this model to an economy with dualistic characteristics and

¹⁴It is recognised that the main problem after independence in any country is to adapt the style and structure of the public administration to the new priorities of the government. This calls for qualified manpower to implement such changes and where these are in short supply, as was the case in Zambia, it is not surprising that no such adaptation seem to have taken place. For a further discussion of this issue, see N. Heseltine, "Administrative Structures and the Implementation of Development Plans" in H. Simonis and U. E. Simonis (eds.), Socioeconomic Development in Dual Economies: Examples of Zambia, (Munich: Welforum-Verlag, 1971), pp. 177-91.

skill shortage problems like Zambia only succeeds in distorting the economic structure even further as most of the capital investments and the skilled labour are concentrated in the urban areas.¹⁵

This and other similar models of economic development were conceived by expatriate economic advisers who thought they knew what African countries wanted and how to achieve it. When such plans fail, we are often told that it has to do with poor planning, management practices, corruption, etc. in these countries. Hardly, if ever, is it said or admitted that the 'expert' advice (which may, however, be theoretically sound and consistent) has been misplaced in a context of a poor country. This point is made clear by Professor Galbraith (1979:7) when he refers to the United States' large and costly assistance programme to Indian agriculture in the 1950s:

What we (USA) had decided were the causes of poverty with which the Indians and we sought to contend was derived not from thought but from convenience. There were, broadly speaking, only two things we could provide to lessen the deprivation--we could supply capital and, in principle, useful technical knowledge. The causes of poverty were then derived from these possibilities--poverty was seen to be the result of a shortage of capital, an absence of technical skills. The remedy included the diagnosis. Having a vaccine, we identified smallpox. Only by accident could a therapy so selected be successful. There was, alas, no such accident.

Referring particularly to the confusion between cause and consequences of poverty and to advice from expatriates from developed countries, Professor Galbraith (pp. 20-21) says that

Advice on economic development in the last thirty years has come extensively from economists and technicians of the rich countries. They have seen what has worked in these lands (*developed countries*) and, not surprisingly, have advised the same for the poor countries. Planned public and private investment, education, agricultural extension, public works, public development of industry, have been so urged. And all too often these have foundered on the administrative or political inadequacy derived from poverty they were meant to cure.

With particular reference to Zambia Jolly (p. 53) observed that

"... in the long-run, the employment of a dominant proportion of expatriate staff has entailed real costs (in terms of lower growth and distorted economic

¹⁵For a pattern of Investment in the First and Second Plans, see Ollawa, op. cit. pp. 167-77.

structure) considerably above what would have been incurred had skilled local manpower been in optimal supply."

The effect of skill shortages on the quality of output in the public sector have been substantial but these are not captured in the official statistics. In the national accounts, government services are measured by the value of inputs and not the value of output. That is, in terms of input costs like the value of the wage bill paid and not the value of the goods and services provided.¹⁶ If, however, average wages are rising faster than the consumer prices--as the case was in Zambia in the early years of independence (see table 4.9)--national income statistics may show a rise. Thus, under these conditions (of widespread labour shortages), national income statistics may prove to be quite unreliable.

Output quality is further undermined by the general rise in labour turnover. Employers in the public sector, whose pay structure is centrally controlled and thus inflexible, resort to upgrading posts so as to improve earnings and thereby reduce turnover. National income statistics fail to capture the adverse effect of these on the quality of services offered: the amount and quality of work which any individual does may be overstated, and the number of people employed in higher grades (but not doing work of high quality) may appear to be large.

B. Dependence on Expatriates and its Impact on Balance-of-Payments

As noted in the 1987 Annual Plan, although the absolute number of expatriates is relatively small in total wage-employment, their influence through the high ranking posts they occupy is significant. In monetary terms the cost of this dependence on expatriate skills has been quite phenomenal. For example, Ollawa (p. 118) shows that despite

¹⁶The analysis here draws heavily from Jolly, pp. 53-55

the numerical reduction in the number of expatriates due to Zambianisation, remittances of salaries and other financial transfers for expatriates between 1970 and 1975 totalled about K291.9 million. In 1975 alone, K85 million or 16.4 percent of Zambia's foreign exchange earnings, was externalised by expatriates.

From 1985 expatriates have, in addition to the kwacha salaries and fringe benefits, been paid an inducement allowance directly in foreign exchange. At the time the author was visiting some INDECO companies in 1987, the foreign exchange payments to expatriates in inducement allowances ranged from US\$350 to about US\$600 per month. The local currency monthly salaries in one subsidiary company (excluding entertainment allowances and other fringe benefits) ranged from K1,800 to K3,083. While such high pay rates may be necessary to recruit and retain such labour on the international labour market, it poses some problems to the affected companies and to the ZIMCO pay structure. It is suggested that (Arrow and Capron 1959:297) when a firm pays a lower salary to its existing employees (Zambians in our case) and higher ones to its new ones (recruits in occupations where labour shortages are experienced--expatriates), of roughly the same grade, a disequilibrium situation exists. In a well developed market this may not persist indefinitely. That it has persisted for so long in Zambia implies that institutional and not only market forces are important in determining the pay structure--see section 4.3 below.

To demonstrate the extent of resource outflow from Zambia resulting from this policy consider the following: table 4.3 shows that there were 757 contract non-Zambians in the 1985/86 financial year in the ZIMCO Group of companies (excluding ZCCM). In ZCCM, the employment of expatriates was 1,633 in December 1985 and 1,384 in December 1986--an

average of 1,508 for the 1985/86 financial year (in 1975 the number of expatriates in the mining industry was about 4,500 and this fell to about 2,500 by 1980). According to the 1987 Annual Plan (p. 59), there were 11,900 expatriates in the whole economy in 1986. We assume, conservatively, that on average expatriates received, each, about US\$400 per month. Although this policy remain to-date, we shall confine our guesstimates to the 20 months period--October 1985 to May 1987--over which the weekly auction of the kwacha was done. The total guesstimated foreign exchange costs in US dollars:

Parastatal (ZIMCO + ZCCM): $2265 \times 400 \times 20 = 18,120,000$

Whole country: $11900 \times 400 \times 20 = 95,200,000$

At an average exchange rate of K7.31 (World Bank, 1987:511) to one US dollar over the auctioning period, the cost of the above foreign exchange payments in kwacha terms was about K132.5 million for the parastatal sector alone (an average of about K6.6 million kwacha per month over the period) and K696 million for the whole country. With total exports estimated at US\$735.2 million in 1986, the total foreign exchange externalised through expatriate inducement allowances in 1986 accounts for about 13 per cent of exports.¹⁷ With such a significant outflow of foreign exchange, in the wake of falling total foreign exchange earnings, Zambia's capacity to import has greatly been reduced (see chapter III) and, as a consequence, continues to experience formidable economic problems.

¹⁷However, due to foreign exchange problems only US\$64.1 million net current transfers (workers' remittances, transfers by migrants, etc.) were actually effected in 1986, see World Bank, World Tables, 1987, p. 511. When we take into account the transfer of part of the local currency salaries and gratuity at the end of contracts, the proportion of foreign exchange spent on expatriates rises considerably.

The expatriates' consumption habits may have had a distortional demonstration effect on the local population.¹⁸ For example, Jolly has argued that in 1967, the average earnings of non-Africans were about twenty-three times the per capita income of Zambia. Such high incomes were spent on large houses, cars, clothes, holidays, etc. This increased the sense of inequality between expatriates and the local population. One result of this has been "to raise local ambitions and expectations far beyond what would be within the nation's grasp for several generations...". Jolly also feels that the higher wage demands and wage levels which followed were partly due to such high expectations. And given the high concentration of expatriates in Zambia, it was difficult for the government to make a strong stand on wages under conditions of high pay differentials between expatriates and the local workers.

One consequence of rapid increases in pay levels is to increase the levels of demand and in an economy which imports most of its consumer, intermediate and capital goods, which further puts pressure on the balance of payments. To all these, Jolly observed that (pp. 50-51)

Less obvious are the expatriate influences on standards. Many of these are direct transfers from the life in a more industrialised society, including indeed abilities and expertise for which the expatriate is wanted and employed. But others are more debatable--ranging from the ways in which the employment of an expatriate leads to the transfers of values from a different culture, society or nation to the way it injects or strengthens the narrower interests of a higher income group, a different class, or a different race. Again the argument is not that a mixture of cultures or even interests is not really healthy for a society, but that in Zambia these values and attitudes of expatriates and non-citizens have assumed exceptional form due to the predominant positions of expatriates in the higher levels of skills and occupations.

¹⁸Ollawa, op. cit. p. 118 and Jolly, op. cit. pp. 49-51.

4.2 THE EMPLOYMENT SITUATION

Employment growth since independence has not been very impressive. Although total wage employment grew at an annual rate of about 6.5 per cent between 1964 and 1970 (table 4.8A), exceeding the annual population growth rate of 2.7 over the same period, it was below the annual growth rate of real GDP, at 10.6 per cent.¹⁹ This shows that the inherent assumption in the industrialisation strategy that output growth *per se* would increase employment was not realised. For example, the plan target under the First National Development Plan (1966-70) to create an additional 100,000 jobs over the plan period was not met either due to the rising wage costs or to other problems (Republic of Zambia, 1971:10).

Because of the rising wage costs and relatively cheaper capital, employers increasingly substituted capital for labour. However, the increased use of more capital-intensive methods of production presented two problems in Zambia: first, due to skilled and educated labour shortages such techniques could not be efficiently utilised short of recruiting expatriates; and secondly, the high proportion of the unskilled labour force could not be employed in sufficiently large numbers as these techniques were both relatively more capital- and skill intensive.

From 1975 to date, wage employment has been on the decrease. From accounting for about 27 per cent of the total labour force in 1974, it fell to an estimated 10 per cent in 1987 (table 4.8B). The collapse in

¹⁹For the conceptual problems of defining the concepts of employment and unemployment see Amartya Sen Employment, Technology, and Development (Oxford, England: Clarendon Press, 1975), Chapter 1 and; Pan A. Yotopoulos and Jeffrey B. Nugent, Economics of Development: Empirical Investigations (New York: Harper & Row, 1976), pp. 199-203.

Table 4.8A: Employment by Sector: 1965-1985
(in thousands)

| | <u>Annual Average Percentage Growth Rates</u> | | | | | | | | | | |
|--|---|-------------------------|-------------|-------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <u>Sector</u> | <u>1965^a</u> | <u>1970^b</u> | <u>1975</u> | <u>1980</u> | <u>1985⁺</u> | <u>1965-70</u> | <u>1970-75</u> | <u>1975-80</u> | <u>1980-85</u> | <u>1965-75</u> | <u>1975-85</u> |
| Agriculture, Fore- stry & Fisheries | 32.7 | 34.6 | 36.1 | 32.6 | 35.1 | 1.16 | 0.86 | -1.94 | 1.53 | 1.04 | -0.28 |
| Mining & Quarrying | 52.4 | 64.1 | 64.7 | 63.1 | 57.5 | 4.47 | 0.18 | -0.49 | -1.77 | 2.35 | -1.11 |
| Manufacturing | 27.8 | 36.3 | 44.3 | 47.8 | 48.5 | 6.12 | 4.41 | 1.58 | 0.29 | 5.94 | 0.95 |
| Electricity & Water | 2.8 | 3.2 | 5.1 | 8.0 | 8.2 | 2.85 | 1.19 | 11.39 | 0.5 | 8.21 | 6.07 |
| Construction & Allied Repairs | 45.3 | 73.8 | 71.6 | 43.8 | 29.2 | 12.58 | -0.60 | -7.77 | -6.67 | 5.80 | -5.92 |
| Distribution, Restau- rants & Hotels | 23.8 | 32.5 | 33.0 | 31.4 | 28.2 | 7.3 | 0.31 | -1.0 | -2.03 | 3.87 | -1.02 |
| Transport & Communications | 14.8 | 23.1 | 22.0 | 24.0 | 24.2 | 11.22 | -0.95 | 1.82 | 0.17 | 4.86 | 1.0 |
| Finance, Insurance Real estate & Business Services | - | - | 18.7 | 22.7 | 22.6 | - | - | 4.28 | 0.09 | - | 2.09 |
| Community, Social & Personal Services ^a | 61.7 | 87.2 | 97.7 | 106.1 | 108.0 | 8.27 | 2.41 | 1.72 | 0.36 | 5.83 | 1.05 |
| TOTAL | 296.2 | 389.8 | 393.5 | 379.3 | 361.5 | 6.3 | 0.19 | -0.72 | -0.94 | 3.28 | -0.81 |

Notes:

- ^a From Zambian Manpower, p. 3
- ^b From Second National Development Plan p. 9
- ⁺ Preliminary
- ^{*} Excludes Domestic Servants

Source Central Statistical Office, Monthly Digest of Statistics, various issues

the world copper prices were largely responsible for this. The government reacted to the fall in revenues from the mining industry by reducing its capital expenditure (as this was politically expedient). For example, gross fixed capital formation at 1970 prices (deflated by price indices for goods for gross fixed capital formation), fell from K345.8 million in 1975 (i.e., 24.09 per cent of GDP) to an estimated

K45.37 million in 1985 (3.05 per cent of GDP)--a fall of about 87 per cent over a ten years period. This resulted into a recession and

Table 4.8B: Labour Force and Wage-paid Employment in Recent Years

| <u>Year</u> | <u>Labour Force*</u> | <u>Wage-Employment</u> | <u>% Employment/ Labour Force</u> |
|-------------|----------------------|------------------------|---------------------------------------|
| 1974 | 1 430 000 | 384 890 | 26.9 |
| 1975 | 1 479 000 | 393 470 | 26.6 |
| 1976 | 1 526 600 | 368 790 | 24.2 |
| 1977 | 1 586 000 | 370 450 | 23.4 |
| 1978 | 1 641 000 | 367 010 | 22.4 |
| 1979 | 1 698 000 | 373 820 | 22.0 |
| 1980 | 1 761 400 | 379 300 | 21.5 |
| 1981 | 1 824 200 | 373 720 | 20.5 |
| 1982 | 1 880 400 | 367 510 | 19.5 |
| 1983 | 1 962 300 | 363 800 | 18.5 |
| 1984 | 2 036 900 | 365 290 | 17.9 |
| 1985 | 2 104 000 | 361 520+ | 17.2 |
| 1986 | 3 360 000+ | 360 540+ | 10.7 |
| 1987 | 3 486 000++ | 365 650++ | 10.4 |

+ Preliminary

++ Projection

* Labour Force refers to those aged between 15 and 65 but excludes students, old and disabled, retired, beggars, vagrants, and prisoners-- Annual Plan 1987, p. 106

Source: Republic of Zambia, Annual Plan, 1987, p. 47

total employment in labour-intensive industries like construction fell from 72,000 in 1975 to 29,000 in 1985--which is equivalent to an annual decline of about 6 per cent over the period.

The implementation of the IMF restructuring programme in 1985 further compounded the unemployment problem. To increase profitability under slack capacity conditions, the programme sought to cut employment substantially so as to improve statistical productivity--in that if employment is reduced, productivity would increase even if there is no change in total output. The unemployment situation is neither helped by the rapid population growth rate of over 3.5 per cent per annum and

the rising number of school leavers. While there has been a noticeable failure to increase employment in the formal sector, no particular attention has been paid to the urban informal sector which has a high potential for increasing employment opportunities.

4.2.1 THE URBAN INFORMAL SECTOR EMPLOYMENT POTENTIAL

The informal sector's employment potential has not been realised simply because it lacks the appeal of modernity. The 1972 ILO Mission to Kenya found that this sector has not been supported by the government, and more often than not, harassed. The mission also found that the sector operates outside the benefits and regulations of government and has, thus, no access to formal credit facilities and sources of modern technology. Its activities are officially limited and are thus often seen to be illegal (ILO, Mission to Kenya, 1972:504). Since this sector is characterized by small-scale, self-employed production units which are usually very competitive, it may represent the secondary sector in a segmented labour market.

In 1982, SATEP estimated that there were between 200,000 and 300,000 people engaged in urban informal activities in Zambia²⁰--about 25 to 30 per cent of the total urban working population. Of these about 50,000 were thought to be employed in the manufacturing and the repair activities of the informal sector alone--that is, almost equal to total employment of the formal manufacturing sector. The 1987 Annual Plan (p. 111) estimated that there were a total of about 1.3 million people in the urban informal sector. The Plan however

²⁰For a discussion of the potential of the informal sector in employment creation, see World Employment Programme, Southern African Team for Employment Promotion (SATEP), The Urban Informal Sector in Zambia: a Programme for Action, Report to the Zambian Government, (Lusaka: International Labour Office, 1982). The urban informal sector in Zambia produces goods and services, at affordable prices, for the low income groups.

acknowledges that "statistics on the size of the informal sector are scanty. As such crude estimates are used to have an indication of its size".

Given its characteristics of self-employment, low capitalisation, production of relatively low quality goods and services, high levels of competition, early entry and exit, restricted access to credit and limited capacity for accumulation, measures to improve and strengthen the role of the informal sector poses some problems:²¹

(1) The predominance of labour-intensive techniques of production imply low productivity and, thence, low incomes to the participants. A policy dilemma therefore emerges: labour-intensive techniques which generate more employment opportunities may result into low incomes due to their inherent low rates of productivity and therefore not the best way of improving income distribution. If on the other hand, access to credit results in increased capital intensity and higher productivity, employment growth will be smaller and inequitable income distribution would obtain as only a minority would benefit.

The foregoing argument is based on the premise that increased access to credit, in itself, would lead to increased capital intensity. But this need not necessarily be the case as it is possible, at certain levels of production, to increase both the amount of capital and labour used. Moreover, access to formal credit may further integrate the informal sector with the rest of the economy and the multiplier effect resulting from such linkages may create even more employment opportunities.

²¹Ibid. p. 10

(2) The informal sector produces inferior²² goods with low income elasticities. Measures to improve the incomes of the informal sector participants may therefore reduce the demand for the informal sector products and increase that for the formal sector. However, SATEP argues that if product quality is improved and new products introduced, this problem may not be very serious.

By its very nature of self-employment and small units, employment growth in the informal sector "appears to be due to lateral expansion of establishments rather than growth of the size of firms". Thus measures to improve the performance of the informal sector should aim at strengthening its supply and demand bases. To achieve this, problems of finance, legal reforms, government support, etc. need to be resolved.

One other problem hindering the growth of the informal sector is its relationship with the formal sector. The import-substitution industrialisation strategy (for the formal manufacturing sector), has predetermined the growth of the informal sector. For example, since the latter depends on the former for its inputs, the former sector has monopoly power and can, thus, charge higher prices to the latter. As a consequence, we observe a net transfer of resources from the informal to the formal sectors. In the wake of the current foreign exchange problems affecting the formal sector, the informal sector and its output quality have been further undermined.

In summary, the employment potential of the informal sector can only be realised if measures are taken to improve the sector's performance. In particular, this has to be addressed in a wider context

²²SATEP, *ibid.* p. 10, wrongly, use the concept of Giffen goods to refer to the products of the informal sector. Conceptually, a Giffen good is one whose relative demand declines as its price falls whereas an inferior good is one with falling demand when the income of the consumer increases. The latter and not the former should be applied to the informal sector products.

to include how the urban informal sector relate and interact with the formal and traditional sectors. Issues of provision of credit, reforming institutional arrangements, provision of training and reforming the legal system all need to be resolved before any significant benefits can be had from the informal sector.

4.3 EARNINGS AND THE PAY STRUCTURE

One main characteristic of the Zambian labour market, since independence, has been the persistent rise in nominal earnings, especially for the unskilled labour (represented by the average for Zambians in table 4.9). This has mainly been a direct result of the egalitarian pay policies pursued by the government which sought to bridge the gap between the highly and lowly paid workers. This policy objective however has had little or no regard to the resultant income differentials between those in wage-paid employment and the unemployed on one hand and between the urban and rural areas on the other.

In the context of Zambia's employment and skill shortage positions, the trends depicted in table 4.9 demonstrate how these problems are further exacerbated:

(a) the annual increase in nominal earnings has been higher for less skilled Zambians than the relatively more skilled non-Zambians;

(b) the rate at which real earnings fall has been higher for non-Zambians than for Zambians; and

(c) from 1972 onwards, real earnings have generally been falling for both Zambians and non-Zambians.

Many of the Zambians in wage-employment are either un- or semi-skilled and a rapid increase in their earnings over the post

independence period implies that their labour services became relatively more expensive than the more skilled non-Zambian labour and capital. Such a higher increase in the relative cost of less skilled labour has resulted in skilled manpower and capital (which are relatively cheaper) substituting the former in the production process (Jolly, 1971:33-37). An increase in capital and skill intensities further exacerbate Zambia's dynamic skill shortages problems as the demand schedule for skills shifts outwards, with little or no change in the supply of the necessary skills. The fall in wage-employment to about 10 per cent of the labour force in 1987 (table 4.9B), among other things, is due to the rising cost of labour.

Individual firms would experience difficulties in responding to a fall in real earnings. It is suggested (Keynes, 1936; Robinson, 1986) that the supply of labour is a function of nominal money wages and not real wages. Due to *money illusion*, an increase in nominal earnings may be inflationary in that firms have to pass on the increased labour costs in the form of higher prices to their customers. On the other hand, a fall in the real earnings of skilled and professional labour occupations may discourage (relative to that of the less skilled labour) skill acquisition (Freeman, 1971). Thus if the pay packages offered by individual firms are neither high enough to compensate for the high cost of living nor to attract enough new entrants to given skilled labour categories, then dynamic skill shortages could become a permanent feature of the labour market. We develop this argument further in the subsequent chapters in the context of INDECO.

Since there have been no explicit pay and employment policies in Zambia, we discuss some of the factors which account for the changes in the pay structure. Taira (1966) identified three factors which

Table 4.9: GROWTH RATES OF NOMINAL AND REAL EARNINGS: 1965-83^a
(in percent per annum)

| | <u>1965-1972</u> | | <u>1972-74</u> | | <u>1975-1980</u> | | <u>1980-83^b</u> | |
|--|------------------|-------------|----------------|-------------|------------------|-------------|----------------------------|-------------|
| | <u>Nominal</u> | <u>Real</u> | <u>Nominal</u> | <u>Real</u> | <u>Nominal</u> | <u>Real</u> | <u>Nominal</u> | <u>Real</u> |
| <u>Agriculture, Forestry & Fishing</u> | | | | | | | | |
| Zambians | 10.8 | 4.5 | -1.1 | -7.9 | 26.4 | 2.8 | 0.55 | -8.07 |
| Non-Zambians | 8.8 | 2.8 | -2.3 | -9.5 | 23.5 | 2.9 | -12.81 | -19.38 |
| <u>Mining & Quarrying</u> | | | | | | | | |
| Zambians | 8.5 | 2.4 | 2.9 | -4.2 | 25.8 | 2.5 | 0.30 | -9.64 |
| Non-Zambians | 2.4 | -3.2 | 5.8 | -1.9 | 9.5 | -4.4 | 0.015 | -10.57 |
| <u>Manufacturing</u> | | | | | | | | |
| Zambians | 10.0 | 3.8 | 1.1 | -5.9 | 16.63 | -2.0 | 0.30 | -9.64 |
| Non-Zambians | 11.1 | 5.0 | 2.5 | -5.0 | 15.1 | -1.5 | -5.54 | -14.44 |
| <u>Construction</u> | | | | | | | | |
| Zambians | 10.5 | 4.2 | 3.0 | -4.1 | 22.8 | 1.08 | 0.68 | -7.16 |
| Non-Zambians | 9.4 | 3.4 | -0.3 | -7.6 | 1.2 | -8.8 | 0.30 | -8.64 |
| <u>Transport & Communication</u> | | | | | | | | |
| Zambians | 14.5 | 8.0 | 4.7 | -2.5 | 8.9 | -5.7 | 0.60 | -7.67 |
| Non-Zambians | 7.9 | 2.0 | 4.5 | -3.2 | 6.6 | -6.9 | -0.81 | -16.21 |
| <u>Distribution, Restaurants and Hotels.</u> | | | | | | | | |
| Zambians | 8.5 | 2.4 | 4.3 | -2.9 | - | - | -0.24 | -13.19 |
| Non-Zambians | 6.5 | 0.7 | 4.7 | -3.0 | - | - | -0.28 | -12.55 |
| <u>Finance, and Related</u> | | | | | | | | |
| Zambians | - | - | - | - | 13.0 | -3.7 | 0.57 | -7.83 |
| Non-Zambians | - | - | - | - | 10.1 | -4.1 | 0.77 | -5.44 |
| <u>Community, social personal services</u> | | | | | | | | |
| Zambians | - | - | - | - | 14.2 | -3.2 | 8.69 | -5.93 |
| Non-Zambians | - | - | - | - | 14.9 | -01.6 | -0.31 | -12.77 |
| <u>All Sectors</u> | | | | | | | | |
| Zambians | 9.5 | 3.3 | 3.8 | -3.4 | 20.3 | -0.1 | 0.50 | -8.33 |
| Non-Zambians | 5.8 | 0.0 | 4.1 | -3.5 | 11.3 | -3.4 | 0.25 | -12.35 |

^a In the second half of 1972, wage and employment classification were changed from African and non-African to Zambian and non-Zambian

^b Preliminary

Sources: For 1965-1980 Adapted from Nyamazana (1985, p. 44) For 1980-1983 Central Statistical Office, Monthly Digest of Statistics (Supplement), Vol. XXII, No. 5 to 8, May/August, 1986, p. 8.

influence pay structures in the underdeveloped countries: (a) institutional and social values, (b) accidental factors, and (c) market pressures and the ability to pay.²³ We have already discussed the responses of the various sectors to skill shortages and, for this reason, we shall only confine ourselves here with the institutional and accidental factors.

One view of the development process argues that the market systems in underdeveloped countries are so distorted as to fail to reveal the real opportunity costs of the various factors of production. Thus, despite the abundant supply of labour relative to capital, production processes in these countries turn out to be relatively more capital-intensive. On the assumption of rationality, conventional economic theory would predict that resources which are in abundant supply, in this case labour, should have a lower real opportunity cost (than the relatively scarce and imported capital) and thus used more intensively. The main weakness of this argument lies in its failure to recognise the fact that when foreign investors (or the World Bank and the IMF for that matter) talk of incentives so as to be attracted to these countries, they effectively mean reducing their costs and increasing their revenues. As a consequence, governments in underdeveloped countries seek to outbid each other in adopting policies which make capital relatively cheaper and labour expensive. For example, the real cost of imported capital goods is reduced by over-valued exchange rates, low tariffs, accelerated depreciation allowances, and tax

²³K. Taira "Wage Differentials in Developing Countries: a Survey of Findings", in International Labour Review, March, 1966. For a stimulative discussion of the neo-classical and alternative theories of the pay structure see Brown H. Phelps, The Inequality of Pay, (Oxford: Oxford University Press, 1977); Richard Disney, "The Structure of Pay" in J. Creedy and B. Thomas, (eds) The Economics of Labour, (London: Butterworth, 1982); E.C. Iwuji, "Wage Structure in Developing Countries: a Comparative Study of Six English Speaking African Countries", in Labour and Society, vol. 5, No. 2, April 1980; and G. Routh, Occupation and Pay in Great Britain: 1906-79, (London: Macmillan, 1980).

concessions. Since all governments want to stay in power, this generosity to foreign investors has to be extended to their citizens as well, in one form or another. One such way has been the frequent revision of the statutory minimum pay upwards and this effectively increases the cost of labour. Substitution of capital for labour and relatively capital-intensive methods of production observed in these countries have therefore been inevitable.

With the foregoing point in mind, we now look at the relevance of the above factors in determining the pay structure in post independence Zambia.²⁴

(a) Institutional and Social Values

The most important institutional factors which have influenced the pay structure in Zambia are the minimum wage legislation, salary review commissions, and the egalitarian pay principles in favour of the lowly paid and less skilled workers. At independence the main objective of the new government was to replace the racially-based pay structure with a unified one, based on other attributes and not race (Fry, 1979). The institutional notions of fairness and justice were thus central in determining the new pay structure (Phelps Brown, 1977 and Routh, 1980).

Since Africans were paid much lower than non-Africans, any pay policy which aimed at achieving equality or unification of such a pay structure was bound to increase the earnings of the former substantially and in so doing relatively dampen that of the latter. In effect, the wage rates for the un-skilled local labour was set above

²⁴Winston (1979) considered evidence from Nigeria on the effects of corruption and the choice of technology. He found that managers paid more than competitive wages so as to be paternalistic towards their employees and to insure against nationalization. However, such employers would then behave according to the predictions of the neo-classical theory and reduce employment.

market clearing rates and, as a consequence, levels of urban unemployment increased. The argument ²⁵ that wages in the labour market are fixed institutionally with little regard to market forces may seem applicable here.

The rapid rise in un-skilled earnings--their adverse effect on employment generation and inflation notwithstanding--thus reflect the low levels at which they were under the colonial pay structure. It does not mean however that the pay differentials between the highly and lowly paid were very much affected. For example, despite the fact that nominal earnings for un-skilled labour between 1964 to 1970 rose by about 10 percent per annum, the average ratio of expatriates to African earnings over the same period fell only from nine times in 1964 to six times in 1970 (Republic of Zambia, 1971:10). Given such marked pay differentials, it is not surprising therefore that the institutional factors became important in determining the pay structure.

It has been shown²⁶ that governments in Africa set the minimum wage rates but leave those above the legal minimum to be determined by market forces. But since social value systems in these countries continue to regard sex, age, status, race and economic order as important factors in determining pay, Iwuji argues that it is irrational under such circumstances to leave the other wage rates to the market forces.

That institutional factors have come to predominate in the determination of the pay structure is surprising for the 1964 Seers Report warned that

²⁵See Phelps (1977), Routh (1980), Disney (1982)

²⁶See Iwuji, op. cit. and J.B. Knight, and R.H. Sabot, "The Role of the Firm in Wage Determination: an African Case Study" in Oxford Economic Papers, vol. 35, No. 1, March, 1983

The wage and salary question is perhaps the most serious problem facing the government; its decision on the wages and the salaries it pays itself, and the way it exercises its influence on wages and salaries in the private sector, may be decisive in determining whether Zambia will become during this century a modern developed country.²⁷

The Seers Report stressed the need for restraining the growth of the urban wages and salaries so as to promote investment, economic diversification and competitiveness of exports, as well as discouraging rural-urban migration so as to sustain agriculture and a manageable rate of urbanisation. The report emphasised the trade-off between wage increases and unemployment.

In the event, a combination of circumstances and the government's administrative incapacity effectively meant that no serious thought was given to this trade-off. For instance, in the same year, 1964, the Hudow Commission was appointed to review the salaries of the civil service which had four separate pay scales based on race and length of service. The Commission recommended a single scale to cover the whole civil service--which was to be achieved by raising the pay of the lower-paid civil servants and reducing the salaries of the former 'European' jobs. This was needed to adjust the pay structure to the needs of the local labour market. As expected, high expatriate labour turnover and unrest followed and the government had to adopt other measures like special payments in the form of contract and inducement allowances, which had little effect in reducing expatriate labour turnover.²⁸

In the mining sector the revision of pay structure in 1964 created

²⁷UN/ECA/FAO (Seers Report), Report of the Economic Survey Mission on the Economic Development of Zambia, (Ndola, Zambia: Falcon Press, 1964), cited by P. Daniel, Africanisation, Nationalisation and Inequality: Mining Labour and the Copperbelt in Zambian Development (Cambridge, England: Cambridge University Press, 1979), p. 144

²⁸This analysis of salary review commissions draws heavily from Fry (1979:105-112) and Daniels (1979).

two scales--expatriate and local--but these were difficult to rationalise and thus led to industrial unrest among African miners. The government responded to these problems in the mining industry, in 1966, by appointing the Brown Commission to investigate the differences of conditions of service between expatriates and the local labour. The Commission recommended a single pay scale but with allowances for expatriates. The Commission, however, had difficulties in deciding what factors determined the basic pay scales: it rejected the existing expatriate scale because it was inflationary, and racially based (i.e., "to secure a 'European' way of life..."); and that previous collective bargaining had considerable pay distortions. The local scale was rejected because it "deliberately under-valued the African scales". The final wage increase of 22 percent, across the board, to former African pay scales recommended by the commission was arbitrary; with the sole objective of achieving industrial peace in the mining industry.

In the same year, the Brown Commission was followed by the Whelan Commission which looked at the differentials between the lower and higher civil service salaries and, like the former Commission, it also recommended a 22 per cent average increase: at least a 25 per cent pay rise for those civil servants who earned up to £500 per annum; 20 per cent for those who earned between £500 and £1,000; and 15 per cent for those earning over £1000 per annum. It also recommended the abolishing of the rural-urban civil service pay differentials and this, in effect, doubled the pay of the lowest paid civil servants serving in the rural areas.

The effect of the above pay increases in the mines and the civil service was to increase the statutory minimum wage in all the other sectors by 20 to 25 percent and also to abolish the rural-urban pay

differentials in the other sectors. The above salary review commissions therefore succeeded to, slightly, reduce the earnings differentials between the top and bottom pay scales in the public sector (Fry, 1979).

The reduced pay differentials between the top and bottom pay scales were later reversed by the O'Riordan Commission of 1971 which awarded higher increases to the top pay scales. Such increases, it was argued, were needed to encourage skill acquisition in a country characterised by abundant unskilled labour. The commission was of the view that since independence, the unskilled and the lower income groups had enjoyed much higher increases in their earnings than the skilled and high income groups, a trend which discouraged skill acquisition. The O'Riordan commission therefore recommended awarding a 29 per cent pay increase to the highest paid civil servants and 10 per cent to the lowest paid ones.

The Mwanakatwe salaries commission of 1975 and the Second Turner Report of 1978 reversed the precedent set by the O'Riordan commission: they both awarded large pay increases to the lowest paid workers. The Mwanakatwe commission in particular recommended reducing the pay differentials between the civil service and the parastatal companies. It was thought that this would reduce labour mobility from the former to the latter. However its implementation in 1976 sparked-off a massive labour turnover spiral to the extent that the government was forced to reintroduce payment of allowances--especially to expatriates.

The Mwanakatwe commission pointed out that the non-existence of an institutionalised machinery to keep public sector salaries under constant review, which was part of the colonial heritage, was becoming outdated with the modern dynamics of the labour market and hence the

frequency of the salary review commissions.

The 1980 Administrative Inquiry into the civil service pay scales turned the egalitarian elements in the Mwanakatwe and Second Turner Report over their head. Despite its own admission that there existed massive uneven income distribution in Zambia, it still went ahead to recommend huge pay increases to the top pay scales. For example it recommended raising the basic pay for permanent secretaries from K9,000 to K15,000 per annum--an increase of about 67 per cent--as opposed to 41.3 percent for the lowest civil-service entry pay scale. And if we add, to the salaries of permanent secretaries and other top ranking officials, other allowances like housing, domestic servants, electricity, travel, subsistence, personal loans, etc., the disparity between the top and bottom scales becomes very pronounced.²⁹

Since the above salary review pay increases to the public sector were also followed by similar increases in the private sector. The inflationary spiral and unemployment which followed confirmed the fear expressed by the Seers Report in 1964.

(b) Accidental Factors

The replacement of expatriates by indigenous personnel is often done without adjusting the conditions of service (except of course the inducement allowances) to reflect the fact that a local employee is taking over. The effect is to increase pay differentials between the low-skill and localised jobs and the high-skill expatriate dominated jobs. For example, in Kenya, Collier and Bigstein (1981:43) found that

²⁹U. K. Olsson, "Prices, Wages, and Incomes in Zambia: Policies and their Implementation" a Discussion Paper, SATEP (Lusaka: ILO, 1980) p. 24. The 1980 Administrative Inquiry was made-up of the Executive Director, Corporate Planning and Administration at ZIMCO; Deputy Secretary to the Cabinet; seven permanent secretaries; the Town Clerk, Ndola City Council; and the Chairman of the Prices and Incomes Commission. It is not surprising, therefore, that huge pay increases were given to the top pay scales, for the Inquiry was made up of interested parties.

for the period 1972 to 1977, real earnings for unskilled manual labour and secretarial groups fell by 16 and 22 percent, respectively, but the real earnings of African professionals rose by 53 percent over the same period. Even when they controlled for age and education, the real earnings of African middle- and high- level manpower had not fallen. They attribute this divergence to Africanisation--whose effects were to raise African earnings as a whole and to lower the average earnings of all employees in the low paid Africanised occupations. The fall in real earnings for the low-skill occupations cannot be attributed to accidental policy alone as it has been shown that the educational policy in Kenya of increasing the supply of secondary-educated labour was important in reducing wages.³⁰

On the basis of their findings, Collier and Bigstein refute the widely held view that real wages are inflexible in underdeveloped countries. Here one cannot help noticing the conceptual problem: what is said to be sticky are the nominal money wages which--be it in the underdeveloped or developed countries--are inflexible downwards, and not the real wages. In Zambia, like in Kenya, the Zambianisation policy at the individual level has had the same effect but has failed to achieve the stated overall objectives.

That formal wage employment in 1987 accounted for only about 10.4 per cent of the total labour force lends support to Fry's (1979:79) argument that the wage levels in Zambia cannot be explained by the neo-classical theory alone as they are, by far, in excess of the 'subsistence wage' and the imputed marginal product of labour in the agricultural sector (even when one takes into account the extra higher cost of

³⁰J. B. Knight and R. H. Sabot, "Educational Expansion, Government Policy and Wage Compression" in *Journal of Development Economics*, Vol. 26, No. 2 August, 1987, pp. 201-221.

living in the urban areas). Neither is the efficiency model which holds that better paid and, thus, fed employees are more productive applicable. Basing his argument on the experience of the mining industry in the 1950s and 1960s, Fry (p. 97) concluded that the labour turnover approach, on the other hand, seems to be applicable in Zambia as the high wages paid seek to stabilise the workforce.

4.4 CONCLUSION

In this chapter we have discussed the causes and effects of labour shortages; problems of unemployment; and the behaviour of nominal and real earnings over the post independence period.

Although colonial educational policies and legislation which barred Africans from industrial apprenticeship resulted in severe labour shortages at independence; the industrialisation and other educational policies adopted after independence have also contributed to the continued incidence of skill shortages. All told, the choice of technology and the mismatch between the educational system and the local labour market resulted into increased dependence on expatriate labour. Such a dependence on expatriates has had a negative effect on the balance of payments--through salary and gratuity remittances--and in recent years, the decision to pay expatriates inducement allowances in foreign exchange has further exacerbated the foreign exchange problems. Since expatriates have different perspectives, they have had a distortional effect on the nature, structure, and type of economic growth; and on consumption patterns and aspirations of the local population.

After independence, the demands for wage increases were difficult to

resist, especially given the apparent pay differentials with the expatriates. Government policies which sought to reverse the colonial pay injustice by unifying the pay structure, resulted in rapid pay increases for the unskilled labour to the extent that they were substituted for by capital and skilled manpower. Over time, rising labour costs (especially for the less skilled labour) have had a negative impact on skill acquisition and wage employment creation. On the other hand, the unification of pay scales also had no regard to the resultant effect on the income differentials between the different sectors, especially between the urban and rural areas, and the employed and unemployed.

The lack of an institution to administer and revise wages and prices occasionally has led to the reliance on salary review commissions in the public sector. One consequence of this has been to raise the pay structure with no regard to the state of the economy nor to employment potential. While fewer and fewer people remain in employment, they continue to earn more and more money wages while their counterparts in the informal and rural sectors get even more impoverished.

All said, the present attempts in Zambia to change the structure of the economy inwards are fraught with a host of problems--some of which emanate from previous government policies and others external. To the problems of indigenous skill shortages, rising unemployment and labour costs, solutions seem to be as remote as ever.

CHAPTER V

RESEARCH METHODS, DESIGN AND ADMINISTRATION OF THE SURVEY

5.0 INTRODUCTION

In this chapter we set out to outline the research methods (that is, design and administration of the survey) used in collecting the data for this thesis. We have deliberately avoided using the term methodology for the term is said to be misused by many in academia (Machlup, 1978). In philosophical¹ discourse, methodology may be considered as part of logic and epistemology. Because many in academia define methodology as the methods used in research like postal questionnaires, interview schedules, regression analyses, etc., Machlup (1978: 54-55) who reviews all past literature on philosophical contribution to the subject defines it as

...the study of principles that guide students of any field of knowledge, and especially of any branch of higher learning (science) in deciding whether to accept or reject certain propositions as a part of the body of ordered knowledge in general or of their own discipline (science)...though methodology is *about* methods, it is not a *method*, nor a description of methods. Instead, it provides arguments, perhaps rationalizations, which support various preferences entertained by the scientific community for certain rules of intellectual procedures, including those for forming concepts, building models, formulating hypothesis and testing theories. Thus, investigators employing the *same method*--that is, taking the same steps in their research and analysis--may nevertheless *hold very different methodological positions*. Obversely, supporters of the *same methodological principles* may decide to *use very different methods* in their research and analysis if they differ in their judgement of the problem to be investigated, of the existing or assumed conditions, of the relevance of different factors, or of the availability of recorded data. Thus while we use a method, we never "use" methodology; and while we may describe a method, we cannot "describe" methodology. The confusion of methodology with method is, for a literate person, inexcusable.

¹See Fritz Machlup, Methodology of Economics and other Social Sciences, (New York: Academic Press, 1978); Glenn L. Johnson, Research Methodology for Economists: Philosophy and Practice, (New York: Macmillan, 1986); Mark Blaug, Methodology of Economics or How Economists Explain, (Cambridge, UK: Cambridge University Press, 1980); and for the influence of natural sciences (especially Newtonian physics) on economics and other social sciences see Fritjof Capra, The Turning Point: Science, Society and the Rising Culture, (London: Flamingo--Fontana, 1982), ch. II.

With the foregoing in mind, and since we would like to think of ourselves as being literate, we shall describe the research methods (and not methodology) used in collecting the data on which this thesis is based. Since a survey is defined as "...a form of planned collection of data for the purposes of description or production, as a guide to action, or for the purpose of analysing the relationships between certain variables."² we shall first describe the design and scope of the survey and then turn to its administration (and problems faced) in Zambia and the analysis of the data so collected.

5.1 DESIGN AND SCOPE OF THE SURVEY

The fact that our main subject of study was to interpret evidence of the existence of skill shortages and how firms adjust to such shortages through manpower planning made it imperative for us to include in our study both employers and employees.³ For employers it was further felt that in addition to the self-administered questionnaire, a structured interview was also necessary to capture some of the qualitative aspects of skill shortages and manpower planning. In designing the main questionnaire, our main concern was that since most of the manpower data is not published in the INDECO Group, we had to strike a trade-off between the length of the questionnaire (and thus the time required to fill it) and the level of detail. In the event we settled for a reasonably long and detailed questionnaire which, we thought, could be left with the companies for a period of up to a

²A. N. Oppenheim, Questionnaire Design and Attitude Measurement, (London: Heineman, 1968), cited in David Parsons, Employment and Manpower Surveys: A Practitioner's Guide, Institute of Manpower Studies Series No. 3, (Aldershot: Gower, 1984), p. 3.

³See a complete specification of the questionnaires used in the survey in appendix IV.

month. Such a long 'grace' period was necessary considering the respondents had other business to attend to.⁴

Since INDECO is a conglomerate (enterprise) made up of subsidiary companies and the head office, we decided to design separate questionnaires for each level:

(a) The Subsidiary Company Level: this turned out to be the main questionnaire which was also administered to private sector employers. The outline of the questionnaire and its scope were as follows:⁵

(i) Background data like name and address; date of establishment in Zambia; ownership; product ranges; markets (whether local or foreign); sources of raw materials, spare-parts and capital goods; whether operating at full capacity and if not why; objectives; and the skills and other operational problems.

(ii) Manpower Planning: the definition of the concept in the company; whether practised as defined and if so whether integrated with other company objectives and operations; whether and why manpower planning conflicts with other objectives; and the department responsible for manpower planning.

(iii) Manpower Information System: the type and modes of keeping manpower records; how often such records are consulted in decision-making; employment statistics from 1980 to 1986/87; classification of the present workforce into occupational, skill (and nationality),

⁴In August 1986, I sent some questionnaires to a sample of INDECO and private companies to serve as a pilot survey. However, none of the companies responded and it was thus left to us to decide what was 'reasonable'. In administering the survey, it was discovered that the main questionnaire was too long and very detailed and I had to strike out some of the questions. For example, the breakdown of the workforce into individual occupational category, age and length of service distribution was not possible as such information was kept in individual personal files.

⁵The format of this questionnaire was adapted from Professor Hunter's (Glasgow University) study of labour shortages and manpower policy in west-central Scotland. He kindly sent me his original questionnaire and the interview schedule and, kindly, allowed me to use it in my study.

location, age and length-of-service distributions; posts occupied by unqualified or inexperienced personnel; educational distribution of the current workforce; and vacancies (their types, educational/experience requirements, reasons why and for how long they have existed, and whether they are being advertised).

(iv) Skill Shortages: types of skills which have been difficult to recruit in the local labour market and whether this has been persistent; effects of skill shortages; their possible causes; methods of adapting to skill shortages; and whether pay policy and level are important with regard to skill shortages.

(v) Training, Labour Retention and Utilization: staff on the different types of training; which skill categories usually train abroad and/or locally; whether there is any coordination with the local tertiary educational sector and the changes which the latter have to adopt to become more responsive to the skill needs of industry; the effectiveness of the different types of training (on-the-job, formal and part-time) on easing skill shortages, raising productivity, Zambianizing the workforce, etc; past wastage rates by reasons why; and the factors contributing to voluntary wastage.

(vi) Manpower Forecasting: whether the company does any forecasting and if so over what time horizon; methods used to estimate market demand (and production) and then translating them into manning requirements.

Estimating Supply: whether the company monitors manpower trends like retirement age and wastage so as to forecast likely future manpower losses (wastage rates); skill supply from the current training programmes; and the types (where possible the numbers) of skills from the educational system.

Estimating Demand: whether the company is likely to expand or contract in future; future plans and their manpower implications; whether it is possible to *clearly* identify current and future manpower requirements from the estimates of the firm's likely growth; whether the current workforce is overloaded and if not whether productivity can be improved without increasing employment; whether it is possible to change working methods or introduce labour saving techniques as an adjustment to skill shortages; and whether external help is required to convert 'work' or defined tasks into manpower requirements.

(vii) Historical and Forecast data on output, investment, value added, turnover, gross profits, total wage and salary costs and the rates of capacity utilization.

It becomes obvious from the type of data sought that the main objective was to study the specific manpower problems and manpower policies at the individual company level. The structured interview schedule which complemented the questionnaire confined itself to training, skill shortages and the actual process of implementing manpower planning.

(b) The Enterprise (Corporate) Level: Although the enterprise questionnaire⁶ was not as involving as the subsidiary company one, we thought that in order to speed up the response, it was necessary to break it into two parts (A and B). Among other things, questionnaire A sought data on the following:

(i) General: departments at INDECO Head Office and their respective responsibilities; how these departments operate in formulating

⁶In designing this questionnaire I benefited greatly from a seminar delivered by Professor Sisson and coworkers of Warwick University, "The Management of Employee Relations in Multi-Plant Organizations" at the Institute of Personnel Management's 1986 National Conference at Harrogate, West Yorkshire. Later Paul Marginson sent me the interview schedules and the technical report from which I adapted some questions for the INDECO questionnaire.

policies; whether INDECO has been given new corporate objectives by the government in addition to the original ones at nationalization; changes in the internal structure, product and factor markets over the previous five years; and whether conditionality of the IMF restructuring programme did affect some of the objectives.

(ii) Skill Shortages: occupations in which skill shortages obtain at the group level; their possible effects and causes; the nationality and educational distribution of top management in the Group; the consequences of Zambianization on operational efficiency; whether there are written-down management development policies, plans and training programmes; and whether there is internal capacity to meet management development and training needs.

(iii) Organizational Structure: policy areas in which the head office either monitors the activities of the subsidiary companies or set specific targets for them; the responsibility and functions of the Manpower Planning Unit; whether manpower considerations have influenced decision-making and if so, to what extent; whether there is a written down manpower policy or philosophy; policy areas in which the head office instructs, advises, broadly formulated guidelines, and where subsidiary companies have total autonomy; and the types of information collected from subsidiary companies.

Questionnaire B sought data on the following:

(i) Union Recognition and Collective Bargaining: whether industrial trade unions are recognised at all the subsidiary companies; the role of the head office in collective bargaining; whether the head office is directly involved in pay decisions for unionised employees; whether the ZIMCO 2 scales are applied uniformly to all those under ZIMCO conditions of service across the different subsidiary companies;

whether there are incentive schemes like bonus or performance payments; whether there are formal job evaluation and grading schemes in the group; and how the different companies communicate with their employees.

(ii) Management Development and manpower Planning: the year the Manpower planning Unit was established and the reasons why; whether there have been improvements in skill problems ever since the Unit was established; whether planning is centralized or decentralized; methods of obtaining the necessary manpower information; problems faced in planning manpower for such a heterogeneous group; which type of skills are recruited through the head office and at the subsidiary company level; whether senior subsidiary company managements have contracts with both the head office and the respective companies; whether there is a common job evaluation scheme applied to all managers; and whether industrial relations issues and personnel factors influence enterprise-level decision-making.

(c) The Employees' Questionnaire: among other things, this questionnaire sought data on the following:⁷

(i) Background Data: sex, age, present employer and line of business; date of joining the present employer; whether member of a trade union, UNIP (ruling party) works council, or professional organization; the present job; starting and present salary; previous employment--and the starting and leaving salary; dates of starting and leaving previous employment; and the reasons for leaving.

(ii) Training and Qualifications: educational and professional qualifications; where and when obtained; if on-the-job training whether pay differentials with graduate craftsmen are justifiable; whether

⁷The employees questionnaire was adapted from David Parsons, Op. cit., appendix 2, example 1: An Employees Attitude Survey, pp. 160-170.

further training would improve performance and/or skill versatility and if so whether prepared to go for such further training.

(iii) Method of Finding Present Job: mode of learning about the existence of the job; whether the company was accurate in describing what the job involves during the recruitment process; and whether the company should change its current recruitment policies.

(iv) The attributes of the present job and their importance in deciding to take it; how these expectations compare with the actual experience in the job/company; and whether education or training is of any relevance to the present job.

(v) Future job changes (mobility): the likelihood of remaining with the same employer for the following three years; the reasons for likely mobility and to which sectors intend to move to.

(vi) Job Satisfaction: the extent of satisfaction; the best and worst aspects of present employment; whether discuss personal and professional matters with the immediate boss or members of top management; whether superiors are attentive and considerate to personal problems and whether consulted when decisions on new investment, new work organization methods, etc., are being considered.

5.2 ADMINISTRATION OF THE SURVEY

Before I left for Zambia, in January 1987, we had asked INDECO Head Office to write to their subsidiary companies to introduce and spell out the purpose and the potential value of the survey. When they finally told us that they had done so, we posted, some forty-two questionnaires to the various INDECO subsidiary companies and their branches in November 1986. I was expecting to find some of these

questionnaires completed and returned to INDECO Central. In the event, that was never to be the case. No single copy was completed and returned by 12 January, 1987 (the day I reported to INDECO).

It became obvious that attempting to make a census (that is covering the entire group) would not be cost-effective and since I could only stay in Zambia for a period of up to four months, we therefore decided on a smaller sample of twenty-five subsidiary companies. At the time, a number of subsidiary companies were undergoing reorganization and we decided to exclude them from the sample.

For the private sector, we only picked thirteen companies which were engaged in similar activities with some of the INDECO subsidiary companies--this was necessary so as to make comparisons possible. Enclosed with the questionnaires to private companies were copies of a letter from Cabinet Office introducing the study. We thought that the letter would help to allay some suspicion and thus improve the response rate. In the event, it did not as only three private companies did respond, albeit, inadequately. The other non-INDECO company which did respond was a subsidiary of ZCCM engaged in manufacturing. Low response from private companies was, in part, due to their reluctance to give out their commercial data.

Out of the twenty-five subsidiary companies included in the sample, twenty-two were visited. During the visits, I would sit with the personnel managers or other officials assigned to fill the questionnaire. Of the companies visited, nineteen responded (but of these only about sixteen adequately completed the questionnaire). The other three companies visited could not complete the questionnaire due to a number of factors: new personnel manager who was not very familiar with the new company; organizational problems (internal politics); and in

the third company, we managed to complete half of the questionnaire but since I was commuting from another town we had to leave it un-finished. The official promised to complete it and then send it to me but that never happened.

I also visited ZCCM's Manpower Planning and Development Centre (MPD) and Copper Industry Service Bureau (CISB--Personnel Research Unit). The purpose of visiting MPD and CISB was to find out how ZCCM has been implementing manpower planning to deal with the problems of skill shortages and retention and determine how its experience can be applied in INDECO, especially the manpower information system.

The employees' questionnaire was distributed as I went around the companies. In this case I was helped by two assistants who used to go through the questionnaires with the respondents before they completed it. Respondents were randomly selected from the company pay rolls or employees register and then the personnel officers or managers were asked to let us know who, in the sample were illiterate or not conversant in English so that we could replace them with those who were able to complete the questionnaire on their own. The target sample for employees was two hundred but this number was not achieved as it became apparent, in the middle of February, that personnel managers took much interest in the employees' questionnaire at the expense of the main one and given limited time, we abandoned administering it. However, one hundred and twenty-one did respond (see table 5.1).

Since some of the main questionnaires were completed in my presence the interview schedule, in those cases, became almost redundant--as by the time the questionnaire was completed, we would have covered most of the issues raised in the interview schedule. I did ten interviews: eight for INDECO subsidiary companies, one for the ZCCM subsidiary and

the other one for a private company. Interviews were done where we felt that the information provided in the questionnaire might be inadequate.

Table 5.1: Distribution of Employee Respondents by Occupational Category and Employer

| <u>OCCUPATIONAL CATEGORY</u> | <u>EMPLOYER</u> | | <u>ROW TOTAL</u> |
|-------------------------------------|--------------------------|------------------------|------------------|
| | <u>INDECO SUBSIDIARY</u> | <u>PRIVATE COMPANY</u> | |
| Professional, Technical and Related | 7 | 2 | 9 (7.4) |
| Accounting | 12 | 4 | 16 (13.2) |
| Administrative and Managerial | 22 | 5 | 27 (22.3) |
| Clerical, secretarial and related | 20 | 4 | 24 (19.8) |
| Marketing and Purchasing | 5 | 1 | 6 (5.0) |
| Production-Supervisory | 10 | 7 | 17 (14.0) |
| Production-Skilled | 10 | 9 | 19 (15.7) |
| Part- and un-skilled | 1 | 2 | 3 (2.5) |
| <u>Total</u> | <u>87</u> | <u>34</u> | <u>121</u> |
| | (71.9) | (28.1) | (100) |

5.2.1 Problems Encountered

The immediate problem we faced was to replace copies of the questionnaires which we had sent from here (London) and which were either misplaced or lost. In some companies, the questionnaires were given to employees who had since left. About three quarters of the companies we visited had either misplaced or lost the questionnaire and this made it expensive both in terms of time and money.

Transport was another problem and this was further made worse by the unreliable vehicles--especially when travelling between towns or regions. The spatial distribution of industries is such that a high concentration of them are either on the Copperbelt or Lusaka Provinces and the others scattered as far apart as Mansa (Luapula Province), Chipata (Eastern) and Livingstone (Southern). Whereas economies of scale obtained on the Copperbelt and Lusaka Provinces, it was not the case with other regions and as such, I could not visit the companies in

Mansa and Chipata.

Poor appointment keeping by most of the officials we were dealing with--except for ZCCM where appointment keeping was excellent--was another problem. Related to this problem was that of the perceived value of this kind of research. We were told that many before us had gone to look for information from these companies but their findings were not communicated to them (the companies). Put simply, they had no reason to see me in a different light. However, the letter from INDECO Central introducing my survey to them stressed that my findings were going to be made available to them and as such, co-operation in most cases was established.

The personnel departments are quite disorganised. In most cases the questionnaire was given to junior officers to complete and as a result some inaccuracy obtained. On going through the questions with the personnel managers or directors, they had to make some corrections. Furthermore, it became apparent that personnel departments in some of the companies I visited were ignorant of what was going on in other departments. For example, it was not possible to find accurate data on vacancies, skill requirements, or other operational problems affecting the production and technical departments from the personnel departments. Recognising this problem, we sought meetings with production, works, or technical managers to get some accurate data on the operational and manpower problems in their respective departments.

5.2.2 Data Analysis

Most of our data analysis was done using the SPSS^x package installed on the Amdhal main frame computer at the University of London Computer Centre. Learning to use the package; coding and data analysis

took the best part of six months. We also used a spreadsheet on a microcomputer to do some of the data analysis, especially historical and projected financial statistics. At the later stages of writing up the thesis and in modelling manpower systems we used Professor Bartholomew's basic equation (Markov model) programme installed on the VAX computers at the London School of Economics.

5.3 CONCLUSION

In designing the survey, the main objective was to capture both the external and internal factors which determine both the existence of labour shortages in individual companies and the choice of adjustment instruments. For this reason, the format of the main questionnaire followed a diagnostic approach, that is, first try to determine the nature and extent of the problem and then the methods used (in the past) to deal with the problems so identified. In addition to the data collected through the survey, other official documents and publications were collected so as to shed more light on the labour shortages and manpower planning issues. We present and discuss the data in the following chapters.

CHAPTER VI

LABOUR SHORTAGES IN THE INDECO GROUP OF COMPANIES: TOWARDS A DIAGNOSTIC ANALYSIS OF EMPIRICAL EVIDENCE

6.0 INTRODUCTION

INDECO's current problems of slack capacity and skill shortages are, as we have seen in chapters III and IV, symptomatic of the state of the national economy and the labour market, respectively. Being a state-owned enterprise, INDECO's capacity to adjust to changes in its business environment is, to a large extent, prescribed by the government. The purpose of this chapter is therefore to analyse the extent and impact of skilled manpower shortages in the labour market on skill availability and recruitment difficulties in INDECO companies.

The chapter is organised as follows: in section 6.1 we analyse the extent of skill shortages and seek to establish the sources and nature of the problem: whether recruitment difficulty or problems of retaining the necessary skilled labour or both. Section 6.2 looks at the causes of the labour shortages at the individual subsidiary company level and concentrates on analysing the demand and supply policies adopted so far. In section 6.3 we analyse the effects of skill shortages on operational efficiency.

6.1 THE NATURE OF SKILL SHORTAGES AND OTHER MANPOWER PROBLEMS

The skilled manpower problems which the INDECO Group and other companies in Zambia face, manifest themselves through recruitment

difficulties in the local labour market (hence the dependence on expatriates among the shortage occupational groups); poor skill quality (deficiency) among the existing work force; high labour turnover among the professional and skilled labour categories; and a young and inexperienced work force. We discuss these in turn.

6.1.1 VACANCIES AND RECRUITMENT DIFFICULTY

In traditional labour economics theory (Arrow and Capron, 1959; Hunter, 1978), recruitment difficulties (RD) may manifest themselves through long-term vacancies¹ and high labour turnover, especially if the source of RD is on the supply-side. Evidence from both the survey and other official publications show that RD among the INDECO Group of companies are experienced among the following occupational categories: accountants; technicians; engineers; industrial and processing skills; and, graduate level specialist management and marketing skills. For example, there were 18 recorded vacancies for top accountants in the whole of Group in 1983, and 34 in June 1985. In November 1985, out of an authorised establishment of 146 professionally qualified accountants, only 108 were actually filled (of which 87 were expatriates and 21 Zambians), leaving 38 vacancies unfilled. For the technician-level accountants like accounts clerks, out of a total requirement of over 200, only 139 were filled and this meant that, at least, 61 vacancies were unfilled.

A similar situation is also observed in the case of engineering

¹We expressed some reservations in chapter II regarding vacancies (and comparison of establishments with actual employment) as a measure of labour shortages. But given the severity of skilled manpower shortages in Zambia, many companies have been forced to use temporary measures like use of less skilled personnel. For this reason, vacancies may act as an indicator of the extent of the problem. We do point out below, however, that the reporting of vacancies presented some problems as INDECO Central had, at the time, just imposed a vacancy freeze in many of its subsidiary companies.

skills. For instance, in 1981, out of a total requirement of 866 (including expatriates) engineering and technical staff in the whole Group, only 690 posts were filled, giving a shortfall of about 176. The shortage (vacancies) of these skill categories were estimated to rise to 285 and 376, respectively, in 1982 and 1983. It is suggested that the situation in 1985/86 was not very different from the 1981 position.²

Evidence from the survey tend to confirm the above situation. Table 6.1 demonstrates the incidence of RD in 1987.³ The vacancies which have existed for a period of over a year are either in engineering, technical or accountancy. In nearly all the engineering and technical vacancies, the educational requirement is a bachelor of science degree with previous experience ranging from one year to over seven years. In the case of the two works engineering vacancies which have existed for periods of more than three years, it becomes obvious that the type of experience being sought (at over seven years) is difficult to find in the Zambian labour market. Even if there were, it is less likely that they would choose to join INDECO when remuneration packages in the private sector and elsewhere are, by comparison, far superior to those being offered in the INDECO Group.

The vacancies which have existed for a period of between four and twelve months are mostly in production supervisory categories, middle

²The above statistics are cited with the kind permission of INDECO Ltd, "INDECO Submission to the Committee Inquiring into the Terms and Conditions of Service of Key Employees in Short Supply", 1986, pp. 6-7.

³There was considerable confusion as to which vacancies to report: recruitment for senior, technical and professional position in accounting, engineering and management are centralised at INDECO Head Office. Some companies reported them while others thought that it was not their responsibility to provide information on vacancies which they have little say in filling. At the time, there was a directive from Head Office to freeze many of the existing vacancies, especially for less skilled categories; some companies were therefore not sure as to whether to include those vacancies which have been frozen. On our part we have excluded any such vacancies.

Table 6.1 VACANCIES REPORTED BY 15 INDECO COMPANIES

| <u>Post Vacant</u> | <u>Number</u> | <u>Educational Requirements</u> | <u>Experience (in years)</u> | <u>Reason for Vacancy</u> | <u>Whether Advertised</u> | <u>Time Existed (in years)</u> |
|-----------------------|---------------|---------------------------------|------------------------------|-------------------------------------|---------------------------|--------------------------------|
| Chief works engineer | 1 | BEng | At least 7 | Contract Expiry | Fill Internally | About 7 |
| Works engineer | 1 | BEng | Over 7 | Contract Expiry/ Zambianise post | Yes | Over 3 |
| Mechanical engineer | 1 | BEng | At least 3 | RD | Yes | Over 1 |
| Maintenance engineer | 1 | BEng | At least 2 | New post | Internally | Over 1 |
| Plant engineer | 1 | BEng | At least 1 | Resignation | In new fin. year | About 1 |
| | 1 | BEng | At least 2 | Expat. leaving | Internally | N/A |
| Systems Analyst | 1 | Dip. Computing | At least 5 | New post | Yes | Over 1 |
| Foremen/Supervisors | 1 | Trade Test | At least 4 | Retirement | Labour Office | 4-12 months |
| | 3 | ATC | At least 3 | Low production | If prod. rise | 4-12 months |
| Technicians | 3 | Tech'n Cert. | None | Low production | If prod. rise | 4-12 months |
| Maintenance fitters | 5 | Tech'n cert/Dip | At least 2 | New post | In new fin. year | 4-12 months |
| Operators | 10 | At least Form III | OJT | Dis'l/resig's | Fill internally | Under 3 months |
| General Workers | 5 | Grade VII/Form III | - | Dismissal | No | Varies |
| General Manager | 1 | - | - | Transfer | INDECO appoint. | 4-12 months |
| Production Manager | 1 | BEng | Over 7 | Transfer | Yes | 4-12 months |
| | 2 | BSc Pharmacy | At least 2 | Resignation | In new fin. year | Over 1 |
| A. Production manager | 1 | BEng/Dip Auto Tech. | At least 5 | Promotion | No | Over 1 |
| Technical manager | 1 | BSc Polymer | At least 5 | - | No | 4-12 months |
| Marketing manager | 1 | Dip. marketing | At least 5 | Death | No | Under 3 months |
| | 1 | Dip. marketing | At least 3 | - | No | - |
| | 1 | Dip. marketing | At least 5 | Transfer | Yes | Under 3 months |
| Sales officer | 1 | - | - | - | - | - |
| Marketing officer | 1 | - | - | - | - | - |
| Storekeeper-manager | 3 | Form V | At least 2 | Dismissal | No | 4-12 months |
| Chief Accountant | 2 | - | - | Resignation | INDECO appoint. | Over 1 |
| Accountant | 1 | BAC | None | Resignation | Yes | Under 3 months |
| A. Accountants | 1 | ZDA | None | Transfer | Yes | 4-12 months |
| | 3 | ZDA/AAT | Nine | Resignations | In new fin. year | Under 3 months |
| | 3 | BAC | None | Additional | Yes | N/A |
| A. Personnel Manager | 1 | BA Soc. Sciences | At least 5 | Dismissal | No | Under 3 months |
| Personnel officer | 1 | Dip. personnel | At least 3 | Dismissal | Yes | 4-12 months |
| Management trainee | 1 | BEng | None | Additional | No | N/A |
| Accounts clerks | 3 | CABS | None | Dismissals | Yes | 4-12 months |
| Personal secretary | 1 | At least 80 wpm | At least 3 | Resignation | Yes | 4-12 months |
| Drivers | 4 | Form II/II-Driving | At least 5 | Dismissal | Yes | Under 3 months |
| | 1 | Form III/V Class J | At least 1 | Resignation | Yes | 4-12 months |
| | 1 | Grade VII/Form III | At least 2 | Resignation | Labour Office | Under 3 months |

KEY: BEng = Bachelor of engineering BSc = Bachelor of Sciences BAC = Bachelor of accountancy
 ZDA = Zambia diploma of accountancy AAT = Accounting technician CABS = Certificate of accounting
 and book-keeping studies A. = Assistant OJT = On the-job-training ATC = Automotive technician cert.

Source: Main Questionnaire, Question B1-7

(accounting) and senior management, secretarial and heavy duty (marketing) drivers. The vacancies for supervisors are caused by the low rates of capacity utilization, which were to be filled when production resumed either by advertising or selecting from a register of speculative applicants. Filling the vacancies for senior management like production and general managers is a prerogative of INDECO Head office. That these have not been filled (where they are being advertised) for a period ranging from four to twelve months suggests recruitment difficulty problems in the local labour market.

In all, twelve of the nineteen subsidiary companies indicated that they faced recruitment difficulties in some of the skill groups listed in table 6.1--especially in technical, engineering and accounting professions. Nine of these reported that such recruitment difficulties were persistent for periods of a year or more. Three companies, however, did indicate that they did not experience any recruitment difficulties. In two of these, the main problem was that of skill deficiency among the existing work force. In the third company the manpower problems resulted from the recruitment freeze imposed by INDECO Central and not the shortage of skills in the local labour market.

A classification of recruitment difficulty by "other operational manpower problems" shows that six of the twelve firms experiencing recruitment difficulty also experienced high labour turnover among the professional and skilled labour categories; five of them also experienced either poor skills among their existing work forces (especially among production workers) or overemployment.

6.1.2 SKILL DEFICIENCY PROBLEMS AND THE EDUCATIONAL DISTRIBUTION

The extent of skill quality problems in the companies visited were,

in some cases, quite difficult to determine. For example, while individual members of senior management would acknowledge skill deficiency problems among their subordinate staff and the production workers, it was almost impossible (given human nature) for them to acknowledge their own lack of managerial skills. However other members of senior management like general, training, personnel and production managers were in a better position to assess the abilities of their colleagues and subordinates since they had access to the information relating to the educational and training qualifications, performance appraisals (where practised), etc. of the other members of the organization. The latter assumes that such managers are, themselves, adept at their respective tasks. It must be said, here and now, that the issue of poor managerial skills among senior INDECO managers is a complex one for their performance is, to a greater extent, limited by government policies and intervention by INDECO Central. One general manager made this clear when he said "...one should not hasten to pass judgement of inefficiency among INDECO managers for the same managers who have been accused of inefficiency while under INDECO or other ZIMCO companies have proved more dynamic and resourceful upon their joining private or multinational companies". He went on to say that the effects of government policy and, especially, the avowed 'supremacy of the ruling party' on efficiency and decision-making in the parastatal sectors have to be considered before any such judgements on competence are made.

The same general manager also said that given Zambia's economic structure and circumstances, recruitment could not always be based on merit. For example, in order to boost sales in a market dominated by resident aliens, he was forced to recruit an expatriate to replace a more qualified local marketing manager. This was made imperative by

the fact that other competitors had expatriate marketing managers and as such having even the most qualified local candidate, in itself, was not enough to boost sales. But either because of this or other reasons, the same general manager instructed his administrative officer not to provide information on those posts occupied by unqualified and/or inexperienced personnel. As such it was difficult to evaluate the extent of skill inadequacy in this particular subsidiary company. It would seem however that the problem was widespread for the same general manager said that the previous management had placed no significant attention on training and manpower development.

For other subsidiary companies table 6.2 demonstrates that skill deficiency problems (posts occupied by unqualified and/or inexperienced personnel) are very much prevalent among direct production skill categories: production supervisors, operators, engineering and plant managers, farm officers and, purchasing officers and managers.⁴ Skill deficiency problems are also prevalent among indirect labour categories like (technical) sales, accounting and personnel management.

Comparison of minimum educational requirements for the posts and that of the current incumbents reveals some discrepancy. Although long practical experience, as is the case here, may compensate for the educational and vocational shortcomings, its value may be limited under changing conditions and circumstances. If such practical experience was acquired during a growing economy (as was the case in Zambia in the first decade of independence), its applicability in a recession may be

⁴IDAT, (op cit, appendix, p. 3) found that, in some of the six INDECO subsidiary companies it studied, technical issues, especially those relating to maintenance procedure, were not given sufficient weight at the management level. What is more, they also found out that most of the companies had too few engineers and those available had either insufficient experience relevant to the needs of the plant or had no expertise. And, probably, due to the 'diploma disease' they also found that technical staff were being placed in senior positions without the necessary experience of the technical issues at the operating level and the shop floor.

Table 6.2 POSTS OCCUPIED BY UNQUALIFIED OR INEXPERIENCED PERSONNEL: INDECO ONLY

| <u>Post Title</u> | <u>Number of posts</u> | <u>Number of firms</u> | <u>Educational Qualifi- cations of incumbents</u> | <u>Average Experience of Incumbent (in years)</u> | <u>Nationality</u> | <u>Required Education</u> | <u>Required Experience (in years)</u> |
|-------------------------------------|----------------------------|--------------------------------|--|---|---------------------|-------------------------------|---|
| Engineer | 1 | 1 | Diploma | 2 | Zambian | BEng | 1-3 |
| Technician | 1 | 1 | Grade VII | Over 20 | Zambian | Diploma | 1-3 |
| Production supervisors | 17 | 4 | Grade VII | 5-over 20 | Zambian | Form V/Diploma | none |
| Many who lack skills | - | 1 | Form II/III | - | Zambian | Technician cert | 0-3 |
| Operators | 15 | 2 | Form II/III | 10-over 20 | Zambian | Dip./Craftsman | none |
| Many who lack skills | - | 3 | - | - | Zambian | - | - |
| Engineering and plant managers | 6 | 2 | Diploma | Lack experie- nce/expertise | Zambian/ non-Z'n | BEng | 3-5 |
| Sales managers | 6 | 2 | -attendance courses unrelated diploma | 0-20 | Zambian/ non-Z'n | Form V, BA and BEng | 3 |
| Purchasing officers and managers | 35 | 4 | -BSc natural sciences -attendance -Form II/III -unrelated diploma | 1-20 | Zambian | Diploma | 0-5 |
| Accountants | 3 | 3 | Form V/ZDA | 10-20+ | Zambian | Dip./ACCA/ICMA | 0-5 |
| Asst. Accountants | 10 | 2 | Form V | 5-10 | Zambian | CABS/ACCA/ICMA | 0-3 |
| Personnel Officers and managers | 5 | 2 | Grade VII/Cert. | 10-20+ | Zambian | Diploma | 1-5 |
| Farm Officers | 10 | 1 | Diploma | 1-5 | Zambian | BAgric | 1-3 |
| Safety Officer | 1 | 1 | Form II/III | 15 | Zambian | Form V | 1-3 |

Source: Main Questionnaire, Question B1-5

limited. Technical progress also renders long experience nugatory for those workers who may not be easily retrained in the new methods of production. Many managers, therefore, said that their respective organizations tended to pay more to those with vocational qualifications from trades and technical institutes than their equivalent internally trained and experienced workmen--see chapter VII and Colclough (1972). The former are perceived to be knowledgeable, versatile and adaptable, while the latter are said to be relatively limited in these attributes.

As an illustration of skill deficiency in some of the companies visited consider the following cases:

(a) in one subsidiary company, the technical sales manager should, ideally, be a university graduate welding engineer with, at least, three years experience. But, because of recruitment difficulties in the local labour market, the company was forced to recruit an inexperienced chemical engineer. The trouble is, while the incumbent continues to draw a salary and benefits of a technical sales manager, his performance and contribution to the company is below what would, otherwise, be required. Efficiency here is definitely suffering and the company is paying the price.

(b) another subsidiary company wanted to introduce new plants but its five plant managers (who had long experience) lacked the required educational qualifications (they had diplomas in engineering technology instead of bachelor of engineering degrees) and as such, it could not send them abroad for further training as they lacked the necessary educational credentials.

A similar problem also obtained in another large company where ten farm officers who had diplomas in agricultural sciences could neither be considered for promotion to farm managers (because their abilities to assume responsibility were questionable) nor sent for further training because they did not meet the minimum educational requirements for such training.

Such cases of the lack of educational attributes are quite common in the INDECO Group. For example, an analysis of the educational structure of employment in the whole Group, using data for 1983, shows that 72 per cent (18,658) of total employment (25,855) in direct production were unskilled and engaged in providing general work

(indirect labour comprising top executives, middle management and clerical staff accounted for 12.9 per cent). This leaves real productive labour at 15.1 per cent of the work force. It is after considering these statistics that Shakalima (1985:4) concluded that

... this considerably affects the labour efficiency resulting in low productivity of our industrial sector. What this further reveals is that there is a critical shortage of technical manpower which the Corporation has to urgently address itself through on-job skills training

There is no reason to believe that the above structure has changed favourably since 1983. Evidence from eleven subsidiary companies who (table 6.3) provided educational distribution data for their respective work force (in all 5,244 employees--about a quarter of total INDECO employment) shows that, about 58 per cent of the workers had educational attainment of only up to Grade VII, that is barely literate. The proportion of all tertiary education graduates was below 10 per cent. And even if we add Form V senior school certificate holders to the total of tertiary graduates their combined proportion would still be below a quarter of the total sample. In a way, this confirms the anxieties expressed by many executives who said that given the low skills and educational standards of many of their workers, training and retraining them to attain the required standards was often difficult because they do not meet the minimum entry requirements for such training programmes.

In the face of these skill quality problems and inexperience, the ability of some of the INDECO subsidiary companies to adapt to the changing economic and technological environments is questionable and, in some cases, these problems, more than the availability of foreign exchange, account for some of the continuing operational problems.

Table 6.3 EDUCATIONAL DISTRIBUTION OF EMPLOYEES FOR ELEVEN
INDECO COMPANIES--FIRST QUARTER, 1987

| University graduates | | | | | |Percentage Distributions..... | | | | | |
|-------------------------|---------|-------------------|--------|-----------------|-----------|------------------------------------|--------|-----------|----------|------------|------------|
| | Diploma | Profe- ssional | Form V | Form II/ III | Grade VII | TOTAL | Grad % | Diploma % | Form V % | Form III % | GradeVII % |
| 12 | 18 | 0 | 48 | 103 | 360 | 543 | 2.21 | 3.31 | 8.84 | 19.34 | 66.30 |
| 13 | 52 | 1 | 54 | 168 | 157 | 448 | 3.12 | 11.61 | 12.05 | 37.50 | 35.04 |
| 6 | 11 | 1 | 12 | 32 | 4 | 85 | 8.24 | 12.94 | 14.12 | 37.65 | 4.71 |
| 8 | 5 | 0 | 33 | 113 | 230 | 392 | 2.04 | 1.28 | 8.42 | 28.83 | 58.67 |
| 24 | 60 | 0 | 80 | 115 | 140 | 419 | 5.73 | 14.32 | 19.09 | 27.45 | 33.41 |
| 8 | 80 | 1 | 210 | 100 | 261 | 660 | 1.36 | 12.12 | 31.82 | 15.15 | 39.55 |
| 29 | 0 | 3 | 108 | 140 | 560 | 840 | 3.81 | 0.00 | 12.86 | 16.67 | 66.67 |
| 10 | 14 | 0 | 14 | 47 | 112 | 198 | 5.05 | 7.07 | 7.07 | 23.74 | 56.57 |
| 2 | 33 | 1 | 30 | 33 | 75 | 175 | 1.71 | 18.86 | 17.14 | 18.86 | 42.86 |
| 2 | 19 | 2 | 19 | 21 | 28 | 86 | 4.65 | 22.09 | 22.09 | 24.42 | 32.56 |
| 19 | 50 | 1 | 144 | 133 | 1049 | 1398 | 1.43 | 3.58 | 10.30 | 9.51 | 75.04 |
| 133 | 342 | 10 | 752 | 1007 | 2976 | 5244 | 2.73 | 6.52 | 14.34 | 19.20 | 56.75 |

Source: Main Questionnaire, Question B1-6

6.1.3 AGE AND LENGTH-OF-SERVICE DISTRIBUTIONS

The age and length-of-service distribution of the work force may reveal some existing and potential manpower problems. As such, knowledge of these distributions would help in the planning of recruitment, training, utilization and the disposal of human resources.

For the ten subsidiary companies who provided data on the age and length-of-service distributions of their respective work force, table 6.4 and figures 6.1 and 6.2 provide a summary. In all, about 65 per cent of the sample were below 35 years of age. And for individual occupational categories; the proportions below 35 years of age are as follows: about 63 per cent of engineering personnel; 84 per cent among technicians; 74 per cent among fitters and operators; 67 per cent among other professional categories; 57 per cent among middle management; 60 per cent among accounts clerks; and over 70 per cent among sales and marketing personnel. Only among production supervisors, medical,

Table 6.4

A: WORK FORCE DISTRIBUTION BY OCCUPATION, AGE AND LENGTH OF SERVICE (IN YEARS): FIRST QUARTER, 1987

| OCCUPATION | EXPAT- RIATE | LOCAL | TOTAL |AGE GROUPS..... | | | | |LENGTH OF SERVICE GROUPS.... | | | | | |
|---------------------|-----------------|-------------|-------------|----------------------|-------------|-------------|------------|-----------|-----------------------------------|------------|------------|-------------|------------|------------|
| | | | | < 25 | 25-34 | 35-44 | 45-55 | > 55 | < 1 | 1-2 | 3-5 | 5-10 | 10-15 | > 15 |
| Engineers | 8 | 59 | 67 | 0 | 42 | 17 | 6 | 2 | 10 | 6 | 27 | 18 | 4 | 2 |
| Production | | | | | | | | | | | | | | |
| Supervisors | 1 | 90 | 91 | 1 | 33 | 42 | 13 | 2 | 0 | 8 | 17 | 29 | 23 | 14 |
| Technicians | 0 | 92 | 92 | 6 | 71 | 12 | 1 | 2 | 5 | 20 | 41 | 21 | 4 | 1 |
| Fitters, Craftsmen | 0 | 666 | 666 | 123 | 371 | 128 | 41 | 3 | 19 | 64 | 169 | 257 | 118 | 39 |
| Medicine/paramedic. | 2 | 34 | 36 | 0 | 14 | 15 | 6 | 1 | 1 | 6 | 6 | 8 | 12 | 3 |
| Other professional | 1 | 14 | 15 | 2 | 8 | 5 | 0 | 0 | 2 | 4 | 6 | 2 | 1 | 0 |
| Operators & others | 0 | 405 | 405 | 0 | 237 | 151 | 17 | 0 | 0 | 15 | 54 | 227 | 96 | 13 |
| Drivers and mates | 0 | 381 | 381 | 18 | 164 | 138 | 55 | 6 | 3 | 47 | 102 | 118 | 91 | 20 |
| General Workers | 0 | 476 | 476 | 131 | 74 | 176 | 95 | 0 | 14 | 151 | 136 | 97 | 51 | 27 |
| Senior management | 6 | 45 | 51 | 0 | 10 | 18 | 21 | 2 | 2 | 8 | 10 | 14 | 11 | 6 |
| Middle management | 0 | 62 | 62 | 1 | 35 | 20 | 5 | 1 | 2 | 4 | 12 | 27 | 11 | 6 |
| Accountants | 17 | 94 | 111 | 0 | 51 | 53 | 6 | 1 | 5 | 28 | 41 | 20 | 10 | 7 |
| Accounts Clerks | 0 | 35 | 35 | 1 | 20 | 14 | 0 | 0 | 0 | 1 | 8 | 24 | 2 | 0 |
| Clerical & others | 0 | 487 | 487 | 65 | 284 | 100 | 34 | 4 | 30 | 82 | 125 | 136 | 96 | 18 |
| Purchasing/Supply | 0 | 54 | 54 | 0 | 25 | 28 | 1 | 0 | 2 | 5 | 12 | 15 | 18 | 2 |
| Sales & Marketing | 0 | 83 | 83 | 2 | 56 | 19 | 5 | 1 | 1 | 4 | 24 | 33 | 17 | 4 |
| Security | 0 | 194 | 194 | 3 | 119 | 47 | 21 | 4 | 8 | 46 | 38 | 71 | 19 | 12 |
| Catering, Cleaning | 0 | 170 | 170 | 9 | 83 | 49 | 26 | 3 | 1 | 12 | 36 | 78 | 29 | 14 |
| TOTAL | 35 | 3441 | 3476 | 362 | 1697 | 1032 | 353 | 32 | 105 | 511 | 864 | 1195 | 613 | 188 |

B: PERCENTAGE AGE AND LENGTH OF SERVICE DISTRIBUTIONS

| Occupational Groups |Age Distribution..... | | | | |Length of Service Distribution..... | | | | | |
|------------------------|----------------------------|--------------|--------------|--------------|-------------|--|--------------|--------------|--------------|--------------|-------------|
| | < 25 | 25-34 | 35-44 | 45-55 | > 55 | < 1 | 1-2 | 3-5 | 5-10 | 10-15 | > 15 |
| Engineers | - | 62.69 | 25.37 | 8.96 | 2.99 | 14.93 | 8.96 | 40.30 | 26.87 | 5.97 | 2.99 |
| Production Supervisors | 1.10 | 36.26 | 46.15 | 14.29 | 2.20 | - | 8.79 | 18.68 | 31.87 | 25.27 | 15.38 |
| Technicians | 6.52 | 77.17 | 13.04 | 1.09 | 2.17 | 5.43 | 21.74 | 44.57 | 22.83 | 4.35 | 1.09 |
| Fitters, Craftsmen | 18.47 | 55.71 | 19.22 | 6.16 | 0.45 | 2.85 | 9.61 | 25.38 | 38.59 | 17.72 | 5.86 |
| Medicine & paramedics | - | 38.89 | 41.67 | 16.67 | 2.78 | 2.78 | 16.67 | 16.67 | 22.22 | 33.33 | 8.33 |
| Other professionals | 13.33 | 53.33 | 33.33 | - | - | 13.33 | 26.67 | 40.00 | 13.33 | 6.67 | - |
| Operators & others | - | 58.52 | 37.28 | 4.20 | - | - | 3.70 | 13.33 | 56.05 | 23.70 | 3.21 |
| Drivers & mates | 4.72 | 43.04 | 36.22 | 14.44 | 1.57 | 0.79 | 12.34 | 26.77 | 30.97 | 23.88 | 5.25 |
| General Workers | 27.52 | 15.55 | 36.97 | 19.96 | - | 2.94 | 31.72 | 28.57 | 20.38 | 10.71 | 5.67 |
| Senior management | - | 19.61 | 35.29 | 41.18 | 3.92 | 3.92 | 15.69 | 19.61 | 27.45 | 21.57 | 11.76 |
| Middle management | 1.61 | 56.45 | 32.26 | 8.06 | 1.61 | 3.23 | 6.45 | 19.35 | 43.55 | 17.74 | 9.68 |
| Accountants | - | 45.95 | 47.75 | 5.41 | 0.90 | 4.50 | 25.23 | 36.94 | 18.02 | 9.01 | 6.31 |
| Accounts clerks | 2.86 | 57.14 | 40.00 | - | - | - | 2.86 | 22.86 | 68.57 | 5.71 | - |
| Clerical & others | 13.35 | 58.32 | 20.53 | 6.98 | 0.82 | 6.16 | 16.84 | 25.67 | 27.93 | 19.71 | 3.70 |
| Purchasing & supply | - | 46.30 | 51.85 | 1.85 | - | 3.70 | 9.26 | 22.22 | 27.78 | 33.33 | 3.70 |
| Sales & marketing | 2.41 | 67.47 | 22.89 | 6.02 | 1.20 | 1.20 | 4.82 | 28.92 | 39.76 | 20.48 | 4.82 |
| Security | 1.55 | 61.34 | 24.23 | 10.82 | 2.06 | 4.12 | 23.71 | 19.59 | 36.60 | 9.79 | 6.19 |
| Catering, Cleaning | 5.29 | 48.82 | 28.82 | 15.29 | 1.76 | 0.59 | 7.06 | 21.18 | 45.88 | 17.06 | 8.24 |
| TOTAL | 10.41 | 48.82 | 29.69 | 10.16 | 0.92 | 3.02 | 14.70 | 24.86 | 34.38 | 17.64 | 5.41 |

Source: Main Questionnaire, Question 81-4

Figure 6.1 Age Distribution (in years) in Percent

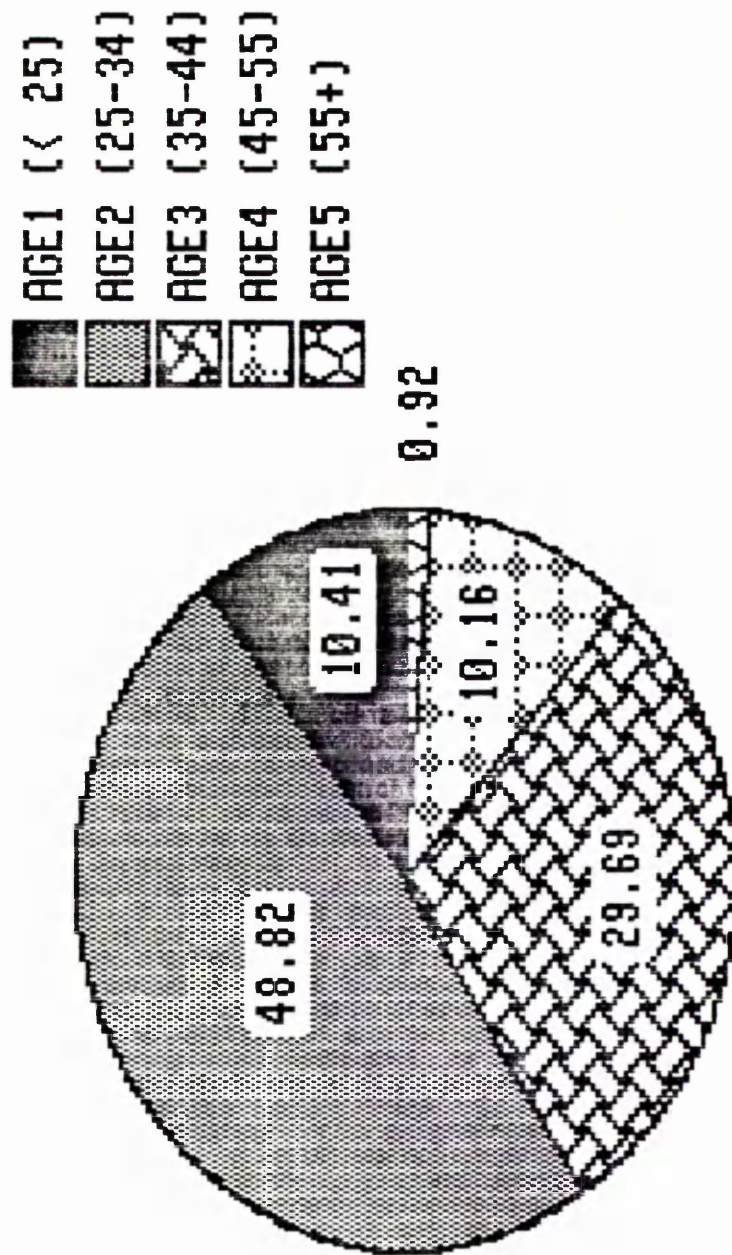
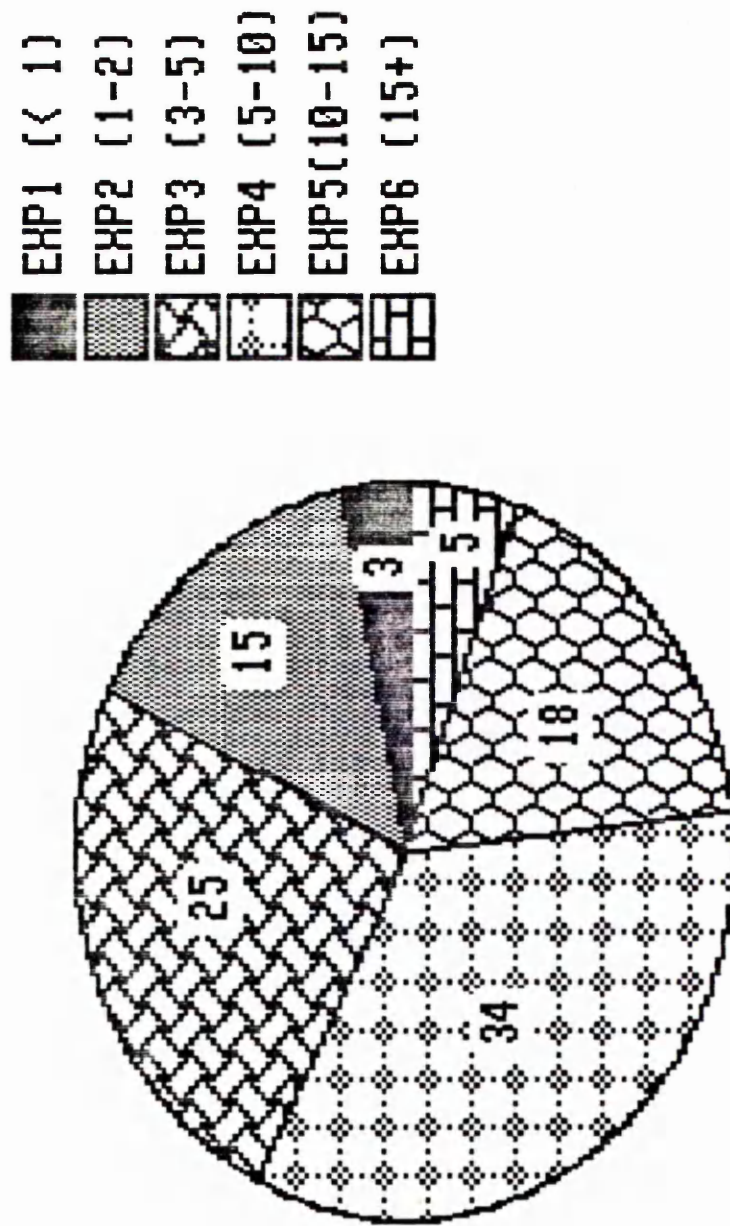


Figure 6.2 Experience Distribution (in years) in Percent



general workers, senior management, and purchasing and supply is the proportion of those below 35 years of age below 50 per cent.

In addition to a young workforce, the companies covered in the survey also suffer from problems of inexperience: about 48 per cent of the total employees have less than five years experience in their present jobs. With regard to the ten year length-of-service distribution, 82 per cent were below this mark. This is especially significant among the following occupational categories: engineering; technicians; fitters and craftsmen; other professionals; general workers; accountants; clerical and security personnel.

A young age structure is also observed at INDECO Central itself. For example, out of 249 employees at INDECO Central in January, 1987, 121 of them or 49 per cent were below the age of 35. Another 70 were below forty--that is, 191 or 77 per cent of the workforce. Such an age structure would affect experience and labour turnover situations.⁵ Elsewhere in the INDECO Group, the situation is the same: the average age of the 87 employee respondents was about 33 years.

This young age structure among INDECO companies may be attributed to the following factors:

(a) the World Bank/IMF restructuring programme for INDECO implemented in 1985 sought to streamline the workforce by reducing the excess labour. In the main, it was those aged fifty and over who were either retired or declared redundant.

(b) in 1985, the official retiring age was reduced from 65 and 60 for men and women respectively, to 55 for both sexes--so as to create vacancies and thereby reduce rising youth unemployment.

(c) according to the 1980 population census, about half of the

⁵INDECO Ltd "Indicators of Manpower Problems", 1987, Appendix, 2.

population are below the age of fifteen. And about 80 per cent of the population are below the age of thirty-five. This makes the predominance of the youth in the labour market quite inevitable.

(d) those who are aged forty or over, literate and employed would have received their education under the colonial period. But, as we discussed in previous chapters, the colonial educational policies were not very favourable to the Africans. For this reason, the increased expenditure on educational and training after independence has tended to benefit the young and hence their dominance in the formal-sector employment.

Given such a young workforce the lack of practical experience may be widespread and as a consequence, their ability to deal with practical issues relating to operations is limited. Moreover, the existence of pervasive skilled and professional labour shortages in Zambia has meant that the young college and university graduates assume high posts which require long experience. Since the young are impulsive and impatient, high labour turnover, spoilage of materials, improper use of equipment and machinery would have to be expected.

6.1.4 LABOUR TURNOVER

Due to data problems, the measures of labour turnover like the median length-of-service of leavers (MLOS) and the survival-of-leavers curve (SLC) could not be calculated from the data supplied by fifteen subsidiary companies. The data collected was for a period of three years, that is, from 1983 to 1986. Instead, table 6.5 expresses the proportion of the different types of labour turnover as percentages of total turnover. Owing to the unfavourable economic situation and the preconditions of the now abandoned World Bank and IMF restructuring

programme, the uncontrollable turnover variables of retrenchment (redundancies), age and early retirement account for 59 per cent of the total turnover (for a distinction between controllable and uncontrollable turnover see chapter II). And if we include death, the proportion of the uncontrollable variables rises to 63 per cent.

The individual occupational categories which have mostly been affected by the uncontrollable turnover and their proportions are: operators (91 per cent); senior management (26 per cent); clerical and other office workers (22 per cent) and general workers (74 per cent). The redundancies and early retirement which were across the board followed the restructuring programme: one subsidiary company had to be temporarily closed and others had to cut their employment.

Although the expiry of expatriate contracts may be considered under certain conditions to be controllable it may, however, be uncontrollable under the context of the Zambianization policy. It is controllable to the extent that by mutual agreement, it may be renewed. On the other hand, it may be uncontrollable if it is felt, say, by the works committee or the Ministry of Labour that there may be competent Zambians who may take over a given job from an expatriate.

With regard to the voluntary variables of dismissals and resignations, table 6.5 demonstrates that they both account for 26 per cent of the total turnover. Because the voluntary leaving situations may differ from dismissals, and that in developing countries where only few restraints exist on the employers' 'right to fire', the levels of dismissals may vary widely.⁶ This makes it necessary to express voluntary separations as a percentage of the total controllable turnover (that is, the sum of resignations and dismissals). The last column of

⁶van der Merwe and Miller, "The Measurement of Labour Turnover" in E. O. Pettman (ed), Labour Turnover and Retention, (Epping, London: Gower, 1975), p. 26.

Table 6.5 Labour Turnover Statistics for 15 INDECO Subsidiary Companies: 1983-86

| Occupation | (1) Total | (2) Dismissal | (3) Redundancy | (4) Early- Retirement | (5) Retirement | (6) Death | (7) Resignations | (8) Transfers | (9) Contract Expiry | (10) (7/2+7) |
|------------------|--------------|------------------|-------------------|-----------------------------|-------------------|---------------|---------------------|------------------|---------------------------|-----------------|
| Engineers | 9 | 1 (11.11) | - | - | - | - | 5 (55.56) | - | 3 (33.33) | 83.33 |
| Technicians | 8 | 3 (37.50) | 1 (12.50) | - | - | - | 4 (50.00) | - | - | 57.14 |
| Supervisory | 8 | 2 (25.00) | 1 (12.50) | - | 1 (12.50) | - | 4 (50.00) | - | - | 66.67 |
| Operators | 44 | 2 (4.55) | - | - | 30 (68.18) | 10 (22.73) | 1 (2.27) | 1 (2.27) | - | 33.33 |
| Sr. management | 34 | 4 (11.76) | 6 (17.65) | 2 (5.88) | - | 1 (2.94) | 7 (20.59) | 10 (29.41) | 4 (11.76) | 64.00 |
| M. management | 17 | 6 (35.29) | - | - | 1 (5.88) | - | 1 (5.88) | 6 (35.29) | 3 (17.65) | 16.67 |
| Accountants | 15 | 5 (33.33) | - | - | - | - | 5 (33.33) | 4 (26.67) | 1 (6.67) | 50.00 |
| Clerical | 18 | 5 (27.73) | 4 (22.22) | - | - | 1 (5.56) | 6 (33.33) | 2 (11.11) | - | 54.54 |
| Sales | 8 | 7 (87.50) | - | - | - | - | 1 (12.50) | - | - | 12.7 |
| Management t'nee | 4 | 1 (25.00) | - | - | - | - | 3 (75.00) | - | - | 75.00 |
| Across board | 113 | - | 74 (65.49) | 39 (34.51) | - | - | - | - | - | - |
| General Workers | 42 | 6 (14.29) | 7 (16.67) | 1 (2.38) | 21 (50.00) | 2 (4.76) | 5 (11.90) | - | - | 45.45 |
| TOTAL | 320 | 42 (13.12) | 93 (29.06) | 42 (13.12) | 53 (16.56) | 14 (4.37) | 42 (13.12) | 23 (7.19) | 11 (3.44) | 50.00 |

NB: Figures in brackets are the respective raw percentages.

Sr. = Senior, M. = Middle, t'nee = Trainee

Source: Main Questionnaire, Question D1-10

table 6.5 shows that the proportion of resignations to total controllable turnover is highest among engineers (83 per cent); management trainees (75 per cent); production supervisors and foremen (67 per cent), senior management (64 per cent), clerks and secretaries (55 per cent) and accountants (50 per cent).

Whereas it may be difficult to dismiss labour on poor performance

or unsuitability to do the job,⁷ it may be possible to do so on other grounds like misappropriation of funds, stealing, persistent absenteeism, and sleeping on duty (especially among technicians and operators who work on night shifts). For these latter reasons, the incidence of high dismissal rates among sales personnel and cashiers is mainly due to the misappropriation of proceeds from the sale of goods and services.

6.2 CAUSES OF SKILLED MANPOWER PROBLEMS

The problems of recruitment difficulty, skill deficiency and high labour turnover are usually associated with a tight labour market. However, this need not always be the case as regions with high levels of unemployment have been found to suffer from recruitment difficulties and skill shortages.⁸ Whereas the level of unemployment in Zambia has been increasing (see chapter IV), vacancies in technical, engineering, management and accounting occupations continue to prove difficult to fill.

If we define a worker to be "frictionally unemployed if he possesses the right attributes (qualifications, skill, experience, etc) to fill a vacancy and structurally unemployed if he possesses the wrong attributes", Perlman⁹ argues that there may be vacancies in certain

⁷Comments by a works engineer in one of the biggest subsidiary companies who complained that because of employment protection legislation, it was difficult to fire workers if they were found to be incompetent or unsuitable for particular jobs.

⁸Hunter (1978) found that in West-central Scotland, despite high levels of unemployment, recruitment difficulties were widespread.

⁹Richard Perlman, Labour Theory, (New York: Wiley, 1969), pp. 146-9 cited by James J. Hughes and Richard Perlman, The Economics of Unemployment: a Comparative Analysis of Britain and the United States, (Brighton, England: Wheatsheaf, 1984) p. 42.

occupational categories which the structurally unemployed cannot fill--the Structurally Overemployed Counterparts (SOC), that is, occupations in which there are excess vacancies over the unemployed. In the Zambian context, this means that the vast majority of those unemployed lack the necessary attributes to fill the existing vacancies in technical, engineering, management and accounting occupations. Because such excess vacancies in the skilled and professional occupations cannot be filled locally, expatriates are usually recruited to meet any such shortfalls.

Among other things, table 6.6 demonstrates that the following are the main causes of skilled manpower problems at the micro level in the INDECO Group:

(a) on the demand side

- higher pay elsewhere (especially for accountants and engineers
- attracted by other employers
- general rise in demand for shortage types of labour
- declared shortage labour redundant
- technical progress
- poor fringe benefits

(b) on the supply side

- insufficient local training facilities
- educational system not responsive to the job needs
- general shortage of skilled labour in Zambia
- colonial educational and labour policies
- lack of training resources
- other employers, especially, in the private sector not training

-high failure rates among trainees for the shortage

occupations

-vested interests of foreign capital

We discuss the above factors in turn.

Table 6.6 POSSIBLE CAUSES OF PROFESSIONAL LABOUR SHORTAGES: INDECO SUBSIDIARY COMPANIES ONLY

| | Frequency | | | | | Not Applicable | Rank ^a |
|---|-------------------|--------------------|-----------------------|------------------|------------------|-------------------|-------------------|
| | Very Important | Quite Important | Somewhat Important | Not Important | Not Important | | |
| Colonial educational and labour policies | 5 | 1 | 2 | - | 3 | 5 | 7 |
| Vested interests of foreign capital | 1 | 1 | - | - | 9 | 5 | 13 |
| Technical Progress | 2 | 1 | - | 2 | 5 | 6 | 12 |
| Lack training resources | 3 | - | 2 | 3 | 3 | 5 | 8 |
| Declared shortage labour redundant | 2 | 1 | 1 | 1 | 5 | 5 | 10 |
| Higher pay elsewhere (esp. accountants & engineers) | 10 | - | 1 | - | 5 | 5 | 1 |
| Attracted by other employers " | 7 | 2 | 2 | - | - | 5 | 2 |
| Other employers not training enough | 1 | 1 | 2 | 4 | 3 | 5 | 9 |
| Trade union restriction | - | - | - | 1 | 10 | 5 | 15 |
| Insufficient local training facilities | 6 | 2 | 2 | - | 1 | 5 | 3 |
| Educational system not responsive to job needs | 6 | 2 | 1 | - | 2 | 5 | 5 |
| General rise in demand for shortage labour | 2 | 6 | 2 | - | 1 | 5 | 6 |
| School leavers not interested in shortage occupations | - | - | - | 3 | 8 | 5 | 15 |
| High failure rates among trainees for shortage occupations | 1 | 2 | 3 | 1 | 3 | 5 | 10 |
| Difficult journey to work for possible employees | - | - | - | 1 | 10 | 5 | 18 |
| Dangerous working conditions | - | - | - | 1 | 10 | 5 | 18 |
| Work involves anti-social hours | - | - | - | 1 | 10 | 5 | 18 |
| Housing problems | - | 1 | 2 | - | 8 | 5 | 13 |
| General skill shortages in Zambia | 7 | - | 3 | - | 1 | 5 | 3 |
| Poor location | - | 1 | - | 1 | 8 | 6 | 15 |
| Others like poor fringe benefits | 1 | 1 | - | - | - | 5 | 21 |

^a Weighted rank from 'very important' = 5 to 'not important' = 1

Source: Main Questionnaire, Question C1-3

6.2.1 THE DEMAND ASPECTS

(i) Pay Differentials Between INDECO and the Private Sector

In chapter IV we examined evidence which suggested that the public and parastatal sectors tended, in relative terms, to pay the less skilled workers more than they do skilled and professional labour categories. In comparison with the private sector, table 6.7A demonstrates that INDECO companies tend to pay more the relatively less skilled production workers than they do the high-level manpower categories. Even at the aggregate level table 6.7B demonstrates that during the second half of the 1970s, a fall in average real annual earnings for the high-level (non-Zambian) manpower was greater in the parastatal than private sectors. It thus becomes obvious as to why INDECO has had problems in attracting and retaining the necessary skilled and professional shortage labour. This under-valuation of the scarce high level-manpower among the INDECO subsidiary companies may be due to institutional factors over which INDECO has little or no control:

(a) the egalitarian pay principles which form the basis of the pay structure of the civil service and the parastatal sectors seek to narrow the pay differentials between the lowly-paid (or low skill categories) and the highly-paid (the high-level manpower categories). This tends to favour the former at the expense of the latter (see table 7.6A in chapter VII).

Meij (1963:15-17) has argued that the relationship between the wage structure and the organisation structure may be defined as the formal and informal relationships between the different members of an organization. This, he argues, is because the wages earned by people are a

Table 6.7A COMPARISON OF AVERAGE AGES, YEARS IN THE PRESENT JOB AND
THE PRESENT SALARY LEVELS IN INDECO AND PRIVATE COMPANIES

| <u>Job Category</u> | <u>Employer</u> | <u>Age</u> | <u>Years in</u> | <u>Present</u> |
|------------------------|-----------------|------------|--------------------|----------------|
| | | | <u>Present Job</u> | <u>Salary</u> |
| Professional/technical | INDECO Subsid. | 1.7 | 5.0 | 12020.00 |
| | Private Sector | 33.5 | 2.5 | 7670.00 |
| | Mean | 32.11 | 4.4 | 11398.60 |
| Accounting | INDECO Subsid. | 34.5 | 8.1 | 13241.90 |
| | Private Sector | 35.0 | 6.0 | 13671.00 |
| | Mean | 34.6 | 7.6 | 13349.20 |
| Managerial* | INDECO Subsid. | 37.5 | 8.9 | 12022.40 |
| | Private Sector | 35.8 | 7.2 | 17627.30 |
| | Mean | 37.2 | 8.5 | 13073.10 |
| Skilled Supervisory | INDECO Subsid. | 35.1 | 9.4 | 10046.30 |
| | Private Sector | 37.9 | 9.1 | 7324.29 |
| | Mean | 36.2 | 9.3 | 8925.47 |
| Skilled Production | INDECO Subsid. | 32.1 | 5.3 | 6493.80 |
| | Private Sector | 26.00 | 2.5 | 3481.67 |
| | Mean | 29.21 | 4.0 | 5067.00 |
| General Workers | INDECO Subsid. | 23.0 | 1.0 | 1200.00 |
| | Private Sector | 27.5 | 3.00 | 2275.00 |
| | Mean | 26.00 | 2.3 | 1916.67 |
| Total Average | | 33.5 | 7.0 | 9265.36 |

NB: * Includes administrative, managerial, marketing and purchasing.

Sources: Employee Questionnaire, Question 1

major factor in determining their status within the firm and that the wage structure shows how each job is evaluated. In other words, the wage structure is the value dimension of the organisational structure.

Since external factors like government policies and trade union activities impinge upon the internal company wage structures, these may not always be in the interest of the company concerned. If external influences make the wage structure to be incompatible with the organization structure, that is, the wage scales for the different jobs in the company are not in line with the their positions, then grievances

and tensions may result and, probably, culminate into low productivity. The under-valuing of the high-level manpower in the INDECO companies, welfare considerations notwithstanding, essentially means that the wage structure is out of step with the organisational

Table 6.7B Average Nominal and Real Earnings^a: Public, Parastatal and Private Sectors, 1975-80

| | | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |Average Annual Growth Rates..... | | | | | |
|--------------------------|-------------|------|------|------|------|------|------|---------------------------------------|--------|--------|--------|-------|-------|
| | | | | | | | | 1975 | 1976 | 1977 | 1978 | 1979 | 1975 |
| | | | | | | | | -76 | -77 | -78 | -79 | -80 | -80 |
| NOMINAL: | | | | | | | | | | | | | |
| Public | Zambian | 1147 | 1255 | 1258 | 1418 | 1764 | 1966 | 9.42 | 0.24 | 12.72 | 24.40 | 11.45 | 14.28 |
| | Non-Zambian | 3768 | 4066 | 3985 | 3803 | 4758 | 6501 | 7.91 | -1.99 | -4.57 | 25.11 | 36.63 | 14.51 |
| Private | Zambian | 899 | 1167 | 1249 | 1681 | 1875 | 2082 | 29.81 | 7.03 | 34.59 | 11.54 | 11.04 | 26.32 |
| | Non-Zambian | 5272 | 5724 | 6008 | 8059 | 9090 | 9283 | 8.57 | 4.96 | 34.14 | 12.79 | 2.12 | 15.22 |
| Parastatal | Zambian | 1381 | 1920 | 2090 | 2106 | 2568 | 2774 | 39.03 | 8.85 | 0.77 | 21.94 | 8.02 | 20.17 |
| | Non-Zambian | 6799 | 9503 | 9962 | 7954 | 8992 | 9811 | 39.77 | 4.83 | -20.16 | 13.05 | 9.11 | 8.88 |
| TOTAL | Zambian | 1140 | 1469 | 1566 | 1740 | 1657 | 2301 | 28.86 | 6.60 | 11.11 | -4.77 | 38.87 | 20.37 |
| | Non-Zambian | 5572 | 6858 | 7086 | 6887 | 6122 | 8715 | 23.08 | 3.32 | -2.81 | -11.11 | 42.36 | 11.28 |
| CPI ^b | Low Income | 1.45 | 1.73 | 2.07 | 2.41 | 2.64 | 2.95 | 19.31 | 19.65 | 16.43 | 9.54 | 11.74 | 20.69 |
| | High Income | 1.50 | 1.74 | 2.05 | 2.29 | 2.55 | 2.84 | 16.00 | 17.82 | 11.71 | 11.35 | 11.37 | 17.87 |
| REAL:^c | | | | | | | | | | | | | |
| Public | Zambian | 791 | 725 | 608 | 588 | 668 | 666 | -8.29 | -16.23 | -3.18 | 13.56 | -0.26 | -3.15 |
| | Non-Zambian | 2512 | 2337 | 1944 | 1661 | 1866 | 2289 | -6.98 | -16.81 | -14.57 | 12.36 | 22.68 | -1.77 |
| Private | Zambian | 620 | 675 | 603 | 698 | 710 | 705 | 8.80 | -10.55 | 15.60 | 1.82 | -0.63 | 2.77 |
| | Non-Zambian | 3515 | 3290 | 2931 | 3519 | 3565 | 3269 | -6.40 | -10.91 | 20.08 | 1.29 | -8.30 | -1.40 |
| Parastatal | Zambian | 952 | 1110 | 1010 | 874 | 973 | 940 | 16.53 | -9.03 | -13.45 | 11.31 | -3.33 | -0.25 |
| | Non-Zambian | 4533 | 5461 | 4860 | 3473 | 3526 | 3455 | 20.49 | -11.02 | -28.52 | 1.52 | -2.03 | -4.76 |
| TOTAL | Zambian | 786 | 849 | 757 | 722 | 628 | 780 | 8.00 | -10.91 | -4.56 | -13.07 | 24.27 | -0.16 |
| | Non-Zambian | 3715 | 3941 | 3457 | 3007 | 2401 | 3069 | 6.10 | -12.30 | -12.99 | -20.17 | 27.82 | -3.48 |

Notes: ^a Earnings exclude fringe benefits and other payments.

^b Consumer price indices by income group

^c High increases in nominal and real earnings between 1978 and 1979 are due to the Turner pay awards of 1978/79.

Source: CSO, Monthly Digest of Statistics, various issues.

structure and hence the manpower problems of recruitment difficulty and high labour-turnover among high-level manpower categories.

(b) Other than being 'generous' with the low-paid (unionized) workers, the ZIMCO pay scales which apply to salaried staff are bureaucratic, centrally determined and inflexible (as they do not allow individual subsidiary companies to exercise their ability to pay). Although there are localized pay differentials based on the grade of the subsidiary company (and the chief executive), the ZIMCO conditions of service from grade Z5 upwards are almost applied uniformly across any one holding company (like INDECO). Such uniformity of the pay structure may have been necessary to protect the smaller and financially weaker companies and to reduce competition between ZIMCO companies. However, it is a source of irritation and concern to those subsidiary companies who can afford competitive pay packages needed to attract and retain the necessary skills.¹⁰ Given the intense competition for the limited supply of high-level manpower in Zambia, the private sector, which faces no such restrictions, often offers higher pay premiums so as to attract labour from the parastatal sector--especially for engineering and accounting skills. And when fringe benefits are added, earnings in the private sector for the high-level manpower may be up to twice that of ZIMCO companies.¹¹

Recently, the government has said that 'it was a mistake to set parastatal salaries above those for civil servants', and this, it was

¹⁰The Vice-Chairman of ZCCM said, in March 1988 that while ZCCM has achieved remarkable success in the Zambianisation of the middle-level accountancy posts, the private sector professional accounting firms tend to look at ZCCM as a source for recruiting trained accountants (Mining Mirror, March, 1988). During the author's visit to the Manpower Planning and Development Centre of ZCCM in April 1987, one official said that though one of the reasons for the high labour turnover among accountants was relative poor pay in the organization, it was however, not possible to increase their relative earnings without disturbing the whole company pay structure and probably run the gauntlet of industrial relations crisis.

¹¹World Bank, Zambia: Industrial Policy and Performance, Report No. 4436-ZA, (Washington: World Bank, 1984), p. 58.

hoped, would be rectified.¹² If this is done and the pay differentials between the parastatal and civil service are wiped out, the direction of labour mobility will be towards the private sector and abroad.

Asked about the importance of the level of earnings in their respective organisation in relation to recruitment difficulty, fifteen of the nineteen INDECO companies reported that it was very important for the following reasons:

(i) competitive pay packages would help to attract and retain the professional labour required, and in addition, better pay would motivate and dedicate the workforce and would thus lead to higher productivity.

(ii) the uniform pay structure (along with the national collective bargaining system which has no supplementary plant/factory agreements), make the principle of ability-to-pay impracticable.¹³ One company also indicated that given the rising cost-of-living, potential and existing employees were constantly evaluating the adequacy of their pay in meeting their 'basic needs'.

(ii) Perception of Company Pay Policy and the Level of Gross Earnings by the Labour Market

Following Hunter (1978:52), respondents were asked: "how do you think your firm is typically regarded by employees in the relevant catchment area? As a pace-setter or pace-follower in the wage round?" The objective here was to find out how the firms thought potential and existing employees regarded their pay policies. More importantly,

¹²Announcement by the Minister of Finance, Gibson Chigaga, The Times of Zambia, 14 March, 1988.

¹³INDECO companies have three pay structures: ZIMCO salary-scales paid to administrative and technical personnel; Union collective bargained scales paid to union members--mostly among production workers; and non-union pay scales paid to general workers and meeting the requirements of the minimum wages legislation.

Hunter points out that there is a lot of evidence which suggests that 'firms who adopt a particular wage policy are likely to maintain this policy throughout their labour force...'. Where the pay policy is determined by external factors, say government policy in the case of INDECO companies, it may not be possible to maintain a consistent pay policy throughout the labour force. This is also the case in the private sector where earnings for the high-level skilled and scarce labour are higher than average but that of the less skilled workers are lower than average. Thus a high paying sector may not always be paying its labour force consistently.

For the eighteen INDECO companies who responded to above question, eight thought that they were regarded as pace-setters. One significant thing about these eight was that they were either absolute monopolies or had high monopoly power. Among the twelve firms who experience recruitment difficulty, only four of them thought of themselves as being pace-setters in the wage round. The other eight (that is, 67 per cent) thought that they were perceived as being pace-followers.

And to the question, "How do you think the level of gross earnings in your firm is typically regarded by employees in the relevant labour catchment area? Among the top rank? Above average? About Average? Below average?" Only one engineering firm indicated that it was perceived to be in the top rank; seven indicated that they were perceived to be above average; ten about average and one below the average. For the twelve subsidiary companies experiencing recruitment difficulty, only the engineering firm thought of itself as being in the top rank; five above average and six below average.

The high proportion of INDECO subsidiary companies who either say they are pace-followers or with levels of gross earnings about average

goes to show the negative effects of the inflexible parastatal pay structure on individual operating companies. For those companies who appraise themselves highly, that is either as pace setters or above average, we have to recognise the fact that the vast majority of the Zambian employees are unskilled and concentrated in the low-paying occupations. Since INDECO (unlike the private sector) tends to pay, on average, more among the less skilled workers than it does among the high-level manpower categories, and since in absolute terms the less skilled outnumber the professional labour categories, it is possible that average earnings may be about or above the market average--without necessarily having an attractive pay structure especially for the shortage occupations.

The foregoing argument is further substantiated by the reported reasons for the high incidence of labour turnover among the high-level manpower categories. Sixteen INDECO companies reported that poor pay and other conditions of service were either quite or very important in explaining this phenomenon. The other reasons given for the high labour turnover among high-level manpower categories were: poor training and career prospects; poor employees-management relations; underutilization and misplacement of individual abilities and/or training. Indeed, only 41 (ie, 51.2 per cent) of the 80 INDECO employee respondents indicated that their training was of great relevance to their present jobs; 24 or 28 per cent of them thought that their training was of some relevance; and 15 (19 per cent) thought theirs was of very little or no value to their current jobs.

(iii) Job Expectations, Satisfaction and Expected Mobility

Employee respondents were asked to indicate the factors which they

thought to be important when they were deciding to take up their current jobs. They were further asked to indicate how these initial expectations actually turned out (see appendix V). Many employees found conditions in their present jobs to be worse than they had expected.

In terms of job satisfaction, about 53 per cent of INDECO employee respondents were either quite or very satisfied. In the private sector, the ratio was 56 per cent. For individual occupational categories, job dissatisfaction was very much pronounced among accountants and skilled production workers employed by INDECO subsidiary companies. For example, out of the twelve accountant respondents in INDECO, eight of them, that is 67 per cent, were either not very satisfied or dissatisfied. But given the small number of accountants respondents from the private sector, no reasonable comparisons can be made. Suffice to mention, however, is that of the four accountant respondents from the private sector, two of them were satisfied while the other two were not. One of the two who were dissatisfied is a neutralised citizen and was very much apprehensive towards his expatriate counterparts who have identical qualifications as him and who come from the same country as that of his origin. His main point of contention was that the expatriates insisted on paying him less than they earned. He also felt that his career prospects were not very promising either.

We have argued in chapter IV that to pay expatriates (new employees) more, in terms of inducement allowances and fringe benefits, than their equivalent local counterparts (old employees) may reflect a disequilibrium situation. It also exemplifies the existence of a segmented labour market and the influence of social values and institutions in pay determination. However, to deny local skilled

labour such pay premia may give rise to frustration and grievances. Johnson (1980) found this type of problem to be present in Iran among those firms who recruited expatriates to fill the top positions; this limited the extent to which local Iranians could advance in their careers. In Zambia this situation is also prevalent, especially among accounting and engineering and managerial occupations.

Among supervisory and production workers, the proportions of job satisfaction are, somewhat, different and on the face of it contradicts some of the arguments presented above. For instance, 70 per cent (14 out of 20) of INDECO and 62 per cent (10 out of 16) of the private sector supervisors and production workers were either not very satisfied or dissatisfied.

Among administrative and managerial personnel about 73 per cent of the respondents (that is, 16 out of 22) in INDECO were either quite or very satisfied. All the five respondents in the private sector were either quite or very satisfied. Among clerical and secretarial employees in both sectors, the situation was the same, that is about half of the respondents were either quite or very satisfied and the other half either not very satisfied or dissatisfied.

Table 6.8 demonstrates that the high level of job satisfaction among INDECO administrative and managerial respondent employees does not originate from good pay but from the diversity of their work; the same is the case among clerical and skilled production workers. On the whole, the factors which are considered to be good in INDECO are diverse work, followed by good pay and other conditions of service, further training opportunities and meeting people. In the private sector the best factors are diverse work, good pay and responsibility.

On the side of bad aspects in INDECO, poor pay and other conditions

of service rank highly, followed by poor training and career prospects and no say in the decision-making processes. In the private sector,

Table 6.8A: OCCUPATION BY SOME GOOD AND BAD ASPECTS OF PRESENT JOB: INDECO

| |Frequencies..... | | | | | | | | |
|----------------------------|-----------------------|----------------------|---------------|-------------------|------------------|-------------------|-----------------|----------------|----------------|
| | <u>Total</u> | <u>Professional/</u> | <u>Accou-</u> | <u>Admin/</u> | <u>Clerical/</u> | <u>Marketing/</u> | <u>Skilled</u> | <u>Skilled</u> | <u>General</u> |
| | | <u>Technical</u> | <u>nting</u> | <u>Managerial</u> | <u>Typists</u> | <u>Purchasing</u> | <u>Supervi-</u> | <u>Produc</u> | <u>Workers</u> |
| | | | | | | | <u>sory</u> | <u>tion</u> | |
| <u>SOME GOOD ASPECTS</u> | | | | | | | | | |
| Good Pay | 16 | 1 | 4 | 3 | 2 | 2 | 1 | 3 | - |
| Diverse work | 29 | 2 | 2 | 11 | 8 | - | 3 | 2 | 1 |
| Responsibility | 5 | 1 | 1 | 1 | 1 | - | 1 | - | - |
| Further Training opport. | 6 | - | 2 | 1 | 2 | - | 2 | 1 | - |
| Good industrial relations | 1 | - | - | - | - | - | 1 | - | - |
| Job security | 2 | 2 | - | - | - | - | - | - | - |
| Meeting people | 6 | - | - | 3 | 2 | 1 | - | - | - |
| Provision of accommodation | 1 | 1 | - | - | - | - | - | - | - |
| Promotion opportunities | 2 | - | - | 1 | - | - | - | 1 | - |
| Annual pay increases | 1 | - | - | - | 1 | - | - | - | - |
| Overtime offered | - | - | - | - | - | - | - | - | - |
| Good work mates | 1 | - | - | - | - | - | 1 | - | - |
| Access to shortage goods | 2 | - | - | - | 1 | 1 | - | - | - |
| Almost none | 2 | 1 | 1 | - | - | - | - | - | - |

SOME BAD ASPECTS

| | | | | | | | | | |
|---|----|---|---|---|----|---|---|---|---|
| Undue attention on expatriates | 4 | 1 | 2 | 1 | - | - | - | - | - |
| No say in decision making | 9 | - | 3 | 2 | - | 1 | 1 | 1 | - |
| Poor training/career prospects | 11 | 1 | 2 | 1 | 2 | - | 1 | 4 | - |
| Poor pay & other conditions | 20 | - | 2 | 3 | 10 | 1 | 1 | 2 | 1 |
| No promotion prospects | 3 | - | - | - | 1 | - | - | 1 | - |
| Poor industrial relations | 4 | - | - | 2 | 2 | - | - | - | - |
| Job not related to training | 1 | - | - | 1 | - | - | - | - | - |
| Job insecurity | 3 | - | 1 | 2 | - | - | - | - | - |
| Poor supervision | 2 | 1 | - | - | - | - | 1 | - | - |
| Risky job | 3 | 1 | 1 | 1 | - | - | - | - | - |
| Long working hours | 2 | - | - | - | 1 | - | - | 1 | - |
| Indisciplined subordinates | 4 | - | 1 | 1 | - | - | 2 | - | - |
| Education not considered | - | - | - | - | - | - | - | - | - |
| Difficulty to fire inefficient production workers | 2 | 1 | - | 1 | - | - | - | - | - |
| Uncertainty of being moved without warning by INDECO/Government | 1 | - | - | 1 | - | - | - | - | - |
| None as all is well | 4 | - | - | 2 | 1 | 1 | - | - | - |

Table 6.88: OCCUPATION BY SOME GOOD AND BAD ASPECTS OF PRESENT JOB: PRIVATE SECTOR

| |Frequencies..... | | | | | | | | |
|----------------------------|-----------------------|----------------------|---------------|-------------------|------------------|-------------------|-----------------|----------------|----------------|
| | <u>Total</u> | <u>Professional/</u> | <u>Accou-</u> | <u>Admin/</u> | <u>Clerical/</u> | <u>Marketing/</u> | <u>Skilled</u> | <u>Skilled</u> | <u>General</u> |
| | | <u>Technical</u> | <u>nting</u> | <u>Managerial</u> | <u>Typists</u> | <u>Purchasing</u> | <u>Supervi-</u> | <u>Produc</u> | <u>Workers</u> |
| | | | | | | | <u>sory</u> | <u>tion</u> | |
| SOME GOOD ASPECTS | | | | | | | | | |
| Good Pay | 8 | - | 1 | 3 | 2 | - | 2 | - | - |
| Diverse work | 9 | 1 | - | 2 | - | 1 | 3 | 3 | - |
| Responsibility | 4 | 1 | 1 | - | - | - | 1 | 1 | - |
| Further Training oport. | 1 | - | 1 | - | - | - | - | - | - |
| Good industrial relations | 2 | - | - | - | 1 | - | - | 1 | - |
| Job security | 1 | - | - | - | - | - | - | 1 | - |
| Meeting people | 1 | - | - | - | - | 1 | - | - | - |
| Provision of accommodation | - | - | - | - | - | - | - | - | - |
| Promotion opportunities | - | - | - | - | - | - | - | - | - |
| Annual pay increases | - | - | - | - | - | - | - | - | - |
| Overtime offered | 1 | - | - | - | - | - | - | - | 1 |
| Good work mates | 1 | - | - | - | - | - | - | 1 | - |
| Access to shortage goods | 1 | - | - | - | - | - | - | 1 | - |
| Almost none | 4 | - | 1 | - | - | - | - | 2 | 1 |

SOME BAD ASPECTS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Undue attention on expatriates | 3 | - | 1 | - | - | 1 | - | 1 | - |
| No say in decision making | 2 | - | - | - | - | - | 1 | - | - |
| Poor training/career prospects | 1 | 1 | - | - | - | - | - | - | - |
| Poor pay & other conditions | 9 | - | - | - | 1 | - | 2 | 5 | 1 |
| No promotion prospects | 2 | - | - | 1 | 1 | - | - | - | - |
| Poor industrial relations | 1 | - | - | - | - | - | 1 | - | - |
| Job not related to training | - | - | - | - | - | - | - | - | - |
| Job insecurity | 3 | 1 | - | 2 | - | - | - | - | - |
| Poor supervision | 2 | - | - | - | - | - | 1 | 1 | - |
| Risky job | - | - | - | - | - | - | - | - | - |
| Long working hours | - | - | - | - | - | - | - | - | - |
| Indisciplined subordinates | 4 | - | - | 1 | - | - | 2 | 1 | - |
| Education not considered | 1 | - | - | - | - | - | - | 1 | - |
| Difficulty to fire inefficient production workers | - | - | - | - | - | - | - | - | - |
| None as all is well | 4 | - | 1 | 1 | 2 | - | - | - | - |

Source: Employees Questionnaire, Questions 11 (a) and (b).

poor pay pay still ranks highly, followed by indisciplined subordinate workers (for supervisors), and then job insecurity and paying undue attention to expatriates by employers.

All told, table 6.9 demonstrates that two-thirds of the respondents would leave their current jobs if better offers arose elsewhere. Such high expected mobility is due to the worse than expected conditions of service in their present jobs. Arguably, this expected mobility is more of a wish as it is unlikely to be effected because of the rising unemployment levels in the Zambian labour market, especially for the less skilled. However, among the high-level manpower categories like accounting, engineering and managerial, such expectations can be effected as the demand for their labour services is quite high.

Table 6.9 Likely Mobility Due to Worse than Expected Conditions

| <u>Occupational Category</u> | <u>YES</u> | <u>NO</u> | <u>Row Total</u> |
|----------------------------------|------------------|------------------|------------------|
| Professional & Technical | 4 (44.4) | 5 (55.6) | 9 |
| Accounting | 12 (75.0) | 4 (25.0) | 16 |
| Administrative and Managerial | 11 (44.0) | 14 (56.0) | 25 |
| Clerical & Secretarial | 15 (75.0) | 5 (25.0) | 20 |
| Marketing & Purchasing | 5 (83.3) | 1 (16.7) | 6 |
| Skilled Supervisory | 11 (68.8) | 4 (31.2) | 16 |
| Skilled Production | 16 (88.9) | 2 (11.1) | 18 |
| Part and un skilled | 1 (33.3) | 2 (66.7) | 3 |
| TOTAL | 75 (66.4) | 37 (32.7) | 113 |

Note: Figures in brackets are row percentages.

Source: Employees Questionnaire, Question 10.

6.2.2 THE SUPPLY ASPECTS

Expected mobility due to the worse than expected conditions in the present jobs seem to be very widespread among respondents employed by INDECO subsidiary companies. For example, 83 per cent of accountants; 80 per cent of skilled production workers; 75 per cent of clerical and

secretarial; and 57 per cent of professional and technical respondents were expecting to move in the following three years. This contrasts with the private sector respondents where expected mobility, except among skilled production and clerical personnel, was not in excess of fifty percent in any one occupational category.

Conceptually, the supply situation of high-level manpower in the Zambian labour market may limit the effectiveness of using demand adjustment mechanisms like the revising of the pay packages for the shortage occupational categories. This is because bidding up pay would not solve the supply problems other than increasing the wage costs to the affected employers (Arrow and Capron, 1959). Most INDECO executives maintained that if they were allowed to adjust pay packages, recruitment difficulties and retention problems would be minimised. However, this argument, when analysed under the context of falling real earnings in the whole of the Zambian labour market since the 1970s (see table 4.9 in chapter IV and table 6.7 above) for both expatriates and local labour, becomes suspect. The dilemma in wage policy when real wages are falling are discussed in chapter IV and chapter IX. It is neither possible to increase the real earnings of the shortage labour groups alone for that would upset the pay structure and would, most likely, lead to industrial relations problems (see chapter II). For these reasons, the demand adjustment methods have to be implemented jointly with other measures which aim to increase the supply of the necessary skills.

Table 6.6 demonstrates that general skill shortages in the local labour market, insufficient local training facilities, and an educational system not responsive to the needs of the labour market were said by many of the INDECO respondents to be the major labour supply

bottlenecks.

The inelastic supply of skilled and professional labour partly originates from the lag in training such labour, and from the lack of training facilities, resources and places both within and outside INDECO--thus, recruitment difficulties and high labour turnover for those skill groups in high demand will continue to be a feature of the Zambian labour market for sometime. Within some INDECO companies, the effective supply of skilled manpower has also been limited by the use of incompatible machines. For example, one subsidiary company had two different plants and, up to the beginning of 1987, operators were only trained and confined to one of the two plants. During periods when either plant would break down or when the availability of imported inputs would only warrant operating one of them, the operators of the other machine could not be effectively utilized on the other. It was for these reasons that the company started to rotate its operators around during training, but this increases the length of training and hence the training costs.

We demonstrated in chapter IV that the lack of training facilities and the unresponsiveness of the tertiary educational system to local labour market needs means that on-the-job-training (but which carries lower status in Zambia) is the most common method of increasing skill supply in the affected companies. However, to effect internal training, firms must have financial, physical and human resources to do so. One objective of recruiting expatriates, in addition to meeting the shortage of skill shortages in the local labour market,¹⁴ was to

¹⁴INDECO Ltd, "INDECO Handbook: Manual of Personnel Policies and Procedures" p. 11 specifies that one of the main attributes expatriates are expected to have the ability to train and develop Zambians. IDAT found that in some of the subsidiary companies studied the expatriates were not good trainers, and in some cases, were not very qualified to do so.

facilitate internal training and hence improve the effectiveness of current labour force. However, available evidence suggests that not every expatriate is a good trainer and, moreover, due to self interest one would not expect expatriates to be very keen trainers. And on foreign training, the auctioning of the kwacha under the IMF/World Bank restructuring programme more than quadrupled the costs, and although auctioning has been stopped, the subsequent devaluation of the kwacha still makes foreign training costly and only few firms can afford it.

And where training is offered in the local tertiary institutions, the lack of facilities like teaching aids and laboratory equipment means that graduates have to undergo further internal training before they can be placed in responsible positions. This has implications on the cost structure of the firms concerned. In addition, the private sector companies may be willing to hire the same labour at higher salaries and place them in responsible positions without insisting on any such initial internal training. A balance has to be struck therefore between what is necessary for the company and for the individual employee, but more often than not, such a balance is difficult to achieve, as exemplified by the high labour turnover in some high-level manpower categories.

The need to be seen to maintain standards has led some individual INDECO subsidiary companies to insist on lengthy periods of training and experience. For example, the long standing vacancies of works engineers reported in table 6.1 requiring candidates with at least seven years previous experience has to do with this phenomenon. On the other hand, the movement of technical personnel into managerial and administrative positions both in the INDECO and other parastatal companies further worsen the supply of technical personnel at the shop

floor level. For the positions like production, technical and technical sales managers this is may be necessary for career planning purposes. But if the appointment of senior management is a prerogative of an external authority, say the president, this problem becomes very serious for such external authorities may not appreciate the skill vacuum such appointments may create on the shop-floor.

Another constraint on the INDECO companies is that they are forbidden to 'poach' from any other ZIMCO companies or the civil-service (INDECO Handbook, p. 9). Employment of personnel from other ZIMCO companies or the civil-service may only happen if the candidates apply through their respective heads of departments or if they obtain explicit release notices. As most of the training activities in Zambia are either conducted by the parastatal sector or the civil-service (by virtue of being the largest employers), this stifling of competition between firms in the public sector implies that only the private sector, being free from such restrictions, would benefit. While one may appreciate the reasons behind these restrictions, it is equally apparent that the parastatal companies must either rely on internal or formal training to meet their manpower requirements as their pay packages are neither flexible nor competitive. As such attracting skilled labour from the private sector is almost an impossibility. But given the resource constraints and the risks associated with training, there is a limit to which training can be used as the only viable option.

6.3 THE EFFECTS OF SKILL SHORTAGES

The most visible effect of professional and educated labour in Zambia has been the excessive dependence on expatriate labour. This is especially true among accountants, engineering and management occupations. For example, out of a total of 108 accountants available in the entire INDECO Group in 1985, 86 (80 per cent) were expatriates. And in 1987, out of 34 chief accountants, 31 (91 per cent) were expatriates. It is not surprising, therefore, that nine of the responding INDECO companies indicated that the main effect of recruitment difficulty in the local labour market has been to increase their dependence on expatriates (table 6.10). The effect of such dependence on expatriates, and especially the decision to pay them partly in foreign exchange from 1985, on the balance of payments, profitability and the structure of the economy have been analysed in detail in chapter IV.

Table 6.10 EFFECTS OF SKILL SHORTAGES

| | <u>Frequency (n = 18)</u> | | |
|--|--|---|-----------------------|
| | <u>Due to Skill Shortages Problems</u> | <u>Due to Foreign Exchange Problems</u> | <u>Not Applicable</u> |
| Fall in output | 3 (16.7) | 10 (55.6) | 5 (27.8) |
| Fall in output quality | 5 (27.8) | 5 (27.8) | 8 (44.4) |
| Turndown desirable orders | 3 (16.7) | 6 (33.3) | 9 (50.0) |
| Delivery period lengthened | 3 (16.7) | 8 (44.4) | 7 (38.9) |
| Orders lost due to long delivery dates | 2 (11.1) | 6 (33.3) | 10 (55.6) |
| Curtail investment | 1 (5.6) | 3 (16.7) | 14 (77.8) |
| Reduce demand for other labour | 4 (22.2) | - | 14 (77.8) |
| Increased dependence on expatriates | 9 (50.0) | - | 9 (50.0) |

Note: Figures in brackets are row percentages.

Source: Main Questionnaire, Question C1-2

The expatriate technical and professional personnel, who INDECO relies upon are not immune from self-interest and would thus tend to recommend technologies from their respective home countries which, for all purposes and intent, are not suitable for the Zambian conditions. Opinion on this matter was however divided. To the question, "is it possible to promote projects of national interest when key decision-making and technical posts are held by expatriates? Explain briefly.", some of the senior Zambian managers who were interviewed in ten of the INDECO subsidiary companies gave the following varied opinions.

(i) the majority, that is five of them, thought that expatriates may lack the commitment and the nationalistic perspectives that a national may have and this may be especially the case where there is a conflict of interest.

(ii) two others felt that being employees who are under contract and aware of the organizational objectives and policies, expatriates were expected to implement what their Zambian managers, whether at subsidiary or corporate level, told them to do. One of these did point out, however, that this may depend on the calibre of the Zambian managers on the management boards. This argument is quite wanting in those cases where expatriates are either chief executives of operating companies or heads of specialised functions. For example, many personnel managers and employees in one professional occupation complained that since the overall boss of the occupation was an expatriate, there was a tendency to favour expatriates in appointments and promotions in this particular occupation.

(iii) another manager felt that since project decisions are taken as a team and are based on objective findings and facts, it does not really matter as to whether some posts are held by expatriates or not.

(iv) another thought that the conflicting perspectives of the different expatriates from different countries makes it difficult to implement some projects. In relation to the administration of external aid by the donor agencies in Zambia, a similar opinion was expressed by Roos (1984).

(v) in the wake of recent reversals of the Zambianization policy by the government, one manager opined that expatriates were not hindering the national interest for they were being called back to run the economy.

Table 6.10 also demonstrates that professional labour shortages have resulted in the fall of output both in quality and physical terms. In a large chemical and food processing factory, the works manager said that because of poor skills among the production workers, especially machine operators and artisans, the machines often broke-down due to improper use. And when this happens, it means production comes to a standstill. Moreover, the spoilage and the inefficient use of inputs and equipment all contribute to the poor quality of output. Since effective local demand for the manufactured goods exceed the supply from local production, quality-control and, in some cases, marketing departments in many of the INDECO companies, until recently, were not necessary for whatever was produced was, more or less, guaranteed to be sold. With the persistent shortage of imported inputs and spare-parts, the problem of output quality has further intensified.

Foreign exchange problems and not labour shortages seem to account for most of the turning down of the desirable orders, lengthened delivery periods and to the consequent loss of such orders. In three of the firms, however, labour shortages were responsible for the loss of orders. One of these three was engaged in food processing and the

shortage of heavy duty drivers to deliver the products to the market and agents resulted in such orders being lost. In another one, the lack of a maintenance engineer meant that machinery could not be repaired on time to meet the time specified by the customers and thence the loss of orders.

6.4. CONCLUSION

The main cause of engineering, technical, accounting and managerial skill shortages in the INDECO Group is the low supply of such skills in the local labour market (recruitment difficulty) and the uncompetitive, bureaucratic and inflexible ZIMCO pay structure which makes it difficult to attract and retain such labour. Such is the extent of skill shortages that subsidiary companies have, in some cases, been forced to recruit candidates who are either not suitably qualified or experienced. The impact of this on output and the viability of the affected companies has largely been negative.

Given the excess demand for high-level skilled manpower, the resultant high-labour turnover among such skill categories is to be expected. This problem is aggravated by private sector employers who often use demand adjustment instruments like increasing pay packages which hardly improve the overall supply situation in the short-term (but might do so in the long-term) other than to increase the wage costs. Since the technology used is imported, there is a tendency among employers to prefer expatriates or foreign trained Zambians. Such employers believe that the Zambian educational system is not very well suited to offer courses which are relevant to these technologies.

They are thus prepared to pay higher costs in terms of foreign training or recruitment of expatriates. Firms, therefore, do not always choose the least expensive adjustment instruments. The effect of this (and coupled with the lack of facilities in the local training institutions) is to reduce confidence in local skilled labour and further worsen the manpower problems.

As the payment of inducement allowances in foreign exchange and other fringe benefits to expatriate personnel (so as to attract and retain such skills on the international labour market) further widens the pay differentials, it contributes to the high incidence of labour turnover among indigenous professional labour. To the extent that such expatriates usually occupy senior positions, the prospects for advancement of certain local skilled labour are limited and as a consequence, increased turnover among affected labour categories is likely.

The effect of high-level manpower shortages on output and its quality have been superseded by the effects of foreign exchange constraints which makes it difficult to import the necessary inputs and other supplies. However, in some of the companies visited there was clear evidence of loss of output arising from improper use (due to skill deficiency problems), spoilage and misuse of inputs, and poor maintenance of machinery and consequent break-downs which took time to repair.

CHAPTER VII

ADJUSTMENTS TO LABOUR SHORTAGES I:

AN ANALYSIS OF MANPOWER SUPPLY AND DEMAND ADJUSTMENT POLICIES AND PRACTICES IN THE INDECO GROUP OF COMPANIES.

7.0 INTRODUCTION

INDECO's future performance and viability will depend on how it adjusts to the technical and manpower problems analysed in the previous chapters. However, the success or failure of these adjustment policies may be determined by external factors such as government policy and availability of foreign exchange. Being a government controlled enterprise, INDECO is expected to implement the government's social policies irrespective of any adverse effect this might have on its commercial viability. More importantly, INDECO as an enterprise has no power to adjust its pay structure and other labour compensatory systems so as to attract and retain the necessary labour. Thus the loss of valuable trained and experienced personnel through high turnover may continue to hamper its operations in the foreseeable future. It follows therefore that the policy options open to INDECO management to mitigate the adverse effects of the factor markets are limited by external constraints. In analysing the effectiveness of the various manpower policies and practices adopted by INDECO companies, one has to do so in the context of the above external constraints imposed by the Zambian socio-economic and political environment.

In the context of these constraints, especially the ZIMCO pay structure, we attempt in this chapter to analyse the variance between

the stated objectives of INDECO's pay policy and actual payment systems. We do demonstrate, however, that despite its weaknesses, reforming the ZIMCO pay structure on its own without, at the same time, reforming the government's orientation and policies towards the parastatal sector may not be helpful. Since the ZIMCO grading and pay structure, until recently, was based on titles and not job content (or the value of the different jobs to the organisations), we look at the theoretical and practical problems associated with implementation of job evaluation and performance appraisals.

On the supply side of the adjustment mechanisms, government policy seems to encourage training of local candidates so as to achieve its Zambianisation policy. Here, INDECO managements seem to have a free hand in exercising independence in decision-making. The effectiveness of these supply measures like increased training activity are, however, limited by the poor grading and compensation systems which exist in the INDECO Group.

The chapter begins by analysing the supply adjustment mechanism, that is, training and its effectiveness in solving some of the manpower problems. The policy of recruiting expatriates as an adjustment mechanism is also critically analysed both in terms of the costs involved and in terms of the benefits to the affected companies. Section 7.2 analyses the demand adjustment mechanisms and will centre on the pay structure, job evaluation and performance appraisals.

7.1 SUPPLY ADJUSTMENT POLICIES AND PRACTICES

Firms were asked in the main questionnaire to indicate and rank the three methods they have often used to deal with recruitment

difficulties and skill deficiency problems of their existing labour force. Table 7.1 demonstrates that the most common positive adjustment instrument has been to increase the supply, that is, formal external and internal training rank highly for all the occupational categories. For professional and technical occupations, these are followed by improving working conditions at the group level and recruitment of expatriates; for administrative and managerial, increased recruitment of expatriates and improved working conditions; for purchasing and selling, transfers and improved working conditions; and finally, for production and manufacturing workers, merging/phasing-out of posts and improved working conditions. While training and improved working conditions are permanent, recruitment of expatriates and merging/phasing-out of posts are temporary for they tend to suppress the extent of skill shortages. Nowhere was a reduction in the recruitment standard stated (at least theoretically when adverts are placed they state the highest standards possible--which lends support to Colclough's (1972) finding that firms in Zambia tend to inflate the educational and experience requirements).

Other than improved working conditions and phasing-out of posts, demand adjustment policies seem to be lowly ranked. For example, increasing the relative earnings of shortage labour and upgrading of less-skilled labour are, for professional and technical occupations ranked fifth and the latter not stated at all; for administrative and managerial, sixth and seventh; for purchasing and selling, both jointly fifth; and for direct production workers, eighth and fifth. Fast promotion prospects (another demand adjustment instrument) has the highest ranking among professional and technical occupations at fifth;

seventh in administrative and managerial occupations; and tenth among direct production workers.

Table 7.1: Methods of Adjustment to Labour Shortages by Rank

| Method | Professional & Technical | | | | Admin./Managerial & Clerical | | | | Purchasing & Selling | | | | Production & Manufact. | | | |
|--|--------------------------|----|----|------------------|---------------------------------|----|----|------------------|----------------------|---|---|------------------|---------------------------|----|----|------------------|
| | A | B | C | Weighted Rank | A | B | C | Weighted Rank | A | B | C | Weighted Rank | A | B | C | Weighted Rank |
| Increase internal training | 3 | 2 | 4 | 2 | 1 | 2 | 4 | 2 | 2 | 3 | 2 | 2 | 4 | 1 | 3 | 2 |
| Upgrade less-skilled workers | - | - | - | - | - | - | 2 | 7 | - | 1 | - | 5 | - | 2 | - | 5 |
| Increase formal training | 13 | 3 | - | 1 | 8 | 6 | - | 1 | 6 | 3 | 1 | 1 | 4 | 5 | 1 | 1 |
| Reduce recruitment standards | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Subcontract work | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 10 |
| Invest in new equipment | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | 5 |
| Use more over-time | - | 1 | - | 8 | - | - | - | - | - | - | - | - | - | - | 1 | 13 |
| Use part-time/seasonal labour | - | - | - | - | - | - | - | - | - | - | 1 | 7 | - | 1 | 1 | 13 |
| Use retired personnel | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Transfers | - | 1 | 1 | 7 | - | 1 | 3 | 5 | 1 | 1 | - | 3 | - | 1 | - | 10 |
| Recruit expatriates | - | 3 | 1 | 4 | 1 | 2 | - | 3 | - | - | - | - | 1 | - | 1 | 5 |
| Secondment | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Merge/phase-out post | - | 1 | - | 8 | - | - | 1 | 9 | - | - | - | - | 2 | - | 1 | 3 |
| Increase relative earnings for shortage labour | 1 | - | 1 | 5 | 1 | - | - | 6 | - | 1 | - | 5 | 1 | - | - | 8 |
| Improve working conditions at Group level | - | 3 | 3 | 3 | 1 | 1 | 1 | 4 | - | - | 4 | 4 | - | 2 | 2 | 4 |
| Fast promotion prospects | - | 1 | 2 | 5 | - | 1 | - | 7 | - | - | - | - | - | 1 | - | 10 |
| Column Totals | 17 | 15 | 12 | - | 12 | 13 | 11 | - | 9 | 9 | 8 | - | 13 | 14 | 11 | - |

Source: Main Questionnaire, Question C1-8

Thus, in all cases, supply adjustment instruments seem to rank highly than the demand adjustment ones, and this is in line with the theoretical predictions and empirical evidence analysed in chapter II. That being the case, we begin by discussing the significance and effectiveness of the supply adjustment instruments before considering the efficacy of the demand adjustment mechanisms.

7.1.1 TRAINING

In chapter II, we categorised skills as being made of direct and symbolic knowledge and that training should provide different conditions for 'getting to know' and 'getting to know about'. This we, argued, is because there are different types of manual, visual, mental, etc. skills needed in an organization. This is because for an enterprise to be successful, it needs to have a good understanding of both the external and internal environments and processes. This distinction is of significance in the INDECO Group where some members of senior management who make business decisions either lack the detailed knowledge of the local socio-economic environment or the technical matters relating to production processes. The lack of technical knowledge is, in most cases, corrected for by management and consultancy agreements with foreign firms. However, the efficacy of these agreements is, in the wider context, debatable because the expatriates may lack detailed knowledge about the operations of the local social, economic and political institutions and may suggest policies (as has been the case in the past) which are difficult to implement (see chapter IV).

The use of imported technologies in the production processes further complicates the skill problems. Since there are very few Zambians¹ who are technically skilled as defined in chapter II, it means that new recruits may get the wrong information during the primary learning process, that is, the initial informal learning from superiors and other workers in an organization. And if this is

¹Republic of Zambia, Cabinet Office, Manpower Report: a Report and Statistical Handbook on Manpower, Education, Training and Zambianisation 1965-66, (Lusaka: Government Printers, 1966) estimated that by 1986, fewer than 100 persons (Zambians) would have completed extensive training for skilled manual jobs. Cited by Wim Hoppers, "Industrial Training and labour Market Segmentation in Zambia: A Historical Analysis" in African Studies Review, Vol.29, no.4, December 1986, p.49.

repeated over a long period of time, a vicious circle may emerge and this would further reduce the quality of skills available in an organization.

Arguably, training² in the INDECO Group of companies has been a packaged solution to labour shortages and the governments's Zambianisation policy. It would seem that training does not take as its objective developing the individual components of skills required by the tasks of the jobs performed. It is only recently that efforts have begun to analyse jobs and tasks so as to identify training needs. It is therefore possible to argue that training in INDECO is without sufficient reference to the requirements of the companies. This is because (King, 1964) some formal training schemes may have been introduced without taking into account the primary learning process within the companies. Such a state of affairs may lead to contradictions and conflict.

It has to be pointed out however that judging by its expenditure on training, INDECO attaches some importance to investing in its human resources. For example, expenditure on training in recent years has risen, at 1980 constant prices (GDP deflator), from K1.39 million in 1982/83 (K1.583 million at current prices) to a budgeted K3.75 million (K14.4 million at current prices) during the 1986/87 financial year--an increase of about 169 per cent over the period. Moreover, most of the managers spoken to indicated that they regarded this expenditure on training as an investment and not an added expense. Looked at from the ZIMCO perspective however, this is not borne out by the facts--the

²David King, Training within the Organization: a study of Company Policy and Procedures for Systematic Training of Operators and Supervisors. (London: Tavistock Publications, 1964), argues that training should be concentrated during periods of slack demand (or recession) so that a firm could have the needed skill when demand picks up. However, this begs the question of financing such training: if profits are low, it is very unlikely that firms would have enough funds to spend on training. Even if they did, they may choose to spend such resources on other projects.

employee compensation policies are very rigid and unresponsive to the needs of individual subsidiary companies. If training is an investment as claimed, then the investor (ZIMCO and its subsidiaries) has not taken rational and consistent policies to ensure that benefits from training are realised to the full.

(i) On-the-job (internal) training

Of the responding nineteen subsidiary companies, eighteen had on-the-job training for school leavers and graduates. Of the eighteen, only one engineering firm had a detailed written down induction and orientation programme for university graduate engineers, engineering technologists, technicians and craftsmen. The aim of this programme is "to expose graduates to the operations of the *company*, especially in matters relating to the technical aspects of the *company*." The graduates are expected to be fully involved in the whole programme so as to gain *skills and knowledge*. The graduates are further encouraged to pay particular attention to the relationships between departments and individuals when gathering information on any subject. To maximise the learning process, the programme insists on adherence to all company rules and regulations pertaining to each and every operation, and to actually do the jobs and not just to watch.

Under this scheme, graduates are taken through their paces starting with what is expected of them, plan and operation of the plant, and to working in each and every department of the company on a rotational basis. The job rotation enables the graduate trainees to appreciate the significance of each and every department to the well being of the whole company. At the end of the programme, the trainees are required to write a report about their training and these reports are in turn

used to evaluate the effectiveness of the induction programme.

Such a detailed induction and orientation programme which centres on the needs of the company still remains, by and large, an exception rather than a rule in the INDECO Group of companies. One subsidiary company indicated that it does not evaluate formal external training as institutions offering such training are assumed to be good. But this does not answer the question of whether such training meets the requirements of the company. The same company also indicated that the only time employees' training matters are raised is when performance appraisals are being done.

Classified by recruitment difficulty and types of training, table 7.2 demonstrates that firms experiencing recruitment difficulties tend to slightly have a higher proportion of training activity in relation to their total employment. Overall, formal external (full-time) training only accounts for about 16 per cent of the total training activity of the sample (out of which accountancy accounts for about 31 per cent; technologists/technicians 22 per cent; scientific/engineering and administrative and managerial jointly at about 15 per cent and then direct production occupations at 16 per cent). The largest methods are those which are, as we would expect, job based: part-time (and correspondence) and on-the-job-training which are the cheapest ways of improving skills--that is, other than learning, trainees contribute to actual production. On-the-job training may however not be the cheapest if spoilage of materials and misuse of equipment occur on a wider scale and lead either to a loss of output and its quality or to higher repair costs. These, as we discussed in previous chapters, are some of the incidental problems associated with having a high proportion of partially-skilled labour operating complex machinery.

Table 7.2 Recruitment Difficulty, Employment and Training Activities

| RD | NO | COMPANY NUMBER: | | | | | | | | | | | | | | | | | | Total |
|--------------------------------------|------|-----------------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|-----|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
| Employment (1986/87) | 618 | 235 | 448 | 85 | 385 | 653 | 350 | 5150 | 660 | 681 | 235 | 1022 | 840 | 198 | 175 | 86 | 1398 | 2067 | - | |
| TRAINING: | | | | | | | | | | | | | | | | | | | | |
| Full-Time | | | | | | | | | | | | | | | | | | | | |
| Scientific/Engineering | - | - | - | - | - | - | 1 | - | 4 | 1 | 1 | - | - | - | - | 2 | 4 | 2 | 15 | |
| | | | | | | | 6.7 | | 26.7 | 6.7 | 6.7 | | | | | 13.3 | 26.7 | 13.3 | 2.4 | |
| | | | | | | | 5.9 | | 3.1 | 8.3 | 12.5 | | | | | 4.8 | 21.1 | 1.0 | | |
| Technologists/Tech'ns | 1 | - | 5 | - | - | 5 | - | - | - | 1 | - | - | - | - | 1 | 2 | 5 | 2 | 22 | |
| | 4.5 | 22.7 | 22.7 | | | 50.0 | | | | 4.5 | | | | | 4.5 | 9.1 | 22.7 | 9.1 | 3.5 | |
| | 12.5 | 50.0 | 50.0 | | | | | | | 8.3 | | | | | 4.2 | 4.8 | 26.3 | 1.0 | | |
| Admin./Managerial | - | 2 | - | 1 | 7 | 1 | - | 1 | - | - | - | - | - | 2 | - | - | 1 | - | 15 | |
| | 13.3 | 33.3 | 6.7 | 6.7 | 46.7 | 6.7 | 6.7 | 6.7 | | | | | 13.3 | | | | 6.7 | | 2.4 | |
| | | | | | 33.3 | 16.7 | 10.0 | 1.9 | | | | | 20.0 | | | | 5.3 | | | |
| Accountants | 2 | - | 2 | 1 | - | 4 | - | 2 | 1 | 2 | - | 3 | 2 | 2 | 2 | 2 | 5 | 1 | 31 | |
| | 6.4 | 6.4 | 3.2 | 3.2 | 12.9 | | | 6.4 | 3.2 | 6.2 | | 9.6 | 6.4 | 6.4 | 6.4 | 6.4 | 16.1 | 3.2 | 5.0 | |
| | 25.0 | 20.0 | 33.3 | 33.3 | 40.0 | | | 3.8 | 0.8 | 16.7 | | 15.8 | 50.0 | 20.0 | 8.3 | 4.8 | 2.6 | 0.5 | | |
| Clerical/Secretarial | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | |
| | | | | | | | | | | | | 100.0 | | | | | | | 0.2 | |
| | | | | | | | | | | | | 5.3 | | | | | | | | |
| Production Workers | - | - | 3 | - | 13 | - | - | - | - | - | - | - | - | - | - | - | - | - | 16 | |
| | | | 18.7 | | 81.3 | | | | | | | | | | | | | | 2.6 | |
| | | | 30.0 | | 30.9 | | | | | | | | | | | | | | | |
| Part-time | | | | | | | | | | | | | | | | | | | | |
| Admin./Managerial, Marketing & Sales | - | - | - | - | - | - | - | 7 | 6 | 3 | - | 8 | - | - | - | - | - | - | 24 | |
| | | | | | | | | 29.2 | 25.0 | 12.5 | | 33.3 | | | | | | | 3.9 | |
| | | | | | | | | 13.2 | 4.6 | 25.0 | | 42.1 | | | | | | | | |
| Prof. Accountancy | - | - | - | - | 4 | - | 2 | - | - | - | - | 6 | - | - | 3 | 6 | - | - | 21 | |
| | | | | | 19.0 | | 9.5 | | | | | 28.6 | | | 14.3 | 28.6 | | | 3.4 | |
| | | | | | 9.5 | | 11.8 | | | | | 31.5 | | | 12.5 | 14.3 | | | | |
| Other Accountancy | - | - | - | 1 | 6 | - | - | 8 | 1 | 2 | 4 | 1 | 2 | 3 | 3 | - | - | - | 31 | |
| | | | | 3.2 | 19.3 | | | 25.8 | 3.2 | 6.4 | 12.9 | 3.2 | 6.4 | 9.7 | 9.7 | | | | 5.0 | |
| | | | | 33.3 | 14.3 | | | 15.1 | 0.8 | 16.7 | 50.0 | 5.3 | 50.0 | 30.0 | 12.5 | | | | | |
| Clerical/Secretarial | - | - | - | - | - | - | - | 5 | - | - | - | - | - | - | - | 5 | - | - | 10 | |
| | | | | | | | | 50.0 | | | | | | | | 50.0 | | | 1.6 | |
| | | | | | | | | 9.4 | | | | | | | | 11.9 | | | | |

(Continues on next page)

| COMPANY NUMBER: | | | | | | | | | | | | | | | | | | | |
|-----------------------|------|------|-----|-----|------|-----|------|------|------|------|------|-----|-----|-----|------|------|------|------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | Total |
| Craftsmen | - | - | - | - | - | - | - | - | 22 | - | - | - | - | - | - | - | - | 4 | - |
| | | | | | | | | | 84.6 | | | | | | | | 15.4 | | 26 |
| | | | | | | | | | 17.1 | | | | | | | | 2.1 | | 4.2 |
| <u>On-the-Job</u> | | | | | | | | | | | | | | | | | | | |
| Trainee Engineers | - | 4 | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | 6 |
| | | 66.7 | | | | | 33.3 | | | | | | | | | | | | 1.0 |
| | | 66.7 | | | | | 11.8 | | | | | | | | | | | | |
| Technologists/Techn's | 5 | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | 10 | - | - | 18 |
| | 27.8 | | | | | | | | | | 16.6 | | | | | 55.6 | | | 2.9 |
| | 62.5 | | | | | | | | | | 37.5 | | | | | 23.8 | | | |
| Prodn. Supervisors | - | - | - | - | - | - | - | - | 5 | 3 | - | - | - | - | - | - | - | - | 8 |
| | | | | | | | | | 62.5 | 37.5 | | | | | | | | | 1.3 |
| | | | | | | | | | 3.9 | 25.0 | | | | | | | | | |
| Prodn. Workers | - | - | - | - | 12 | - | 12 | 30 | 90 | - | - | - | - | 3 | 15 | 15 | - | 200 | 377 |
| | | | | | 3.2 | | 3.2 | 8.0 | 23.9 | | | | | 0.8 | 4.0 | 4.0 | | 53.1 | 60.7 |
| | | | | | 28.6 | | 70.6 | 56.6 | 69.8 | | | | | | 30.0 | 62.5 | 35.7 | | 97.3 |
| Column Total | 8 | 6 | 10 | 3 | 42 | 10 | 17 | 53 | 129 | 12 | 8 | 19 | 4 | 10 | 24 | 42 | 19 | 205 | 621 |
| As % of Grand Total | 1.3 | 0.9 | 1.6 | 0.5 | 6.8 | 1.6 | 2.7 | 8.5 | 1.9 | 1.9 | 1.3 | 3.1 | 0.6 | 1.6 | 3.9 | 6.8 | 3.1 | 33.0 | 100.0 |
| As % of Employment | 1.3 | 2.6 | 2.2 | 3.5 | 10.9 | 1.5 | 4.9 | 1.0 | 19.5 | 1.8 | 3.4 | 1.9 | 0.5 | 5.1 | 13.7 | 48.8 | 1.4 | 9.9 | |

Key: RD = Recruitment Difficulty; ID = INDECO directive to freeze vacancies; SD = skill deficiency among existing workforce.

The decimal figures below individual frequencies are row and column percentages, respectively.

Source: Main Questionnaire, Question EI-6

It has to be said that the high proportion of on-the-job training here is not all formalised. Rather, it also includes new employees who are still under probation and who may be sacked if their performance is below what is expected. Thus on-the-job training is understood to mean that if an individual does a set of tasks over a certain period of time, he may come to grips with it and in the process become adept (Doeringer and Piore, 1971). The trouble with this approach is that practice in itself does not always lead to perfection as one can continue to practice something he considers to be right when in actual fact it is wrong and end up with a "perfect mistake" (King, 1964). Thus the adage, "practice makes perfect" is not always applicable.

Given the high proportion of Grade VII school-leavers in the labour force (see table 6.3 in chapter VI), on-the-job training is one of the main ways of improving skills in the INDECO Group of companies. Due to their lack of academic qualification, formal training with the trades training institutes (TTIs) is not possible. But through the trade-test system, semi-skilled Grade VII workers can upgrade their skills and be tested. If they attend part-time training (or correspondence courses) at TTIs, they can obtain a craftsman certificate which would make them skilled workers and thus improve the levels of their earnings.³

The problems of skill shortages which started in the 1950s and continued after independence led to job modifications and fragmentations. Through this, it was possible to substitute semi-skilled workers at lower rates of pay for highly paid and skilled artisans. It also helped to speed up Zambianisation of the labour force. For example, in the mining sector, the number of jobs at the semi-skilled

³ Hoppers, op. cit., p.52.

levels rose rapidly from 26 per cent in 1961 to 42 per cent in 1971 (Daniel, 1979: 108).

In spite of the foregoing, there are institutional problems facing on-the-job training. Those who are trained on the job and trade-tested cannot achieve the same status as the TTIs graduate craftsmen. On reforming industrial training in the late 1960s (when apprenticeship was abolished), the government decided to keep the examinations and status of craftsmen separate from trade-tested and experienced workmen. Pay scales for graduate craftsmen were set separately and at the time their starting salary was 75 per cent higher than that of the highest (Grade IV) trade-tested workman.⁴

To the question, "for a similar job qualification, say motor mechanic, are there differences in pay between those who qualified in trades institutes and those who qualified by doing on-the-job training?" eight of the eleven INDECO subsidiary companies interviewed and who had on-the-job training programmes said that TTI graduates were paid more than their trade-tested counterparts. The main reason given in all cases was that TTI graduates were better qualified and given their theoretical background, they were versatile and better placed to understand job content and thus perform better. Since their job performance was perceived to be above that of trade-tested workmen, it was argued that in order to minimise labour turnover and frustration, graduate craftsmen had to be paid more. Because trade-tested workmen owe what they know to practical experience, they were perceived to be

⁴Hoppers (op. cit: 52-53) argues that this was a perpetuation of a modified old dual system of training. Of significance here, he argues, is the decision to disregard institutional, vocational training at the lower levels and to offer a high reward to a small number of Form 2 School leavers passing through the new institution (Trades Training Institutes). He further says that "the lack of parity and the complete institutional separation between the trades training institutes and the trade-test channels for skill development meant that on-the-job training could never lead to a status equal to that attained by formal training."

limited in their knowledge and thus less adaptable (when compared to graduates) to new machinery and working methods. No one mentioned the government's policy which attaches higher status to TTIs graduates.

Only two companies (one of them a subsidiary of ZCCM) said that initially, on-the-job trade-tested workmen earn more because of their experience and length-of-service and because graduate craftsmen are put on probation (and thus earn less). However, after the probation period is over TTIs graduates earn more than the trade-tested workmen. In one of the private companies where there were no such differences in pay, there were a lot of complaints and discontent among TTIs graduate craftsmen, especially those who did their training in the German Democratic Republic.

In summary, it can be said that although on-the-job training has been one of the main methods of adjusting to labour shortages, the government's policy of a dual-track training system which discriminates against trade-tested workmen in favour of TTIs graduate craftsmen has reduced its effectiveness and made its legitimacy doubtful.

(ii) Formal External Training

For formal training, staff are either sent to local institutions of higher-learning or abroad depending on the nature and type of their training. In areas where the local institutions lack facilities or expertise, staff are sent abroad. However, not all those who go to train abroad are as a result of lack of training facilities locally. Tied bilateral aid between the Zambian government and other governments often have provisions for training Zambians in the institutions of the donor countries. The benefits of these types of training arrangements to countries like Zambia have been of constant debate in the

literature.⁵

Occupations in which staff often go abroad due to lack of training facilities in the local educational system are: scientific and engineering; computer and system analysis; production technologies; accounting; general management; administration; and sales and marketing. With the depreciating kwacha coupled with the rising costs of training in general, foreign training is becoming increasingly expensive for most of the INDECO companies. Such is the rise in the cost of foreign training that companies are now actively looking around to form links with some of the local institutions of higher learning.

Asked about whether they had any contact with the local institutions of higher learning (where they recruit some of their labour), fifteen of the nineteen INDECO companies indicated that they had such contacts. And when asked about which changes the institutions of higher learning should adopt in order to become more responsive to the skill needs of the labour market, table 7.3 demonstrates that developing new training programmes and more research programmes relevant to the organizations were thought to be very important.

It was widely felt that the existing training and research activities of the institutions of higher learning, especially the University of Zambia, were of little relevance to the labour market. For example, it is only recently that accountancy training was introduced by the University. Courses in textiles, food, plastic, rubber, etc. technologies have yet to be introduced by any institution in Zambia. Companies which engage in these activities have either to depend on foreign or internal (on-the-job) training--neither of which is cost effective.

⁵See for example T.L. Maliyankono, et al. Training and Productivity in Eastern Africa: a Report of the Eastern African Universities Research Project on the Impact of Overseas Training and Development, (London: Heineman, 1982). ch.1.

It was also pointed out that institutions of higher learning should explain job prospects to their students for inherent among graduates is the notion of being promoted immediately after they are appointed. Career counselling and advisory services were said to be lacking in many of the institutions and as such, graduates were mostly ignorant about the 'real world'.

Table 7.3: Changes which Institutions of Higher Learning have to Adopt to become more Responsive to Skill Needs

| Change | Very Important | Important | Not Important | Row Total |
|---|----------------|-----------|---------------|-----------|
| Formulating Curricula | 6 (33.3) | 10 (55.5) | 2 (11.1) | 18 |
| Choosing mode of instruction | 4 (22.2) | 12 (66.7) | 2 (11.1) | 18 |
| Developing new training programmes | 11 (61.1) | 6 (33.3) | 1 (5.6) | 18 |
| More research programmes relevant to the organization | 11 (61.1) | 6 (33.3) | 1 (5.6) | 18 |
| Explain job prospects to students | 9 (50.0) | 7 (38.89) | 2 (11.1) | 18 |
| Course quotas according to demand | 7 (43.8) | 8 (50.0) | 1 (6.3) | 16 |
| Other | 1 | - | - | 1 |

Source: Main Questionnaire, Question D1-8

Since severe labour shortages exist in engineering and technical occupations, many of the companies felt that course quotas should be according to the demands of the labour market. The present system whereby the University of Zambia turns out more social science (overshooting the desired employment level--cobweb model) than natural science (undershooting the desired employment level) graduates was said to be inefficient as most social sciences graduates remain unemployed while at the same time vacancies in engineering and technical fields are not being filled (Freeman, 1971).

A sizable proportion of the INDECO companies also thought that the institutions of higher learning should change the ways in which they formulate their curriculum and their modes of instruction. Most of the syllabi almost exclusively rely on theoretical teaching with little or no practical training. This is further made worse by the lack of teaching aids and laboratory equipment. On the face of it, this sounds contradictory as the same companies expressed preference for craftsmen who had theoretical and not practical knowledge.

But even if the local educational system was to adopt the measures suggested, there is no reason to believe that local training will be valued highly by the local labour market. For example, in terms of relevancy of skills and knowledge, and work responsibility, Maliyamkono, et al. (1985:115-127) found that in Eastern Africa (including Zambia), foreign training tended to score more highly than local training. Like in Iran (Johnson, 1980), the use of foreign technology coupled with lack of training facilities in the local educational system make employers to prefer foreign training. Many of the locally trained engineers in some of the INDECO companies expressed the view that they were considered to be of inferior quality by their employers.

As such, employers were spending considerable amounts of money on consultancy agreements with foreign firms, so it was argued, to do the jobs which they (the locally trained engineers) could do perhaps even better.

It follows from the foregoing that most employees would like to go abroad for their training so as to improve their standing. Colonial and dependency reasons notwithstanding, the rising costs of consumer durables like cookers, refrigerators, etc. in the local market further increases the benefits of foreign training as such goods can be afforded while one is on training abroad. Thus even if local training could meet some of the technical requirements of the firm, other socio-economic factors (which make foreign training attractive to both employees and employers) may militate against its full utilization.

Table 7.4 further demonstrates that the employers' concern about the local educational system are not borne out by their actions. For example, only seven employees got their present jobs through employers visits to their former institutions of learning ('milk-round'). This situation is neither helped by the lack of career advisory services in many of the institutions of higher learning. Only TTIs seem to offer some career advisory services to their students. The other Department of Technical Education and Vocational Training (DTEVT) institutes like Zambia Institute of Technology and Northern Technical College (which offer engineering technology and technicians certificates and diplomas), along with the University of Zambia do not seem to have effective career advisory services. In this regard, the employers' concern about lack of career counselling and ignorance of the graduates about the labour market seem to be founded.

Speculative contacts (through letters and visits) and answering to

Table 7.4: Educational Level by Method of Finding Present Job

| Education Level | Visits by Career Employer to inst'n | Advisory Office | Labour Press Office Adverts | Professional Recruitment | Speculative Contacts | Personal Sponsor-ship | Conne- tions | Previous Work in Company | Management Trainee | Other ^a |
|-----------------------------------|-------------------------------------|------------------------|-----------------------------|--------------------------|------------------------|------------------------|-----------------------|--------------------------|-----------------------|-----------------------|
| Grade VII or below | - | - | - | 1 (33.3) (2.6) | - | 1 (33.3) (2.4) | - | - | - | 1 (33.3) (14.3) |
| Form II/III | - | - | 1 (8.3) (100.0) | 3 (25.0) (7.9) | - | 7 (58.3) (17.1) | 1 (8.3) (10.0) | - | - | - |
| Certificate Craftsmen | 2 (7.4) (28.6) | 4 (14.8) (100.0) | - | 11 (40.7) (28.9) | - | 5 (18.5) (12.2) | 3 (11.1) (30.0) | - | 1 (3.7) (33.3) | 1 (3.7) (14.3) |
| Form V/GCE | - | - | - | 9 (31.0) (23.7) | - | 17 (58.6) (41.5) | 2 (6.9) (20.0) | - | - | 1 (3.4) (50.0) |
| Diploma/Midwife | 3 (15.8) (42.9) | - | - | 7 (36.8) (18.4) | - | 5 (26.3) (12.2) | 2 (10.5) (20.0) | 1 (5.3) (50.0) | - | 1 (5.3) (14.3) |
| First Degree | 1 (33.3) (14.3) | - | - | 4 (23.5) (10.5) | - | 4 (23.5) (9.8) | 1 (5.9) (10.0) | 1 (5.9) (50.0) | 2 (11.8) (66.7) | 1 (5.9) (50.0) |
| Postgraduate | 1 (33.3) (14.3) | - | - | - | - | - | 1 (33.3) (10.0) | - | - | 1 (33.3) (14.3) |
| Other professional qualifications | - | - | - | 3 (50.0) (7.9) | 1 (16.7) (100.0) | 2 (33.3) (4.9) | - | - | - | - |
| Total | 7 (6.0) | 4 (3.4) | 1 (0.9) | 38 (32.8) | 1 (0.9) | 41 (35.3) | 10 (8.6) | 2 (1.7) | 3 (2.6) | 2 (1.7) |
| | | | | | | | | | | 7 (6.0) |

Notes: ^a includes promotions and transfers

Decimal figures in brackets under each frequency are for row and column percentages, respectively.

Source: Employees Questionnaire, Questions 3 & 6

job advertisements in the press seem to be the common methods used to find jobs. Another method is that of personal connections--through relatives or friends telling candidates about the existence of vacancies. Judging by the response from employees when asked to comment on the recruitment policies of their employers, it would seem that nepotism and corruption may be widespread.

(iii) Effectiveness of the Various Training Methods

INDECO respondents were asked, in the main questionnaire, to indicate the effectiveness of the various types of training on easing labour shortages, raising productivity, reducing absenteeism, raising workers' morale, improving industrial relations and Zambianisation of the work force.

Table 7.5 demonstrates that on-the-job training was said, by

Table 7.5: Effectiveness of the Various Training Programmes

| | <u>On-the-job Training</u> | | | <u>Formal External Training</u> | | | <u>Part-time/Correspondence</u> | | |
|---------------------------|----------------------------|-------------|--------------|---------------------------------|--------------|-------------|---------------------------------|--------------|-------------|
| | Very | Marginally | Not | Very | Marginally | Not | Very | Marginally | Not |
| Easing Labour Shortages | 6 (33.3) | 9 (50.0) | 3 (16.67) | 11 (37.9) | 6 (31.6) | 2 (10.5) | 3 (17.6) | 9 (52.9) | 5 (29.4) |
| Raising Productivity | 12 (70.6) | 5 (29.4) | - | 14 (77.8) | 3 (16.67) | - | -- | 13 (86.7) | 2 (13.3) |
| Reducing absenteeism | 8 (50.0) | 3 (18.7) | 5 (31.3) | 4 (28.6) | 5 (35.7) | 5 (35.7) | 1 (7.1) | 6 (42.9) | 7 (50.0) |
| Raising workers' morale | 10 (52.6) | 8 (42.1) | 1 (5.3) | 13 (68.4) | 5 (26.3) | 1 (5.3) | 4 (25.0) | 9 (56.3) | 3 (18.7) |
| Improving industrial rel. | 13 (68.4) | 5 (26.3) | 1 (5.3) | 10 (55.6) | 7 (38.9) | 1 (5.7) | 2 (11.8) | 12 (70.6) | 3 (17.6) |
| Zambianising work force | 10 (52.6) | 7 (36.8) | 2 (10.5) | 15 (78.9) | 4 (21.1) | - | 3 (17.6) | 11 (64.7) | 3 (17.6) |

Note: Figure in brackets are row percentages of the sub-totals for each training category.

Source: Main Questionnaire, Question D1-9

13 companies, to be very effective in improving industrial relations. Twelve also indicated that it has been very effective in raising productivity by improving skills. Its effectiveness on raising workers' morale, Zambianisation of the work force and reducing absenteeism were also noted. On easing labour shortages however, only six companies thought that on-the-job training has been very effective. This is because the occupations where labour shortages are experienced require external formal training for internal training would require huge outlays of resources in financial, physical and human terms.

Formal external training has been very effective on all aspects except on reducing absenteeism. Formal training though very effective in Zambianising the work force and raising workers' morale may not have been very effective in raising labour productivity. Even if labour efficiency has risen, which is doubtful, the unavailability of other inputs has ensured a decline in total factor productivity over the years (see chapters I and III). But since formal training increases the supply of skills and enhances the employees' understanding of their environment, it follows therefore that it is an effective tool of easing labour shortages and improving industrial relations.

Part-time training or correspondence courses do not seem to have been rated highly. This is because they are the most informal types of training which are mostly left to individual employees' initiative. Some companies, especially in the food processing sector, encourage their semi-skilled employees in production to do correspondence courses in milling technology so as to attain City and Guilds certification. The reason for this is that there are no such courses offered in any institution of higher learning in the country. Employees are offered study loans and the employers help to pay for registration and with the

application for foreign exchange to pay the fees. In the case of professional accountancy training, say stage one of the Association of Chattered Accountants, employers often pay for such correspondence training.

When combined with on-the-job training, correspondence and part-time training are the best way of improving an individual employee's promotion and earnings prospects. This, as we saw earlier on, is because academic qualifications and not practical training are valued highly by many employers including the government.

7.1.2 OTHER SUPPLY ADJUSTMENT MECHANISMS

(i) Recruitment of Expatriates

Recruitment of expatriates has been a major residual and temporary adjustment⁶ to skilled and professional labour shortages in the local labour market. Although the number of expatriates has been declining over the years they still predominate in engineering, technical and accounting occupations. And of late, with the increase in management and consultancy contracts with foreign companies, their numbers in management has been on the increase. The overall decline in the number of expatriates over the years, is due to the effects of the government's Zambianisation policy which requires companies to increase the training of local Zambians to replace the former. The fall in foreign exchange reserves coupled with the depreciation of the kwacha have both also contributed to the decline in the number of expatriates.

The INDECO policy of recruiting expatriates, among other things,

⁶Though initially intended as a temporary measure, it has been formalised and where management contracts are in operations, it has become almost permanent. As we have mentioned before, apart from suppressing the extent of labour shortages, the continued use of imported and sophisticated technologies necessitates the dependence on expatriate labour.

stipulates that they (expatriates) "... will only be offered employment in respect of job categories which cannot at the relevant time be completely Zambianised".⁷ The expatriate so recruited must be capable of training and developing Zambians. This latter condition is very difficult to meet for as we demonstrated above, being knowledgeable and good at one's work does not necessarily mean being a good trainer. Moreover, the practice in INDECO has been not to integrate expatriates in the management teams. This point was made particularly clear by IDAT when they were analysing the problems of Kapiri Glass Products. They found that given the sophisticated technology used by the company, there was a need for expatriates for at least three more years. The future of the company was therefore in doubt unless the expatriates so recruited were good trainers and that, unlike in the past, they would be integrated more fully in the management team of the company more successfully.⁸

The other problem posed by recruitment of expatriates is the resultant effect on the morale of local employees. The latter may resent the former for they occupy senior and key posts and this limits career advancement. As we demonstrated in the previous chapters, not every expatriate is good at his job but every expatriate is better paid (in terms of inducement allowances in foreign exchange and other fringe benefits) than local employees doing the same jobs. Other fringe benefits like paying for the education of expatriates' children both locally and abroad further enhances the earnings of expatriates. As we

⁷INDECO Handbook, op. cit. p.11.

⁸Industrial Development Advisory Team (IDAT), "INDECO Ltd, Industrial Reorientation Programme, Report No.3: Covering Report to the Diagnoses and Action Plans for INDECO's Priority Group of subsidiaries" (Lusaka: IDAT, 1986) p.4. cited with the kind permission of INDECO.

shall show below, local employees are, on the other hand, not offered such benefits.

The pay differentials between expatriates and local employees poses both theoretical and practical problems for African countries. That is, since most of the expatriates are whites, it may be argued that it is no more than the continuation of the colonial pay structure. Thus:

(a) the local resources during the colonial period were used to improve the education and skills of settler whites but who upon independence came to be classified as expatriates. To retain such personnel, pay levels had to be at competitive international labour market rates and this adversely affects the balance-of-payments (as it exacerbates the foreign exchange problems) and the nature and the character of the African economies.

(b) in terms of opportunity costs, the resources used in attracting and retaining the expatriates could have been put to better use elsewhere in the economy, say increasing training and developing of local labour so as to increase the supply of skills in the local labour market. As a consequence, both skill shortages in the local labour markets and the dependency on expatriates persist. With the depreciating currencies and decline in the real price of primary exports, the cost to African economies resulting from the recruitment of expatriates is quite phenomenal (see chapters III and IV).

(ii) Transfer and Upgrading of less-skilled Workers

As has been pointed out above under on-the-job training section, job fragmentation and modifications have been adopted so as to use less skilled workers to perform tasks requiring highly skilled artisans--especially in direct production occupations like operators and

artisans. Even in indirect labour categories like accounting, employees with non-professional qualifications like Zambia Diploma of Accountancy (ZDA) and book-keeping certificates have been promoted to positions of accountants (however, many personnel managers did not state this as one of the major adjustment to shortage--table 7.1; but did so when asked to indicate the positions occupied by unqualified and/or inexperienced personnel, (see table 6.2 in chapter VI). The effects of these residual measures on output and its quality are known but in a situation where alternatives are limited, such upgrading of less-skilled labour may become inevitable.

Another method used to adjust to labour shortages, especially for administrative, managerial and clerical personnel, is intra- or inter-company transfers. Lateral transfers from one branch of a company to another either in the same capacity or on promotion are quite common. It is the inter-company transfers which presents some problems. The training of personnel is usually at individual subsidiary expense but INDECO Limited views personnel in the Group as an enterprise resource and as such, may transfer personnel from one operating company to another. One subsidiary company which was among the first to implement management development programmes complained about this practice as most of its senior managers had been transferred to other operating companies. This is however balanced out by the fact that other companies in the Group also train and experience similar difficulties. It does, nonetheless, raise questions about the suitability of this method as the managers who are transferred so often from one company to another may experience difficulty in adjusting to new working methods and operations of the different companies. As such, efficiency may suffer (that is, in terms of specific skills like familiarity with the

environment and members of a given team--see Doeringer and Piore, 1971). INDECO also trains a pool of technical and managerial staff who it seconds to the various operating companies. In this regard it does not only depend on the training activities of the operating companies.

To argue that inter-company transfers should be stopped in a big conglomerate like INDECO would be unrealistic. If the personnel so transferred are on promotion, to stop such transfers may limit career advancement and the alternative may be to quit. Quitting would present a loss to both the operating companies and INDECO as a whole. Even where inter-company transfers are lateral, the wider experience afforded such employees may enhance their career advancement and understanding of the diversity of the operations of the INDECO Group of companies.

Finally, other supply adjustment mechanisms like increased use of over-time and use of seasonal and temporary labour have low frequencies and ranking (table 7.1). The low frequency of the use of over-time is mainly due to the current low rates of capacity utilization.

Temporary seasonal labour is usually used by firms engaged in agriculture and milling. During harvesting there is the need for extra labour and, as such, more casual labour is hired. On the other hand, millers need extra cashiers and casual labour during periods of high demand for selling their maize-meal and other products.

7.2 DEMAND ADJUSTMENT MECHANISMS

The analysis of the demand aspects of the manpower problems in the INDECO Group has so far demonstrated the institutional constraints imposed by the ZIMCO conditions of service. ZIMCO as the overall

holding company of the parastatal sector sets up the pay structure for its various subsidiaries in accordance with the wishes and policies of the government. Individual subsidiary companies have no power to adjust the pay structure in order to be responsive to their own needs. That being the case, it is not surprising that only a handful of the INDECO companies responding to the questionnaire (table 7.1) indicated improving working conditions at the Group level as one of the demand adjustment measures. There were even fewer who indicated increasing relative earnings (and where they did, it was ranked lowly) for the shortage occupational categories as this has implications on industrial relations and the entire pay structure. Fast promotions (except for technical occupations), phasing-out posts (except for direct production occupations), subcontracting work and investing in new equipment to economise on shortage labour do not seem to have been viable options for many of the INDECO subsidiary companies.

7.2.1 THE PAY STRUCTURE AND PAY POLICY

There are two types of pay structures in the INDECO group of companies. The ZIMCO Conditions of Service are applicable to salaried workers in grades Z1 to Z10. The trade union collective bargained wages are mostly applicable to manual and semi-skilled workers mostly in production. Union pay scales may also include clerical and other office workers, operators and technicians.

All of the thirty-six INDECO subsidiary companies, depending on the nature of their activities, negotiate with four different national industrial unions: the National Union of Transport and Allied Workers; the National Union of Commercial and Industrial Workers; the National Union of Building, Engineering and General Workers; and the National

Union of Plantation and Agricultural Workers. Each union signs a separate collective agreement with individual subsidiary companies.

The role of INDECO in these negotiations is to provide chairmanship and guidance to its subsidiaries. By and large, collective agreements signed between one industrial union and different INDECO companies in one sub-sector is very similar in wording and clauses. Other than pronounced differences in absolute earnings and range, the other main difference between the ZIMCO and union pay structure is that annual pay increments are awarded in the former case without performance appraisals of individual employees. These are compulsory in the latter case. In some of the collective agreements, there are explicit differences in wages paid according to the length-of-service with a company--this is to encourage labour stability. For example, unionised employees were to be paid K2.00 per month for every year completed in service.⁹ Another characteristic of wage negotiations in Zambia is that collective agreements are signed at a national level with no additional individual factory negotiations. This is partly necessitated by the fact that if it were the case, organised labour in the urban areas would be in a better position than their rural-based counterparts. Thus the effect of this national arrangement is to make pay uniform across the country in any one industry.

The egalitarian principle we analysed in previous chapters is demonstrated in table 7.6A. The lowest paid union members get a larger pay increase than their higher paid colleagues. For the two periods, October 1986 to September 1987 and October 1987 to September 1988, the increase in the earnings of those union members in grades I-III

⁹Collective Agreement between Supa Baking Company Ltd and the National Union of Commercial and Industrial Workers, 7 March 1985, p.4.

Table 7.6A: New Wage Structure (Rates of Monthly Pay and Housing Allowances)
for Consolidated Tyre Services Ltd Union Employees--1986-1988

| GRADE | PRESENT WAGE/SALARY | Percent | 01/10/86 TO 30/09/87 | Percent | 01/10/87 TO 30/09/88 | Housing Allowance per Month | |
|-------|---------------------|---------|----------------------------|---------|----------------------------|-----------------------------|---------|
| | | | | | | 1986/87 | 1987/88 |
| I | 168.22 | 10 | 185.04 | 12 | 207.24 | 30.00 | 35.00 |
| | 177.60 | | 195.36 | | 218.80 | | |
| | 182.23 | | 200.45 | | 224.50 | | |
| | 186.96 | | 205.66 | | 230.34 | | |
| | 189.67 | | 208.64 | | 233.68 | | |
| | 204.93 | | 225.42 | | 252.47 | | |
| II | 198.89 | 10 | 218.78 | 12 | 245.03 | 30.00 | 35.00 |
| | 203.48 | | 223.83 | | 250.69 | | |
| | 208.09 | | 228.90 | | 256.37 | | |
| | 211.31 | | 232.44 | | 260.33 | | |
| | 216.21 | | 237.83 | | 266.37 | | |
| | 225.14 | | 247.65 | | 277.37 | | |
| III | 209.92 | 10 | 230.91 | 12 | 258.62 | 30.00 | 35.00 |
| | 214.07 | | 235.48 | | 263.74 | | |
| | 214.43 | | 235.87 | | 264.17 | | |
| | 218.55 | | 240.41 | | 269.26 | | |
| | 230.72 | | 253.79 | | 284.24 | | |
| | 234.99 | | 258.49 | | 289.51 | | |
| IV | 239.06 | 7 | 262.97 | 10 | 294.53 | 30.00 | 35.00 |
| | 200.34 | | 214.36 | | 235.80 | | |
| | 230.46 | | 246.59 | | 271.25 | | |
| V | 241.10 | 7 | 257.98 | 10 | 283.78 | 30.00 | 35.00 |
| | 244.75 | | 261.88 | | 288.07 | | |
| | 253.68 | | 271.44 | | 298.58 | | |
| | 262.62 | | 281.00 | | 309.10 | | |
| | 273.32 | | 292.45 | | 321.70 | | |
| | 301.92 | | 323.05 | | 355.35 | | |
| | 316.22 | | 338.36 | | 372.20 | | |
| | 330.51 | | 353.65 | | 389.02 | | |
| | 340.37 | | 364.20 | | 400.62 | | |

NB: The job titles in each grade are as follows:

| GRADE I | GRADE II | GRADE III | GRADE IV | GRADE V |
|--------------------|-------------------|------------------|--------------------|--------------------------|
| General worker | Battery attendant | Head cook | Shipping clerk | Wheel Balancing Operator |
| Helper | Driver | Kardex clerk | Purchasing clerk | Store keeper |
| Office messenger | Security guard | Stores clerk | Counter salesman | Cashier |
| Sanitary attendant | Filing clerk | Chemical weigher | Copy typist | Senior Counter salesman |
| Gardener | Cook/waiter | Tyre fitter | Telephone operator | Sales analysis clerk |
| Tyre roller | | Machine operator | Senior driver | Personnel clerk |
| | | Painter | Carpenter | Accounts clerk |
| | | Assistants: | | |
| | | Electrician's | Bricklayer | Invoicing clerk |
| | | Fitter's | Counter saleslady | Security supervisor |
| | | Motor mechanic's | | Leading chargehand |
| | | Head messenger | | Senior machine operator |
| | | Despatch clerk | | Senior counter saleslady |

Source: Collective Agreement between Consolidated Tyre Services Limited and the National Union of Transport and Allied Workers, 1 October, 1986, schedule A.

Table 7.6B: Job Titles, Grades and Annual Salary Ranges for X INDECO Subsidiary Company

| JOB TITLE | GRADE | SALARY RANGES | NUMBER OF POSITIONS |
|-----------------------------|-------|---------------------|---------------------|
| General Manager | Z8 | K11600 x 800-K19600 | 1 |
| Chief Accountant | Z8/7 | K10950 x 750-K18450 | 1 |
| Works Manager | Z8/7 | K10950 x 750-K18450 | 1 |
| Personnel Manager | Z7 | K10300 x 700-K17300 | 1 |
| Purchasing Manager | " | " | 1 |
| Marketing Manager | " | " | 1 |
| Cost Accountant | " | " | 1 |
| Financial Accountant | " | " | 1 |
| Assistant Works manager | " | " | 1 |
| Buyer | Z7/6 | K9650 x 650-K16150 | 1 |
| Assistant Marketing Manager | " | " | 1 |
| Product Manager | " | " | 4 |
| Sales Manager | " | " | 1 |
| Maintenance Manager | " | " | 1 |
| Industrial Rel. Officer | Z6 | K9000 x 600-K15000 | 1 |
| Senior Marketing Officer | " | " | 1 |
| Personnel Officer | " | " | 1 |
| Technologist | " | " | 1 |
| Snr. Assistant Accountant | " | " | 4 |
| Electrical Engineer | " | " | 1 |
| Mechanical Engineer | " | " | 1 |
| Snr. Estimator D/man | Z6/5 | K8700 x 550-K14200 | 1 |
| Assistant Accountant | Z5 | K7400 x 500-K12400 | 1 |
| Snr. Credit Controller | " | " | 1 |
| Marketing Officer | " | " | 1 |
| Stores Controller | " | " | 1 |
| Shipping Officer | " | " | 1 |
| Purchasing Officer | " | " | 1 |
| Foreman | " | " | 8 |
| Catering Officer | " | " | 1 |
| Transport Officer | " | " | 1 |
| Salaries/wages Officer | " | " | 1 |
| Credit Controller | Z5/4 | K5850 x 450-K11138 | 1 |
| Snr. Supervisor | Z4 | K4800 x 400-K9900 | 13 |
| Security Officer | " | " | 1 |
| Production Foreman | " | " | 5 |
| Asst. Personnel Officer | " | " | 1 |
| Industrial Nurse | " | " | 1 |
| Electrician | " | " | 5 |
| Fitters | Z4/3 | K4150 x 350-K8962 | 8 |
| Asst. Shipping Officer | " | " | 1 |
| Asst. Stores Controller | Z3 | K3500 x 300-K7625 | 1 |
| Secretary | " | " | 5 |
| Typist | Z3/2 | K2850 x 250-K6288 | 4 |
| S/board Operator | " | " | 1 |
| Telex Operator | " | " | 1 |
| Heavy Duty Driver | " | " | 4 |
| Light Duty Driver | Z2 | K2200 x 200-K4950 | 6 |
| Clerks | " | " | 12 |
| — | Z1 | K1240 x 100-K3115 | — |

Notes:

(a) In this company, the posts of chief accountant and works managers are occupied by expatriates who during the 1986/87 financial year were paid, respectively, US\$5175 and US\$4705 per annum, tax free as inducement allowance. Other fringe benefits for expatriates include:

- entertainment allowance of K300 per month;
- 25% gratuity of basic salary at the end of contract, tax free;
- 25% of total inducement allowance at end of contract;
- free accommodation;
- free passage for family;
- car allowance or company car;
- free household furniture;
- payment for dependent childrens' education both locally and abroad;
- payment for visiting children in full-time education abroad;
- 'easy access to the boss'

(b) Fringe benefits for Zambians include:

- company car/allowance (Grade Z5 and above);
- kilometre allowance (below grade Z5);
- Entertainment allowance;
- for chief executives and those in grades Z8 and above: free local telephone calls and rentals, water services and electricity; (heads of departments would be reimbursed part of these costs); house servants paid for by the company at grade Z1 scales;
- Personal loans;
- mortgage guarantee and bridging loan depending on grade and salary.

Source: 'X' INDECO Subsidiary company and INDECO Handbook.

were 10 per cent and 12 per cent as compared to 7 per cent and 10 per cent of the higher grades IV and V. Thus the ratio of the lowest to the highest paid trade union member fell from 1:2.02 during 1986 to 1:1.97 during 1986/87 and 1:1.93 in 1987/88. Evidence from other collective agreements shows that the same tendency of favouring the lowest paid workers.

With regard to the ZIMCO grades and pay scales, table 7.6B demonstrates its considerable wide ranges between and within grades. In this particular subsidiary company, the highest pay rate of K19,600.00 is about sixteen times that of the lowest paid in grade Z1. Within any grade, different pay notches obtain. In the main, entry points into any one grade and differences in earnings is determined,¹⁰ among other things, by the educational and vocational qualifications; previous work experience; length-of-service; differences in occupational categories; whether expatriate or a national; the relative scarcity of the different skills and the differences in the perceived worth of the job to the organization as determined by the periodic job evaluation exercises.

A closer look at some of the grades, in this particular subsidiary company, reveals that electrical and mechanical engineers are slotted in the same grades (Z6) as a technologist. Higher up in the hierarchy, we also observe that a maintenance manager is lowly placed in comparison to assistant works, purchasing, marketing and personnel managers. As it happens, maintenance is one of the most important functions in the context of INDECO's industrial structure and the current economic problems. Thus to down grade engineers, as is the case here, may result in frustration and labour turnover problems.

¹⁰Interview Schedule, Question 17

The other problem inherent in the ZIMCO pay structure is the wide differentials in pay packages between Zambians and expatriates. Although the basic salary is the same for both expatriates and Zambians with similar attributes and doing the same job, wide differentials exist in the payment of other perks and fringe benefits. For example, the payment of inducement allowances to expatriates to the tune of US\$5175.00 and US\$4705.00 per annum greatly widens the pay differentials when translated into kwacha terms. In addition, expatriates also get free accommodation, free passage of family members, payment for their children's education both locally and abroad, paying for the parents to visit their children training abroad, etc. No such benefits are given to Zambian employees. The fringe benefits given to Zambians in grades Z5 and above seem to be inferior by comparison.

That expatriates occupy posts of influence and have 'easy access to the overall boss' (to use one respondent's words) in whatever organization they are in, adds to the sense of frustration among local Zambians. This, as we mentioned above, is mostly pronounced among accountants and engineers who feel that professional equivalent (sometimes lower) expatriates are being paid undue attention by the employers.

It has been shown that the objective of a differential wage structure is to provide equal pay for jobs of equal worth and an acceptable set of differentials for jobs of unequal worth.¹¹ Available evidence suggests that pay differentials reflect not only job content and difficulty but various other influences which may cause inequalities. Treiman and Hartman (1981:42) who reviewed the

¹¹A.N. Nash and S.J. Carroll Jr., The Management of Compensation, (California: Wadworth, 1975) p. 97, cited by Dov Elizur, Systematic Job Evaluation and Comparable Worth, (Aldershot: Gower, 1987), p. 11.

literature on the subject are cited (Elizur, 1987) to have concluded that only a small part of the earnings differences can be accounted for by education, experience, commitment and other human capital factors believed to contribute to productivity differences among individual workers.

The argument in labour economics of explaining pay differentials in an organization in terms of market forces has been shown to be wanting.¹² For example, the low earnings of women and minority groups continue irrespective of advances in their human capital attributes. The market rates being external measures have no relation to job contents within organizations. Since labour market rates are difficult to measure and unacceptable to the employees discriminated against as a rationale for their poor pay, labour markets may therefore seem to institutionalise bias and make no effort to remove such bias.¹³

When we apply the foregoing argument to Zambia and to the pay differentials between expatriates and local labour it becomes obvious that the use of international market rates to try and rationalise the high premia paid to expatriates may be difficult to sustain. It has been argued (Arrow and Capron, 1959; Thomas and Deaton, 1977; Hunter, 1978) that it is not possible for an employer to offer higher pay to new employees in the shortage category without extending such a payment to the existing (old) employees. However, where a labour market is institutionally segmented, as is the case in Zambia, a large employer like ZIMCO could circumvent such constraints by playing the skill differential card and pay expatriates (new employees) more in terms of inducement allowances (which cannot be extended to local labour) and

¹²D.D. Treiman and J.H. Hartman (eds), Women, work and wages: equal pay for jobs of equal value, (Washington, DC: National Academy Press, 1981) cited by Dov Elizur, op. cit. p 47.

¹³15. Ibid, p 14.

fringe benefits. For political and legal reasons, the basic kwacha salaries are the same for indigenous and expatriate labour with similar attributes.

Despite the practical problems posed by the ZIMCO pay structure, the tone of INDECO's stated pay policy and objectives gives the impression that it is very competitive.

Thus¹⁴

It is the policy of the INDECO Group of companies to provide employees with such services including salaries and wages that will motivate, enhance their morale and enable them to derive maximum job satisfaction so that in turn they can work more competently and effectively to increase productivity for the Corporation to realise a better return on investment...Consonant with this policy the objectives of providing employee services will be: (1) To ensure that employees are remunerated commensurate with the professional and technical qualifications and proven working experience, all jobs are ranked within fixed grades. (2) For the Corporation to provide other fringe benefits as may be necessary in order to relieve the employee's burden and make him/her live a reasonable and acceptable life, and (3) To provide such welfare services that will ensure that the employee on retirement can continue to live a fair life and that while on the job his health and safety are assured and safe guarded.

The above stated policy and objectives, laudatory as they may sound, are not borne out by the real INDECO situation. For example, ever since the 1975 Mwanakatwe Salaries Commission which recommended narrowing the pay differentials between the civil service and the parastatal sectors, pay packages have remained poor in comparison to the private sector. Moreover, evidence from the survey presented in table 6.7 (chapter VI) shows that INDECO (unlike the private sector) tends to pay, on average, the less skilled production workers more than it does the high-level manpower categories. This flies in the face of the first of the above stated pay objective--that is, to pay employees according to their professional and technical qualifications.

In the wake of an annual inflation rates in excess of 30 per cent (see table 3.1 in chapter III), it may be absurd for an organization

¹⁴INDECO Handbook, op cit., p. 92

whose pay policy is determined externally to say that it would ensure to maintain real earnings of its employees so that they 'live a reasonable and acceptable life'. To do so would mean to index earnings and other fringe benefits to the rate of inflation; a thing which, under the current economic crisis in Zambia, is almost impossible for any organization to implement. With the same token, it is also not possible to ensure that employees would continue to live a fair life after retirement as pensions have, in the past, been inadequate and there is no reason to believe that those who retire will have a better deal.

The effect of the ZIMCO pay structure on the retention and morale of labour have increasingly come to be appreciated by both INDECO Central and its operating companies. For this reason, on implementing the credit agreement with the World Bank in 1985, a committee was set up to inquire into the "Terms and Conditions for Professional in the INDECO Group of Companies". The inquiry was completed in January 1986 and, among other things, the Committee recommended the following:¹⁵

(a) abolish the Z scale for salaries and offer a compensation package which will attract and retain personnel--according to the way the company perceives their worth;

(b) gear technical training to the demands;

(c) in developing projects INDECO should, as far as possible, look to local resources and rely on local personnel;

(d) reward those who excel and penalise those with poor performance;

(e) transfers of chief executives should be minimised;

¹⁵Adapted from IDAT, op. cit., p. 25. Some elements of IDAT's re-orientation programme were based on the assumption that some of these measures were going to be implemented. That they have yet to be implemented casts doubt on the success of the programme.

(f) chief executives must be given authority to hire and fire their subordinates up to a certain level;

(g) senior managers and their boards of directors must be prepared to stand up for the responsibilities they are expected to discharge.

These recommendations, to the best of the author's knowledge, have yet to be implemented. In the context of Zambia's political economy, the above recommendations may prove difficult to implement for some of them challenge the existing institutional arrangements. For example, the Minister of Finance has already served notice that he intends to see that the pay differentials between the parastatal and civil-service abolished (see chapter VI, § 6.2.1). The easiest and cheapest way to achieve this would not be to raise the salary structure of the civil service to equate it to that of the parastatal sector but to lower that of the latter to the level of the former. If this was to be done, abolishing of the Z scales would do little to attract and retain the necessary labour for the compensation packages would not be competitive.

As regards payment-by-results (performance) and minimising the transfer of chief executives, procedural problems are likely to be encountered (we discuss these more fully in chapter IX when we consider problems of reforming the ZIMCO pay structure). Take transfers of chief executives for example. To minimise it would mean curtailing the powers of the president in his capacity as the chairman of ZIMCO--something which is unthinkable in Zambia's political context. And given that measuring performance of employees may not be totally objective, a rewarding system based on it may be arbitrary. While nepotism, favouritism and corruption are present in every society, these may pose additional problems in a one-party system of government like Zambia where politics are conducted on a patron-client basis and sectio-

nalism.¹⁶ The same is true about chief executives having authority to hire and fire and to stand up for the responsibilities they are expected to discharge.

7.2.2 JOB EVALUATION, PERFORMANCE APPRAISALS AND SALARY ADMINISTRATION

(i) Job Evaluation

In the literature job evaluation has been defined as a "method of comparing jobs by applying formal and systematic procedures in order to determine their relative worth to the organization." In this regard, job evaluation is said to have two main objectives:

(a) to compare jobs and determine their level within each occupational group. This is important for purposes of promotions, career planning and personnel development;

(b) to compare jobs between occupational groups, that is, to see whether the level of job X in one occupational group is equivalent to, higher, or lower than job Y in another occupational group. This is important for wage comparisons.

In attempting to achieve both objectives, job evaluation determines the rank order of all the jobs in an organization.¹⁷

In the case of INDECO, the Handbook states that "in order to determine an up to date value of the job, jobs should continue to be evaluated as and when the need arises." To properly rank jobs, operating companies are urged to prepare, assess and analyse jobs and their respective descriptions.

¹⁶See William Tordoff (ed), Politics in Zambia, (Manchester: Manchester University Press, 1974) and Patrick E. Ollawa, Participatory Democracy in Zambia: the Political Economy of National Development, (Infracombe: Arthur H. Stockwell, 1979) especially chapter 11, "The Primacy of Politics in the Public- and Decision- Making Process".

¹⁷Dov Elizur, op cit. p. 5.

The personnel departments would prepare job descriptions which will include positions and objectives of the jobs, followed by a more detailed list of the specific duties so that "local differences in outwardly similar tasks are not overlooked." Such descriptions would be revised in consultation with the heads of departments so as to ensure their accuracy. Finally, the job holders would be shown the revised job descriptions so as to obtain their consent and signature on the accuracy of the job description in question. As a policy, a pre-determined factor plan comprising selected and acceptable factors will be used to compare and determine the relative worth of one job in relation to that of another.

Due to the lack of professional skills in the personnel departments of the INDECO Group, individual subsidiary companies have not been able to implement job evaluation on their own. For this reason, INDECO in 1983 requested the Copper Industry Services Bureau (CISB) Limited (a subsidiary of ZCCM) to undertake a comprehensive job evaluation exercise covering all jobs on the ZIMCO conditions of service both at the head office and ten operating companies.

Before this date (1983), INDECO companies, like other ZIMCO subsidiaries, had only the chief executives' jobs evaluated by ZIMCO. It was the responsibility of individual subsidiary companies to classify and rank the jobs below that of the chief executive. In most cases this involved slotting employees into pay grades which tended to relate to the grade of the chief executive and not to the contents of the respective jobs. This resulted into some employees being under- and over- graded relative to their job-content. It led to dissatisfaction and, consequently, high labour turnover for some of the affected employees. To have Group consistency, subsidiary companies'

classifications were coordinated by INDECO.¹⁸

When the ZIMCO Job Evaluation Plan was initially introduced in the 1970s, a number of problems obtained in some of the INDECO companies:

- (a) placing superior and subordinate jobs into one grade;
- (b) slotting more than three levels of supervision into one grade;
- (c) relating grading to titles and not content;
- (d) rigidity--there was no provision for appeal for those who felt that their jobs were not graded properly.

Because INDECO lacked the necessary qualified manpower to deal with the above problems, ZIMCO recommended CISB to carry out the review. The tasks which CISB were to undertake were as follows:

- to identify all the jobs to be covered by the scheme and draw organizational charts depicting the hierarchical and horizontal reporting relationships between the jobs at INDECO Central and individual subsidiaries;
- to design an appropriate job description format, interview the job holders and agree on the accuracy of the descriptions;
- to select key jobs that would be used as a basis against which all other similar and comparable jobs would be evaluated and select the appropriate job factors to be used in the evaluation process;
- design two job evaluation manuals to cover unionised jobs and jobs on the ZIMCO conditions of service, respectively;
- to train selected members of the job evaluation panels in job evaluation techniques and direct the evaluation of jobs under review;
- to recommend appropriate and acceptable alternative grading structures that would resolve the current job grading inequalities

¹⁸This section on job evaluation in INDECO draws heavily from the Industrial Development Corporation Limited, "Report on the First Ten Wholly Evaluated Subsidiaries using the ZIMCO Corporate Job Evaluation Plan", (n.d.).

within INDECO.

Before we analyse the INDECO job evaluation manual, it would be elucidating to briefly look at how CISB developed its job evaluation methods at the ZIMCO level.

(a) ZIMCO job evaluation manual

The inherent problems, mentioned above, in the ZIMCO Job Evaluation Plan resulted into some INDECO companies appealing against the grading. And because some subsidiary companies had approached CISB to conduct job evaluation on their behalf, ZIMCO in 1982 also approached CISB for the same purpose. But given ZIMCO's diverse structure, there was a need to handle the inter-company relativities. In 1982, a committee was formed to deal with this problem. It became apparent that CISB could not write one job evaluation manual to cover the entire ZIMCO. A choice had to be made between the sectoral and hierarchical approaches. The sectoral approach would involve writing a single job evaluation manual for each sector of ZIMCO; but this was rejected as it would "blur the heterogeneity of jobs especially at the lower levels where technological and environmental factors are major determinants of the nature and content of jobs". This method would also prevent direct comparison of jobs in different sectors where similar jobs exist. For example, accountants in the industrial and financial sectors would not be comparable even though the jobs they do are similar.

The hierarchical approach was chosen instead as it was possible to identify jobs across ZIMCO which tended to be more or less homogeneous regardless of operations and technology applied at each subsidiary. However, CISB arrived at the conclusion that only jobs between grades Z5 and Z10 qualified for this treatment.

Since the task was to design a "manual that is capable of establishing acceptable job grading relativities as well as taking into consideration the peculiarities of each subsidiary", the ZIMCO project was made up of a panel comprising members from four subsidiary companies in four different sectors and officials from ZIMCO Head Office. The role of CISB was to select the job factors to be used in the assessment of the jobs; select and assess jobs; prepare and review job descriptions; develop an acceptable workable 'felt fair' rank order of key jobs; and evaluate the remaining jobs using the method agreed upon using the 'key jobs' so selected.

Seventeen factors which reflect the degree of demands that jobs place on the people doing them (for example, physical effort, education, etc.) were agreed by the Committee. In all, fifty-two jobs were selected as 'key jobs' by CISB and adopted by the Committee. These 'key jobs' were drawn from fifteen subsidiary companies that make up the various sectors of ZIMCO. The 'key jobs' were evaluated using factual information contained in the job descriptions and the Committee had to "unanimously agree on each factor level before it was awarded within any job characteristic."

The 'felt fair' rank order method is a "list of a selected sample of jobs in order of importance derived from the subjective consensus of the Job Evaluation Committee." To minimise the incidence of subjectivity, the paired comparison technique was used to compare each key job against every other key job in terms of their relative worth to ZIMCO. If a job was considered to be more important than another, it scored 3 points, 2 points if it was considered equal, and 1 point if it was considered less important than another key job. Thus in order to bring the rank order by points scored in line with the 'felt fair' rank

order method, it was necessary to introduce valid and reliable factor level weights. The factor weights were calculated from a linear programme developed by CISB. The programme used the 'felt fair' rank order of the key jobs and the unweighted key job factor level scores as its inputs. Because the resulting weighted rank order of the 'key jobs' did not match closely with the 'felt fair' rank order, the Committee had to re-examine the 'key jobs' evaluation and the 'felt fair' rank order so as to make necessary adjustments. The final evaluated 'key jobs' rank order closely matched the revised 'felt fair' rank order and it was therefore "... assumed the job evaluation manual could in actual fact establish the inter-Corporation (ZIMCO) job relativities without much difficulty."

To test its validity and reliability, the job evaluation manual was applied to a cross-section of jobs from over twenty-five ZIMCO subsidiaries including INDECO. The results demonstrated that the manual was capable of establishing inter-Corporation job relativities *so long the factor level allocation is consistent with the agreed framework* (emphasis mine). The final grade structure and job point cut offs were judged by both CISB and ZIMCO to have achieved an optimum solution in terms of a generally acceptable grade structure which established fair relativities between jobs of various sizes throughout the conglomerate.

(b) the use of the ZIMCO manual on the INDECO project

CISB thought that a separate job evaluation manual for INDECO would have no relationship with the ZIMCO grading as the factors used, weights and grade boundaries would be different from those developed for ZIMCO as a whole. It was also recognised that considerable costs were to be incurred at a later date if the need to re-align the INDECO

grades to the new ZIMCO grade structure was to become necessary. For these reasons, it was agreed between CISB and INDECO that for Z5 to Z10 jobs, the ZIMCO manual would be used. Unionised jobs whose earnings were equivalent to the Z5 pay scale and those other jobs below Z5 which the Panel and management felt were under-valued were also to be evaluated using the ZIMCO manual. The INDECO project only covered ten subsidiary companies.

The evaluation of most of the jobs resulted in upgrading. The reason given for this was that "most jobs across the conglomerate had depressed grading, especially in the technical and operational or production functions." The new relativities were considered by CISB to be equitable and realistic.

CISB managed to evaluate 412 jobs of which 317 were approved by the Committee. However, 41 jobs could not be graded either because they were considered too high or too low. And given the long time it took to evaluate the jobs, CISB recommended implementing the results from 1 April, 1985. This, it was argued, "would ensure that agreed job relativities were not disturbed by either considerable changes in job content and the perception of both management and employees in terms of market, socio-economic and psychological factors relating to the same."

(c) weaknesses of the CISB methods

The reliance on a job evaluation committee to use its subjective knowledge to rank the jobs and the use of weights for the different factors to further rationalise the ranking presents some conceptual and practical problems. Although this method is easy to implement, ranking and classification methods do not offer clear procedures for applying specific factors to guide the rating.

It has been argued (Elizur, 1987:56) that where the number of jobs is large, it is difficult to find raters who would know all the jobs and rate them objectively. Furthermore, the number of comparisons required in making paired comparisons grows exponentially as the number of jobs increases. That is, the number of possible pairs equals $n(n-1)/2$. In the case of the 412 jobs evaluated in INDECO this would mean 84,666 possible pairs to compare. Bias is also inherent in ranking as the method relies on the raters' judgement but raters often have different considerations in mind for comparing jobs.

The use of weights to arrive at scores for the different jobs presents another set of problems. The mathematical manipulations of these scores have been shown to have no theoretical and statistical justification.¹⁹ Adding the scores presupposes the job factors have equal intervals between them. If they did, it would imply that (Elizur, p.90):

(a) the distance between the ranks in a certain factor are equal;
and

(b) a given rank in one factor is comparable to the same rank in another item.

It is argued that if scores have interval properties, then the differences between them would reflect real differences between the job aspects measured. But this is not the case as job evaluation is the same as qualitative measures obtained in psychological tests or attitude studies. That job evaluation is expressed in numerical terms is of no consequence as "in principle it is no different from the rank position accorded contestants in a beauty contest. Although everyone

¹⁹A. Hazewinkel, "Job Evaluation as a Measuring Procedure" in Proceedings, International Conference on Job Evaluation, (Amsterdam, 1969), cited in Dov Elizur, op cit. p. 90.

might agree who the most beautiful contestant was, it would be impossible to quantify how much more beautiful she was than any other" (Elizur, p. 91). Thus although job evaluation can tell us whether the job is higher, lower or equal to another, it does not tell us by how much. The problem then is of interpreting the score values. But if these limitations are recognised, Elizur suggests that proper methods like the scaling methods which take into account the qualitative nature of the job evaluation data may be applied.

The above weaknesses notwithstanding, the job evaluation procedures introduced by CISB have added a new dimension to the management of human resources in the INDECO Group. These procedures, at least, try to sort out the difficulties associated with an ad hoc job grading system and the resultant pay structure which obtains. The value and implementation of the new grading system awaits the test of time.

(ii) Performance Appraisals and Annual Salary Increments

Annual salary increments are based on performance appraisals of individual employees. These appraisals are carried out by their supervisors with the heads of departments ratifying these appraisals. The employees' performance is appraised on six factors (table 7.7A), namely output; quality of performance; co-operation with others; personal involvement; man management and development of subordinate staff. The last two only apply to those with supervisory responsibilities.

On each factor, the rater has to score the performance of the employee on a scale of five attributes ranging from one, if the performance is poor to five if it is good. The scores are then added up (table 7.7B) to arrive at notches. If an employee scores 30 or 20 points, depending on whether he has supervisory responsibilities or

Table 7.7A: ZIMCO Limited: Performance Appraisal Scale

| | |
|---|---|
| 1. <u>OUTPUT</u> | |
| Consider the volume of work of an acceptable standard, relative to the employee's experience in the job. Also consider the employee's good sense of distributing his effort properly over the various tasks assigned to him, and in recognising priorities. | |
| 1.1 Volume of work consistently does not measure up to job requirements | 1 |
| 1.2 His output, considered overall, does not generally maintain an acceptable level: or if some deadlines are met, this may be at the expense of other, sometimes more significant tasks. | 2 |
| 1.3 Output generally acceptable. Maintains a proper balance between the various tasks that require his attention | 3 |
| 1.4 Volume of work performance generally exceeds normal job requirements | 4 |
| 1.5 Highly productive worker, whose output is consistently well above normal job requirements | 5 |
| 2. <u>QUALITY OF PERFORMANCE</u> | |
| Consider the skillfulness, originality, thoroughness, accuracy, neatness, reliability, overall competence of performance. Apply whichever of these (or other) criteria appropriate to the job concerned. | |
| 2.1 Overall quality of work is consistently not of an acceptable standard | 1 |
| 2.2 Quality of work is often below an acceptable standard | 2 |
| 2.3 Quality of work is on an acceptable standard | 3 |
| 2.4 Quality of work is regularly of high quality | 4 |
| 2.5 Consistently produces work of outstanding quality | 5 |
| 3. <u>CO OPERATION WITH OTHERS</u> | |
| Consider ability and willingness to work with equals and with supervisor, or with other units | |
| 3.1 His team work is consistently poor | 1 |
| 3.2 He co-operates when it suits him | 2 |
| 3.3 Co-operation with equals, supervisor or other units usually satisfactory | 3 |
| 3.4 Good team worker. Frequently goes out of his way to be co-operative | 4 |
| 3.5 Always ready for co-operative effort to get a job done, regardless of personal inconvenience | 5 |
| 4. <u>PERSONAL INVOLVEMENT</u> | |
| Consider the employee's ability and willingness to contribute something of his own to the job, to rise to the occasion and to make a special effort. | |
| 4.1 Show little effort in his job | 1 |
| 4.2 Does a daily routine, but is disinclined to be inconvenienced by the job in any way | 2 |
| 4.3 Willingly does whatever he is asked to | 3 |
| 4.4 Keen on his work. Has a positive interest in the job and its effective performance | 4 |
| 4.5 Enthusiastic and on his toes all the time, spontaneously thinks of ways in which the job can always be done more effectively or can always be depended upon to make a 'plus effort' when this is necessary | 5 |
| <u>THE FOLLOWING TWO ITEMS SHOULD ONLY BE RATED IF THE JOB INVOLVES SUPERVISORY RESPONSIBILITIES</u> | |
| 5. <u>MAN MANAGEMENT</u> | |
| Consider his effectiveness in directing the work of others, in motivating them and in obtaining their support and co-operation. | |
| 5.1 Ineffective in motivating other and gaining their co-operation | 1 |
| 5.2 Gets compliance, but little willing co-operation | 2 |
| 5.3 Motivates adequately and gets reasonable co-operation. (This item also covers those whose motivation efforts are more successful with some people than with others) | 3 |
| 5.4 Has the ability to motivate all manner of people, and to get them to work together as a team | 4 |
| 5.5 Very successful in creating personal involvement and high team spirit | 5 |
| 6. <u>DEVELOPMENT OF STAFF</u> | |
| Consider his effectiveness in appraising, coaching and developing his staff. | |
| 6.1 Does nothing to make people more effective in their jobs | 1 |
| 6.2 Does little to develop the people below him (perhaps through lack of interest in people, alternatively because he has other priorities and pre-occupations) | 2 |
| 6.3 Is conscious of his responsibility to develop his staff and is reasonably effective at it | 3 |
| 6.4 Is actively concerned about staff development and regularly takes time for this purpose | 4 |
| 6.5 Looks upon staff development as one of the supervisor's major function and perform it with enthusiasm | 5 |

COMMENT

To serve as a basis for further improvement of the scale, you are requested to comment here on any difficulty you experienced in rating this particular employee on any item, and any additions or modifications of the scale that would have been helpful in this case.

Source: INDECO Limited

Table 7.7B: ZIMCO Limited: Performance Appraisal Form

1. PARTICULARS

- 1.1 EMPLOYEES NAME: _____
 1.2 COMPANY/DEPT.: _____
 1.3 EMPLOYEE'S PRESENT POST: _____
 1.4 EMPLOYEE'S PRESENT GRADE: _____
 1.5 EMPLOYEE'S PRESENT SALARY: _____ P.A. (LEAVE BLANK IF UNKNOWN)
 1.6 PERIOD OF APPRAISAL: _____
 1.7 THE EMPLOYEE IS BEING RATED FOR: MERIT/ANNUAL INCREMENT
 AND IS IT: PROGRESS INCREMENT OR INCENTIVE INCREMENT (not used)
 1.8 NAME AND POSITION OF RATER: _____
 1.9 NAME AND POSITION OF REVIEWER: _____
 1.10 DATE ON WHICH APPRAISAL WAS COMPLETED: _____
 1.11 RATIFIED CORRECT: _____ (Signature)
 _____ HEAD OF DEPARTMENT

2. DIRECTIONS

- 2.1 Rate employee against set performance objectives, standards or job requirement
 2.2 Rate on full period under review, rather than on recent specific incidents
 2.3 Each item is scored 1 to 5, as indicated on the scale
 2.4 Rate by placing a cross in the space on the score card the scale division that most nearly describe the performance of the employee concerned
 2.5 Rating should be done in pencil by the employee's immediate supervisor
 2.6 Total up the marks for all items. For those rates on factors 1 to 4 only (employees without man management responsibilities) the total score should be on the RHS and on the LHS for the other category
 2.7 Rating should then be discussed and reviewed by the first rater's supervisor. Final rating should be completed in ink
 2.8 Convert scores to notches and salary increments as per conversion table and calculation at paragraph 3 and 4.

3. CONVERSION TABLE FOR ZIMCO SALARY SCALES

SCORE CARD

| FACTOR | | R A T I N G | | | | | |
|--------------|---|-------------|---|---|---|---|--------------|
| | | 1 | 2 | 3 | 4 | 5 | |
| With Man | 1 | | | | | | Without Man |
| Management | 2 | | | | | | Management |
| Functions | 3 | | | | | | Functions |
| | 4 | | | | | | |
| | 5 | | | | | | |
| | 6 | | | | | | |
| POINTS | | NOTCHES | | | | | POINTS |
| SCORED | | | | | | | SCORED |
| 30 | | 1½ | | | | | 20 |
| 27-29 | | 1½ | | | | | 18-19 |
| 24-29 | | 1 | | | | | 16-17 |
| 21-23 | | ¾ | | | | | 14-15 |
| 19-20 | | ½ | | | | | 12-13 |
| 18 | | ¼ | | | | | 11 |
| **17 & Below | | 0 | | | | | **10 & Below |

** If this score is repeated in two successive years serious consideration should be made to terminate the employee's services

4. CONVERSION CALCULATIONS

Total Score _____ Points
 Conversion of increment _____ Notches
 Multiply by Notch value on scale Z.....x K.....
 Actual increment K.....
 Add present salary K.....
 Recommended salary K.....
 Approved salary (on appendix B2) K.....
 Signature of Approver: _____
 Designation: _____
 Date: _____

Source As table 6.7A

not, he gets one and half notches. Those who score 27 to 29 (18-19 without supervisory responsibility) get one and a quarter notches. Those who score 17 or below (10 or below for non-supervisory jobs) get no notches and if this is repeated over a period of two years, their employment may be terminated. The actual amount of the annual salary increment is then determined by multiplying the notch value with the current Z-salary scale.

There are methodological problems with this type of determining performance of individual employees. First, it is difficult to determine an individual's performance in terms of his physical output and its quality if overall production in the firm is not consistent. Since the shortage of inputs and spare-parts may affect performance of individual employees, it would become difficult to determine whether the individual employee's performance would have been different under conditions of full production.

An employee's ability and willingness to work with others and contribution may be determined by the primary learning process. That is, the informal learning process about company procedures and relationships which take place between superiors and subordinates in understanding and executing their roles. If top management or supervisors are perceived to be bossy and not keen to listen to the opinions of their subordinates (as some respondent employees indicated), the junior staff may be put off. If this happens, performance appraisal on these attributes would be misleading. Given the hierarchical nature of the parastatal sector in Zambia, this may be a valid argument.

For those with managerial responsibilities who have risen through the ranks, their abilities and willingness to develop their subordinate staff has been questionable. For example, it is widely believed that managers who lack academic qualifications are not keen to develop their

subordinate staff for doing so amounts to shooting oneself in the foot. That is, the junior staff may be promoted at the expense of the boss. If we accept this argument, it becomes apparent that a rater will have difficulty in distinguishing between the ability to develop staff or the lack of it and self interest of the concerned managers.

And since conflicts are inevitable whenever people come together as a group, the partiality of the rater along with that of the head of department who ratifies the appraisal cannot be guaranteed. It is possible that prejudice may pose some problems, especially if the problems of nepotism, sectionalism, etc. are prevalent.

Despite the above potential problems, performance appraisal affords the various INDECO companies a method which determines annual pay increases in a systematic manner. More importantly, this does away with automatic pay increases as is the case in trade-union pay scales. If this method is conducted in an orderly and fair manner, it may be used to identify individual potential and therefore be used for career and promotion purposes.

Asked about whether it was possible to change working methods or introduce labour saving techniques so as to reduce the demand for shortage labour, nine of the twelve firms experiencing recruitment difficulties had the following to say:

- this (four firms) may only be possible if investing in new plants but not with the existing technologies;
- it is unnecessary (two firms) as the objective is not to save on labour;
- operations (one) were already capital-intensive;
- possible but expensive to run and maintain (one); and
- present technology is likely to remain the same for sometime--can only improve labour productivity.

7.3 CONCLUSION

Our analysis in this chapter suggests that positive supply adjustment measures like increased training (both internal and external) are used more often and highly ranked than the demand adjustment instruments. However, some institutional and social factors like discriminating against internally trained and trade-tested workmen in favour of the trades training institute graduate craftsmen reduces the efficacy of this particular type of training. Moreover, the compensation packages under the ZIMCO salary structure make realisation of benefits from training difficult as the lack of flexibility and individual company ability to pay according to its perception of the worth of labour does not encourage a stable work force.

Thus, although training in general has been a packaged solution to the labour shortages and to the requirements of the Zambianisation policy, its long-term potential will not be realised unless labour compensatory policies become competitive (and to, at least, start paying according to job content and not just titles). This is very important since most of the training activity in the INDECO companies is in general and not specific skills. This raises questions about the rationale of not adjusting the pay packages so as to complement the supply (training) efforts. Earnings for occupations like accountants, engineers and other technical personnel who could easily be employed elsewhere still seem to be poor by comparison. Since, at the same time, on-the-job training which is concerned with providing relatively firm-specific skills is undervalued and discriminated against, the direction of INDECO's manpower policies seem confused. This lack of consistency is neither helped by the institutional arrangements whereby ZIMCO dictates the pay structure with little or no consultation with

its subsidiaries.

It has been demonstrated in this chapter also that INDECO as an enterprise lacks the necessary understanding of its socio-economic environment under which it operates. More significantly, it also lacks knowledge about the imported technologies it uses and as such, it has to rely on management and consultancy agreements. It is therefore not surprising that the policy pronouncements contained in the INDECO Handbook are not matched by actual practices. This failure by INDECO to grasp the limitations of its own personnel (especially personnel departments) more than anything else stands out as its main weakness.

In recent years, the problems of the ZIMCO pay structure have come to be appreciated. Measures like job evaluation and performance appraisal have been introduced so as to have systematic ways of determining pay differentials between different jobs systematically. The 1986 inquiry finally acknowledged the importance of individual subsidiary companies in determining their pay packages to attract and retain the necessary labour. The fundamental pay differentials, in terms of inducement allowances and fringe benefits, between expatriates and local labour still remain and in as long as expatriates are given preferential treatment, resentment among certain quarters of the Zambian work force will continue. In this regard, the INDECO companies face a dilemma: if they decide to equate the two pay structures, labour turnover among expatriates may be on the scale similar to that following the implementation of the Mwanakatwe Salaries Commission in 1976. If they do not, dissatisfaction among Zambian personnel may continue to cause high turnover. How INDECO resolves this policy dilemma and other manpower policy problems will serve as an acid-test for its competence and determination to manage its human resources more effectively.

CHAPTER VIII

ADJUSTMENT TO LABOUR SHORTAGES II:

THE CONCEPT AND PRACTICE OF MANPOWER PLANNING AND MANAGEMENT IN THE INDECO GROUP OF COMPANIES

8.0 INTRODUCTION

In general, the purpose of planning and managing human resources is to try to ensure that present and future manpower requirements are met so as to realise the organizational objectives and to reduce crisis-management and ad-hoc decision making processes. In this regard both the quantity and quality of the human resources are of paramount importance to the organization both in the short- and long-terms. Since the management of people at work is concerned with achieving a reasonable balance between the needs of individual employees and those of the company, manpower planning at the organizational level has been defined as "... a strategy for acquisition, utilization, improvement and retention of an enterprise's human resources". As a strategy, manpower planning seeks to mitigate the effects of and adapt to the changing internal and external environments so as to maintain efficiency. It would therefore be unwise for a firm to assume that skilled workers would be available in the labour market as and when they are needed.¹ As such firms have to plan for training and other measures which would prevent ad-hoc decisions like sudden retrenchment as such problems could be dealt with over longer periods of time without resorting to

¹John Edwards and Mick Silvers, "Introduction--the Art of Designing a Manpower Strategy" in John Edwards, et. al (eds), Manpower Planning: Strategy and Techniques in an Organizational Context, (Chichester: John Wiley and Sons, 1983), p. 3.

extreme measures--that is, dismissals and redundancies when faced with the problems of excess labour. Thus the objective function is to have a work force of optimal size and skill-mix which would minimise the problems of skill shortages and/or excess labour.

The strategic management of human resources as espoused above may depend on attitudes and quality of management. Where managerial skills are in short supply, as is the case in Zambia, such a recognition of the importance of managing human resources may not be possible. In which case the management of human resources becomes haphazard and ad hoc. This may consequently lead to the persistence of skill shortages and other manpower problems both in the short- and long-terms.

Since the previous chapter analysed the supply and demand adjustment methods to labour shortages, this chapter will go one stage further by exploring the concept and practice of manpower planning and management in the INDECO Group of companies. Our main interest is to determine how the various companies view and practice the concept of planning human resources, and how this concept is used to adjust to labour shortages.

For purposes of exposition, the chapter is organised as follows: section 8.1 examines the concept of manpower planning at the INDECO group level--what it involves and the institutional arrangements, the limitations and problems facing manpower planning at the Group level. Section 8.2 will analyses the concept at the individual subsidiary level, that is, manpower forecasting, information systems and the problems encountered in its implementation.

As manpower planning is generally taken to mean manpower development and training in the INDECO Group, section 8.3 discusses manpower planning and institutional arrangements in ZCCM. The main objective

would be to draw some lessons for INDECO. Finally, section 8.4 will summarise and conclude.

8.1 MANPOWER PLANNING AND MANAGEMENT

AT THE CORPORATE LEVEL

8.1.1. ORIGIN, OBJECTIVES AND DEFINITION

Manpower planning in the INDECO Group is still at its infancy stage. At the corporate level, it was only in 1985 that the Manpower Planning Unit (MPU) was established. With the current economic problems, it would be sometime before the Unit becomes fully operational and effective.

When asked about the importance of manpower considerations over management decision-making at the corporate level over the preceding five years, the MPU indicated that it had increased a lot. The increase in the importance of the personnel function and the adoption of manpower planning, among other things, was necessitated by the following reasons:²

(a) high labour costs--the need to control the costs of maintaining manpower;

(b) the continuing high-level skill shortages and the high incidence of professional and managerial labour turnover;

(c) effects of employment legislation and the enterprise's policy on employee involvement;

(d) financial stringency along with the problems associated with foreign exchange availability;

(e) the fast changing socio-economic and technological environment

²Indeco Central Questionnaire (questions 23 and 13 of parts A and B, respectively).

coupled with the worsening economic and business activity made it imperative to consider managing all the resources, including manpower, more effectively;

(f) the increased awareness of the value of trained and stable work force;

(g) rationalisation of operations and decentralization of decision-making to subsidiary companies;

(h) the need to be able to systematically assess current manpower resources and anticipate the future trends and patterns;

(i) to make INDECO more productive and competitive; and

(j) to keep in line with other organizations on the human resources management front--*the demonstration effect*.

The above factors set the agenda for manpower planning in the INDECO Group. The current organizational and institutional arrangements for planning and managing human resources will need to be improved. Thus, the manpower policies and procedures are determined at the enterprise level, while the assessment and evaluation of the current manpower resources and forecasting is done at the operating company level. At present, each subsidiary company is given the INDECO Handbook (Manual of Personnel Policies and Procedures) which spells out all the manpower policies to be followed: ranging from acquisition to the disposal of human resources and negotiating with the trade unions.

INDECO Central (Manpower Planning Unit) was asked to indicate policy areas where it instructs, advises, offers broad guidelines, and gives total autonomy to its subsidiary companies as regards what to do. It was also asked to indicate whether there was a written down policy for each of the policy areas listed.

Table 8.1 demonstrates that subsidiary companies receive

instruction on how to recruit senior management personnel, promotion and redeployment procedures and membership of employers association. This, we are told, is only done on certain matters of importance. According to table 8.1, there are no policy areas in which the subsidiary companies are advised. Such a state of affairs is difficult to imagine as the organizational structure of INDECO revolves around the Head Office implementing the government's industrial development policies and as such, it is expected to offer its subsidiary companies some advice on policy matters. Thus the eight policy areas listed in the table in which the subsidiary companies receive guidelines from INDECO Central may serve as evidence for the foregoing argument. However, operating companies seem to have autonomy on the pattern of work, employee incentive schemes, and the introduction of new techniques of production and work methods.

As regards written down policy, nine policy areas are covered in the INDECO Handbook with the exception of total numbers employed, patterns of work, employee incentive schemes and introduction of new techniques. As it happens these are the same areas in which subsidiary companies have autonomy in decision-making. Given the industrial structure and composition of inputs, these are areas which depend on availability of foreign exchange and imported inputs. Written down policy may be deemed unnecessary as changes in the availability of foreign exchange may dictate the levels of employment, work patterns, incentive schemes and the introduction of new techniques.

The objective of manpower planning in INDECO, as we would expect, is similar to that of ZIMCO:

...to ensure at all times that there are available in the Group a suitable number of personnel to carry out work in order to produce goods and services needed by

the community.³

This objective, like the pay policy discussed in the previous chapter, as a statement of intent would seem to imply that there already are suitable personnel in the Group and that the task is to maintain this state of affairs. The above objective as stated fails to convey the existing skill availability problems affecting the various

Table 8.1: Policy Areas where INDECO Head Office Instructs, Advises, Gives Guidelines and where Subsidiary Companies have Autonomy

| <u>Policy Area</u> | <u>Instruct</u> | <u>Advise</u> | <u>Guidelines</u> | <u>Autonomy</u> | <u>WRITTEN POLICY</u> | |
|---|-----------------|---------------|-------------------|-----------------|---------------------------|-----------|
| | | | | | <u>YES</u> | <u>NO</u> |
| Union recognition | - | - | x | - | x | - |
| Union membership agree- ments/arrangements | - | - | x | - | x | - |
| Handling of industrial relations issues | - | - | x | - | x | - |
| Total numbers employed | - | - | x | - | - | x |
| Recruitment of senior management personnel | x | - | - | - | x | - |
| Terms of redundancy | - | - | x | - | x | - |
| Patterns of work, e.g. use of overtime/shift-work | - | - | - | x | - | x |
| Employee incentive schemes | - | - | - | x | - | x |
| Training and retraining procedures | - | - | x | - | x | - |
| Promotion and redeployment procedures | x | - | x | - | x | - |
| Introduction of new tech- niques and/or work methods | - | - | - | x | - | x |
| Length of the working week | - | - | x | - | x | - |
| Membership of the Employers' Association (ZFE) | x | - | - | - | x | - |

Source: INDECO Central Questionnaire A: Question 31

³INDECO Handbook, Manual of Personnel Policies and Procedures, p. 7. This is also one of the three aims of ZIMCO's manpower policies. The other two are: (a) to Zambianise skilled positions to reduce the cost of retaining expatriate staff; (b) to improve skills of existing manpower. It is argued that at the time of acquisition (nationalization), some Zambians were appointed to positions for which they were not sufficiently qualified. Despite this handicap, most of these Zambians have coped and acquired invaluable experience. However, the need to expose managers to modern management techniques by improving their academic and professional qualifications has been recognised--I. H. Muchangwe, "Manpower Planning Approach in the ZIMCO Group of Companies: An Overview", Paper Presented to the Workshop on Manpower Planning in Zambia, University of Zambia, Lusaka, 28 July to 1 August, 1986.

INDECO companies. One would have expected that the main objective should have been very explicit about the policy options and strategies for improving skill availability and retention so as to maximise efficiency. It is often said that the first step in solving a problem is to admit that the problem exists in the first place. Without detailed analyses and understanding of the problems in question, policy prescriptions may be no more than an exercise in guessing.

This attitude of claiming more than is actually being done was also demonstrated in a paper⁴ presented to the Manpower Planning Workshop organised by the University of Zambia in 1986. While the paper admits that "a common weakness in the Group is the lack of realisation and admission that human resources have a far reaching impact on the profitability of the industry" it however states that (p. 6)

As an industrial concern, INDECO takes a very practical view of manpower planning. The view of INDECO is that manpower planning begins with the conception of an enterprise and thereafter never ceases. It is a dynamic and continuing process, suitably changing in its content and emphasis as the enterprise advances from conception to completion and to subsequent stages of further development.

As we show below, manpower planning in the Group is very fragmented and not coordinated to the extent that various subsidiary companies interpret it differently as if they belonged to different holding companies. The paper's emphasis seems to be what manpower planning *should* be and not what is *actually* happening in INDECO.

In reviewing the experiences of INDECO, the paper correctly points out the existence of skill shortages among technical and accounting professions, the need to increase manpower development and training, and the need to emphasise on internal training so as to make skills relevant to the functions and tasks performed. The paper also

⁴B. C. Nketani, "The Approach and Pattern of Manpower Planning in INDECO Group of Companies: a Discussion Paper on Enterprise Manpower Planning" Paper Presented to the Workshop on Manpower Planning in Zambia, University of Zambia, 28 July to 1 August, 1986.

acknowledges the lack of managerial skills within the Group. For example, it says that job evaluation "to establish the skill inventory, job/man training needs and to establish a better remuneration structure" could not be done internally. The Group had to rely on CISB. In addition, the manpower information system (which is done manually) was very undeveloped and disorganised to the extent that computerising it was being contemplated as it is hoped this would improve data up-dating, access and retrieval. A further analysis of the paper gives the impression that manpower planning in the INDECO Group is viewed to centre on manpower training and development.

It is against this background of making unrealistic policy statements that IDAT referred to when reviewing the corporate plans of the six subsidiaries companies they studied. They were so unrealistic that IDAT commented that "...INDECO subsidiaries in the past have tended to produce statements of possible outcome rather than plans of action". This is further demonstrated in appendix VIA where the comparison of past performance and projected activities (as specified in the corporate plans) shows that the latter are so optimistic as to be unrealistic, given the current economic problems facing Zambia.

It is thus not surprising that, consonant with the institutional structure of the parastatal sector, the INDECO Handbook (p. 7) tends to emphasise the supply aspects of manpower planning and management. It defines manpower planning to include forecasting, manpower audits, development and training. It states that manpower forecasting would be based on organizational objectives and policies, job mobility patterns and promotion and replacement trends.

The specialized units at INDECO Central like the Employment and Manpower Planning Units would occasionally carry out personnel audits

so as to determine whether the operating companies are efficiently allocating and utilizing the professionally and technically trained manpower. These audits would examine the personnel records, manpower inventories and manpower succession schedules.

8.1.2. MANPOWER TRAINING AND DEVELOPMENT

On training, the Manpower Development and Training Unit would liaise with similar units in the operating companies "to ensure that at all times, employees engaged are able to cope with the tasks and operations of the Group" (INDECO Handbook, p. 8). The policy of training is "to regard training as an important and complete service embracing all types of work and all levels of employees" (p. 43). In order to improve the effectiveness of its human resources, the INDECO Handbook, (p. 43) states that training should be concerned with the following:

- (a) to provide ways of improving the job performance of existing employees,

- (b) to identify and develop the potential of industrial employees, and

- (c) to design and install training systems to provide a steady supply of people with appropriate professional and technical skills to meet the company's requirements.

In order to effect the training policy, the functions of the Manpower Services and Training Unit are as follows:

- (i) to advise INDECO management on matters relating to manpower development, training management, succession and Zambianisation,

- (ii) to develop systems to identify training needs, strengths and appraisal schemes, research, manpower audit, and manpower inventories;

- (iii) to obtain approval of the Sponsorship Approval Committee on

behalf of the individual training schemes of the operating companies;

(iv) to liaise with external agencies regarding fellowships and scholarships through appropriate government authorities;

(v) to work out INDECO Limited training budget and obtain the Board's approval and ensure its strict control;

(vi) to carry out manpower and training needs surveys in the Group and to assist in formalization and implementing programmes arising from such surveys.

The tasks of approving individual training schemes submitted by operating companies; monitoring the progress of sponsored employees; reviewing sponsorship procedures and conditions; reviewing the training efforts of the Group in relation to improvement of the know-how, Zambianisation and the costs of manpower training; and assessing the various technologies being used in the Group in relation to manpower training falls under the Sponsorship Approval Committee.

The operating companies, on the other hand, are charged with identifying training needs; planning suitable training schemes which are capable of providing the necessary skills; working out training budgets and seeking approval from the respective company boards of directors; recommend individual training schemes and obtain approval from the Sponsorship Committee; and to monitor the progress of sponsored employees and make recommendations to the Sponsorship Committee through the Manpower Services and Training Unit at INDECO Limited.

Training is viewed to be an important aspect of career development. It is thus a policy of INDECO to expose competent and diligent employees to career opportunities within their professional and technical fields. The Corporation, through its operating companies, would assist such workers to acquire new skills and knowledge so as to

enhance their promotion prospects.

On Zambianisation, the training policy aims at "preparing Zambians to take over from expatriates at an appropriate time consistent with the maintenance of set standards of efficiency". It is suggested that for every position held by an expatriate, there should be one or two Zambians with the necessary skills and knowledge to understudy them.

Manpower audits which would be done by the operating companies would help to identify the strengths and weaknesses in the performance of employees. Using skill inventories and performance appraisals the jobs done by expatriates would be examined in terms of job requirements, present incumbents' qualifications, experience and the level of performance. With the same token, all Zambian employees would also be appraised in a similar manner. Any differences of performance between the expatriates and Zambians would be interpreted as training needs for the latter. Training schemes would then be designed such that they equip the Zambians with the necessary skills, knowledge and experience. After training has been effected with the view to Zambianising the key positions held by some expatriates, contracts of the latter would be adjusted to allow for immediate take-over. The operating companies are thus required to draw specific Zambianisation plans which should contain position; minimum educational requirements; present incumbent expatriate (his qualifications, experience and level of performance); the Zambian identified to take-over; the training needs and programmes; and the target date of succession within a period of five years.

8.1.3. THE PROBLEMS OF IMPLEMENTING MANPOWER PLANNING AT THE CORPORATE LEVEL

It has been said that since the introduction of variants of

manpower planning in 1985, some improvement in labour turnover, labour costs and flow of manpower information have been achieved. However, problems of adjusting to change and the inability to anticipate future changes still remain.⁵

There are still considerable gaps in the manpower information system. For example, the Manpower Planning Unit was unable to provide detailed information on the educational, experience and nationality composition of senior management of the various operating companies. On closer analysis, it became obvious that some of the information was being kept in the office of the Managing Director in personal and confidential files. Since the access to the files was limited, it was not possible to get the details. Even if easy access was possible, it would have been time consuming to look at each and every managers' file to extract the necessary information.

At the time the author was visiting, the Unit had sent out forms to the various operating companies to collect the necessary manpower data with the view to computerising the information system. Like our questionnaire, the response to provide the necessary manpower data was slow and disappointing. It is perhaps pertinent to point out here that given the supply problems faced by the operating companies, managements there (at operating companies) tend to devote most of their time to these issues and in the process ignore other equally important areas. For these reasons, it was acknowledged at the Unit that the information available at the time was not adequate and disorganized to make manpower planning and management viable and effective.

The view of the senior official at the Unit was that being a manufacturing organization, INDECO would not face any problems in

⁵INDECO Central Questionnaire B: question 14.

forecasting human resources requirements as these could be derived from anticipated workload or output. However, there are differences in different subsidiary companies, similar nomenclatures notwithstanding. For example, a chemist in a food processing plant and another in an industrial gas plant would require different skills, training and experience as they perform different tasks. In everyday language, they are classified as being the same, that is, chemists. However, looked at from the specific tasks they do, considerable differences may obtain and as such, forecasts which treats them as the same may prove to be inaccurate (Bartholomew and Forbes, 1979).

The Manpower Planning Unit was also not very sure as to what manpower issues were considered when introducing new plant, machinery or equipment in the Group. Asked about whether (i) availability of necessary types of labour; (ii) effect on the numbers employed; (iii) effect on pay; (iv) effect on pay differentials; (v) effect on organization of work; and (vi) effect on availability of inputs; were considered, the official concerned ticked (i), (ii), (v) and (vi) but commented that "in normal circumstances, all these factors should be analysed. I am not sure whether INDECO has been doing it but it is necessary that all of them are carefully analysed".

Another noticeable aspect which may hamper the effective implementation of manpower planning in the INDECO Group is the size and the spatial location of the Manpower Planning Unit. The Unit is located at the INDECO Training Centre (a fact which reinforces the view that manpower planning is synonymous with training) which is about two miles from the Head Office. The location of the Unit is bound to affect communication with other departments at the Head Office and further alienate and diminish its role. At the time of the author's visit, the

Unit was under-staffed with three officials and only one of them was trained in manpower planning.

8.2 MANPOWER PLANNING AND MANAGEMENT AT THE SUBSIDIARY COMPANY LEVEL

8.2.1. THE CONCEPT OF MANPOWER PLANNING

Despite the fact that the operating companies are each given the INDECO Handbook, the conceptualization and practice of manpower planning seem to be far from uniform. This may either suggest a lack of coordination from INDECO Central or the operational differences between the various subsidiary companies given the different nature of their activities. Table 8.2 demonstrates that on the whole, manpower planning is usually defined to mean manpower development and training. Within this broad definition, eight INDECO subsidiary companies and two others define manpower planning as analysing the age structure so as to determine training needs and to plan succession and career structures of their employees. However, a vast majority of the companies (thirteen INDECO and two others) view annual training budgets, manpower development and training to be the main element in planning manpower.

A few companies included forecasting manpower requirements based on their corporate objectives and other trends as another element. Other elements of manpower planning given include:

- analysis of manpower and skill requirements before recruiting externally;
- having the "right people at the right time", but this textbook definition of manpower planning has been shown to be untenable in

Table 8.2: The Conception of Manpower Planning

| CONCEPT | COMPANY NUMBER: | | | | | | | | | | | | | | | | | | | Row Total |
|--|-----------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|--------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| Age analysis to determine training needs, succession and career planning | x | x | - | - | x | x | - | x | - | - | - | - | x | - | - | x | x | - | - | 8 (42.1) |
| Annual training budgets, manpower development and training | - | x | - | - | x | x | - | x | x | x | - | x | x | x | x | - | x | x | x | 13 (68.4) |
| Plan future manpower requirements based on present and past trends and organization objectives | - | - | x | - | x | - | - | - | - | - | x | - | - | - | - | - | - | x | - | 4 (21.1) |
| Determine manpower and skill requirements before recruiting externally | - | - | - | x | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 (10.1) |
| Right people in right jobs/acquisition, development, retention of right people in the right time | - | - | - | - | - | x | x | - | x | - | - | - | - | - | x | - | - | x | - | 5 (26.3) |
| Given unique and rural based activity, establish own training school; recruit professionals into a pool for succession and career planning | - | - | - | - | - | - | - | x | - | - | - | - | - | - | - | - | - | - | - | 1 (5.3) |
| Maintain/determine employment and increase both formal and internal training to improve performance | - | - | - | - | x | - | - | - | x | x | - | - | - | x | - | - | - | x | - | 5 (26.3) |
| Manpower stock-take, skill analysis, short-falls, succession, training and retraining planning and utilization | - | - | - | - | - | - | - | - | - | - | - | - | - | - | x | - | - | x | - | 2 (10.5) |
| No manpower planning due to the lack of appropriate managerial skills/employ as the need arises | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | x | - | - | - | 1 (5.3) |

Note: Figures in brackets are percentage proportions of the total sample (n = 19).

Source: Main Questionnaire, Question A1-9a

practice;⁶

- establishing own training school given a unique activity and to recruit professional graduates into a pool for succession and career planning purposes;

- maintaining employment (stabilise) and increase training so as to improve performance.

One subsidiary company, however, admitted that it did not practice manpower planning because it lacked the necessary and suitable managerial skills--the company had no personnel manager at the time and no plans were afoot to recruit one. One of the private companies felt that since it only employs as and when the need arises, it could not be classified as practising manpower planning.

It becomes obvious from table 8.2 that manpower development and training are, in the main, taken to mean manpower planning. By and large, with the exception of ZCCM, manpower planning is usually taken to be synonymous with training in many other ZIMCO companies. Other issues of managing human resources like designing career structures, monitoring changes in the work force and the external environment, evaluating training, and reviewing the demand aspects of labour seem to be neglected. This reflects the reliance on quantity and not price (pay) adjustments to skill shortages.

There are many possible reasons for defining manpower planning to mean training. It would seem that since training involves identifying the training needs in the first place, resourcing, what form it will take (whether internal or external), budgeting, forecasting and planning, many personnel practitioners in the INDECO Group have,

⁶See, for example, John Bramham, Practical Manpower Planning, 3rd ed. (London: Institute of Personnel Management, 1982--first published in 1975), ch. 1

mistakenly, taken training management in itself to mean manpower planning.

Manpower development and training may also have acquired prominence by the existence of long-term vacancies which require professional and technical skills but which have proved difficult to fill because of the lack of the relevant skills in the local labour market. Since the unemployed lack the necessary attributes to fill these vacancies--that is structural unemployment--the onus is on the firms to increase skill acquisition through training (that is quantity adjustment to skill shortages as opposed to price, pay, adjustment). Although training involves planning and evaluation in some cases, it has been shown that to neglect the demand aspects of labour may not always be in the best interest of the concerned firms (Becker, 1964). For example, if a company fails to retain labour trained at its own expense say due to poor pay, job dissatisfaction or poor career prospects, such a company would not benefit from its investment in training and its operations may consequently suffer if this problem is on a large scale. It is plausible to argue therefore that the high incidence of labour-turnover among the high-level manpower categories in the INDECO Group emanates from this apparent neglect of the demand factors.

Since training has been the main tool to implement the government's Zambianisation policy, the parastatal companies have got to be seen to implement the wishes of the government. The above factors coupled with the poor managerial skills among personnel managers have all contributed to the failure to appreciate that manpower planning involves more than just manpower development and training.

After defining the concept of manpower planning, the respondents were then asked whether they practice the concept as defined. Eight

INDECO subsidiary companies (and the ZCCM subsidiary) indicated that their manpower plans were built into their corporate plans. This, they argued, was necessary so as to maintain consistency and thus avoid crisis-management and ad-hoc decisions (for example sudden redundancies). Two other subsidiary companies, with the help of INDECO Central, had systematic plans for high-level manpower categories but not for the less skilled occupational categories.

Six other subsidiary companies indicated that they only practice some aspects of human resource planning like training, annual training budgets and succession planning (for Zambianisation mostly).

Another two subsidiaries indicated that they did not practice planning either because their manpower requirements were general workers (whose supply is abundant) or that human resource planning was irrelevant under the prevailing economic conditions for INDECO could issue directives at any time to declare some workers redundant.

8.2.2. THE MANPOWER FORECASTING AND PLANNING PROCESSES

In the main questionnaire, firms were asked to indicate whether they practice fairly long-term manpower forecasting or whether their manning levels were only determined by the technology used or capacity utilization rates (output). In addition, they were asked to specify the periods over which they plan their manpower, the methods used to estimate market demanded (and how these are then translated into 'work' and manning requirements), and whether the various departments that make up each of the companies are involved in developing and implementing the plans.

On the supply side, they were asked whether they monitor wastage and labour turnover trends so as to help them estimate the number of

people who were likely to leave the organization in future. They were also asked to provide data on their manpower supply which will come from their current training activities.

On the demand side, they were asked about their future business prospects and plans. In particular, they were asked if they were likely to expand by introducing new products or increasing capacity; or whether they were going to rationalise their operations by dropping some product lines and/or declaring some workers redundant. Plans on producing imported raw materials (inputs) locally were also sought. The likely impact of these plans on manpower requirements were also requested.

We were also interested in finding out whether it was possible to identify *clearly* the current and future manpower requirements from the firms' estimates of likely growth. Firms were then asked to indicate whether their present work force were overloaded and, if not, whether productivity could be improved without increasing the supply of personnel. We finally tried to find out whether the firms needed external help in converting 'work' or defined tasks into manpower requirements.

During the interview stage, some of those firms which had claimed to practice manpower planning in the main questionnaire were asked the following questions:

(a) the stages of investigating and identifying the manpower problems, who does it, how it is done, etc;

(b) how forecasts of future supplies of and demand for labour are done and the assumptions used to make these forecasts;

(c) planning: what deliberate actions are taken to reconcile manpower supply and demand discrepancy, for example, formulation of

policies for recruitment, training, retraining, promotions, redundancies, retirement, etc; and

(d) utilization: what and how the firms evaluate the effectiveness of the various manpower policies.

Ten subsidiary companies (four of them experience RD) indicated that they had annual and medium term (3-5 years) manpower forecasts. Seven others had no such forecasts as they resort to short-term improvisation in response to changes in demand. In the main, the latter category have their manpower requirements determined by technology or capacity utilization and thus do not appreciate the need for longer-term planning.

There does not seem to be a consistent method for estimating the likely market demand. Thus, whereas only five companies do market surveys (some of which are very limited), the other seven (and many of those who did not respond to this question) do not have such surveys. Of the latter category, two companies either use placed orders or past year's sales (and availability of inputs and spare parts); another two only look at the efficiency of their machinery, present production, availability of inputs and the length of the work week. Other three subsidiary companies did not estimate market demand but instead the likely availability of inputs, foreign exchange and spare-parts. The reason for this was that given input supply bottlenecks and frequent breakdowns of machinery, estimating market demand was not necessary as such demand, in the first place, has never been met.

For those firms which do manpower forecasting, they in addition make assumptions about their future production levels. As can be seen from appendix VIA, most of these assumptions about turnover and value added seem to be too optimistic. In addition, fourteen of the nineteen

companies indicated that it is possible to identify future manpower requirements from the firms' estimated growth rates. From the assumed production schedules and likely changes in technology, manpower requirements are derived. Some of these companies also use the composition of their present work force to forecast future manpower requirements in terms of additional recruitment, training, turnover and retirement. The latter is made possible by the fact that many of these companies (seventeen in all) claimed that they monitored manpower trends--that is, age, voluntary resignations and other wastage.

In the wake of the current economic problems, the employment policy for the whole INDECO Group has been to reduce labour through age retirement, natural wastage and, where necessary, through redundancies. As such, external recruitment is minimised and where it is done, it is either for replacement purposes or to fill long-term vacancies. Where recruitment was envisaged over the next three years, it was for scientific and engineering; technologists and technicians; accountants and production workers. From this, it follows that the present practice of forecasting future manpower requirements also involves identifying those occupational categories where gradual reduction of personnel would be necessary. For those employees who remain, the main objective would be to enhance their skills and hence their productivity. It is for this reason that many of the subsidiary companies closely monitor the likely future supply of labour from their current training activities (table 7.2 in chapter VII). From table 7.2, it would also seem that training for shortage occupations like scientific and engineering, technologists, managerial, and accounting is mostly provided externally either formally or through correspondence or part-time.

On the demand side, table 8.3 demonstrates the effect of the various plans on manpower requirements. Table 8.3A demonstrates that the majority of the subsidiary companies in the sample may introduce new products in their current lines of activity. The main effect of this on manpower, it was said, would be to increase training and retraining of the existing work force. On the question of skill shortages hampering the introduction of new products, one firm said that despite skill shortages in the past, new products have been introduced. The argument here being that a certain level of inefficiency arising from skill deficiency is accepted if that means introducing new products demanded by the market. As regards increasing capacity utilization or new investments, table 8.3B demonstrates that this may be subject to the availability of materials and foreign exchange. Even where projects were completed and awaiting commissioning, the lack of imported materials delayed the initial opening of the plants. But if capacity is increased, this is likely to result into increased employment and training.

For those companies which were contemplating rationalizing, their operations, table 8.3C shows that early retirement with its resultant effect of reducing employment was going to be the preferred method. For plans to localise input supply, table 8.3D demonstrates that many (eight in all) think that it is not possible to do so--either because they do not have the capacity or that it is impossible as Zambia lacks the technical capabilities to do so. For those who think it is possible, the effect on manpower would be to to increase employment and training.

As to whether the present work force was overloaded and, if not, whether productivity could be increased without increasing the supply

Table 8.3:

A. Recruitment Difficulty by Plans to Introduce New Products

| Type of Plan and Effects: | YES | RECRUITMENT NO | DIFFICULTY: SKILL QUALITY PROBLEMS | INDECO DIRECTIVE | MISSING VALUES | ROW TOTAL |
|--|-----------|-------------------|--|---------------------|-------------------|--------------|
| PLAN OPTIONS: | | | | | | |
| In same line of activities | 7 (70.0) | - | 1 (10.0) | 1 (10.0) | 1 (10.0) | 10 |
| New designs of current products | 2 (66.7) | 1 (33.5) | - | - | - | 3 |
| Diversified product ranges | - | - | 1 (100.0) | - | - | 1 |
| Subject to demand, availability of foreign exchange/finance | 1 (100.0) | - | - | - | - | 1 |
| Not Applicable | - | 1 (100.0) | - | - | - | 1 |
| EFFECTS: | | | | | | |
| Increase employment & training | 7 (63.6) | 1 (9.1) | 1 (9.1) | 1 (9.1) | 1 (9.1) | 11 |
| No effect | 3 (60.0) | - | 1 (20.0) | - | 1 (20.0) | 5 |
| Not applicable | - | 1 (100.0) | - | - | - | 1 |

B. Increase Capacity Utilization or
New Investment

| | | | | | | |
|---|-----------|-----------|----------|----------|---|---|
| PLAN OPTIONS: | | | | | | |
| Subject to availability of materials | 5 (62.5) | 1 (12.5) | 1 (12.5) | 1 (12.5) | - | 8 |
| Just completed expansion programme | 1 (100.0) | - | - | - | - | 1 |
| Await opening/completion of new plant to increase capacity | 3 (75.0) | - | 1 (25.0) | - | - | 4 |
| Need new machinery or rehabi- litate the existing ones | - | 1 (100.0) | - | - | - | 1 |
| Invest in new type of process | 1 (100.0) | - | - | - | - | 1 |
| EFFECTS: | | | | | | |
| Increase employment/training | 6 (85.7) | - | - | 1 (14.3) | - | 7 |
| Slight increase in employment | 2 (67.7) | - | 1 (33.3) | - | - | 3 |
| Redeployment of manpower | - | 1 (100.0) | - | - | - | 1 |
| No effect | 2 (50.0) | 1 (25.0) | 1 (25.0) | - | - | 4 |

C. Rationalise Operations

| | | | | | | |
|---|-----------|-----------|----------|----------|----------|---|
| PLAN OPTIONS: | | | | | | |
| Phase out products as ones are added | 1 (100.0) | - | - | - | - | 1 |
| Reduce number of shifts and redeploy workers | - | 1 (100.0) | - | - | - | 1 |
| Early retirement | 1 (16.7) | 1 (16.7) | 2 (33.3) | 1 (16.7) | 1 (16.7) | 6 |
| Automation | 1 (100.0) | - | - | - | - | 1 |
| Not applicable | 2 (100.0) | - | - | - | - | 2 |
| EFFECTS: | | | | | | |
| Reduce employment | 1 (16.7) | 1 (16.7) | 2 (33.3) | 1 (16.7) | 1 (16.7) | 8 |
| Redeployment | 2 (66.7) | 1 (33.3) | - | - | - | 3 |
| Not applicable | 2 (100.0) | - | - | - | - | 2 |

D. Localise Input Supply

| | | | | | | |
|---|-----------|----------|----------|---|----------|---|
| PLAN OPTIONS: | | | | | | |
| Yes | 4 (57.1) | 1 (14.3) | 1 (14.3) | - | 1 (14.3) | 7 |
| No capacity to do so but other companies may | 1 (100.0) | - | - | - | - | 1 |
| May be possible at Group or consortium basis | 1 (100.0) | - | - | - | - | 1 |
| Impossible | 2 (100.0) | - | - | - | - | 2 |
| Not applicable | 2 (50.0) | 1 (25.0) | 1 (25.0) | - | - | 4 |
| EFFECTS: | | | | | | |
| Increase employment & training | 4 (57.1) | 1 (14.3) | 1 (14.3) | - | 1 (14.3) | 7 |
| Not applicable | 6 (75.0) | 1 (12.5) | 1 (12.5) | - | - | 8 |

Note: Figures in brackets are row percentages

Source: Main Questionnaire, Questions C1-0 and E1-10

of personnel, five companies thought this was possible but another two thought it impossible. Six other companies thought that subject to the following, productivity of the current work force could be improved:

- (a) if working capital and the supply of inputs improves;
- (b) if the old plants are overhauled and/or rehabilitated, and
- (c) if both the sizes and numbers of shifts are increased.

Evidence from the survey (table 8.4) suggests that due to lack of certain skills, external help (both local and foreign) is usually sought on technical matters like translating 'work' or defined tasks into manpower requirements. Here, technical consultancy agreements with foreign firms seem to be the commonest. On other matters like manning levels, task and job analysis (and evaluation), local help from institutions like CISB is usually sought.

Table 8.4: Types of External Help Needed to Convert 'Work' or Defined Tasks into Manpower Requirements (and any other help)

| <u>Type of Help</u> | <u>Frequency (%)</u> |
|--|----------------------|
| Technical from abroad | 1 (5.9) |
| Supply of new machinery, work study, technical, both local and foreign | 1 (5.9) |
| Technical consultancy agreements with foreign firms | 4 (23.5) |
| Manning levels, tasks and job analysis--local | 1 (5.9) |
| Overhauling, rehabilitation and maintenance of machinery | 2 (11.8) |
| Yes (type of help not stated) | 1 (5.9) |
| No | 7 (41.2) |
| <u>Total</u> | <u>17 (100.0)</u> |

Source: Main Questionnaire, Question E1-14

In summary, the manpower planning process among those companies with some formal procedures involves the personnel departments coordinating the various aspects of the company's manpower policies. For purposes of manpower stock-take and identification of problems, the personnel departments usually send out forms or memoranda to the various functional heads of other departments. The objective here is to find out about the manpower problems and requirements in terms of numbers, skills, training etc.

After information is collected and manpower problems like shortages or excess labour are identified, meetings attended by all heads of departments and the chief executive are convened. The purpose of these meetings is to seek an integrated approach to the various problems facing the firm at the time as production schedules, availability of inputs and other supplies, etc. are jointly discussed. Depending on the nature of the problems, policy actions on type and methods of recruitment and training are discussed and agreed. Where excess labour is found to be the problem, the concerned subsidiary companies proceed to notify INDECO Central and the Ministry of Labour and Social Services for the latter either to sanction redeployment of labour within the Group or to declare such labour redundant.

It would be fair to say that with the increased use of organizational charts, job evaluation and performance appraisal, in some subsidiary companies, manpower problems are increasingly coming to be identified quickly. Where they are found to be pervasive, corrective policy measures are sought.

The main weakness of manpower planning in those companies which claim to do it is the failure to evaluate training. Only two companies in the entire sample do evaluate on-the-job training for graduates.

This evaluation takes the form of asking candidates to write structured reports about why and what they have learned during the training programme. Such reports, needless to say, are then used to determine whether the objectives of the training have been met or not. Work performance before and after training is also done so as to determine whether there has been any significant improvement.

External formal training, as we discussed in the previous chapter, is usually not evaluated as it is assumed to be good. It however raises the question of whether external formal training per se would necessarily be suitable to the requirements and operations of the concerned companies. The assumption that external training is good was however acknowledged by some companies to be a weakness in itself.

Conceptually, insofar as performance appraisal of individual employees for annual salary increments seeks to determine their individual contribution to the well being of the company, it can be argued that this may be conceived as evaluation of manpower utilization. But as we have argued before, utilization of manpower presupposes availability of other inputs and spare-parts. Where slack capacity is prevalent, utilization of manpower is reduced and payment for certain personnel under such conditions is not for the work they do but just to have their skills available to the company whenever they are needed (labour hoarding). Inevitably, this is one major problem hampering manpower planning in the INDECO Group of companies.

8.2.3. THE MANPOWER INFORMATION SYSTEM.

One major prerequisite for effective manpower planning is to have an information system which is detailed, easy to up-date, accessible and wide in its coverage of the various manpower aspects. If

Table 8.5: Types of Manpower and Other Records Kept

| Type of Records | Frequency (and Row Percent) | | |
|--|-----------------------------|-------------|-----------|
| | Yes | Parts of it | No |
| 1. Employment and its changes; technical progress; new legislation and how it it affects employment and pay policies | 14 (73.7) | 5 (26.3) | - |
| 2. Composition of work force--sex and age distributions | 18 (94.7) | 1 (5.3) | - |
| 3. Length of service and its distribution | 18 (94.7) | 1 (5.3) | - |
| 4. Recruitment: when and where and the selection procedures | 14 (73.7) | 3 (15.8) | 2 (10.5) |
| 5. Manpower training, retraining and development needs | 17 (89.5) | 2 (10.5) | - |
| 6. Promotion: potential candidates; the levels from and to; when it will be effected | 15 (78.9) | 2 (10.5) | 2 (10.5) |
| 7. Educational distribution of the work force | 18 (94.7) | - | 1 (5.3) |
| 8. Vacancies: reasons why and how to fill them | 14 (73.7) | 2 (10.5) | 3 (15.8) |
| 9. Skill and career development patterns; staff progression and succession charts | 11 (58.0) | 1 (5.3) | 7 (36.8) |
| 10. Provincial origin of employees | 8 (42.1) | 2 (10.5) | 9 (47.3) |
| 11. Countries of origin for expatriate employees | 19 (100.0) | - | - |
| 12. Marital status and family size | 18 (94.7) | 1 (5.3) | - |
| 13. Occupations of employees' parents | 5 (26.3) | - | 14 (73.7) |
| 14. Past employment and work experience | 19 (100.0) | - | - |
| 15. Staff accommodation and lodgings | 19 (100.0) | - | - |
| 16. Manpower deployment and utilization; capacity utilization; learning times; working conditions; etc. | 11 (58.0) | 6 (31.6) | 2 (10.5) |
| 17. Monitoring the effectiveness of the various training programmes | 16 (84.2) | - | 3 (15.8) |
| 18. Manning levels, work methods, safety, quality control, sales and the organization structure | 1 (5.3) | 17 (89.5) | 1 (5.3) |
| 19. Pay structure | 18 (94.7) | 1 (5.3) | - |
| 20. Labour turnover and wastage | 16 (84.2) | 3 (15.8) | - |
| 21. Induction, inter-personal conflicts and work demands | 11 (58.0) | 7 (36.8) | 1 (5.3) |
| 22. Changes in the economic environment and the labour market | 10 (52.6) | 1 (5.3) | 8 (42.1) |
| 23. Future manpower requirements and training needs by occupational categories | 19 (100.0) | - | - |
| 24. Projected investments, production, sales, profits, etc. | 16 (84.2) | 1 (5.3) | 2 (10.5) |

Source: Main Questionnaire, Question B1-0

information on the age, sex, educational qualifications, length-of-service, etc. is kept in individual employee files, it would be difficult for large companies to determine the manpower trends as such information is not easily accessible. If this is the case, foreseeing impending manpower problems may be hindered. If the extent and nature of the problems at hand are not appreciated, policy prescriptions to such problems may be inadequate. For these reasons the various

responding companies were asked to indicate the type of manpower information they kept in a systematic and accessible manner.

As it happens, the 'yes' responses in table 8.5 do not necessarily mean that the type of information so indicated was kept in a systematic and accessible manner. This was demonstrated later in the questionnaire when the companies were asked to provide data of their work force in terms of occupational categories, divisions (or branches), age and length-of-service distributions. Only ten subsidiary companies (see table 6.4 in chapter VI) were able to provide such data. This problem was especially pronounced among those subsidiary companies with more than one branch as their respective head offices either had no detailed manpower data of the other sites or, if they did, the information was not up to-date. Even for those companies which provided the information, it took a considerable time to go through quarterly manpower reports and other documents to come up with the necessary details. Ironically, the subsidiary company which has no manpower planning due to the lack of suitable managerial skills was the one which had its manpower information summarised in a labour analysis book.

In some companies, there are manning boards in the personnel departments which show the number of employees in each department. In one large subsidiary company, there was a detailed wall chart showing individual jobs, those who occupy them and the vacancies and surpluses. Such a detailed and summarised form of keeping manpower information was however an exception rather than a rule.

The high frequency for items like future manpower requirements and projected investments, etc. is due to the fact that such information is included in the corporate plans. For other items which summarise the movements and changes within the work force, say skill and career

development patterns and charts, table 8.5 demonstrates that a sizable proportion of the subsidiary companies surveyed do not keep such information at all. A similar situation also obtains with regard to monitoring the external environment, that is, the changes in the national economy and the labour market. Even the high frequency for monitoring the effectiveness of the various training programmes may be misleading as some subsidiary companies are only interested in training matters when they are conducting performance appraisals for annual salary increments.

Since 1980, subsidiary companies have been required to submit quarterly manpower reports to INDECO Central. These reports cover various aspects of manpower, albeit, briefly. They show individual company total employment (in some cases broken by nationality, occupational categories, and comparing actual employment with authorised establishments), vacancies, recruitment, staff movements, training, industrial relations (pay adjustments and collective agreements, strikes, dismissals, etc.), labour turnover, and Zambianisation. The usefulness of these reports in enhancing manpower planning at the Group level is limited by their lack of detail and the fact that they are not later summarised at INDECO Central (as is the case in ZCCM) to produce enterprise-wide manpower reports.

8.2.4. PROBLEMS FACED IN IMPLEMENTING MANPOWER PLANNING

First and foremost, the main problem facing manpower planning in the INDECO Group of companies is the misconception that manpower planning revolves around training. This emphasis on the quantity aspect of adjusting to labour shortages has ensured that other important manpower policy areas like realistic recruitment and selection,

career development and payment systems have been neglected to the extent that the benefits from increased training activity have been limited. Even if the concept of manpower planning was viewed in its broadest sense, it would still have faced similar problems as those affecting manpower development and training currently:

(i) Political Intervention and Economic Instability: for forecasting and planning to be effective management tools, a relatively stable economic and political environment is usually necessary. In the 1980s, the inflationary spiral and the increased scarcity of foreign exchange have both made planning difficult. The instability of the economy was further made worse under the now abandoned IMF's structural adjustment programme when the exchange rate of the kwacha was determined at weekly auctions. Given the high demand for foreign exchange, the kwacha became very undervalued in a matter of months. Since future exchange rates could not be determined with reasonable accuracy, the calculation of economic parameters like the availability of foreign exchange (and if available whether it could be afforded) on which to base production, sales and profit projections becomes very arbitrary. Since future manpower requirements are based on such assumed production and sales schedules, either the companies concerned have to make constant revisions of their forecasts (to which there is a limit) or face the consequences of inaccurate forecasts.

On the political side, the power of the ruling party and its government to fire and transfer chief executives as and when they wish further complicates the manpower planning situation. Other government policies like retrenchment implemented through INDECO Central and then passed on to the subsidiary companies also weaken the effectiveness of manpower planning. As it is not possible to say with certainty when,

what and why the government will exercise its powers, planning may be rendered useless as such government actions would make its implementation difficult.

(ii) Resource Constraints: manpower development and training take up a lot of resources--financial, physical and human--and since total resources at any time are fixed, this would imply that allocation to other enterprise functions would be reduced. The problem is further made worse by the long time lag between investing in training and realising the benefits. And with high failure rates in professional courses like engineering and accountancy, the liquidity positions of many of the subsidiary companies is weakened. The devaluation of the kwacha and the general rise in the cost of foreign training (but which is preferred) does not help the situation either.

Thus, the tying and shift of resources to training give rise to working capital problems and with the interest rates, at the time, of about 30 per cent, bank overdrafts and short-term loans were proving very expensive to maintain.

One company also indicated that another problem facing manpower planning is that the employees' interests do not always coincide with the company's objectives. The type and duration of training and whether it should be of specific relevance to the firm or of the general type is the case in point.

(iii) Labour Turnover and Rapid Product Changes: labour turnover among the high-level and shortage manpower categories increases both the incidence of labour shortages and further weakens the effectiveness of manpower planning. One hallmark of planning is its reliance on making assumptions about certain variables and then to deliberately choose a course of action. High labour turnover also inhibits planning for it

is very difficult to make accurate predictions on which to base the planning.

In one subsidiary company, the constant movement of qualified and trained staff through transfers and promotions to other INDECO companies has resulted both in its failure to achieve Zambianisation and to plan its human resources effectively.

Another subsidiary company which is jointly owned with an international company (where the latter makes decisions about product changes--despite being the minority shareholder) complained that due to the rapid changes in the models assembled (as dictated by the changes in tastes and models introduced in Europe), it faced both skill shortages and financial problems. To keep up with the rapid changes in the models assembled, training and retraining have to be constant. Increased competition from better quality imports and its inability to buy foreign exchange (when it is available) so as to import the necessary components, have seriously weakened its financial position to the extent of putting its future in doubt. The impact of these on manpower planning were obvious. At the time of the author's visit, the company had just declared some workers redundant and the remaining ones were sent on forced leave as there were no components to assemble.

(iv) Lack of Adequate Manpower Data and Poor Communication Between the Manpower Planning Unit and Subsidiary Companies: as we have argued in sections 8.1.3 and 8.2.3 above, the problems of reasonably detailed and accessible manpower data coupled with poor communication between MPU (even at INDECO Head Office itself) and subsidiary companies reduce the capacity to implement manpower planning in the INDECO Group. Even if manpower planning skills were in sufficient numbers in the Group, it is

difficult to see how they were going to be effective in the face of formidable manpower data and communication problems.

8.3 MANPOWER PLANNING AND MANAGEMENT IN THE ZAMBIA CONSOLIDATED COPPER MINES LIMITED (ZCCM)

The differences in manpower planning and management between INDECO and ZCCM are quite pronounced. Conceptually, this may be expected as the latter operates in a competitive international market where competition from other copper producers (and other copper substitutes) is high. The world price of copper is thus dictated by the market forces over which ZCCM has no control. On the other hand, INDECO operates in the domestic and protected market and given its predominance in the manufacturing sector, it has some monopoly power (many of the subsidiary companies are absolute monopolies). Subject to the price control legislation, the various INDECO subsidiary companies set the prices for their respective products. Under this regime it is possible to pass on costs arising from inefficiency to the consumers as competition is limited or non-existent.

In order to have a corporate consistent policy, manpower planning and management in ZCCM's various divisions and subsidiaries is centralized and coordinated at the Operations Centre in Kitwe by the Manpower Planning and Development Unit (MPD).⁷ The MPD is headed by a senior manager and has three main departments headed by superintendents: manpower services; training and staff development; and payrolls and pensions. The manpower services department is further subdivided

⁷The description of manpower planning in ZCCM is based on an interview with Mr M. K. Banda, Assistant Superintendent, Manpower Services, Manpower Planning and Development Unit.

into three sections: manpower planning; manpower information and recruitment and placement.

Being an enterprise activity, the manpower planning process in ZCCM has three aspects:

(a) corporate plan: provides a broad outline of the industry, costs, finance, production, etc. based on the projected price of copper and the manpower requirements. The corporate plans are usually for five-year periods and the current one (1984/85 to 1990/91) aims to reduce labour supply from 52,109 in March 1987 (total employment in December 1985 was 61,986)⁸ to about 48,000 by 1990/91. The company has no plans which go over five-year periods for the fluctuating world copper prices makes longer-term planning difficult. Past experience shows that the margins of error in estimating the costs of production has been quite high. The manpower plans are usually for two-year period horizons as the problem here is further compounded by the lack of suitable manpower and training places.

(b) MPD: looks at the manpower problems faced by the various divisions and subsidiary companies and plans all the aspects of manpower.

(c) the operating divisions are concerned with the utilization of manpower and staffing levels for their production. The manpower planning units at the divisions work hand-in-hand with MPD and the former look to the latter to provide the necessary manpower.

Unlike INDECO which only has quarterly manpower reports (which are limited in detail and which are not summarised at the Group level), ZCCM has monthly (computerised) recruitment progress reports which

⁸ZCCM, Manpower Planning and Development: Mining Industry Manpower Report--1986, September 1987, p. 3.

show, for all the divisions and subsidiaries, recruitment orders and the numbers recruited (for both expatriate and local labour); vacancies; and the specific types of jobs. Monthly management reports and quarterly reports are also produced using micro-computers. In addition, annual manpower reports give a wide range of details on manpower planning and development; company objectives; a breakdown of the entire work force in terms of sex, age, education, skills, etc; summary of scholarships; expatriate and graduate engagements and termination; and, like the 1985 manpower report, a detailed list of employed graduates by name, department, discipline and division.

Other occasional reports covering subjects like training, Zambianisation progress, and the analysis of establishments and actual in skilled jobs are usually done. All this contrasts with the INDECO situation where the annual report only covers the statement of accounts with very little reference to manpower issues.

To have a better exposition of the institutional arrangements for the management and planning of manpower in ZCCM, it is necessary to discuss training and job evaluation first before we turn to the new (which is still being developed) Manpower Inventory Analytical System (MIAS) which will further enhance the art of planning manpower.

8.3.1 MANPOWER TRAINING AND DEVELOPMENT IN ZCCM

Due to the lack of resources by the local institutions of learning, ZCCM has been forced to be directly involved in direct training. For example, ZCCM sits on each curriculum development committee of all the courses relevant to its operations run by the Department of Technical Education and Vocational Training (DTEVT), and the School of Mines (the University of Zambia). In the past, ZCCM even used to provide and have

lecturing staff on its payrolls but it now only pays for certain positions like funding chairs in geology and mine engineering at the University of Zambia.⁹

In recent years the objective has been to move away from supporting national training institutions to setting its own training schools which offer national certificates. This, it was said, would complement and not compete with the national training institutions, especially with regard to practical training. Moreover, some of the courses offered by ZCCM's training schools like refrigeration and medical instrumentation technology are not offered by any other institution in Zambia.

In the case of accountancy, the opening of the School of Accountancy at Chingola to offer certificates to school leavers (who if they prove to be capable would later do parts I and II of ACCA locally and then part III in the United Kingdom) was necessitated by the following:

- a large number of local accountants is required to replace expatriates;
- it is very difficult to get professionally qualified accountants in Zambia; and
- the Zambia Diploma of Accountancy (ZDA) is below the required professional standards.

ZCCM also runs its own courses for secretarial, safety training, fire fighting and paramedical training for enrolled and registered nurses as well as other medical technicians.

On foreign training, ZCCM has two types of training programmes: offering school-leavers scholarships and sponsoring existing staff for

⁹Interview with Messrs M. K. Banda and Chinyanta, the latter, Assistant Superintendent, Training and Staff Development.

further and specialised training.

It is perhaps in the analysing of training needs that the institutional and organizational arrangements in ZCCM prove far superior than those in INDECO. For a start, the sectional heads of the Training and Staff Development Department at MPD are said to be specialists in their respective areas of training.

In July, the department writes to the various divisions asking for their training needs. Between October and December, after the responses of what are perceived to be training needs would have been received, the heads of training sections in the department are then sent out to the divisions to discuss these training needs. Each training function then produces its own training programme after the needs have been identified. Where training needs cannot be ascertained easily through other means, direct observation methods are used. Training needs are also identified through work-study and productivity services (which seek to find ways of improving performance), skill analysis of particular target groups, and through job evaluation. MPD, therefore, closely liaises with the operating divisions in identifying training needs and determining policy actions.

With regard to overall manpower policy and corporate objectives, appendix VIB demonstrates that ZCCM's objective, that is, "...the Company must be manned and controlled by capable people, properly trained and developed for the roles they occupy..." contrasts with that of INDECO, that is, "...to ensure at all times that there are available in the Group a suitable number of personnel to carry out work...". The ZCCM statement (...*must be*...) emphasises the importance of increased training and development in the effort to improve the quality of the work force, while that of INDECO (...*to ensure at all times*...), on the

other hand, gives the impression that all is well and that the task is to maintain the status quo but which, as we have shown in chapters VI and VII, is far from being the case.

Appendix VIB also demonstrates that on-the-job training for graduates and technologists in ZCCM, unlike in INDECO, is comprehensive and structured with the sole objective of improving their skills and practical knowledge. The different divisions and individual graduates/technologists are each given specific roles which they are expected to fulfil. Furthermore, on completion of their training, the graduates and technologists are comprehensively evaluated on different aspects like job knowledge and application; supervisory ability; personal attributes and overall performance. Each individual trainee's weak and strong points are noted. Such detailed and comprehensive procedures for the development of graduates and technologists do not obtain in the INDECO Group. It is therefore not surprising that the level of competence and discipline in INDECO is generally lower than that in ZCCM.

However, training in ZCCM, like in INDECO, is not without its own problems. The inadequate training facilities and places at the national training institutions means that ZCCM has to offer graduates of these institutions it recruits bridging courses (mostly practical) which may last for at least six months. This increases the costs and further delays the process of Zambianisation.

The short supply of technical and professional skills in the local labour market implies that recruiting suitable qualified trainers for the various training schools has been difficult. This is especially pronounced among plant fitting, engineering drafting and hoist maintenance courses.

The general poor results in science and mathematics among school

leavers has also contributed to the training problems as entry standards in some courses had to be reduced in some ZCCM trades schools. However, this is of late being partially offset by the increase in the number of school leavers with exceptionally good results for both O- and A- level levels from its special educational trust's secondary school--Mpelembe in Kitwe.

On foreign training, the declining foreign reserves due to the fall in the real price of copper has meant that the amount of foreign exchange allocated to ZCCM by the government has been reduced and this in turn has resulted in a cut in external training. In the case of accounting, technical and engineering occupations, this implies that the objective of Zambianisation will take a very long time to be fulfilled. Matters are neither helped by the comparatively poor conditions of service as compared to large private accounting firms and as such, labour turnover among accountants is quite high (see footnote 6 in chapter IV on the loss of accountants in ZCCM between 1980 and 1987 attributed to this problem).

8.3.2 JOB EVALUATION

The Personnel Research Unit at the Copper Industry Services Bureau (CISB) does the job evaluation for the entire ZCCM.¹⁰ Between fifty and a hundred unionised jobs are evaluated each month. The Job Evaluation Committee (JEC) at this level is made up of CISB, line managers and the trade union (the Mineworkers' Union of Zambia--MUZ) and meets every month to evaluate these jobs. They use the job profile system which has sixteen factors (and each factor is scored at four levels,

¹⁰Interview with Mr Cummins, Superintendent, Personnel Research Unit, CISB. Note that the job evaluation methods in ZIMCO and INDECO which we discussed in the previous chapter are an adaptation from ZCCM. As such, we shall not go into much detail here as it is essentially the same.

that is, from basic, moderate, high and very high) on which every job is evaluated.

The jobs evaluated by the JEC have to be approved by the Senior Management and Industrial Relations Committees but the latter cannot over-rule a grade as all they can do is to refer it back to the JEC. If a job is referred back for re-evaluation, this would usually mean that the JEC will have to do on-the-site evaluation (to be physically present as the job is being performed so as to see what is actually involved). A final decision is reached by consensus and not by voting.

The above methodology only applies to artisans, foremen, shift bosses and new graduates (the latter being equivalent to the grade Z5/6 of ZIMCO) which are unionised grades in ZCCM. At management and senior level, there is no trade union representation (as the jobs evaluated are not unionised). Job evaluation here rates jobs on three factors:

- (a) know-how: professionalism in particular areas;
- (b) problem-solving: whether there is a need for consultation or not, that is, original thinking; and
- (c) accountability: the monetary value of the decisions made.

The main disadvantage of the system used to evaluate jobs in ZCCM is that job descriptions are very difficult to write and that they require a high quality committee. The Hay Consultancy Limited method used was also said not to be recommended for use in Zambia as it is skill intensive and requires consistent subjective judgement. The main advantage of the method is that where many expatriates are employed, as is the case in ZCCM, its use of pay information obtaining in other countries may determine the international competitiveness of the pay structure offered to expatriates.

8.3.3 THE MANPOWER INVENTORY AND ANALYTICAL SYSTEM (MIAS)

When ZCCM was formed in 1982 by merging Roan Copper Mines (RCM) and Nchanga Consolidated Copper Mines (NCCM), it began to work on a new computerised manpower information and planning system--MIAS. MIAS was a product of the P.E. and PERSIS computerised manpower information systems of the two companies.¹¹ Since the two systems had different nomenclatures (problems were experienced when employees from ex-NCCM divisions were transferred to ex-RCM divisions and vice-versa), old, unreliable and inflexible, and as the structure of the personnel had changed, a new system was required which would standardise the manpower information system and make data access and retrieval easy. The objectives of MIAS were therefore to identify the following: labour shortfalls and excesses, suitable vacancies for the redeployment of surplus labour, industry training needs and current skills in order to allow for manpower planning, and to provide a register of the existing labour force in the company.

The development of MIAS is subdivided into three phases: manpower database development; manpower inventory analytical system (data analysis); and manpower needs forecasting. We briefly look at each of the phases, in turn.

(a) The Manpower Database Development Phase

The development of the manpower database was planned to be completed within five years from 1982. To speed up its completion ZCCM appointed working parties to focus on the different aspects of the

¹¹This section draws heavily on B. E. Ng'andu, "Manpower Planning in Zambia Consolidated Copper Mines Limited (ZCCM)", a Paper Presented to the Manpower Planning Workshop in Zambia, the University of Zambia, Lusaka, 28 July to 1 August, 1986. When the author was visiting MPD, it was suggested that MIAS could easily be adopted by any other ZIMCO company.

database--for example, the education and training, and the staff development working parties were due to finish their work by July 1987 while the Data working party was to complete in January of the same year.

After its completion, the manpower database which will form the core of MIAS will have twenty-five entries grouped into the following nine major categories:

(i) jobs: this part of the database will have details on the job catalogue, job evaluation and job histories;

(ii) skills catalogue: maintains details on employee skills;

(iii) education catalogue: will have details on employees' educational qualifications and professional achievements;

(iv) training catalogue: keeps information on ZCCM and non-ZCCM courses, schedules and employees' course attendance;

(v) performance catalogue: keeps records of employees' appraisals, Staff Development Panel recommendations and disciplinary records;

(vi) permits catalogue: holds details on work and residence permits and passports for non-nationals;

(vii) establishment catalogue: keeps details of authorised strengths at gang level;

(viii) statutory requirements catalogue: contains details on legal requirements like blasting licences, silicosis certificates, first aid, driving licences, etc; and

(ix) reference files: these files will be used to decode acronyms used in other files.

(b)The Manpower Inventory Data Analyses Phase

This phase will analyse the data in the manpower database. Figure

8.1 demonstrates the data flow of this system--its inputs, output and users. The Inventory Analytical System (IAS) will analyse grades, job categories, promotion potential, performance ratings, and age in relation to skills. For example, within a given pay grade, the system will analyse individual performance ratings and this will help to answer questions on how many employees in that given grade are above average, about average and below average. Such information will help management to redeploy employees in each grade. The analysis of promotion potential of individual employees in a given grade will also help to fill vacancies internally.

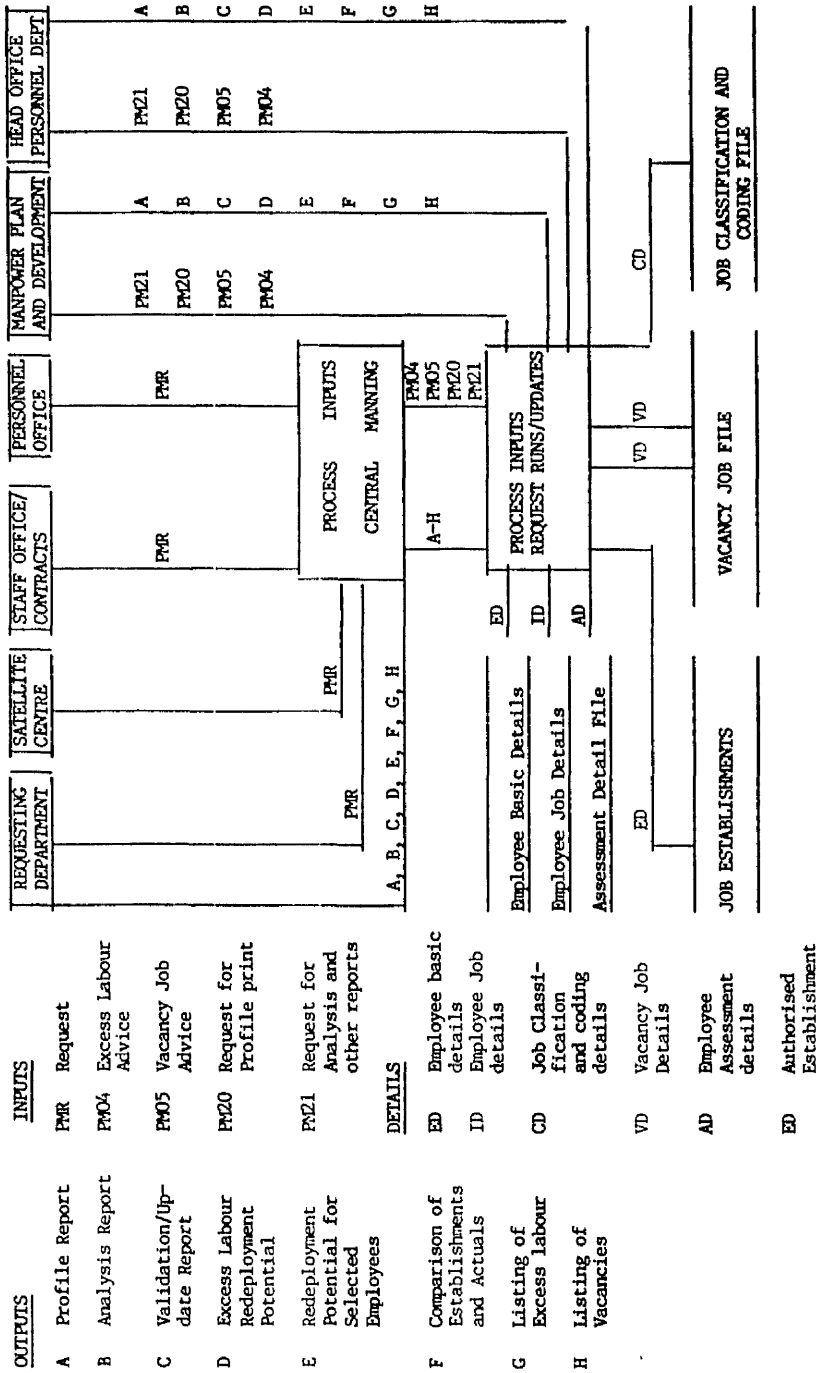
On analysing job categories, it will be possible to determine the promotion potential of individual employees, say from section officer to division officer. Since such analyses will reveal the skill qualifications distribution of the work force by occupation, it will enhance the planning of training and further education.

In addition to the above reports, the system will produce lists of possible areas of redeploying excess labour; vacancies in the industry; comparison of actual and establishment (that is labour excesses and shortfalls). Thus if the head office or operating centres request reports on the various aspects of manpower, such information will be retrieved from the microcomputers for them in a very short time. Since updating computerised information is relatively easy, the accuracy of the manpower data used in making decisions will be improved.

(c) Manpower Needs Forecasting Phase

The above two phases will increase the ability of ZCCM to determine its needs in terms of classifying existing jobs by skill requirements.

FIGURE 8.1 ZAMBIA CONSOLIDATED COPPER MINES LIMITED
MANPOWER INVENTORY DATA FLOW DIAGRAM



Source: B. E. Ng'andu, op cit., Appendix I

It will also enable the analysis of the existing labour so that manpower can be matched against job requirements. Since the problems of labour turnover; the need for Zambianisation at the lower levels; and the establishment of new positions and the reclassification of existing positions will give rise to replacement needs, it follows therefore that ZCCM will be in a position to identify such future manpower requirements.

Although the work on the manpower forecasting phase is still at a preliminary stage, the guidelines on what will be done to determine the future manpower requirements have already been identified. For example, in the case of labour turnover, it is envisaged that it will be based on average wastage for each category of labour over a period of the preceding five years. Thus the forecasts of future manpower requirements will be based on the extrapolation of the past wastage patterns.

The labour requirements arising from Zambianisation will be derived from the localisation index. This index will be determined from analysis of the progression routes for Zambians in given occupations. An assessment of the potential of the existing employees will also form a part of the manpower plan. The assumption here is that Zambianisation will be effected through internal advancement as opposed to external recruitment. Since the forecasting of the replacement needs will depend on the actual advancement of employees, realistic forecasting will require a predetermined priority for Zambianisation.

The forecasting of replacement needs resulting from reclassification of positions and establishment of new positions will be based on the company's future plans regarding the expansion, reduction or even cessation of operations. Thus the manpower plan does not base its

forecast of future manpower requirements on wastage alone but also examines all other sources that are likely to generate replacement needs and then works out total demand based on these variables.

On forecasting manpower supply, the plan has so far identified four sources of supply: internal advancement within ZCCM; recruitment from other companies and recruitment from outside the country. In order to determine the supply from the tertiary educational system, knowledge on the types of outputs of all the relevant institutes and courses run by the government and ZCCM will be required.

The recruitment from the local labour market will require knowledge of the country's work force and other factors. Such information will take longer to collect and analyse. On the international labour market, the limiting factor may be the remuneration packages offered by ZCCM and not necessarily the supply.

All told, the basic objective of MIAS is to develop strategies which will enhance ZCCM's ability to maximise the utilization of its manpower in a systematic and planned manner.

8.4 CONCLUSION

In this chapter we have demonstrated that manpower planning is thought of as being synonymous with manpower training and development in many of the responding INDECO companies. Evidence from the Head Office (and ZIMCO) also lends support to this finding. As we have shown, the emphasis on the supply aspects of manpower planning has been necessitated by such factors like the persistent existence of skill shortages; the government's Zambianisation policy; the belief that planning and budgeting for training in itself constitutes manpower

planning; and the fact that INDECO has limited power to adjust its labour demand and compensatory policies. For these reasons, supply (quantity) and not the demand (price--pay) aspects have been the major adjustment instruments to labour shortages. Where only one aspect of manpower planning can be realistically affected (that is, training and other supply measures), manpower planning becomes difficult as the demand aspects remain rigid and inflexible.

On the institutional side, the analysis of manpower planning and management in ZCCM has demonstrated that computerizing the manpower information system would improve access to and retrieval of the necessary data. The experience of ZCCM also suggests that centralized manpower planning arrangements--with local planning units at divisions or subsidiaries--may be the best approach under conditions of skill shortages as it would not be practicable to have such expertise spread all over the Group in individual subsidiary companies with little or no coordination. When such expertise is concentrated at a central unit, economies of scale may be realised. It is also possible for a corporation like INDECO to adopt a computerized manpower system similar to the one being developed in ZCCM--the Manpower Inventory and Analytical System. Such a system would further improve the practice of manpower planning even without relaxing the present ZIMCO pay structure. In the context of declining employment and an unstable economy, adoption of manpower planning may become a major issue. The form of what this planning should take is however a practical and contentious issue which has to be agreed upon by the various factions which make up an enterprise and which is also subject to a lot of other intervening factors. We therefore endeavour, in the next chapter, to suggest some

approaches to manpower which INDECO companies may adopt and consider policy options with regard to reforming the ZIMCO pay structure.

CHAPTER IX

MODELLING MANPOWER PLANNING IN THE INDECO GROUP: METHODOLOGY¹ AND POLICY OPTIONS

9.0 INTRODUCTION

We have demonstrated so far that other than being a relatively new concept, manpower planning has been viewed by many in the INDECO Group to mean only training and development. In the last chapter we analysed some of the reasons which have contributed to this state of affairs. The purpose of this chapter is to contribute further to the understanding of manpower planning in the INDECO Group by analysing some of the existing manpower planning methods and consider whether some of these methods can, in turn, be utilised by INDECO. Our main point of departure is that manpower planning in INDECO should widen its scope to encompass all the other aspects which affect employees. It is however recognised that existing statistical manpower planning models may not be applicable in the INDECO Group due to data and institutional problems. This may be overcome in the long-run when, hopefully, more high quality data will become available.

The methods discussed in this chapter should help manpower planners in INDECO to formulate realistic policies designed to deal with the following specific problems:

(i) In the context of the current deteriorating and unstable economy and foreign exchange constraints, can there be significant

¹The term methodology is used here to encompass the various methods which an organization may employ to diagnose a problem, define it and design appropriate policy responses; and in evaluating the effectiveness of the various instruments used. For a further discussion of problem solving methodology, see Johnson (1986).

benefits to be had from detailed and comprehensive manpower forecasting and planning? And if so, is it practicable?

(ii) Given the inadequate manpower information systems both at the subsidiary and corporate level, is it possible, under existing budgets and resource constraints, to implement new modes of keeping and updating manpower records?

(iii) With the persistent skill shortages in critical manpower categories (engineering, technical, accountancy, management and skilled artisans) likely to continue in future, are there cost-effective ways of improving the skills of the existing and potential employees and thereby improve manpower effectiveness? Given the high cost of foreign training, what are the possibilities of increasing the effectiveness of internal company or external local formal training? In particular, what should be done to increase confidence in the local types of training as opposed to foreign training?

(iv) With the ZIMCO pay structure continuing to be externally determined (as far as individual subsidiary companies are concerned), are there alternative ways of attracting and increasing retention of new skills so as to reduce the costs associated with high labour turnover? If so, would these new measures be approved by ZIMCO and the government?

(v) How can the current conception of manpower planning to mean training and development be widened? What other manpower planning approaches would be suitable for implementation in the INDECO Group of companies? Are the present personnel officers and managers well placed to adopt the alternative approaches or do they need retraining in manpower planning? Or should new specialised manpower planning units be introduced in each subsidiary company?

The above list is not exhaustive but it serves to demonstrate the extent of the problems which INDECO will need to resolve before it can realise significant benefits from implementing manpower planning. It is therefore pertinent to recall the suggestion by Birks and Fyfe (1987) and Fyfe (1988) discussed in chapter II that manpower planning would be of little value if it is not addressed to specific problems affecting the organization. For these reasons they emphasised that the diagnostic approach to manpower planning should seek to identify the *reasons* and *causes* of the existing manpower problems. By analysing the internal and external situations, individual firms would formulate policies which would deal with the causes of the existing and potential manpower problems. The diagnostic approach would, therefore, "...help identify problem areas at an early stage so that they can be understood and corrective actions considered that are *relevant to the cause of the problem*" (Fyfe, 1988:312). For example, one of the main reasons why two INDECO companies experienced persistent recruitment difficulties for works engineers (see Chapter VI) is that they insisted on unrealistic attributes which are not easily obtainable in a labour market with professional and skilled labour shortages.

In attempting to offer some problem solving methodological approaches to dealing with the above questions, the chapter is organised as follows: section 9.1 presents the stages involved in manpower planning and the data requirements; section 9.2 looks at the need for defining and clarifying manpower objectives and how the manpower information systems can be improved in the INDECO Group. In section 9.3, we look at the methods of forecasting and modelling manpower requirements (demand) and section 9.4 looks at internal and external supply. Section 9.5 looks at the personnel policies which aim at

reconciling demand and supply--especially remuneration and benefits, conditions of service, job evaluation and personnel appraisals.

9.1 MODELLING MANPOWER PLANNING; THE STAGES

For the reasons given in Chapter VIII (§ 8.1.1), the need for manpower planning in the INDECO Group has been recognised. The problem however is that it is largely seen to involve only training and development. This misconception, as we have argued before, has been necessitated by the lack of appropriate manpower planning skills within INDECO and also as a result of the pervasive skill shortages in the labour market. What then should be the model for manpower planning in INDECO? For a start, INDECO is a diverse organization with different subsidiary companies doing different activities. For this reason, no one model can be devised to cover the entire Group. As such we only look at the general stages which individual companies should follow, depending on their particular circumstances.

In the literature,² manpower planning is usually said to involve four phases. In practice however, internal and external circumstances will determine which of these phases would be emphasised. In the context of INDECO, we suggest manpower planning should proceed along the following stages:

1. Specify the reasons why the company needs to implement manpower planning. This would help in formulating appropriate policies and identifying the costs and benefits involved. Since manpower planning may mean a shift of resources from other competing uses, its costs in terms

²See J. Bramham, Practical Manpower Planning, 3rd ed., (London: Institute of Personnel Management, 1982), first published 1975, ch. 2.

of human, physical and financial resources need to be clearly assessed and the commitment and support of both top management and individual employees need to be established. This would further help to integrate the manpower planning process with other company objectives and activities and thus define the role of the manpower planning department.

2. Examine the current approaches to manpower planning. In the case of INDECO companies, this would involve determining how the current policy which only emphasizes manpower training and development can be further enhanced by improving career planning, remuneration packages, improving recruitment selection procedures, etc. The implications of the alternative approaches and their suitability for the concerned company must then be carefully studied.

3. Forecast manpower demand. The data needed to develop a model are strategic objectives, technological development, organizational development, organizational changes, likely availability of foreign exchange (and thus inputs and spare-parts) and historical variables.

4. Forecast the internal supply of skills: data needed for modelling are the likely changes in employment, wastage and its patterns, training and development, internal transfers, promotions (and demotion), etc.

5. Forecast the external supply of skills. This will require data on availability of particular skills in the local labour market, training activities of the tertiary educational system and how contacts can be established with these institutes, the skill implications of the contraction in employment of other major employers like the civil service and ZCCM, the demand of other organisations, the costs of recruitment, etc.

6. The manpower plan--implications and options. The plan will aim

at reconciling supply with demand by devising the following policies:

- (i) Supply: recruitment, promotion and transfers
- (ii) Utilization: targets and methods
- (iii) Development: initial and continuation training, retraining and management development
- (iv) Personnel Policy: remuneration and benefits, conditions of service, job evaluation and performance appraisal and, morale and job satisfaction.

7. The manpower plan--options for implementation.

8. The implementation plan.

9.2 DEFINING THE MANPOWER OBJECTIVES AND IMPROVING

THE MANPOWER INFORMATION SYSTEM

It cannot be over emphasised that the modelling of manpower in the INDECO Group should take into account the problems listed in section 9.0 above. In particular, problems of recruiting certain types of skills like accountants, engineers, etc. in the local labour market would mean that more emphasis should be placed on training and career planning so as to minimize the wastage of those trained at the expense of INDECO.

9.2.1. DEFINING MANPOWER OBJECTIVES.

The demand for labour services is derived from planned company activities like production and sales. However, being a quasi-fixed factor (Oi, 1962), it may not be easy for an organization to sack excess labour as and when it pleases. For this reason, a manpower plan needs to be integrated with other company plans so as to avoid such

problems. Moreover, the realisation of organizational objectives depends on the quantity and quality of the manpower. For these reasons, a manpower plan should clearly specify the following:³

(a) The types and levels of skills needed to realise the current and future objectives.

One main objective for manpower planning is to enable an organization to identify 'trouble spots' in time so that remedial policy actions can be sought well before the problems come to the head. For an organisation like INDECO, it would be economical to concentrate on those manpower categories like skilled artisans, technicians, engineers, accountants, and specialised managerial skills, which are critical to its survival but are in short-supply. In the past difficulties in recruiting such labour has contributed to the poor performance of the Group.

The above argument is strengthened by the fact that over 70 per cent of INDECO's total labour force are general workers (see chapter VI), hence concentrating on the critical and shortage occupation would, at least in the short-term, reduce the costs of implementing manpower planning. Furthermore, recruiting and training of general workers is relatively easy as opposed to, say, accountants and engineers--and especially in the context of rising general unemployment in Zambia. Long-term forecasting for the general workers may therefore not be very necessary.

³United Kingdom, Department of Employment, Company Manpower Planning, Manpower Papers No. 1, (London: Her Majesty's Stationery Office, 1976), pp. 9-10; see also J. Bramham, op. cit, ch. 8.

(b) Whether to plan for the whole Group or Individual Subsidiary Companies.

The diversity of INDECO as an enterprise means that a choice has to be made on whether to plan at the corporate (Group) or subsidiary level. Planning at the Group level may lead to economies of scale as manpower planning specialists will be concentrated at one place. Such planning may be less accurate, especially in forecasting demand for the subsidiary companies. Unlike ZCCM which has one main activity, INDECO has many different activities and as such, centralised manpower planning may not be very efficient in the case of the latter.

As a compromise, the forecasting of supply can be done at the Group level either on an activity and/or subsidiary company basis. These activities can then be further complimented at the subsidiary company level. The forecasting and planning of demand, given the differences in jobs, should be done at individual company level so as to improve their accuracy. Such a planning system would be reinforcing and thus improve the effectiveness of manpower planning.

(c) The degree of accuracy and detail required.

There is usually a trade-off between a *detailed* occupational forecast and a *reliable* one. An analysis of the Quarterly Manpower Reports sent to INDECO Head Office show that there is hardly any movement between and within the general, clerical, supervisory, technician, and middle and senior management occupational categories. The question on forecasting and planning manpower is whether to follow this nomenclature or whether to break each occupational category into further smaller groups. If the former is followed, forecasts are likely to become more unreliable as the margins of error are likely to be high.

If the latter is adopted, accuracy may be improved but it may prove to be more expensive. Thus, a trade-off has to be made.

(d) The length of the forecasting period.

With the current unstable economic conditions, the actual planning horizons may have to be reduced from the current five years to one or two years. That is, the five year plans should be regarded as perspective plans with actual planning restricted to one or two years. But where planning is for say engineers, five to ten years planning horizons may be necessary to give INDECO the necessary 'lead time' to take the remedial actions. It takes five years to train an engineer at the University of Zambia, and about as many years for a recruit with a bachelor of accountancy to qualify as a professional accountant. As a rule, the planning period chosen should be long enough to allow INDECO to make the necessary manpower supply adjustments in the light of its changing requirements.

As is the case in ZCCM, detailed planning is done for up to two years. This is necessitated by the volatility (and uncertainty) of the world price of copper, the production costs and the national economy. These plans are however revised annually or whenever necessary so that changes in the circumstances are incorporated into the revised plans. The main aim here would be to roll the plans at each revising interval without necessarily changing the length of the perspective planning horizon.

9.2.2. IMPROVING THE MANPOWER INFORMATION SYSTEM.

It has been acknowledged in the INDECO Group that the lack of the necessary information impedes the implementation of manpower planning.

(see chapter VIII, § 8.1.3). The need for computerising the manpower information system so as to facilitate easy access, up-dating and retrieval has also been recognised. Before the computerising of the information can be done, the necessary data has to be collected. It is the collection of the necessary information which would pose some problems: what types of information to collect; coverage; how detailed; and whether INDECO companies would have the necessary resources to effect this.

The manpower information system needed should enable INDECO companies to do the following:

(a) describe the past, present and future manpower stocks through age, sex, length of service, educational qualifications, basic skills, etc. distributions

(b) to provide statistical trends which are likely to influence future plans: recruitment, promotions, wastage, vacancies, transfer, occupational changes, changes in earnings, training costs, etc.

(c) to understand the external environment, that is, to have information on trends in the labour market, educational trends, skill shortages, population composition, activities of competitors, etc. On the economic front, to have data on the availability of foreign exchange, national economic environment, government policies, etc.

(d) to make aware the manpower planner of the company's current and planned activities by making available information on capital investment plans, the product and input markets, marketing strategies, financial and profit targets, etc.

As we demonstrated in chapter VIII (§ 8.3.3), adoption of a computerised manpower information system like MIAS would require a lot of information covering jobs, skills, training, performance, etc. Yet the

current quarterly manpower reports sent to the Head office by the subsidiary companies can be modified to provide most of the data required for manpower planning both at the subsidiary and corporate levels. These improvements can be achieved through the following:

(a) by summarising employees' data, say in a labour analysis book, by age, sex, educational qualifications, occupation, department, length of service, etc. For this to happen, the various personnel managers have to be made aware of benefits of keeping information in such a summarised form as opposed to keeping records in personal files. It has to be stressed that such a summary should not be a simple listing but a structured method which may be coded so as to make up-dating easier and hence simpler to use and more informative (see Bramham, 1982:159-160).

(b) the present grouping of available manpower into general, clerical, supervisory/technician, middle management and senior management, are too broad to the extent that they fail to show any internal mobility within any given occupational category like promotions and demotion. It would be helpful if each occupational category is further broken into smaller groups so as to show movements like promotions from one grade to another, occupational changes and demotion. The reporting only of recruitment into and separation (wastage) from certain occupational categories gives the impression that these are the only manpower movements. But that is, certainly, not the case.

(c) at present, wastage flows are categorised into different types. Although this is helpful, it is of little use for planning purposes for it fails to reveal the age and length-of-service distributions of the affected employees at leaving. If such data can be added, it may further enhance the value of wastage trends for it will show the

probabilities of employees leaving after serving certain periods with the company.

(d) vacancies; for how long they have existed, in which occupation and what is being done about them should be explicitly reported as opposed to the present practice of deducing them from the variance between the actual and authorised establishments, that is, if the former is lower than the latter.

(e) Given the current economic difficulties and foreign exchange constraints, it might be useful to indicate whether or not there are enough inputs and spare parts over the coming quarter that would guarantee present or forecast levels of employment.

(f) more details ought to be given on the average changes in pay and other conditions of service.

(g) there is need for uniformity. For example, some companies give very detailed reports while others do not. On training, there is also a tendency to give details of the costs of local training but ignoring the expensive foreign training.

9.3 MODELLING DEMAND

The demand for labour is not only derived but also uncertain. That future demand for labour services is based on forecast production, sales, changes in technology used and the organization, makes this uncertainty real for there is no guarantee that the assumptions on which the forecasts are based would *actually* obtain. For INDECO, whose dependence on foreign inputs and spare parts is very high, the degree of uncertainty and vulnerability is significant.

Other than the uncertainty surrounding the availability of foreign

exchange and materials, INDECO's diversity means that forecasting the demand is very difficult. This is because forecasting demand amounts to forecasting the number of jobs which will become available in future in a given organization. Since there are marked differences in jobs (even those with similar nomenclatures), it is said that the existing statistical methods are still not very robust as to deal with such problems (Bartholomew and Forbes, 1979).

There are however two main approaches to forecasting manpower demand:⁴ the trend method and forecasting work load.

9.3.1 FORECASTING THE TREND

The trend method uses past observed data to determine the trend. The trend is then extrapolated over the forecast period. The main weakness of this method is that it equates the attained levels of manning with the required levels. It also assumes that the past experience will continue into the future without significant changes. Where persistent skilled and professional labour shortages have been experienced, the attained skill mix would have failed to reach the levels really desired. Moreover, INDECO's current policy of reducing employment renders projecting past trend into the future, by itself, unrealistic and inaccurate.

These weaknesses are highlighted in a study cited by Bartholomew and Forbes (p. 234) (Rowntree and Stewart (1976)) which used the trend method to plot the principal grade of the British civil service for the years 1963 to 1973. Over this period, a constant annual growth rate of 6 per cent was observed. They fitted an exponential growth curve using least squares. The fit was very close between 1963 and 1973. However,

⁴D. J. Bartholomew and A. F. Forbes, Statistical Techniques for Manpower Planning, (Chichester: John Wiley and Sons, 1979), pp. 233-234; United Kingdom, op. cit, pp. 23-33.

when the 6 per cent annual rate was used to forecast up to the year 2000, the number of principals became impossibly high. This demonstrates that when the trend method is used, the forecast period should not be very long. In addition, other non-statistical information and considerations like executive judgement must be used so as to improve the accuracy of the forecasts, especially in the short-term.

In INDECO where employment levels may be influenced by the trade cycles (as exemplified by the availability of foreign exchange and materials) and where the policy of 'hiring and firing' may not be practicable, the average work load and the rates of capacity utilization would determine the manning levels. Thus, before the long term trend is established, seasonal variations and/or the effects of the trade cycle should be eliminated.

9.3.2 FORECASTING WORKLOADS

These methods use both time series and correlation techniques to estimate workloads and then translate them into manning requirements. They are based on the assumption that past and present relationships between the variables studied will not change significantly over the forecast period. For example, if the ratio of drivers to sales is known, such a ratio will be multiplied with forecast sales to arrive at the estimate of required drivers over the forecast period. Where 'work' involves more than one task of unequal magnitude, forecasting workloads may become problematic⁵ as the relationships will not be

⁵Such problems may be overcome by using principal component and factor analyses. Since these methods are statistically complex, we shall not go into further details here but an interested reader should see the following works: for factor analysis: Lawley and Maxwell (1971), Kendall (1975), and Harman (1967). For application to manpower planning see Rowntree and Stewart in Smith (1976); and for principal components see Kendall (1975) and Kendall and Stuart (1976). Statistical computer packages like BMDP are specifically designed to deal with multivariate and dimensionality problems.

unique. Workloads may be forecast by using work study, productivity indices and regression analysis.

(a) Work Study

Work study,⁶ seeks to determine the quantity and quality (types of skills) of labour, capital and other inputs which are needed to produce a given level of output. Work study may be the best method for INDECO companies, given the current policy of reducing employment, as it helps to identify areas where excess labour and/or skill shortages exist and thus help in formulating future manpower strategies. In addition, it would further improve managements' direct knowledge of the production process.

The first step in work study is to convert forecast output into annual production schedules (and if possible monthly schedules for the first year of the plan), from which the manpower requirements will be determined. This would help to answer the following questions:

- (i) what is to be made or done?
- (ii) the quantities involved?
- (iii) the operations or methods needed to carry out the work?
- (iv) the plant, equipment, inputs, spare-parts and tools required?
- (v) the amount, type and quality of labour required?
- (vi) how long each operation is expected to take?
- (vii) how much inputs, spare-parts, plant and equipment are available?
- (viii) how much labour, of the types and quality necessary, is available?

⁶The work study method outlined here draws heavily from the United Kingdom, 1975, op cit. pp. 28-30.

The information on item (viii) may be obtained from company manpower information system (if the system is well maintained), while information on items (iii), (v) and (vi) may be determined through method study and/or work measurement. It is however very unlikely that many INDECO companies do this. That on required and available plant and inputs, etc. may be determined from the corporate plan and other accounting documents. After the information is collected and analysed, the work load [items (i) and (ii)] may then be worked out so as to determine the required man hours for each class of labour.

As an illustration, suppose one of the INDECO milling companies projects that it will produce 800,000 maize meal bags (25 kilogram each) per year over a three year planning period. Past experience (and/or work measurement by assumption) shows that it takes 8 workmen to produce 120 bags per working day (subject to plant and machinery being in good working condition and inputs availability). The man days required are

$$\frac{800,000}{15 \text{ (bags per man day)}} = 53,333 \text{ man days}$$

The man years required are

$$\frac{53,333}{300 \text{ (working days per year)}} = 178 \text{ man years}$$

Thus, to produce 800,000 bags of maize meal, 178 workmen may be required in the milling department per annum over the forecast period. Such an estimate may then be adjusted for likely wastage and absenteeism and hence determine likely recruitment and training for the department. If for some reason the production targets are not met, the company may consider transferring some of the workmen to other departments, or reduce the number and/or size of shifts.

The main weakness of the work study method is that it may only help

to assess the manpower requirements for direct, and not indirect labour. This may be overcome by using ratios of direct to indirect labour. Its main strong points are that it uses data which is already available--the estimates for production and sales--in as long as they are reasonably detailed and accurate. Even where the estimates are not very accurate, a calculation of the manpower requirements over a three year period would indicate to the company the direction of the future manpower problems.

(b) Labour Productivity

Both work study and productivity seek to establish the effectiveness of the human content in production. Their main difference is that work study centres on establishing the man hours needed per unit of output, while productivity is the inverse, that is, output per man hour.

Conceptually, the forecasting of manpower requirements using productivity indices seems easy: divide output (value added) by labour productivity. In practice, this method has some problems: measuring of output; changes in the product mix and quality; and price changes. Measuring output of indirect labour categories like secretaries and accountants presents another set of problems.

Because many INDECO companies have more than one type of output, value added and not physical output should be used. Value added being output in constant prices less the cost of bought in goods and services used in production. The changes in the stocks of finished goods, work in progress and inventories should be added to value added. Stock appreciation must also be taken into account (Silver, 1983:53).

If f is the forecast period, P and Q price and quantity of output,

respectively, p and q are prices and quantities of inputs, respectively, $0, 1, \dots, n$ the past periods (annual) data, and m man hours worked. Labour productivity at constant period f prices is given for periods $0, 1, \dots, n$ by

$$\frac{\Sigma P_f Q_0 - \Sigma p_f q_0}{m_0}; \frac{\Sigma P_f Q_1 - \Sigma p_f q_1}{m_1}; \dots; \frac{\Sigma P_f Q_n - \Sigma p_f q_n}{m_n} = \frac{\Sigma P_0 Q_0}{\Sigma P_0 Q_0 / \Sigma P_f Q_0} - \frac{\Sigma p_0 q_0}{\Sigma p_0 q_0 / \Sigma p_f q_0} \quad (9.1)$$

Value added should not be deflated by the price of output only as this includes the effects of the changes in the terms of trade (Sato, 1976). In Zambia, the output (that is, value added) and cost of other inputs may be deflated by the relevant wholesale price index (or GDP deflator) published by the Central Statistical Office, and labour costs may be deflated by the average consumer price index.

Forecast demand for period f may be obtained by extrapolating the labour productivity trend calculated as above and then divide into forecast added value (at period f prices). Since period f prices and quantities (and their respective relative changes between periods n and f are unknown), assumptions (for example, price mark-ups based on previous experience) have to be made about these. For these reasons, Silver (p. 54) argues that even if the above methodology of calculating labour productivity is correct, errors may arise from the following factors:

(a) omitting price changes of all inputs and outputs, especially where data is not available, in the respective deflators;

(b) inaccurate forecasts of expected relative input and output prices in the forecast period; and

(c) inaccurate forecasts of expected physical inputs and outputs in the forecast periods.

All these errors are likely to be significant in the INDECO companies, owing to their dependence on imported capital goods and raw materials. Forecasting the availability of foreign exchange and the exchange rates of the kwacha is very difficult and prone to errors. Another weakness of the productivity method in INDECO is that past productivity indices are not 'true' because of slack capacity. Had capacity been fully utilized, the productivity indices may have shown a different trend. That apart, the method of extrapolating productivity indices to forecast demand assumes that productivity is only influenced by time. This is not the case (Silver, pp. 55-59):

(i) organizational changes and the changes in the scale of operations may increase (decrease) productivity without necessarily changing the levels of employment--for example, implementing work study or improving the economies of scale may improve productivity.

(ii) there may be changes in the ratio of services provided by capital relative to labour. For example, changes in the quality of capital and/or changes in the 'effort' by labour (especially if incentive schemes are introduced) may change the capital-labour ratio and thus change productivity.

(iii) if in the past there was slack capacity, the capital-labour ratio would show that labour is receiving more capital services. However, this may not be the case. If during the forecast period capacity utilization improves, the value of capital may remain the same but more labour may be employed or the same labour may be intensively utilized: in the former case, a fall in the capital-labour ratio will be suggested, in the latter case, improved labour productivity may

obtain. As such, the value of capital stock must be further adjusted to reflect the changes in the levels of capacity utilization.

(c) Regression Analysis

Regression analysis seeks to estimate an equation which describes the relationship between the manning level and the factors which influence it. If employment is a function of output, technology used, company employment policy, general economic activity, etc., the task would be to regress employment on these factors. If L is the manning level (employment) and x_1, x_2, \dots, x_k are the factors which influence it, the problem is to find a formula from which L can be predicted. Thus

$$L = f(x_1, x_2, \dots, x_k) \quad (9.2)$$

Depending on the quality and availability of historical data, equation 9.2 may be estimated. Regression equations take different forms: they can be of the Cobb-Douglass production function type; linear or non-linear. In practice, the linear equation is usually preferred and it takes the form

$$L = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \quad (9.3)$$

where β_0 is the constant term, β_1, \dots, β_k are coefficients of the respective variables which influence L .

In the INDECO companies, employment may be regressed on value added (or turnover), availability of inputs (or levels of capacity utilization), capital stock (book value), and a dummy variable to reflect changes in employment policy. All monetary variables should be at constant prices. Depending on the significance of the coefficients of the independent variables (x -variables) and the explanation power (R^2)

of the equation, the estimated equation can then be extrapolated to forecast the manning level.⁷

9.4 MODELLING MANPOWER SUPPLY

With the current policy of reducing employment, modelling manpower supply in the INDECO companies should aim at identifying those positions which will be phased out and those which will not. For those positions which are to be phased out, it has to be decided how this will be achieved: whether through voluntary or compulsory redundancies. For the positions which are to remain, the task is to estimate the likely future supply of skills taking into account such things as wastage and current training activities. The assumption being made here is that the concerned companies have detailed and adequate data on their manpower stocks and flows. Analysis of such information will enable a company to identify the inherent weaknesses in its skill structure.

In terms of present and future availability of skills, INDECO companies would need to answer the following questions:

(a) how much of the present labour and skills are likely to remain with the organization over the forecast period?

(b) would the current training activities be enough to meet both the existing skill shortages and those over the forecast period? Would the current policy of reducing employment not lead to skill crises in future if production levels increase?

⁷Although regression analysis is relatively easy and has wide applicability, it has major drawbacks, especially when applied by people who are not conversant with statistical theory. For a discussion of such problems and how to overcome them, see Bartholomew and Forbes, op. cit. pp. 244-47.

(c) for the occupational categories like engineering, accountancy, etc. where recruitment difficulties have been experienced in the past, is the situation likely to improve or worsen in future? And if so, to what extent? If recruitment difficulty is likely to continue in the local labour market, is there enough foreign exchange to attract and retain expatriate labour?

(d) in which skill categories are benefits likely to be had from the current contraction in employment in the civil-service and ZOCM? What are the likely recruitment costs of such skills?

(e) to what extent are the government's employment and manpower policies favourable to the company's skill needs? Are there positive developments in the training activities of the tertiary educational system that are likely to improve the supply of needed skills in the future?

Answers to the above questions would help individual companies to clarify their skill positions and thus help them to formulate appropriate policies to deal with any such skill problems. For a large conglomerate like INDECO, it may be able to influence and not just react to events. For example, lobbying the government and better co-ordination with the local institutions of higher learning may improve the supply of some of the skills which are inherently in short supply.

The above skill analyses will come to nothing unless the INDECO companies are able to predict wastage. Wastage trends may be used to determine how much of the present and potential (new recruits) skills are likely to be lost over the forecast period. Knowledge of wastage would thus enable the companies to design remedial policies and plan their recruitment and training activities well in advance. The companies should also be able to predict the structure of their

manpower stocks and flows by analysing promotions, transfers and the changes in the age structure.

9.4.1 ANALYSIS OF WASTAGE

Wastage affects the current and future availability of skills. For this reason, it is of prime importance in manpower planning. As we discussed in chapter II, wastage rates tend to decrease with increasing age, length of service, skill and responsibility, and they tend to be higher for females than males, and decrease slightly when the level of unemployment rises.

Generally speaking, these predictions may be applicable in Zambia. An exception may be on the skill--that is, the existence of dynamic skill shortages would imply that the demand for skilled and professional labour is not usually met and as such, labour turnover among these occupational categories is expected to be high (see chapters IV and VI). Since the Zambian labour market is segmented (Cain, 1976; Edwards et al., eds., 1983), the coexistence of high rates of unemployment and skilled labour shortages means that voluntary wastage rates are likely to be lower among the less skilled (where competition for jobs is high but demand low--secondary segment) than the high level skilled and professional (where competition for jobs is relatively limited, supply low and demand high--primary segment) labour categories.

For purposes of studying and predicting wastage, INDECO companies have to break their heterogeneous work force into fairly homogeneous sub-groups with similar factors affecting their propensity to leave the organization (Bartholomew and Forbes, 1979:13). Such groupings can be based on skill categories, age and/or lengths of service distribution.

It was pointed out in chapter II that the 'crude' labour turnover rate (expressed as a percentage proportion of leavers in a given period to average employment in that period) may be easy to calculate but it is of little value when applied to a heterogeneous work force. It is thus not possible to compare different manpower systems using the 'crude' rates. But if such rates are read with respect to skill categories or lengths of service distribution, they become more informative and revealing. We suggest that the analysis of wastage in the INDECO companies should proceed by grouping leavers and those who remain into their respective skill and lengths of service distributions.

Depending on the types of data available, wastage can be analysed and predicted through different methods. All the various methods seek to estimate the following probability functions:⁸

(a) The Probability Density Function (f_i), the probability that an employee will leave with a length of service in the interval (x_i, x_{i+1}) . This probability corresponds to the expected relative frequency distribution of the lengths of service completed before leaving for a batch of recruits.

(b) The Force of Separation (q_i), the probability that an individual who has attained a certain length of service leaves in the interval (x_i, x_{i+1}) . This is conditional probability.

(c) The Survivor Function (G_i), the probability that an individual will survive for a length of time x , that is, survive to time x .

Non-parametric methods like cohort and census analyses can be used to estimate the above probability functions.⁹ The cohort analysis

⁸A. F. Forbes, "Non-parametric Methods of Estimating the Survivor Function", The Statistician, 1971, 20, 1, pp. 27-52 and Bartholomew and Forbes, op cit., ch. 2 and 3.

⁹Other models which describe the wastage process include the exponential (or constant risk), the mixed exponential, network and the log-normal. For a discussion of each, see Bartholomew and Forbes, op. cit., pp. 47-55.

studies wastage patterns of a group of recruits who joined an organization at about the same time (cohort). But where such historical data are not generally available, as is the case in INDECO companies, the cohort method would not be practicable. This method also has other procedural and theoretical problems. For these reasons, the adjusted cohort method has been suggested instead as it uses only the stock or in-service distributions (Forbes, 1971).¹⁰

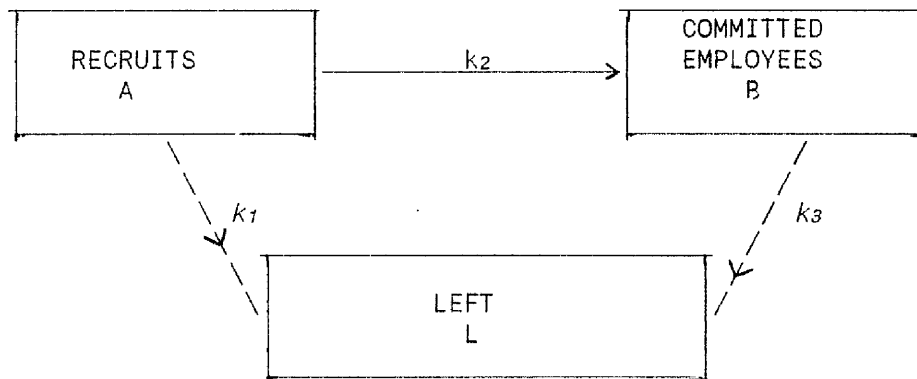
The census method uses cross-sectional data to analyse and predict wastage patterns. The method uses the data on leavers' CLS distributions and the in-service length of service (LS) distributions. The transition and central wastage rates calculated from such data would help estimate the wastage patterns and the above probability functions. The functions would then be used to predict wastage patterns, either by using the trend, graphic, or the method of percentage points. Given the uncertainty surrounding manpower forecasting, Bartholomew and Forbes stress the importance of calculating the forecast errors. The usual mistake made when forecasting wastage is the implicit assumption that the previous observed rates would continue. As both age and the length-of-service increase for the vulnerable groups their probability of leaving becomes smaller--thence inaccurate forecasts. For a statistical specification of these models, see appendix VIIA.

In addition to studying wastage rates, as above, dynamic models may

¹⁰Although it is easier to estimate the survivor function using the cohort analysis method, it has a number of theoretical and practical limitations (Forbes, 1971:38): (a) the data collection may take time since for a completed record, it is necessary to wait until the last member of the cohort has left--this may be up to forty years after entry; (b) even if we censor, ie. do not wait for everybody to leave, it may require 5 to 10 years before any useful result are obtained, and extrapolations may still be necessary for those which are outside the observed time periods; and (c) if the completed length of service (CLS) distribution is changing with calendar time, the cohort estimate will not reflect current wastage patterns.

may be used to represent the leaving process (Clowes, 1972). Clowes' dynamic model of labour turnover together with that of Herbst (1959) have been termed by Bartholomew and Forbes as network models--employees in an organization are viewed as passing through different states. That is, recruits will first undergo a period (state) in which they try to adapt to the ways of the company. If this is successful, they become committed to the organization, and if not, they leave. Those who become committed will eventually leave the organization through resignations, deaths and retirement. Diagrammatically, the model is presented in figure 9.1.

Figure 9.1 Clowes' Two-Stage Dynamic Model of Labour Turnover



where: k_1 = rate at which recruits leave the company;

k_2 = rate at which recruits adapt to the ways of the company and becoming committed to the organization.

k_3 = rate at which committed employees gradually leave the organization through resignation, retirement, sickness or death.

The parameters (k_1 , k_2 , k_3) are first order constants which show the rate at which employees transfer from one state to another in a given time interval. The rectangles represent the different stages (states) of an employee's interaction with an organization: initial

(induction--A), mutual (committed--B), and zero (leave--L) interaction.

Clowes¹¹ estimated the three parameters from empirical data (obtained from secondary sources). It was found that

(a) the value of k_1 tends to increase as the rate of labour turnover increases;

(b) the value of k_2 tends to be constant across different organizations. This would imply that "the process of adaptation of individuals to organizations occurs at a rate which is relatively independent of the organizational factors" (Clowes, p. 249).

Clowes argues that since the value of k_2 is constant, the values of k_1 and k_3 would describe the nature of the organization. If k_1 is large, a high proportion of the recruits will leave the organization very rapidly. This may either be due to the failure of the recruits to adapt to the ways of the company or the failure of the latter to help the former to adapt. If the former case is applicable, then selection procedures need to be improved, and if the latter case, then on-the-job training and/or orientation are unsatisfactory and thus need to be reviewed. A high k_3 would suggest that an organization is even losing committed and experienced personnel.

In INDECO companies this process may be applied to those employees who have just finished their training and new employees who are on probation. Employees who have completed training are usually bonded for periods of up to three years. For the sake of argument, we shall denote such bondage periods as the initial period under which the affected employees should adapt. If they do adapt within the bondage period, then they are likely to stay on for a longer period. If they

¹¹Clowes (p. 247), however, acknowledges that it is not possible to distinguish between uncommitted recruits and committed employees, except by questioning. Such a distinction is only possible between those who remain and those who have left an organization.

do not, then they may leave. It may thus be useful to study the wastage pattern of sponsored employees and determine whether a trend can be discerned. If the ratio of $k_2/(k_1 + k_3)$ is high, it would mean that few are leaving and as such, less resources would be spent on training and recruitment. Such a high ratio would improve the skill structure of INDECO companies and hence ease the skill shortages problem.

The value of the dynamic model lies in its ability to identify possible areas like selection and training procedures, and career development, especially for committed employees, which may need to be improved so as to improve the retention of skills. The model is based on the assumption that labour turnover is usually caused by poor recruitment and engagement procedures, and poor induction whereby new employees are given little or no information about their jobs and the company. Poor physical conditions of service, long hours worked, poor pay structure, and limited career and skill development may also contribute to high labour turnover.

For example, when asked in the survey to indicate whether their respective employers could improve their recruitment and engagement procedures, 49 employees thought that this was necessary. Table 9.1 demonstrates that about 37 per cent of these felt that recruitment should be based on merit, that is, employ only qualified and experienced personnel. Nepotism and corruptive practices should be discouraged. Another 37 per cent felt that employers should provide more information on the company to new recruits, improve induction procedures and place new recruits in jobs which they are suited. Others suggested that interview panels should be composed of people who are neutral and knowledgeable about the jobs in question, advertise the

positions first before recruiting and not vice-versa, and reduce the probation period from six to three months.

Table 9.1 Employees' Suggested Changes in Recruitment Policy

| Educational Level |FREQUENCY..... | | | | | | ROW TOTAL |
|--------------------|---------------------------|------------------------------------|--|---------------------------------|----------------------|-------------------|-------------|
| | Base recruitment on merit | Provide Information on company/job | Interview panel be knowledgeable and neutral | Improve Induction and placement | Advertise post first | Other | |
| Grade VII | 2 100.0 1.1 | - - - | - - - | - - - | - - - | - - - | 2 4.1 |
| Form II/III | - - - | - - - | 1 50.0 16.7 | 1 50.0 11.1 | - - - | - - - | 2 4.1 |
| Craftsmen | 5 33.4 27.8 | 1 6.7 11.1 | 2 13.3 33.3 | 5 33.3 55.6 | - - - | 2 13.3 40.0 | 15 30.6 |
| Form V/GCE | 6 75.0 33.3 | 1 12.5 11.1 | - - - | 1 12.5 11.1 | - - - | - - - | 8 16.3 |
| Diploma | 2 20.0 11.1 | 3 30.0 33.3 | 1 10.0 16.7 | - - - | 1 10.0 50.0 | 3 30.0 60.0 | 10 20.0 |
| First Degree | 3 50.0 11.1 | 2 33.3 22.2 | - - - | - - - | 1 16.7 50.0 | - - - | 6 12.2 |
| Postgraduate | - - - | 1 50.0 11.1 | - - - | 1 50.0 11.1 | - - - | - - - | 2 4.1 |
| Other Professional | - - - | 1 25.0 11.1 | 2 50.0 33.3 | 1 25.0 11.1 | - - - | - - - | 4 8.2 |
| TOTAL | 18 36.7 | 9 18.4 | 6 12.2 | 9 18.4 | 2 4.1 | 5 10.2 | 49 100.0 |

Note: The decimal figures below each frequency are, respectively, row and column percentages.

Source: Employees Questionnaire, Question 7b

This type of empirical evidence, though not conclusive, serves to demonstrate that INDECO and other companies may have to place more emphasis on those aspects which affect job satisfaction. Failure to do so would imply increased wastage and/or inefficiency resulting from job dissatisfaction.

9.4.2 MODELLING MANPOWER STOCKS AND FLOWS

In the analysis and prediction of wastage we are mainly interested in homogeneous sub groups of the work force. Since the work force is heterogeneous and dynamic, we need models which study the behaviour of the manpower system over time. There are basically three classes of models based on the Markov chain theory which deal with this problem: Markov, Renewal (KENT--vacancy chain), and Cambridge (career patterns--steady state) models study the behaviour of (and to control) the manpower system under different assumptions. Following Bartholomew and Forbes (1979) and Edwards, et al. (1983), we briefly discuss these models below and in appendix VII.

(a) Markov Models

The transition models based on the theory of Markov chains attempt to answer the 'what if' questions (Bartholomew and Forbes, 1979:85):

(a) what will be the grade, age and length of service structure in future if the present patterns of loss and promotion continue?

(b) what should the promotion rates and recruitment numbers be in order to achieve a desired structure in a specified time?

(c) what will be the impact of expansion or contraction on the promotion prospects or the grade structure? What can be done to anticipate and minimize the adverse effects of such changes?

(d) what would be the 'ideal' age structure?

The Markov type models are based on the assumption that the transition rates are proportional to the stocks from which they come from. If a system does not change over a long period of time, it will settle into an equilibrium state. The main assumption here being that "individuals move independently and with identical probabilities which do not vary over time." In the Markov type of models, the change in the manpower system from time t to time $t+1$ depends on three factors: the stock at time t ; accession during time $t+1$; and the continuation rates of the stock of manpower at time t . The model can either be stochastic (treating all the variables as random) or deterministic (that is, given).

In matrix notation the basic equation of the Markov model can be denoted as follows:

$$\mathbf{N}(T) = \mathbf{N}(T-1)\mathbf{P} + \mathbf{R}(T)\mathbf{r} \quad (9.4)$$

where $\mathbf{N}(T)$ = the expected stock at time T ,

$\mathbf{N}(T-1)$ = expected vector of stocks at time $T-1$,

\mathbf{P} = expected matrix of transition probabilities between each pair of grades,

$\mathbf{R}(T)$ = the expected number of recruits in each grade,

\mathbf{r} = the expected vector of probabilities of a recruit starting off in each particular grade.

Since an individual employee can either choose to remain with the organization or leave, it follows that wastage rates can be deduced from the individual elements in the transition matrix \mathbf{P} ,

$$w_i = 1 - \sum_{j=1}^k p_{ij} \quad (9.5)$$

where w_i = wastage rates from the i^{th} grade,

p_{ij} = the transition rate from the i^{th} to the j^{th} grades,

k = total number of grades.

A computer programmes can be written to make computations with equation (9.4) easier and quicker.¹² Equation (9.4) can be used to study the behaviour of the manpower system under different assumptions. For purposes of illustration, consider the hypothetical manpower system given in table 9.2. For forecast periods 1 and 2, the calculations may be done as demonstrated. Where the number of grades is large and the forecasting period long, specialist computer programmes like those developed at the Institute of Manpower Studies (University of Sussex) may be used.¹³

By changing wastage, promotion, and retirement rates, their respective impact on the manpower structure can be studied. For example, the wastage rates and recruitment levels assumed in table 9.2 would lead to a decline in the proportion of the lowest grade (G1) with that of the higher grades increasing. This may lead to promotion bottlenecks in future and in the context of Clowes' model, increase k_3 (the rate at which committed and experienced employees leave the organization).

In practice, the manpower system is usually fixed through authorised establishments. However, certain aspects of the manpower system like age, grades and lengths of service distributions may vary. Under the globally fixed system, recruitment becomes a random variable and is made up of those recruited to fill new vacancies and those who replace leavers. For this reason, equation (9.4) will need to be modified. The expected value of recruitment $R(T)$ then becomes

¹²Professor D. J. Bartholomew kindly allowed me access to the Basic equation Programme installed on the VAX computer at the London School of Economics. It was not possible to use the programme with INDECO data which only show recruitment and wastage as transitions with no internal movements like promotions or transfers shown.

¹³Institute of Manpower Studies, Computer Applications for Manpower Planning, (Brighton: Institute of Manpower Studies, University of Sussex, 1987).

Table 9.2 A Hypothetical Example Using the Markov Model

Suppose there are four grades (G1, G2, G3, and G4) in a given company with the following basic data:

| Grade | G1 | G2 | G3 | G4 |
|--|-------|------|-------|-------|
| Current Stock | 280 | 200 | 140 | 80 |
| Annual Labour turnover rates (%) | 25.0 | 17.0 | 8.5 | 3.0 |
| Distribution of new recruits (%) | 70.0 | 20.0 | 10.0 | 0.0 |
| Proportion promoted to the next grade (% per annum) | 20.0 | 12.0 | 7.0 | 0.0 |
| Thus we have N(0) | 280 | 200 | 140 | 80 |
| P | 0.55 | 0.20 | 0.0 | 0.0 |
| | 0.0 | 0.71 | 0.12 | 0.0 |
| | 0.0 | 0.0 | 0.845 | 0.07 |
| | 0.0 | 0.0 | 0.0 | 0.97 |
| r | (0.7 | 0.2 | 0.1 | 0.0) |

Suppose recruitment (R1) is going to be 120 in the first year and 140 (R2) during the second year.

For the first year

The number in grade G1 will be:

New recruits into grade: $0.7 \times 120 = 84$
 Neither leave nor promoted: $0.55 \times 280 = 154$
238

The number in grade G2:

New recruits into grade: $0.2 \times 120 = 24$
 Promotion from G1: $0.2 \times 280 = 56$
 Neither leave nor promoted: $0.71 \times 200 = 142$
222

The number in Grade G3:

New recruits: $0.1 \times 120 = 12$
 Promotion from G2: $0.12 \times 200 = 24$
 Neither leave nor promoted: $0.845 \times 140 = 118$
154

The number in Grade G4:

Promotion from G3: $0.07 \times 140 = 10$
 Those who do not leave: $0.97 \times 80 = 78$
88

For year 2, the figures for year 1 and the recruitment stock R2 can be used to arrive at the estimates. Thus the structure of the manpower system will have changed as follows,

| | | | | | <u>TOTAL</u> |
|------|-------------|-------------|-------------|------------|--------------|
| N(0) | 280 (40.0%) | 200 (28.6%) | 140 (20.0%) | 80 (11.4%) | 700 |
| N(1) | 238 (34.0%) | 222 (31.6%) | 154 (21.9%) | 88 (12.5%) | 702 |
| N(2) | 229 (31.4%) | 233 (31.9%) | 171 (23.5%) | 96 (13.2%) | 729 |

$$R(T) = N(T) - N(T-1) + \sum_{i=1}^k \hat{n}_i(T-1)w_i \quad (9.6)$$

The term $N(T) - N(T-1)$ may be negative provided $R(T)$ is positive. If $N(T) - N(T-1)$ is positive, the fixed size may only become feasible through retrenchment (that is, negative recruitment).

Substituting equation (9.6) into (9.4) we get

$$N(T) = N(T-1)\{P + w'r\} + M(T)r \quad (9.7)$$

where $M(T) = N(T) - N(T-1)$

$N(T-1)P$ = normal internal movements;

$N(T-1)w'r$ = recruits who replace leavers;

$M(T)r$ = recruits filling new or created vacancies (and if it is equal to zero, then we have a constant size system).

If we write $Q = P + w'r$, equation (9.7) will have the same form as equation (9.4) with Q as the "transition matrix whose typical element is $p_{ij} + w_i r_j$." Thus p_{ij} is the real direct flow (transition) from grade i to grade j , and $w_i r_j$ is the indirect flow made up of that part of the wastage flow from the i^{th} grade which goes back to the j^{th} grade as recruitment.

In these type of Markov models, transition between grades are regarded as 'push' flows. That is, promotion to the higher grade does not depend on vacancies there but on having suitable candidates in the lower grade. For example, a group of graduate engineers who are recruited as trainee engineers may all be promoted to the next higher grade at the end of their internal training period. But since some positions like those of general manager, chief accountant etc. are fixed in advance, promotions and recruitment into such posts can only be done as and when they fall vacant. Thus promotion would be due to

'pull' and not 'push' factors. The type of models which deal with this kind of problem are referred to as renewal models.

(b) Renewal (Vacancy Chain) Models

Under renewal models, the grade sizes (stocks) are fixed and the main objective is to predict flows like wastage which would create vacancies. The vacancies so created would either have to be filled through internal promotion or external recruitment. Depending on whether the system is hierarchical or non-hierarchical, assumptions can be made as to whether vacancies are filled instantaneously (from the immediate lower grade) or not. In practice, organizations which are contracting like INDECO may choose to freeze some vacancies, thereby making recruitment or promotion unnecessary. If a vacancy occurs at the top grade and the vacancy is filled through promotions, a series of vacancies will be created at subsequent lower grades. This is the central idea in the vacancy chain models. When an employee leaves one position for another in renewal system, a vacancy moves in the opposite direction (White, 1970; Stewman, 1975). Hence "a loss can be viewed as the recruitment of a vacancy and the recruitment of a person is a loss of a vacancy" (Bartholomew and Forbes, 1979:142). A vacancy transition matrix S , can therefore be written for any renewal manpower system--see appendix VIIB for the mathematical specification of the model and a worked example. These models are sometimes called KENT models because the computer programmes based on the renewal theory were initially written at the University of Kent at Canterbury by Forbes in 1974.

(c) Career Patterns (Cambridge) Models

Both the Markov and the KENT models concentrate on predicting the

stocks and flows of a graded manpower system--both of which are of little interest to individual employees. In addition, the KENT models require a lot of detailed data on the flows between the different grades, which is not commonly available in many companies (Edwards, 1983:73). The Cambridge models¹⁴ were developed to redress these deficiencies. These models centre on analysing and predicting the career patterns and promotion probabilities of employees both at present and in the future by studying their age and/or length-of-service distributions. Thus, the model tries to predict, the probabilities of individual employees' promotions from one grade to another, and how long it will take each individual to make such a movement.

For an individual who decides to stay in an organization until retirement, there are three possible outcomes: (i) the individual will retire in the same grade of entrance; (ii) be promoted but not reach the top grade; and (iii) reach the top grade. If the promotion age and/or required length-of-service before promotion is given, the probability of an individual being promoted to higher grades can thus be calculated. For the mathematical specification of the model¹⁵ and a worked example, see appendix VIIC.

9.4.3 TRAINING AND DEVELOPMENT

As training and development is mainly taken to mean manpower

¹⁴A detailed discussion of these models can be found in G. A. Keenay, R. W. Morgan and R. H. Ray, "The Camel model: a model for career planning in a hierarchy", Personnel Review, 6, 1977, pp. 43-50; Keenay and Morgan, "A model for Recruitment Planning in a Company", Personnel Review, 8, 1979, pp. 5-9; Ray, "Managerial Manpower Planning--a Systematic approach", Long Range Planning, 10, 1977, pp. 21-30.

¹⁵The model assumes a steady-state (constant) equilibrium age structure under which deviation will only be temporary. Morgan, et. al (1974) and Keenay, et. al (1977a, 1977b) who were instrumental in developing these models use the CAMERA diagrams to show the effect of increased recruitment (age buldges) on the equilibrium age structure and promotion patterns.

planning in many INDECO companies, we shall not go into a lot of detail here other than to point out a few issues which need particular attention from management.

Investment in training involves a high level of risks: there is the probability that the trainees will not achieve the necessary qualifications; and even if they did, there is no certainty that their skills so acquired will be needed in future. The problem is further complicated by the fact that there is a time lag between investing and realising the benefits from training. Despite these problems, it is recognised that qualified candidates would be a further input in the training process (Grinold, 1976:387). Grinold suggests that the demand for trained manpower at any time is determined by the state of the finite Markov chain (supply) and, on the other hand, by the utilization and training policy associated with that demand. The main problem however is that the level of the manpower stock is not an accurate representation of the available supply of qualified manpower to meet demand. This, Grinold (p. 391) argues, is due to the following reasons:

- (a) some individuals have not been adequately trained and therefore not qualified,

- (b) some of the qualified personnel may not be assigned to the tasks that require their qualifications, and

- (c) some of the individuals who are qualified may be used as inputs into the training process and therefore not available to meet demand.

The extent of these problems in the INDECO companies have been discussed in chapters V and VI. What this representation demonstrates is the need for managements to constantly monitor the skill positions of their respective companies. It may thus be necessary for INDECO companies to keep the following in mind when planning and implementing

training programmes:

(i) The purpose of training: is it initial training which would equip the individual employee with the basic skills necessary to perform his/her task? If not, is it continuation, retraining or management development? And what would be the best type of training (internal on-the-job or external formal) and the mode of instruction? Is the training going to meet both the requirements of the organization and of the individual employees? This is important because in the past, some INDECO companies have spent vast amounts of resources on training certain types of labour which were subsequently underutilized and/or misplaced. Under such conditions, the benefits from training for both the employer and the employee will be lost--especially if the latter decides to leave.

If the training is for management development, the main requirement is for candidates who are adept both academically and practically. For these reasons, management development should combine both academic and practical training. For example, candidates who are being trained for promotion to managerial position may be trained through a combination of secondments to large companies locally or abroad, and through a series of relevant short-term courses.

(ii) Types of training: given the rising cost of foreign training are there feasible local training solutions? For example, we have argued in chapter VI that local training is not popular with both employees and employers as it is viewed to be of low status. The question then is, what should be done to improve the image of local training to both employers and employees? If the main weakness of local training is the lack of facilities and places, what can INDECO companies as a Group do to improve the situation? Would it be possible

to follow ZCCM's practice of supporting specific types of training relevant to its own needs (operations)? If so, will the necessary resources be made available as and when they are needed?

With regard to low status accorded to on-the-job training, especially for workmen with no academic qualifications, to what extent would a change in government policy and attitudes of management improve the status? Under the existing pay structure and differentials, would it be possible to adjust the earnings of such workmen to the levels enjoyed by graduate craftsmen without causing industrial relations crises? Whereas external formal training may not always be specifically designed to cater for individual company skill needs, internal training may be the most effective way of improving availability of relevant skills in many INDECO companies.

(iii) Retention of trained personnel: the question which should exercise many an INDECO chief executive is how, under the constraints of the ZIMCO grading structure and conditions of service, manpower policies may be reviewed so as to improve the retention of trained personnel (we discuss this in some detail in the next section). Attention also ought to focus on the existing regulation whereby employees are automatically dismissed if they are absent for ten consecutive days without good reason. The author found out that some young accountants who were still bonded were trying to use this avenue to leave INDECO. At the risk of repeating oneself, this loophole may prove to be costly to many of the affected companies if it is implemented indiscriminately.

9.5 RECONCILING DEMAND WITH SUPPLY: POLICY OPTIONS AND IMPLICATIONS

After demand and supply have been analysed and estimated as above (United Kingdom, 1975:34), the extent of skill shortages, excess labour, or both, would become evident. Company objectives would make it possible to calculate a simplified manpower schedule for the forecast period which would show the manpower gap. Table 9.3 demonstrates how such a schedule can be calculated (note that the data used is hypothetical--purely for demonstrative purposes).

From schedules similar to table 9.3, the numbers of additional (excess) staff may be estimated. Since there are many ways of dealing with the identified manpower problems, it is incumbent upon management to design appropriate policy action taking into consideration both the internal and external environments. For example, the shortage for technicians between 1987 and 1989 may be resolved through external recruitment (if the labour market has the necessary skills), up-grading less skilled workers, or retraining other skilled workers. Alternatively, inquiries with the Bank of Zambia (central bank) may show that envisaged foreign exchange allocation for the forecast period may not be enough to meet the company's production requirements and as such, no additional technicians would be required. In the latter case, management would have to decide how to deal with the excess labour: leavers may not be replaced so that the required number is achieved through natural wastage and encouraging early retirement. If all these fail, extreme measures like redundancy may be considered.

It follows therefore that manpower supply (recruitment, promotion, transfers, and development) and demand (utilization) policies have to be formulated under specific perceived problems but with inbuilt

flexibility and adaptability to the changing circumstances. This is because demand and supply are never exactly equal, and as such, policies have to be under constant review.

Table 9.3 Forecasting Recruitment Needs for Technicians: 1987-1991

| | 1987 | 1988 | 1989 | 1990 | 1991 | TOTAL 1987-91 |
|--|------|------|------|------|------|------------------|
| S 1. Number available at beginning U of year | 90 | 87 | 75 | 60 | 60 | N/A |
| P 2. Intake from training schemes P during year | 8 | 11 | 15 | 18 | 22 | 74 |
| L 3. Transfers from other companies | 4 | 3 | - | - | - | 7 |
| Y 4. Losses through wastage during year: | | | | | | |
| Retirement (3% p.a.) | 3 | 3 | 2 | 2 | 2 | 12 |
| Early retirement (2% p.a.) | 2 | 2 | 1 | 1 | 1 | 7 |
| Discharges/Dismissals (5% p.a.) | 5 | 4 | 4 | 3 | 3 | 19 |
| Deaths (2% p.a.) | 2 | 2 | 2 | 1 | 1 | 8 |
| Voluntary (including new recruits, 8% p.a.) | 8 | 8 | 7 | 6 | 7 | 38 |
| Total | 23 | 22 | 18 | 15 | 16 | 94 |
| 5. Total Available (1+2+3-4) | 79 | 79 | 72 | 63 | 66 | N/A |
| D 6. Numbers Required at beg. of year | 90 | 87 | 75 | 60 | 60 | N/A |
| M 7. Additional requirements forecast A during year | 4 | 3 | 6 | 0 | 0 | 13 |
| N 8. Total required at end of D year(6+7) | 94 | 90 | 81 | 60 | 60 | N/A |
| 9. Additional number (excess labour) of tech'ns required/year (8-5) | 15 | 11 | 9 | (3) | (6) | 26 |

Source: Adapted from United Kingdom, Department of Employment,
Company Manpower Planning, Manpower papers No. 1,
 (London: Her Majesty's Stationery Office, 1975), p. 35.

Manpower policy has centred on supply (training) in many INDECO companies. This has been necessitated by the externally determined ZIMCO pay structure. Since the ZIMCO pay structure is bureaucratic and centralized, it is inflexible and not robust enough to meet the requirements of each and every subsidiary company. Of late, many in INDECO have been arguing to either abandon the ZIMCO pay structure altogether or reform it.

Under a bureaucratic and centralized administrative system, wage rates are fixed to occupational titles (jobs), and not to individual workers (Sundstrom, 1988). This is because top management (say at INDECO, ZIMCO or Cabinet Office) are less (or not) familiar with individual workers' performance, and that job based rates prevents paying different wages to individuals occupying the same job titles. Thus, the bureaucratic arrangements would inhibit marginal adjustments in pay to changes in individual marginal productivities.¹⁶ Such a pay structure is likely to be inflexible in the short-term and would rely on quantity adjustment to the changes in manpower demand (Sundstrom, p. 202). Such quantity adjustments like training take time, while instant disposal of manpower may also be impracticable due to employment protection legislation.

Many managers in INDECO believe that reforming or abolishing the ZIMCO Z salary scales and replacing them with competitive pay packages would help attract and retain the necessary skilled and professional labour. This view is based on the premise that a high proportion of recruitment difficulties and labour turnover among professional and skilled labour categories is due to the uncompetitiveness of the Z scales and other ZIMCO conditions of service. To the extent that the ZIMCO salary structure is external as opposed to being internal, this view may be justified. If the ZIMCO salary structure were to be abolished, how would individual subsidiary companies proceed to institute competitive and cost-effective internal wage structures? Is the new structure going to be based on the existing pay structure or on the market rates? These are important policy dilemmas, and in a labour

¹⁶For a discussion of these issues in a historical organizational context, see W. A. Sundstrom, "Organizational Failures and Wage Determination: A Historical Case Study", Journal of Economic Behaviour and Organization, 10, 1988, pp. 201-224.

market like that of Zambia, we demonstrate some of the difficulties which are likely to be faced.

It has been demonstrated¹⁷ that a centralized and bureaucratic pay structure in large organizations like ZIMCO may have been necessitated by a number of factors: top managements' unfamiliarity with individual workers' performance; trade union or government pressures; existence of internal labour markets whereby problems of opportunistic bargaining between employers and employees are aggravated by asymmetric information (haggling) and specific human capital; and to constrain supervisory choice--management at the subsidiary level may set wages to further their own interests and it is difficult to monitor these in a large organization--and once a pay increase has been awarded it is almost impossible to rescind the decision without running the risk of industrial crisis. Thus, wage determination at individual subsidiary companies may only succeed in excessive, but not necessarily justifiable, increase in wages and make the position of ZIMCO even more difficult--that is, its subsidiary companies having totally different pay structures.¹⁸

An internal wage structure (Hildebrand, 1963:263) is "...a system of wage equalities and wage differentials, typically, relative job rates and occasionally personal rates under a common unit of administrative control." Where there are no trade unions, Hildebrand argues

¹⁷O. E. Williamson, et. al, "Understanding the Employment Relation: The Analysis of Idiosyncratic exchange", Bell Journal of Economics, 6, 1975, pp. 250-278, cited by Sundstrom (p. 204) above.

¹⁸Gordon C. Winston, "The Appeal of Inappropriate Technologies: Self-Inflicted Wages, Ethnic Pride and Corruption", in World Development, vol. 7, 1979, pp. 835-845 makes this very clear in the context of Nigeria where large firms have tended to, voluntarily, pay higher than was necessary to the extent that cost-minimization was sacrificed for other goals. However, he found that the same employers would then reacted to such high voluntary wages in "strictly economic (neo-classical) ways", i.e., to substitute the expensive labour with labour-saving equipment or reduce working hours. Thus, where restraint is not exercised, it is possible to observe higher rates of wages associated with lower levels of employment.

that managements' internal pay policy would be limited by market forces and the statutory regulations. Where collective bargaining is prevalent, negotiation procedures may limit the authority of management in wage determination. The internal wage structure would thus be dependent on the combined effect of external forces and the range of internal administrative arrangements like centralized or decentralized wage determination. From the foregoing, it becomes obvious that many INDECO companies would face considerable difficulties with regard to the internal distribution of power, establishing the market wage rates, relativities and differentials between different individuals and occupational groups.

On the internal distribution of administrative power, the role of the INDECO Head Office in determining the internal wage structures of individual subsidiary companies will need to be clearly defined. With the same token, the role of ZIMCO and ultimately the Government will also need to be established. At issue is whether wage determination should be centralized so that INDECO Head Office determines the pay structure for each subsidiary companies (in consultation with the latter), or whether the latter should set their own pay structures and inform the former accordingly. If localized centralization is opted for (that is INDECO Group as opposed to ZIMCO Group pay structure), inflexibility would still obtain and as such, no significant benefits would be derived from abolishing the ZIMCO Z scales. If on the other hand decentralization is adopted and is successful, it will have implications on the existence of both ZIMCO and INDECO for it would demonstrate that individual parastatal companies can operate on their own without bureaucratic umbrella holding organizations.

With regard to market forces, it is generally accepted in the

economic literature that markets in underdeveloped countries are imperfect and distorted to the extent that they fail to correctly price the factors of production. Even in the industrialized developed countries, labour markets do not have single uniform rates for each type of labour nor do they grade labour (Dunlop, 1957; Hildebrand, 1963). It is argued, for example, (Hildebrand, p. 202) that decisions on pricing and grading of labour are determined in a wider context of "formulating production plans wherein the external product market and wage and employment decisions are linked together." If the market rates are distorted, the questions then become: which rates are the individual subsidiary companies going to take as market rates? And are the jobs to which those rates apply comparable to the company's own? Are the rates to be adopted those of the private local or multinational companies? In addition to these questions, there is also the need to establish as to why some of the private companies, which apparently have superior pay packages, suffer from labour turnover--that is what other non wage factors are important in improving workers' morale and thereby increase labour stability.

The definition of the labour market will also pose some problems both in terms of the geographical areas and the participants (Elizur, 1987:193-194; and Thomas and Deaton, 1977). The geographical boundaries of the labour market may vary according to occupation and skill categories. For example, general workers may be recruited in the locality, while engineers or accountants may be recruited nationally or even internationally. On participants, while every employer is a potential buyer of labour services and every person of the working age a potential seller, it has got to be recognized that "organizations do not open all their jobs, they only fill vacancies. People who are

employed do not search continuously for another job. Still some of them may search for another position. Thus it is difficult to determine who are participants in the labour market" (Elizur, p. 194).

Another set of problems in individual company based wage determination is the issue of wage relativities and differentials. While job evaluation helps in wage determination by ordering jobs, the problem of pricing the differences in the ranks remains. Two methods (Elizur, p. 196) are usually used to resolve this problem: key jobs, and regression. The key jobs method determines the price for each rank of job evaluation items through committee procedure--the committee members would try to allocate the existing pay for key jobs to each of the items.

With regression, the evaluation scores for all jobs are regressed on their market rates. Both methods try to reflect the job evaluation ordering. However, since they both depend on the existing pay or market rates, Elizur argues that they may fail to "uproot the very inequalities they want to rectify." The jobs which were under-paid in the old system may continue to do so in the new one. More importantly, workers who were on a higher scale previously may not accept lower ones under the new system, and the consequence of this on industrial relations is obvious.

It is likely that the new internal wage structures would be graded (that is, made up of a set of salary rate ranges). If job evaluation in a graded structure is based on job description, any such job description which applies to a job series and not specific jobs may result in industrial relations crises. For example, the recent crises in the National Health Service with regard to the grading of the different types of the nurses were necessitated by the fact that while

the job description was similar for auxilliary, state and registered nurses (job series), they were put into different grades and salary rate ranges. Some nurses felt that the whole exercise was arbitrary as junior or equivalents were placed in higher grades. Those who felt strongly about this expressed their dissatisfaction either by resigning or by disrupting services. Practically, it may be difficult or very expensive to write a job description for each specific job in a job series and, as such, scale analysis may be used to rank jobs in a series into grades.¹⁹

One might argue that abolishing the ZIMCO Z scales may not be necessary if, for example, special grade schemes for professional groups for local labour are introduced--as is the current practice with expatriate labour. Both ZIMCO and INDECO should consider extending the payment of inducement allowances to local professionals in engineering and accountancy where recruitment and retention problems are experienced. Alternatively, individual subsidiary companies should be allowed to exercise their ability to pay in wage determination, using the ZIMCO Z scales as the benchmark. These arguments are based on the premise that adoption of a decentralized and, probably, a competitive pay policy may have a limit. Up to a certain point, increases in the pay for shortage occupations may only lead to increased costs and not necessarily improve the supply of such skills. Moreover, if pay rates are bid excessively, there is no guarantee that after the shortage problem is over, companies would be able to reduce them. It is an economic fact that money wages are, usually, invariably inflexible downwards (Keynes, 1936; Robinson, 1986).

¹⁹For a detailed discussion of this method see D. Elizur, Systematic Job Evaluation and Comparable Worth, (Aldershot: Gower, 1987), chs. 11 and 12.

On the whole, and in the light of the above discussion, it would be advisable to do a cost-benefit analysis before a new pay structure is introduced in the INDECO Group. That is, what should be the optimal price (demand) and quantity (supply) adjustment mechanisms for both the current and potential manpower problems? Would a general review of pay and other conditions of services reduce the costs associated with labour shortages and turnover? What would be cheaper in the long-run: continue to rely on quantity adjustments (training and retrenchment), or improved remuneration packages which would improve labour retention and thus reduce the need for high expenditure on training.

9.6 CONCLUSION

We have demonstrated in this chapter that the successful implementation of manpower planning would depend on the availability of reasonable quality and detailed data. Without such data, the diagnostic analysis of the manpower system will not be possible and in which case, making informed manpower planning decisions an impossibility. Adequate data would also enable many INDECO companies to review and clarify their manpower objectives and the weaknesses of the current approaches to manpower planning. Such a review should be carried out in its widest context possible so as to enable management to determine both the internal and external consequences of their manpower policies. It has however got to be resolved as to whether to plan manpower at the Group or subsidiary company level. In this chapter, we saw that given the differences in jobs and nature of activities of the different INDECO subsidiaries, it may be advisable to concentrate demand forecasting and planning at the subsidiary company

level, and supply at the Group level. But the limited supply of manpower planning specialists would imply that it may be cheaper if it is centralized and individual companies are consulted in the formulation of policies and practices which affect them directly.

Since uncertainty about the availability of foreign exchange continue to bedevil many INDECO companies, forecasting demand using the trend and productivity methods, by themselves, would not be suitable--more so in that the current employment policy is contractional. The work study method of forecasting workloads, which can also suffer from production level uncertainties, may be the best method for many INDECO companies as it also enhances the understanding of the production process.

Depending on the availability of data, the analysis and prediction of wastage can be done using the census method. We have demonstrated, this method may be the best for INDECO as historical data is not usually available, and where available it does not go back far enough to make cohort analysis possible. But even if the historical data were available, the fact that the cohort method has both practical and theoretical problems makes its applicability in INDECO less attractive.

Our attempt to apply the basic equation of the Markov model to data from quarterly manpower reports of some INDECO subsidiary companies proved impossible because the data is highly aggregated. By use of hypothetical data, we however demonstrated the importance of Markov, renewal and career planning models in manpower planning. Where data is fairly detailed and disaggregated, these models (by varying the assumptions of future objectives and activities) can be applied and thus help management to, at least, know the likely direction of the problem even if the estimates themselves are not very accurate.

While it is recognised that the present ZIMCO pay structure is inflexible because it is centralized and bureaucratic, the adoption of a new pay structure, whether subsidiary company based or locally centralized (that is, INDECO Group based), may pose both theoretical and practical problems--especially in the context of Zambia's socio-economic conditions. We have pointed out that although the ZIMCO Z scales would need to be reviewed so as to attract and retain the critical skill categories, high pay in itself may not be enough as there is a limit to which it can solve the skill shortages problem. From the managements' point of view, to have the authority to determine both the supply and demand policies would enhance the benefits to be had from manpower planning as there is little point in increasing manpower training and development when such manpower cannot be retained because managements' hand in reviewing the compensation packages are tied by the central authority. This notwithstanding, there are other (equally important) considerations which justify the existence of centralized and bureaucratic pay structures in organizations which are very large and which have internal labour markets.

All said, this chapter has explored some of the existing statistical and qualitative approaches to manpower planning and qualified their applicability in the INDECO Group of companies. Of the various methods discussed, what comes out is the need to retrain many personnel managers and practitioners who are responsible for manpower planning in these techniques for without understanding the underlying concepts of these models, their application to the INDECO manpower problems would not be possible. The data required for manpower planning can be had if the suggestions put forward in this chapter are

followed or improved upon. It is therefore possible to have realistic manpower planning in the INDECO Group of companies.

CHAPTER X

SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

This study was mainly concerned with interpreting empirical evidence, both from the survey and other sources, of skilled labour shortages in a parastatal conglomerate operating in an underdeveloped economy: Zambia. The main objective was to study the extent of such manpower shortages both at the enterprise and subsidiary company level, their causes and effects, and the choice of adjustment policy responses, especially manpower planning. Evidence considered in this study shows that there is a real shortage of skilled manpower in the Zambian labour market (as exemplified by recruitment difficulties and skill deficiencies within individual firms), both in relative and absolute terms. This is especially so in professional engineering, accounting and managerial occupational groups. The study has also demonstrated that formidable problems of skill deficiency continue to exist among those employees directly engaged in the production processes.

At the national level, we presented evidence which suggests that although the problems of skilled manpower can be traced back to the colonial educational and labour policies (which discriminated against Africans), the problems were further aggravated in the post-independence period by the effects of the UDI, the increased industrial activity which relied on imported capital- and skill- intensive technologies, an educational system which is neither coordinated nor responsive to the needs of the local labour market, and in recent

years, a stagnating economy which makes the provision of adequate training facilities very difficult, if not impossible.

At the micro-level in general and in INDECO companies in particular, such dynamic skilled manpower shortages in the labour market translate into recruitment difficulties, high labour turnover for the shortage occupations (due to high demand) and skill deficiency problems. As a consequence, many organizations had to resort to recruitment of expatriates.

In addition to the inelastic supply of high-level manpower, we also identified some organizational, managerial, and institutional problems both within and outside INDECO which make attraction and retention of the necessary skilled manpower difficult. Among other things, the relatively inflexible and uncompetitive bureaucratic and centralized pay structure; the under-valuing of more skilled labour in relation to the less skilled labour (both of which are due to the government's egalitarian pay policies); the poor status accorded on-the-job training in relation to formal external training (or local training in general in relation to foreign training); poor manpower utilization policies like insisting on either unrealistic higher standards or misplacing manpower, etc., were identified as some of the major factors. Due to such institutional factors, the cost-minimizing model suggested by Thomas and Deaton (1977), and applied to Britain, was also found to be less applicable in Zambia. This is especially true with regard to on-the-job training and local training which are underrated when compared to the more expensive foreign training. We however concluded that due to constraints on the demand side, INDECO companies, like elsewhere, prefer supply to demand instruments when adjusting to labour shortages. This has been necessitated, in addition to the externally determined

bureaucratic ZIMCO pay structure, by the fact that increasing relative earnings for shortage occupations would raise the whole pay structure for other labour categories where shortages are not experienced would also have to receive some forms of wage increases so as to avoid industrial relations crises.

If labour, and skilled manpower in particular, is one of the most critical factor in determining the economic growth of any nation, evidence from Zambia considered in this thesis suggests that where a severe shortage of indigenous skilled manpower exist, achieving self-sustaining economic growth and, thereby, development may be very difficult. In Zambia, we have demonstrated (both quantitatively and qualitatively) that the lack of local technical 'know-how' has forced many a company to think in terms of recruiting expatriate personnel to run the imported technologies. These, however, do not come in on the cheap both in terms of foreign exchange and in terms of their (expatriate) effects on the economic structure and potential for future growth, consumption habits, and aspirations of the local population. That is, in ways which are more subtle than is usually assumed in the economic literature dependence on expatriate manpower may have distortion effects on the economic structure, especially if such expatriates occupy key decision-making positions, and thereby affect the potential for self-sustaining economic growth.

In the wake of inherent skilled manpower shortages, we would have expected many companies in the INDECO Group to have adopted some form of manpower forecasting and planning. This, however, does not seem to have been the case as many continue to view manpower planning as being synonymous with training and development. We attributed such a state of affairs to the effects of the government's indigenization policies

which encourage companies to increase their training; and to the simple fact that since manpower training and development also involves diagnosing, projecting, resourcing and planning, it may easily be confused with manpower planning--this is especially true where manpower skills are in short supply on a wider scale. On the other hand, there seems to be little reason as to why the manpower planning perspective should be wide for, as we have shown, the compensation policies are bureaucratic and inflexible and this, for planning and managing a resource which can be impulsive and which changes with business outlook, may be an impediment. Training has also existed for a very long time while the comprehensive approach advocated in many manpower planning models is a very recent phenomenon.

An adjustment instrument like training which only affects one side of the shortage equation would have limited success unless the affected companies have some influence on the demand and other policies which influence the utilization of manpower. We argued also that even if the companies had power to effect both supply and demand adjustment instruments, the lack of readily available and fairly accurate and detailed manpower data would make the implementation of manpower planning difficult. The main prerequisite for any planning to be successful is to have an adequate information system which would make informed decision-making possible.

While we were able to identify the constraints imposed by the ZIMCO pay structure on attracting and retaining the skilled manpower in the shortage occupations, we were also hesitant to suggest a very flexible and decentralized pay policy for we recognised both the theoretical and practical problems associated with this latter approach.

Where the source of skilled manpower shortages is an inelastic

supply situation, we suggested that raising the wage rates, on its own, may not improve the supply in the short-run as the latter adjusts with considerable time-lags. More likely, it could lead to counter biddings and consequently to wage inflation and if it gets to this both employees and employers would lose out. This is especially true in Zambia where nominal wage increases have never restored real wages ever since the 1970s, and where the market system has failed to correctly price the factors of production. Under such conditions allowing individual subsidiary companies to determine their own pay structures may encourage huge pay increases which could neither be justified in terms of the reservation wage necessary for recruiting labour and the retention wage necessary to keep the labour so recruited. That is, employers may voluntarily choose to pay higher wages and then react to such higher labour costs by reducing the demand for labour (Winston, 1979). As we have shown, where management skills are deficient, pay policy may be relied upon as the motivating factor and in a skill tight labour market, this would tend to shift the pay structure for the whole industry or economy upwards.

We suggested instead that a combination of limited autonomy in wage determination at the subsidiary level and the adoption of rational manpower utilization policies which increasingly used both job and performance appraisal would be the best starting point. This would also have the added advantage of identifying the skill requirements of both the jobs in question and the incumbents (and therefrom, the skill deficiency and training needs). This, especially, appeals as it has the added advantage of modifying the ZIMCO bureaucratic pay structure for it allows management at subsidiary companies to have information on the performance of incumbents in certain jobs. Knowledge of such

performance may permit the use of merit pay or, more generally, an extension of the professional (or inducement) allowances--similar to those currently paid to expatriates--to local professional and skilled manpower. Short of adopting these measures, we have no reason to suppose that increased training and development would, by itself, be enough to reduce the incidence of skilled manpower shortages, especially in the engineering and accountancy professions.

While problems on the demand side justify increased use of supply adjustments, manpower planning would be less successful if management in a given company can only act on one aspect of manpower shortages without the ability to affect the other side. As such, achieving a balanced response and improving the retention of labour would be made all the more difficult. It is precisely because of this that we suggested some policy responses to manpower planning in the INDECO Group. We therefore considered, in chapter IX, the applicability of some of the existing manpower planning models to INDECO companies. We raised important policy dilemmas which have to be resolved and the need for a review of the current manpower planning approaches. We however conceded that such a review would be limited by the poor manpower information systems which obtain both at INDECO Central and at many subsidiary companies. We suggested that it may be possible to achieve marginal improvement in the management of human resources if INDECO companies first seek to diagnose the nature and extent of the problems at hand--even if government policy towards INDECO does not significantly change.

We also suggested that serious thought should be given to making training more oriented to the needs of the company and not, mainly, to the individual employee. In this regard, we wondered as to why INDECO

companies do not review the status of on-the-job training in relation to external training, and that of local training in relation to foreign training. We based our argument on the premise that a trade-off exists between internal and external training in the formation of skills. For this reason, companies should seek to establish contacts with the local tertiary educational system for that would improve the responsiveness of the latter to the needs of the former and as such, it would be the employers themselves who stand to benefit most from such formalised contacts.

To the extent that supply (quantity) and not demand (price), are the major adjustment instruments to labour shortages and that costs do not play a major role in the choice of such instruments, the predictions of the conventional labour market theory do not seem to be very applicable in an underdeveloped economy such as Zambia. Instead, institutional, social and political considerations seem to supersede the price mechanism in the adjustment process. In the final analysis, the predominance of the institutional factors perpetuate a distorted market system which makes it fail to reveal the opportunity costs of the various factors of production.

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APPENDIX I

Table A1.1: INDECO GROUP: PRODUCTION STATISTICS, 1982-85.

| Subsidiary Coy | Main Products | Units | 1982 | 1983 | 1984 | Percentage Changes | | | |
|--------------------|------------------------|---------------|--------|--------|--------|--------------------|--------|--------|--------|
| | | | | | | 1985 | 82/83 | 83/84 | 84/85 |
| Milling Coys(1) | Maize meal | Tonnes | 221123 | 229599 | 223721 | 232605 | 3.83 | -2.56 | 3.97 |
| National Milling | Wheat Flour | Tonnes | 89876 | 88966 | 80198 | 57394 | -1.01 | -9.86 | -28.43 |
| Indeco/National | Stockfeeds | Tonnes | 87509 | 92329 | 81569 | 61921 | 5.51 | -11.65 | -24.09 |
| Supa Baking | Bread | Ten(1000) | 3945 | 2992 | 3354 | 3912 | -24.16 | 12.10 | 16.64 |
| | Buns | Thousands | 4571 | 4301 | 4528 | 4010 | -5.91 | 5.28 | -11.44 |
| Nitrogen Chemicals | Ammon. Nitrate | Tonnes | 12198 | 25326 | 18389 | 8770 | 107.62 | -27.39 | -52.31 |
| | Comp Fertilizer | Tonnes | 0 | 46066 | 60520 | 61729 | 0.00 | 31.38 | 2.00 |
| | Expl nitrate | Tonnes | 21246 | 22977 | 15841 | 19071 | 8.15 | -31.06 | 20.39 |
| Kafironda | NG explosives | Tonnes | 12257 | 12237 | 11384 | 12959 | -0.16 | -6.97 | 13.84 |
| | Anfex | Tonnes | 14088 | 13254 | 11180 | 11406 | -5.79 | -15.65 | 2.02 |
| | Capped fuses | Thousands | 7484 | 6850 | 5206 | 7215 | -8.47 | -24.00 | 38.59 |
| GPL | I. fluids | Bags(1000) | 893 | 649 | 683 | 693 | -27.32 | 5.24 | 1.46 |
| Zambia Breweries | Lager beer | Hlit(1000) | 1101 | 1099 | 880 | 746 | -0.18 | -19.93 | -15.23 |
| National Breweries | Opaque beer | Hlit(1000) | 2209 | 2169 | 2245 | 2290 | -1.81 | 3.50 | 2.00 |
| Kabwe Fabrics | Poly bags | Thousands | 11242 | 9920 | 10724 | 13146 | -11.76 | 8.10 | 22.58 |
| Kapiri Glass | Glass | Tonnes | 11316 | 14797 | 12648 | 11538 | 30.76 | -14.52 | -8.78 |
| Norgroup Plastics | Beer Crates | Thousands | 1592 | 2402 | 1874 | 2092 | 50.88 | -21.98 | 11.63 |
| Mansa Batteries | Batteries | Thousands | 9174 | 12484 | 12839 | 11390 | 36.08 | 2.84 | -11.29 |
| Rucom Industries | Coffee | Kgs | 40526 | 64204 | 75680 | 0 | 58.43 | 17.87 | 0.00 |
| | Canned fruits | Cases | 11423 | 12978 | 12191 | 11275 | 13.61 | -6.06 | -7.51 |
| ZAMOX | Oxygen | Cu M(1000) | 1667 | 1627 | 1472 | 1563 | -2.40 | -9.53 | 6.18 |
| | Acetylene | Cu M(1000) | 262 | 251 | 242 | 249 | -4.20 | -3.59 | 2.89 |
| ZAMEFA | Copper rods | Tonnes | 738 | 744 | 2231 | 4437 | 0.81 | 199.87 | 98.88 |
| | Cables | Tonnes | 903 | 887 | 796 | 1059 | -1.77 | -10.26 | 33.04 |
| | Other Cu products | Tonnes | 250 | 180 | 184 | 276 | -28.00 | 2.22 | 50.00 |
| ROP(1975) | Edible oils | Tonnes | 12933 | 18787 | 20576 | 17091 | 45.26 | 9.52 | -16.94 |
| | Soaps/detergents | Tonnes | 8974 | 8406 | 10725 | 12420 | -6.33 | 27.59 | 15.80 |
| | Oil seed cakes/hulls | Tonnes | 10421 | 14718 | 13123 | 14796 | 41.23 | -10.84 | 12.75 |
| | Toothpaste/Shampoo | Tonnes | 63 | 70 | 33 | 38 | 11.11 | -52.86 | 15.15 |
| Zambia Sugar | Refined Sugar | Tonnes | 95144 | 95159 | 99680 | 101693 | 0.02 | 4.75 | 2.02 |
| LMA | Fiats | Nos | 263 | 491 | 313 | 299 | 86.69 | -36.25 | -4.47 |
| | Other vehicles | Nos | 0 | 468 | 585 | 421 | 0.00 | 25.00 | -28.03 |
| CTS | Tyre retreads | Thousands | 31 | 31 | 36 | 37 | 0.00 | 16.13 | 2.78 |
| Kafue Textiles | Textiles | Metres(1000) | 13918 | 13222 | 12746 | 16283 | -5.00 | -3.60 | 27.75 |
| ZSBS | Blockboards/plywood | Sheets(1000) | 93 | 81 | 81 | 50 | -12.90 | 0.00 | -38.27 |
| | Doors | Thousands | 62 | 77 | 34 | 24 | 24.19 | -55.84 | -29.41 |
| | Parquet tiles | Boxes(1000) | 8 | 18 | 14 | 57 | 125.00 | -22.22 | 307.14 |
| Zambezi Sawmills | Railway sleepers | Cu M | 1435 | 1015 | 1117 | 1089 | -29.27 | 10.05 | -2.51 |
| | Mining sleepers | Cu M | 1376 | 470 | 408 | 159 | -65.84 | -13.19 | -61.03 |
| | Sawn timber | Cu M | 2659 | 1855 | 4473 | 3558 | -30.24 | 141.13 | -20.46 |
| Chilanga Cement | Cement | Tonnes(1000) | 316 | 306 | 291 | 289 | -3.16 | -4.90 | -0.69 |
| Crushed Stones | Stone products | Tonnes(1000) | 122 | 126 | 124 | 124 | 3.28 | -1.59 | 0.00 |
| | Lime/Lime products | Tonnes(1000) | 17 | 10 | 10 | 17 | -41.18 | 0.00 | 70.00 |
| Luangwa Industries | Bicycles | Nos | 0 | 18332 | 35131 | 23593 | 0.00 | 91.64 | -32.84 |
| Lusaka Engineering | Buses | Nos | 44 | 17 | 17 | 0 | -61.36 | 0.00 | -1.62 |
| | Trailers | Nos | 393 | 523 | 493 | 337 | 33.08 | -5.74 | -31.64 |
| | Nails | Bags(1000) | 6 | 8 | 13 | 12 | 33.33 | 62.50 | -7.69 |
| | Flyscreens | Thousands | 19 | 17 | 17 | 8 | -10.53 | 0.00 | -52.94 |
| | Conduits | Bundles(1000) | 2 | 5 | 6 | 6 | 150.00 | 20.00 | 0.00 |
| | Furniture | Thousands | 13 | 4 | 15 | 19 | -69.23 | 275.00 | 26.67 |
| Lenco & Monarch | Window/door frames | Thousands | 152 | 141 | 150 | 86 | -7.24 | 6.38 | -42.67 |
| Monarch | Electric water heaters | Nos | 3541 | 4186 | 3456 | 2670 | 18.22 | -17.44 | -22.74 |
| | Galvanised holloware | Thousands | 66 | 65 | 58 | 44 | -1.52 | -10.77 | -24.14 |
| | Welded wire products | Rolls(1000) | 19 | 19 | 8 | 38 | 0.00 | -57.89 | 375.00 |
| | Wheel barrows | Thousands | 5 | 4 | 5 | 5 | -20.00 | 25.00 | 0.00 |
| | Cans | Thousands | 935 | 1083 | 1208 | 582 | 15.83 | 11.54 | -51.82 |

NB: (1) Includes National, Indeco, Choma and United Milling Companies
Source: INDECO Annual Reports, 1982-1986

Table A1.2 Estimated Investment in the Manufacturing Sector During the Fourth National Development Plan--1989 to 1993

| Programme/Project | Project Cost (K'000) | | | % Foreign |
|---|----------------------|---------|--------|-----------|
| | Local | Foreign | Total | |
| <u>Priority A--Rehabilitation</u> | | | | |
| Intravenous Fluids Plant--GPL ^a | 1345 | 2294 | 3639 | 63.04 |
| General Pharmaceutical Ltd ^a | 2335 | 1000 | 3335 | 30.0 |
| Crushed Stones Sales Ltd ^a | - | 6560 | 6560 | 100.0 |
| Zambezi Sawmills ^a | 2572 | 20386 | 22958 | 88.8 |
| Ndola Maize Mill--Indeco Milling ^a | 2678 | 27107 | 29780 | 91.0 |
| Stockfeed--Indeco Milling ^a | 5539 | 9461 | 15000 | 63.1 |
| Livingstone Maize Mill--NMC ^a | 3551 | 16935 | 20486 | 82.7 |
| Supa baking Company ^a | 9661 | 6186 | 15847 | 39.0 |
| Premium Oils Ltd | - | 1136 | 1136 | 100.0 |
| Rubber Factory and Earthmover Tyre Retreading--CTS ^a | 6663 | 5828 | 12491 | 46.7 |
| Polypropylene Plant--KIF ^a | - | 13500 | 13500 | 100.0 |
| Chilanga Cement--Quarry Crusher ^a | - | 6329 | 6329 | 100.0 |
| Kalulushi Brickworks | 16298 | 27786 | 44084 | 63.0 |
| <u>Priority B--New and Expansion</u> | | | | |
| ROP--Glycerine Recovery Plant ^a | 7608 | 7915 | 15523 | 51.0 |
| Mongu Maize Mill ^a | 2000 | 6000 | 8000 | 75.0 |
| Mwinilunga Cannery ^a | 1780 | 2772 | 4506 | 61.5 |
| Norgroup Plastics ^a | 400 | 14474 | 14874 | 97.3 |
| Premium Oils Ltd | - | 16199 | 16199 | 100.0 |
| Chilanga Cement ^a | 7500 | 47265 | 54765 | 86.3 |
| Drug Manufacturing--GPL ^a | 2507 | 2845 | 5352 | 53.1 |
| Marble Processing | 8263 | 9889 | 18152 | 54.4 |
| Steel Re-rolling Mill | 103900 | 225940 | 324840 | 69.6 |
| Irrigation Equipment | 1671 | 7747 | 9418 | 82.3 |
| Electric Motors and Transformers | 6850 | 15200 | 22050 | 68.9 |
| Leather Tannery Processing | 24264 | 72824 | 97088 | 75.0 |
| Zamefa--Telephone Cable ^a | 8317 | 1155 | 9472 | 12.3 |
| Malting Plant ^a | 139400 | 219768 | 359168 | 61.2 |
| Centralised Engineering Workshop | 10000 | - | 10000 | 0.0 |

Note: ^a are INDECO subsidiary companies

Source: Republic of Zambia, National Commission for Development Planning, Economic Recovery Programme: Fourth National Development Plan, 1989--1993, vol. II, (Lusaka: Government Printers, 1989), p. 529

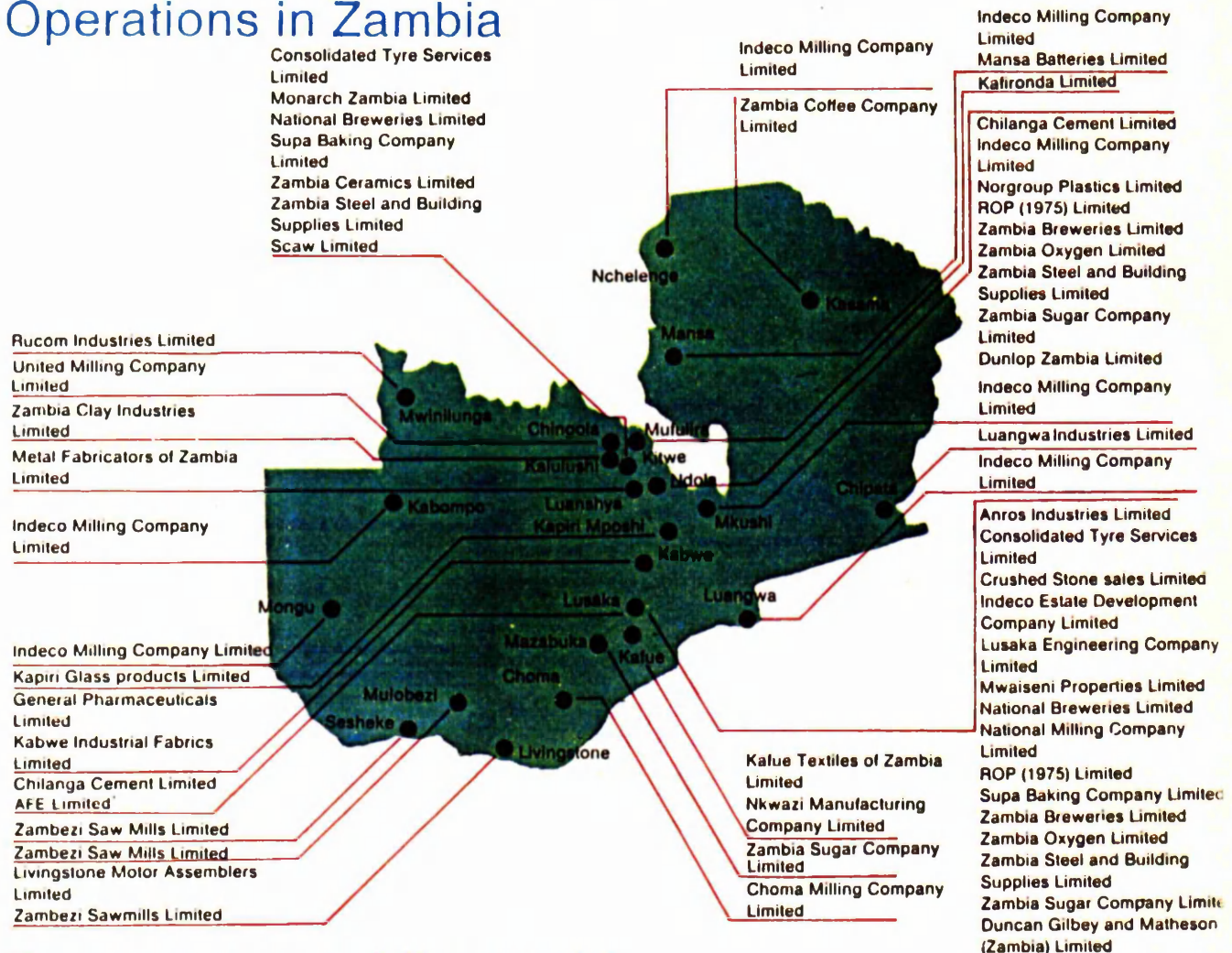
Table A1.3 INDECO Limited, Principal Subsidiary and Associate Companies--1985/86.

| <u>Principal Subsidiary Companies:</u> | <u>INDECO % Share</u> | <u>Comments</u> |
|--|-----------------------|---------------------------|
| AFE Limited | 98 | |
| Anros Industries Limited | 80 | Managed by INDECO |
| Chilanga Cement Limited | 60 | |
| Choma Milling Company Limited | 100 | |
| Consolidated Tyre Services Limited | 100 | |
| Crushed Stone Sales Limited | 100 | |
| General pharmaceuticals Limited | 100 | |
| Indeco Milling Limited | 100 | |
| Indeco Estate Development Company limited | 100 | |
| Indeco Properties Limited | 100 | In voluntary liquidation |
| Kabwe Industrial Fabrics Limited | 100 | |
| Kafironda Limited | 54 | |
| Kafue Textiles of Zambia Limited | 55 | |
| Kapiri Glass Products Limited | 89 | |
| Livingstone Motor Assemblers Limited | 70 | |
| Luangwa Industries Limited | 100 | |
| Lusaka Engineering Company Limited | 60 | |
| Mansa Batteries Limited | 100 | |
| Metal Fabricators of Zambia Limited | 51 | |
| Monarch Zambia Limited | 100 | |
| Motor Parts Distributors Limited | 100 | In voluntary liquidation |
| Mwaiseni Properties Limited | 100 | " |
| National Breweries Limited | 51 | |
| National Drum and Can Company Limited | 51 | |
| National Milling Company Limited | 51 | |
| Norgroup Plastics Limited | 100 | |
| Paultry Development Company Limited | 100 | Managed by ZAPP |
| ROP (1975) Limited | 100 | |
| Rucom Industries Limited | 100 | |
| Supa Baking Company Limited | 100 | |
| United Milling Company Limited | 100 | |
| Zambezi Saw Mills (1968) Limited | 100 | Managed by ZSBS |
| Zambia Breweries Limited | 55 | |
| Zambia Ceramics Limited | 100 | |
| Zambia Clay Industries Limited | 100 | Undergoing rehabilitation |
| Zambia Coffee Company Limited | 100 | |
| Zambia Oxygen Limited | 51 | |
| Zambia Pork Products Limited (ZAPP) | 100 | |
| Zambia Steel and Building Supplies Limited (ZSBS) | 100 | |
| Zambia Sugar Company Limited | 78 | |
| <u>Associated Companies:</u> | | |
| Duncan Gilbey and Matheson (Z) Limited | 49.7 | |
| Dunlop Zambia Limited | 23 | |
| Mukuba Hotel | 8 | |
| Nkwazi Manufacturing Company Limited | 5 | |
| Scaw Limited | 2 | |

Source: INDECO Annual Report, 1986, p. 2.

Figure A1.1: INDECO LIMITED: OPERATIONS IN ZAMBIA
AND PARTNERS AROUND THE WORLD.

Operations in Zambia



Partners around the world

Canada

John Labatt's 20% share in Zambia Breweries Limited

United States of America

Phelps Dodge Svenska Metallverken International Corporation 20% share in ZAMEFA
Continental Resources Limited 9.4% share in ZAMEFA

West Germany

Coutinho Caro 9% share in Kapiri Glass Products Limited

Liechtenstein (Switzerland)

Amenital 20% share in Kafue Textiles of Zambia Limited
Textilconsult 2.5% share in Kafue Textiles of Zambia Limited
25 000 7 1/2% cumulative redeemable preference shares of K2 each in Kafue Textiles of Zambia Limited

Italy

Fiat 20% shares in Livingstone Motor Assemblers Limited
Intersomer 20% share in Lusaka Engineering Company Limited
Piacenza 20% share in Lusaka Engineering Company Limited

United Kingdom

Heinrichs Syndicate 49% share in National Breweries Limited
Tate & Lyle 11% share in Zambia Sugar Company Limited
Covillink 30.5% share in Kafironda Limited

Cobar 15% share in Kafironda Limited

Thirty-three Nominees Company Limited 10% share in Kafue Textiles of Zambia Limited

74 000 7 1/2% cumulative redeemable preference shares in Kafue Textiles of Zambia Limited

Commonwealth Development Corporation 12.5% share in Kafue Textiles of Zambia Limited

125 000 7 1/2% cumulative redeemable preference shares in Kafue Textiles of Zambia Limited

27% in Chilanga Cement Limited

British Oxygen 49% share in Zambia Oxygen Limited

Abercorn Nominees 13% share in National Milling Company Limited

Spillers Limited 13% Share in National Milling Company Limited

Duncan Gilbey & Matheson 34% share in Duncan Gilbey & Matheson Zambia Limited

Dunlop 77% share in Dunlop Zambia Limited

Japan

Kobe Steel K1 million preference shares in Nitrogen Chemicals of Zambia Limited

Source: INDECO Annual Report, 1986.

Table A2.1 GDP, EXPORTS, IMPORTS, GROSS NATIONAL SAVINGS, GROSS FIXED CAPITAL FORMATION AND PRICE INDICES

| Year |In Millions of 1980 Kwacha..... | | | | | | | | | |Price Indices (1980=100)..... | | | | | | | | | | In Millions of 1980 US Dollars..... | | | | | |
|------------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|------------------------------------|--------|--------|--------|--------|--------|--------|-------|--------|--------|-------------------------------------|--------|--------|--------|--------|--------|
| | GDP | | XGS | | MGS | | CTI | | GNS | | GFCF | | Annual | | Terms | | XGS | | Annual | | XGS | | Annual | | MGS | |
| | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % | Annual | % |
| | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | | Change | |
| 1970 | 4680 | - | 1330 | - | 2289 | - | 3334 | - | 918 | - | 1395 | - | 314 | - | 63 | - | 20 | - | 1587 | - | 2375 | - | 2375 | - | 2375 | - |
| 1971 | 3738 | -20.13 | 1245 | -6.39 | 2425 | 5.94 | 2310 | -30.71 | 593 | -35.40 | 1555 | 11.47 | 188 | -40.13 | 48 | -23.81 | 25 | 25.00 | 1425 | -10.21 | 2207 | -7.07 | 2207 | -7.07 | 2207 | -7.07 |
| 1972 | 4063 | 8.69 | 1414 | 13.57 | 2464 | 1.61 | 2558 | 10.74 | 710 | 19.73 | 1604 | 3.15 | 165 | -12.23 | 49 | 2.08 | 30 | 20.00 | 1563 | 9.68 | 1912 | -13.37 | 1912 | -13.37 | 1912 | -13.37 |
| 1973 | 4604 | 13.32 | 1293 | -8.56 | 2037 | -17.33 | 3005 | 17.47 | 924 | 30.14 | 1519 | -5.30 | 240 | 45.45 | 81 | 65.31 | 34 | 13.33 | 1407 | -9.98 | 1576 | -17.57 | 1576 | -17.57 | 1576 | -17.57 |
| 1974 | 4636 | 0.70 | 1371 | 6.03 | 2376 | 16.64 | 2929 | -2.53 | 1064 | 15.15 | 1917 | 26.20 | 172 | -28.33 | 95 | 17.28 | 55 | 61.76 | 1483 | 5.40 | 1425 | -9.58 | 1425 | -9.58 | 1425 | -9.58 |
| 1975 | 3122 | -32.66 | 1326 | -3.28 | 2213 | -6.86 | 1440 | -50.84 | 247 | -76.79 | 1653 | -13.77 | 101 | -41.28 | 58 | -38.95 | 58 | 5.45 | 1400 | -5.60 | 1612 | 13.12 | 1612 | 13.12 | 1612 | 13.12 |
| 1976 | 3451 | 10.54 | 1611 | 21.49 | 1651 | -25.40 | 1867 | 29.65 | 528 | 113.77 | 885 | -46.46 | 111 | 9.90 | 65 | 12.07 | 58 | 0.00 | 1604 | 14.57 | 1124 | -30.27 | 1124 | -30.27 | 1124 | -30.27 |
| 1977 | 3013 | -12.69 | 1566 | -2.79 | 1631 | -1.21 | 1530 | -18.05 | 439 | -16.86 | 796 | -10.06 | 96 | -13.51 | 61 | -6.15 | 64 | 10.34 | 1476 | -7.98 | 1054 | -6.23 | 1054 | -6.23 | 1054 | -6.23 |
| 1978 | 2829 | -6.11 | 1465 | -6.45 | 1351 | -17.17 | 1228 | -19.74 | 368 | -16.17 | 771 | -3.14 | 91 | -5.21 | 63 | 3.28 | 69 | 7.81 | 1381 | -6.44 | 908 | -13.85 | 908 | -13.85 | 908 | -13.85 |
| 1979 | 3202 | 13.18 | 1308 | -10.72 | 1233 | -8.73 | 1536 | 25.08 | 339 | -7.88 | 433 | -43.84 | 108 | 18.68 | 91 | 44.44 | 84 | 21.74 | 1514 | 9.63 | 894 | -1.54 | 894 | -1.54 | 894 | -1.54 |
| 1980 | 3064 | -4.31 | 1268 | -3.06 | 1391 | 12.81 | 1268 | -17.45 | 197 | -41.89 | 713 | 64.67 | 100 | -7.41 | 100 | 9.89 | 100 | 19.05 | 1360 | -10.17 | 1111 | 24.27 | 1111 | 24.27 | 1111 | 24.27 |
| 1981 | 2959 | -3.43 | 1106 | -12.78 | 1168 | -16.03 | 813 | -35.88 | 7 | -96.45 | 632 | -11.36 | 79 | -21.00 | 81 | -19.00 | 102 | 2.00 | 1227 | -9.78 | 1042 | -6.21 | 1042 | -6.21 | 1042 | -6.21 |
| 1982 | 2573 | -13.04 | 1280 | 15.73 | 911 | -22.00 | 692 | -14.88 | 36 | 414.29 | 486 | -23.10 | 71 | -10.13 | 69 | -14.81 | 98 | -3.92 | 1346 | 9.70 | 850 | -18.43 | 850 | -18.43 | 850 | -18.43 |
| 1983 | 2685 | 4.35 | 1155 | -9.77 | 769 | -15.59 | 741 | 7.08 | 199 | 452.78 | 368 | -24.28 | 78 | 9.86 | 74 | 7.25 | 95 | -3.06 | 1347 | 0.07 | 726 | -14.59 | 726 | -14.59 | 726 | -14.59 |
| 1984 | 2849 | 6.11 | 1076 | -6.84 | 750 | -2.47 | 837 | 12.96 | 296 | 48.74 | 393 | 6.79 | 70 | -10.26 | 65 | -12.16 | 93 | -2.11 | 1354 | 0.52 | 783 | 7.85 | 783 | 7.85 | 783 | 7.85 |
| 1985 | 3004 | 5.44 | 1014 | -5.76 | 830 | 10.67 | 885 | 5.73 | 157 | -46.96 | 424 | 7.89 | 72 | 2.86 | 67 | 3.08 | 93 | 0.00 | 1223 | -9.68 | 702 | -10.34 | 702 | -10.34 | 702 | -10.34 |
| 1986 | 2936 | -2.26 | 1094 | 7.89 | 911 | 9.76 | 880 | -0.56 | -28 | -118.09 | 501 | 18.16 | 70 | -2.78 | 65 | -2.99 | 92 | -1.08 | 1119 | -8.50 | 740 | 5.41 | 740 | 5.41 | 740 | 5.41 |
| Annual Av. | -2.33 | | -1.11 | | -3.76 | | -4.60 | | -6.44 | | -4.01 | | -4.86 | | 0.20 | | 22.50 | | -1.84 | | -4.30 | | -4.30 | | -4.30 | |

Notes:

GDP is adjusted for terms of trade

Exports (XGS) are free on board (fob) and include merchandise, nonfactor and factor services.

Imports (MGS) include cost, insurance and freight (cif).

Capacity to import (CTI) is the value of goods and nonfactor service exports deflated by the import price index.

Gross national saving (GNS) equals gross domestic saving plus net factor income and net current transfers from abroad.

Gross fixed capital formation (GFCF) is the sum of gross domestic fixed investment plus changes in stocks.

Source: World Bank, World Tables 1987, pp. 508-10.

Table A2.2 Sources of Government Revenues and Government Net Lending: 1969-84
in kwacha million (at current prices) and per cent share.

| Year | (a) Mining Companies | (b) Other Companies | (c) House- hold | (d) Other % | (e) Income Tax | (f) Taxes on Domestic Production | (g) Taxes on Foreign Trade | % Total Revenues | (h) Govt. Net Lending | | | | | | | |
|------|----------------------------|---------------------------|-----------------------|-------------------|----------------------|---|-------------------------------------|------------------------|--------------------------------|------|-------|-------|-------|-------|--------|-------|
| 1969 | 235.1 | 58.3 | 31.0 | 7.7 | 105.7 | 26.2 | 31.3 | 7.8 | - | - | - | 403.1 | 33.9 | | | |
| 1970 | 251.1 | 57.4 | 32.9 | 7.5 | 117.4 | 26.9 | 35.8 | 8.2 | - | - | - | 437.2 | 73.5 | | | |
| 1971 | 114.1 | 37.1 | 38.9 | 12.7 | 128.5 | 41.8 | 25.8 | 8.4 | - | - | - | 307.3 | 24.3 | | | |
| 1972 | 55.7 | 18.6 | 45.5 | 15.2 | 170.6 | 57.1 | 27.1 | 9.1 | - | - | - | 298.9 | 43.1 | | | |
| 1973 | 110.3 | 28.6 | 53.4 | 13.8 | 193.5 | 50.1 | 29.1 | 7.5 | - | - | - | 386.3 | 181.1 | | | |
| 1974 | 341.0 | 54.3 | 108.0 | 17.2 | 170.4 | 27.1 | 8.3 | 1.3 | - | - | - | 628.2 | 49.4 | | | |
| 1975 | 59.4 | 13.2 | 71.4 | 15.8 | 287.9 | 64.1 | 30.5 | 6.8 | - | - | - | 449.2 | 100.8 | | | |
| 1976 | 11.6 | 2.5 | - | - | - | - | 72.9 | 16.0 | 159.1 | 34.9 | 33.3 | 60.5 | 13.2 | 455.6 | 58.9 | |
| 1977 | -1.6 | -0.3 | - | - | - | - | 59.1 | 11.8 | 199.9 | 40.0 | 179.6 | 35.9 | 61.5 | 12.3 | 500.1 | 38.8 |
| 1978 | - | 0.0 | - | - | - | - | 83.3 | 14.9 | 217.7 | 39.1 | 204.5 | 36.8 | 50.7 | 9.1 | 556.2 | 39.7 |
| 1979 | -9.8 | -1.6 | - | - | - | - | 66.5 | 11.2 | 229.8 | 38.8 | 238.8 | 40.3 | 67.5 | 11.4 | 592.8 | 44.6 |
| 1980 | 41.7 | 5.4 | - | - | - | - | 95.2 | 12.4 | 271.3 | 35.3 | 262.6 | 34.2 | 96.9 | 12.6 | 767.7 | 259.7 |
| 1981 | 1.0 | 0.1 | - | - | - | - | 78.7 | 9.7 | 307.8 | 37.9 | 315.8 | 38.9 | 108.3 | 13.3 | 811.6 | 9.8 |
| 1982 | - | - | - | - | - | - | 88.6 | 10.3 | 298.7 | 34.8 | 361.1 | 42.1 | 108.7 | 12.6 | 857.1 | 113.8 |
| 1983 | 53.4 | 5.2 | - | - | - | - | 88.1 | 8.6 | 369.4 | 36.2 | 424.9 | 41.6 | 84.2 | 8.2 | 1021.4 | 42.4 |
| 1984 | 101.3 | 9.2 | - | - | - | - | 83.9 | 7.6 | 337.0 | 30.7 | 445.7 | 40.7 | 127.7 | 11.7 | 1095.6 | 55.6 |

Notes: (a) Income and mineral taxes. From 1974 withholding tax on dividends and mining companies' dividends.

(b) Company income tax and withholding tax up to 1975.

(c) Income tax (PAYE), custom and excise duties; fines; licences and other taxes; court fees (excludes rent).

(d) Interest, rents, profits from Bank of Zambia and others.

(e) From 1976 income tax is put on its own and includes non-mining company taxes, personal PAYE and other taxes.

(f) Includes excise duties, sales tax and other taxes.

(g) Includes sales tax and custom duties.

(h) Government lending to industry both parastatal and private.

Sources: Bank of Zambia: Annual Reports (various issues); Quarterly Financial Statistical Review, no. 1, vol. 15, March 1985

Table A2.3 Selected Marketed Agricultural Production and Producer Prices: 1964-85

| Year ^a | Maize | | Tobacco | | Seed Cotton | | Sunflower | | Groundnuts ^b | | Paddy Rice | | Soya Beans | | Wheat | | Milk ^c | |
|-------------------|--------|--------|---------|------|-------------|------|-----------|--------|-------------------------|--------|------------|--------|------------|--------|-------|--------|-------------------|-------|
| | MT | K/90kg | MT | K/kg | MT | K/kg | MT | K/90kg | MT | K/80kg | MT | K/90kg | MT | K/90kg | MT | K/90kg | '000L | K/L |
| 1964 | 204270 | - | 10960 | 0.23 | 1649 | - | - | - | 5630 | - | - | - | - | - | - | - | 13338 | 0.070 |
| 1965 | 263000 | 3.45 | 6600 | - | 2273 | 0.14 | - | - | 6740 | 9.60 | - | - | - | - | - | 5.70 | 15322 | 0.083 |
| 1966 | 384720 | 3.32 | 6566 | - | 2778 | 0.14 | - | - | 11530 | 10.20 | - | - | - | - | - | 5.70 | 14700 | 0.084 |
| 1967 | 383080 | 3.10 | 4950 | - | 1831 | 0.15 | - | 2.45 | 14810 | 9.90 | - | 4.50 | - | 3.70 | - | 6.20 | 14126 | 0.086 |
| 1968 | 263830 | 2.90 | 6280 | - | 4252 | 0.15 | - | 2.45 | 5390 | 10.20 | - | 4.50 | - | 3.20 | - | 6.20 | 14205 | 0.090 |
| 1969 | 135200 | 3.20 | 5020 | - | 6915 | 0.15 | - | 2.45 | 7820 | 10.20 | - | 7.20 | - | 3.20 | - | 7.50 | 16240 | 0.081 |
| 1970 | 399950 | 3.50 | 4790 | - | 5605 | 0.17 | - | 1.80 | 3270 | 10.20 | - | 8.10 | - | 3.20 | - | 7.50 | 15610 | 0.084 |
| 1971 | 616554 | 4.00 | 5910 | 0.84 | 11919 | 0.17 | 16 | 4.62 | 5970 | 10.20 | - | 9.90 | - | 8.40 | - | - | 16000 | 0.087 |
| 1972 | 460400 | 4.30 | 5530 | 0.90 | 8453 | 0.17 | 163 | 4.62 | 6480 | 10.20 | 293 | 9.90 | - | 8.40 | - | - | 15865 | 0.099 |
| 1973 | 450000 | 4.30 | 6230 | 0.90 | 5225 | 0.17 | 1050 | 6.64 | 2960 | 12.60 | 506 | 13.50 | 173 | 8.40 | - | 7.50 | 15734 | 0.105 |
| 1974 | 495000 | 5.00 | 6201 | 0.90 | 2564 | 0.30 | 3519 | 8.95 | 3435 | 17.00 | 726 | 13.50 | 400 | 13.30 | - | 12.00 | 13227 | 0.102 |
| 1975 | 598376 | 6.30 | 6466 | 1.04 | 2500 | 0.40 | 9750 | 9.40 | 6511 | 25.00 | 990 | 16.20 | 683 | 17.00 | 934 | 16.00 | 11200 | 0.106 |
| 1976 | 746426 | 6.30 | 6262 | 1.04 | 3891 | 0.40 | 13079 | 10.00 | 8371 | 25.00 | 2224 | 16.20 | 944 | 17.00 | 3459 | 16.00 | 10500 | 0.145 |
| 1977 | 693000 | 6.80 | 5588 | 1.45 | 8929 | 0.46 | 13320 | 10.00 | 7229 | 28.60 | 2090 | 16.20 | 1274 | 21.50 | 4741 | 18.00 | 10300 | 0.150 |
| 1978 | 657000 | 9.00 | 3700 | 1.45 | 10200 | 0.46 | 11355 | 12.50 | 6777 | 32.00 | 2970 | 18.00 | 2844 | 25.50 | 6400 | 20.00 | 9000 | 0.205 |
| 1979 | 331255 | 11.70 | 4590 | 1.51 | 15000 | 0.46 | 12869 | 13.70 | 2693 | 32.70 | 1686 | 18.60 | 1294 | 33.00 | 4322 | 26.00 | 7130 | 0.235 |
| 1980 | 382000 | 11.70 | 4127 | 1.57 | 22913 | 0.46 | 17238 | 16.40 | 2028 | 35.00 | 2213 | 18.60 | 3531 | 33.00 | 9584 | 26.00 | 10207 | 0.230 |
| 1981 | 693341 | 13.50 | 2319 | 1.65 | 16752 | 0.46 | 19223 | 17.60 | 1320 | 42.70 | 2673 | 18.60 | 3673 | 36.30 | 11478 | 26.00 | 11705 | 0.280 |
| 1982 | 508328 | 16.00 | 1869 | 2.40 | 12784 | 0.47 | 20362 | 20.75 | 704 | 48.00 | 2826 | 28.00 | 5140 | 42.31 | 12510 | 32.00 | 150000 | 0.380 |
| 1983 ^d | 630622 | 18.30 | 2290 | 2.70 | 32019 | 0.52 | 31400 | 21.50 | 987 | 52.00 | 5862 | 40.00 | 6968 | 45.30 | 10010 | 33.75 | 15943 | 0.470 |
| 1984 ^d | 531180 | 24.50 | 2337 | 2.80 | 31230 | 0.58 | 30450 | 21.50 | 1040 | 65.00 | - | 40.00 | - | 52.50 | - | 42.50 | 13296 | 0.510 |
| 1985 ^d | 571320 | - | 2620 | - | 40915 | - | 40400 | - | 1160 | - | - | - | - | - | - | - | 16404 | 0.630 |

Notes:

^a Prices for 1964-73 refer to those along the line of rail. In the outlying provinces, producer prices were either less than or equal to line of rail prices.

^b Groundnut prices are the oil-expressing and not the confectionery Chalimbana type. From 1976 onwards producer prices for groundnuts only refer to the confectionery and not oil-expressing type. In the Eastern province (the major producer of groundnuts), the producer prices for the village markets were lower than those along the main road depots, for the period 1968-72.

^c Milk prices for 1985 are for January to March only.

^d Production figures from 1983 are provisional.

Sources: D. J. Dodge, *Agricultural Policy and Performance in Zambia: History, Prospects and Proposals for Change*, (Berkeley: Institute of International Studies, University of California, 1977), pp. 96-97; Bank of Zambia Annual Reports, various issues; Republic of Zambia, Central Statistical Office, *Monthly Digest of Statistics*, various issues.

APPENDIX III:
Zambia Consolidated Copper Mines Limited (ZCCM)

Labour Utilisation Statistics as at 31 December, 1984

| <u>Occupational Category</u> | <u>Auth</u> (1) | <u>Expat</u> | <u>Local</u> | <u>Total</u> (2) | <u>Variance</u> (2-1) | <u>% Zambians</u> |
|------------------------------------|--------------------|--------------|--------------|---------------------|--------------------------|-------------------|
| Mining Engineers | 266 | 137 | 86 | 223 | (43) | 38.56 |
| Mine Captains | 197 | 30 | 148 | 178 | (19) | 83.15 |
| Mining Technicians | 29 | - | 66 | 66 | +37 | 100.00 |
| Geologists | 94 | 52 | 25 | 77 | (17) | 32.47 |
| Surveyors | 150 | 29 | 110 | 139 | (11) | 79.14 |
| Ventilation Engineers | 93 | 1 | 74 | 75 | (18) | 98.67 |
| Industrial Engineers | 87 | 13 | 42 | 55 | (32) | 76.36 |
| Metallurgists | 252 | 117 | 120 | 237 | +15 | 50.63 |
| Chemists | 83 | 31 | 41 | 72 | (11) | 56.94 |
| Metallurgical Technicians | 37 | - | 66 | 66 | +29 | 100.00 |
| General Foremen-Metallurgical | 45 | 2 | 44 | 46 | +1 | 95.65 |
| Civil Engineers | 57 | 36 | 12 | 48 | (9) | 25.00 |
| Electrical & Electronics Engineers | 187 | 84 | 66 | 150 | (37) | 44.00 |
| Mechanical Engineers | 460 | 268 | 65 | 333 | (127) | 19.51 |
| Draughtsmen | 164 | 19 | 118 | 137 | (27) | 86.13 |
| Civil Engineering Technicians | 45 | 11 | 21 | 32 | (13) | 65.63 |
| Electrical/Electronics | | | | | | |
| Engineering Technicians | 46 | 4 | 240 | 244 | +198 | 98.36 |
| Mechanical Engineering Technicians | 40 | 11 | 192 | 203 | +163 | 94.58 |
| Medical Doctors | 98 | 47 | 60 | 107 | +9 | 56.07 |
| Dentists | 10 | 9 | 1 | 10 | - | 10.00 |
| Medical Assistants | 22 | - | 23 | 23 | +1 | 100.00 |
| Dental Assistants | 2 | - | 4 | 4 | +2 | 100.00 |
| Veterinarians | 1 | 1 | - | 1 | - | - |
| Veterinary Assistants | - | - | - | - | - | - |
| Pharmacists | 15 | 6 | 6 | 12 | (3) | 50.00 |
| Pharmacy Technicians | 19 | - | 21 | 21 | +2 | 100.00 |
| Public Health Nutritionists | 7 | - | 8 | 8 | +1 | 100.00 |
| Optometrists and Opticians | 1 | 1 | - | 1 | - | - |
| Physiotherapists/Occupational | | | | | | |
| Therapists | 12 | - | 10 | 10 | (2) | 100.00 |
| Medical X-Ray Technicians | 13 | - | 14 | 14 | +1 | 100.00 |
| Medical, Dental, Veterinary & | | | | | | |
| Related Workers NEC | 73 | 4 | 64 | 68 | (5) | 94.12 |
| University and Higher Education | | | | | | |
| Teachers | 9 | 4 | - | 4 | (5) | - |
| Secondary Education Teachers | 39 | 13 | 18 | 31 | (8) | 58.06 |
| Primary Education Teachers | 154 | 106 | 31 | 137 | (17) | 22.63 |
| Pre-Primary Education Teachers | 5 | - | 4 | 4 | (1) | 100.00 |
| Teachers NEC | 176 | 10 | 159 | 169 | (7) | 94.08 |
| Lawyers | 6 | - | 7 | 7 | +1 | 100.00 |
| Economists | - | - | - | - | - | - |
| Accountants | 409 | 64 | 281 | 345 | (64) | 81.45 |
| Computer Programmers | 37 | 3 | 30 | 33 | (4) | 90.91 |
| Systems Analysts | 41 | 9 | 20 | 29 | (12) | 68.97 |
| Computer Operators | 61 | - | 61 | 61 | - | 100.00 |
| Aircraft Pilots | 7 | 2 | 5 | 7 | - | 71.43 |
| Agronomists & Related | 9 | 1 | 8 | 9 | - | 88.89 |
| Professional Nurses | 321 | 48 | 284 | 332 | +11 | 85.54 |
| Professional Midwives | 96 | 2 | 71 | 73 | (23) | 97.26 |
| Nursing Personnel NEC | 787 | - | 753 | 753 | (34) | 100.00 |
| Managers | 97 | 44 | 53 | 97 | - | 54.63 |

| <u>Occupational Category</u> | <u>Auth</u> | <u>Expat</u> | <u>Local</u> | <u>Total</u> | <u>Variance</u> | <u>% Zambians</u> |
|--|---------------|--------------|---------------|---------------|-----------------|-------------------|
| Public Relations Officers | 5 | - | 5 | 5 | - | 100.00 |
| Photographers | 8 | - | 6 | 6 | (2) | 100.00 |
| Farm Managers | 17 | 6 | 7 | 13 | (4) | 53.84 |
| Personnel & Occupational Officers | 302 | - | 318 | 318 | +16 | 100.00 |
| Mathematicians and Actuaries | 14 | 6 | 2 | 8 | (6) | 25.00 |
| Statisticians | - | - | - | - | - | - |
| Statistical & Mathematical Technicians | 1 | - | 1 | 1 | - | 100.00 |
| Managers-Catering and Lodging | 10 | 6 | 3 | 9 | (1) | 33.33 |
| Metallurgical Production Supervisors | 458 | - | 503 | 503 | +45 | 100.00 |
| Mining Production Supervisors | 2 235 | - | 2 103 | 2 103 | (132) | 100.00 |
| Miners | 18 689 | - | 18 829 | 18 829 | +140 | 100.00 |
| Authors, Journalists & Related | 6 | - | 6 | 6 | - | 100.00 |
| Archivists | 4 | - | 4 | 4 | - | 100.00 |
| Engineering Artisans-Mechanical | 2 288 | 172 | 1 579 | 1 751 | (537) | 90.18 |
| Engineering Artisans-Electrical | 1 091 | 99 | 884 | 983 | (108) | 89.93 |
| Engineering Artisans-Civil | 318 | 10 | 206 | 216 | (102) | 95.37 |
| Buyers | 100 | 8 | 91 | 99 | (1) | 91.92 |
| Protective Service Workers | 262 | - | 255 | 255 | (7) | 100.00 |
| Athletes, Sportsmen & Related | 26 | 1 | 21 | 22 | (4) | 95.45 |
| Social Service Workers | 78 | - | 76 | 76 | (2) | 100.00 |
| Librarians | 11 | 1 | 8 | 9 | (2) | 88.89 |
| Stock Controllers/Stores Officers | 186 | 28 | 153 | 181 | (5) | 84.53 |
| Storekeepers | 71 | - | 69 | 69 | (2) | 100.00 |
| Executive Secretaries/Stenographers | 169 | - | 157 | 157 | (12) | 100.00 |
| Clerical Supervisors & Clerks | 124 | - | 117 | 117 | (7) | 100.00 |
| Plant Fitter Mechanics | 168 | - | 146 | 146 | (22) | 100.00 |
| Diesel Fitter Mechanics | 92 | - | 100 | 100 | +8 | 100.00 |
| Boilermaker Mechanics | 90 | - | 73 | 73 | (17) | 100.00 |
| Rigger Mechanics | 28 | - | 30 | 30 | +2 | 100.00 |
| Electrical Mechanics | 88 | - | 90 | 90 | +2 | 100.00 |
| Instrumentation Mechanics | 14 | - | 21 | 21 | +7 | 100.00 |
| Mechanics NEC | 218 | - | 199 | 199 | (19) | 100.00 |
| Trainees | 716 | - | 1 317 | 1 317 | +601 | 100.00 |
| Metallurgical Operatives | 6 995 | - | 6 521 | 6 521 | (474) | 100.00 |
| Labour NEC | 19 635 | 138 | 19 985 | 20 123 | +488 | 99.31 |
| ZCCM GROUP TOTAL IN ZAMBIA | 59 376 | 1 694 | 57 417 | 59 111 | (265) | 97.31 |

Notes: Auth = the authorised establishments.

Expat = expatriates/non-Zambians

Local = Zambians

Source: ZCCM, Fourth National Development Plan Data, 1985.

APPENDIX IV: QUESTIONNAIRES USED IN THE SURVEY

THE STUDY OF PARASTATAL (COMPANY) MANPOWER PLANNING AND LABOUR SHORTAGES IN AFRICA: THE EXPERIENCES OF THE INDECO (ZAMBIA) GROUP OF COMPANIES

Dear Respondent,

I am requesting your help by participating in a survey on how manpower planning has been practised in your company so as to reduce or deal with the causes of and the problems associated with (and caused by) labour shortages.

The ultimate aim of the study is to help planners, employers and employees in INDECO and elsewhere, to understand or realize the importance of manpower planning and how it may be used to deal with the problems of labour shortages as they relate to recruitment difficulties, identifying training and retraining needs, retention of trained and experienced personnel, labour turnover, wastage, and retirement. Given resource constraints, the study will not be exhaustive, but it will concern itself with the fundamental and critical issues related to manpower planning in a country with widespread professional and skilled labour shortages.

In addition to the INDECO Group of companies, the study also covers other companies in the private and other parastatal sectors who are engaged in manufacturing and industrial activities. The reason for their inclusion is to find out whether marked differences exist between their approaches and strategies of manpower planning in dealing with labour shortages and those of the INDECO Group. The study comprises three different questionnaires and interviews for employers. The three questionnaires cover INDECO central, INDECO subsidiary, and other private companies and a sample of employees from selected companies. The interviews on qualitative aspects of manpower planning and labour shortages which will follow this questionnaire, will be conducted from January next year (1987) onwards.

As you may be aware, no detailed data are published on the scale envisaged in this survey, and as such your co-operation in completing this questionnaire is very important. Be assured that the information you provide will be treated in absolute confidence, and that the identity of respondents will not be mentioned in the final document, and furthermore, where possible, specific companies will not be mentioned. My main interest is in the data as they relate to manpower planning and labour shortages and not those who provide the data. Companies will only be referred to according to the nature of their activities and individual respondents depending on whether they are in management or are employees, or by their occupational categories/educational levels.

To standardize the meaning of the two main concepts used in this survey, here are the operational definitions:

Company (parastatal) manpower planning is defined here to mean "a strategy for acquisition, utilization, improvement and retention of an enterprise's human resources". It involves assessing (determining) present and future courses of action as they relate to recruitment needs, training and retraining needs, deployment, promotions, retirement (and/or redundancy) policies. The main concern is that the corporate (individual company) objectives may only be achieved if the right kind of personnel are available in a company at any given time. As with any other kind of planning, manpower planning is a process of thinking ahead and anticipating manpower difficulties and consequently to seek action based on foreknowledge to guide the course of events towards desired goals (and not just to react to or be guided by events). The aim of manpower planning, therefore, is to approach the future with systematic analyses of the present and the past so as to minimize the elements of surprise and uncertainty and, if possible, to reduce or eliminate mistakes and waste.

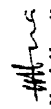
Labour shortages should be said to be present when existing capital equipment is undermanned, as compared to the manpower needs for current production of goods and services (to meet market demand). In the main, labour shortages may be caused by an increase in demand for labour relative to supply and a decrease in supply relative to demand. On another front, labour shortages may be caused by the employer's failure to keep/retain the necessary skilled and experienced labour, either because of poor pay or other conditions of service.

Should you be interested in knowing more about the study and the survey, or have any problems completing the questionnaire, please contact any of the following:

- a) Mr. C.J. Shakalima,
The Group Manpower Services and Training Controller,
INDECO Ltd.,
Box 31935,
Lusaka.
Telephone: 214555
- b) Dr. R. Bardouille,
The University of Zambia,
Manpower Research Unit,
Box 32379,
Lusaka.
Telephone: 219624
- c) Myself (after 7 January 1987),
Mr. Mushiba Nyamazana,
The University of Zambia,
Department of Business and Economic Studies,
Box 32379,
Lusaka.
Telephone: 213221

It is my hope that you will find completing this questionnaire challenging and enjoyable, and I wish you well.

Thank-you in advance for your co-operation and help.


Mushiba Nyamazana
20 Nansen Village,
21 Woodside Avenue,
London, N12.8AQ.

A. BACKGROUND INFORMATION.

Al-0 Name of company and/or division/branch: Address: -----

Al-1 Date the company was first established in Zambia: -----

Al-2 Was the company established with INDECO as the majority shareholder?

YES ☐ NO ☐

If NO, is the company a branch of an international transnational corporation or with INDECO as a minority shareholder or any other parastatal organisation under ZIMCO? Please, specify. -----

Al-3 Number of works/divisions/factories and where they are located:

| Works/divisions/factories | Location |
|---------------------------|----------|
| ----- | ----- |
| ----- | ----- |
| ----- | ----- |
| ----- | ----- |
| ----- | ----- |

Number and names of Departments at each division:

Al-4 Product types (or activity range) of your company: -----

MARKET FOR THE PRODUCTS:

(Tick)
LOCAL ☐ J1
EXPORT ☐ J2
BOTH ☐ J3

specify proportions as at 31 March, 1986:

Exports (%) ☐ 3.1
Local (%) ☐ 3.2

Al-5 Sources of raw materials/intermediate goods and other inputs:

(Indicate proportions in kwacha and %)

| | Locally produced K | Imports K | % |
|--|-----------------------|--------------|-------|
| Raw materials | ----- | ----- | ----- |
| Semi-processed materials for further production | ----- | ----- | ----- |
| Other inputs and capital goods | ----- | ----- | ----- |
| Other services (specify) | ----- | ----- | ----- |

Al-6 Are you currently operating at full capacity? (Tick) YES ☐ NO ☐

If NO, state the percentage of capacity utilised and the reasons for capacity underutilisation.

Al-7 THE OBJECTIVES OF YOUR ORGANISATION AND THE SUCCESS OF THEIR ACHIEVEMENT.
(Tick the appropriate boxes) (Tick one per line)

| OBJECTIVES | LEVEL OF SUCCESS | | | Not successful |
|--|------------------|------------|-----|-------------------|
| | Very successful | Successful | 2 | |
| | 1 | | | 3 |
| (Tick) [] (a) Import-substitution to make Zambia self-sufficient in your line of activities | [] | [] | [] | [] |
| [] (b) To increase sales and maximise profits | [] | [] | [] | [] |
| [] (c) To create more employment opportunities and training for local Zambians | [] | [] | [] | [] |
| [] (d) To earn more foreign exchange through exports and to reduce the dependence on copper as the major foreign exchange earner | [] | [] | [] | [] |
| [] (e) To maximise the use of local resources and services in the production process | [] | [] | [] | [] |
| [] (f) To assemble imported intermediate/finished goods for the local market | [] | [] | [] | [] |
| [] (g) To provide cheaper goods/ services to local consumers so as to raise the standards of living | [] | [] | [] | [] |
| [] (h) To transfer economic power/ management to Zambian control | [] | [] | [] | [] |
| (i) Others (Please, specify) | | | | |
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Al-8 State the manpower problems or any other operational problems which call for modifying some of the objectives or operating targets.

1. -----
2. -----
3. -----

Al-8a How does your company view/define
the concept of manpower planning?

- Al-9 Does your company practice manpower planning to counteract the problems caused by inherent and/or anticipated manpower problems or do you only act when faced with manpower problems? Explain briefly.
-
-
-

Al-10 If you have manpower plans, are they (well) integrated with other corporate plans and objectives? (Tick)
YES []
NO []

State any conflicts between the manpower plan and others (plans) and the reasons as to why they arise?

CONFLICTS

REASONS AS TO WHY THEY ARISE

-
-
-
-
-

Al-11 Would you say the manpower planning process in your organisation provides the framework within which important problem areas in employment policy are identified and thus form a base for a better informed decision-making? (Tick) YES []
NO []

Al-12 Which department and/or person(s) are responsible for manpower planning?

-
-

B. INTERNAL MANPOWER REVIEW

BI-0 Do you keep the following records in an accessible system?

Tick the appropriate box if entire question is applicable. Otherwise, underline that part of the question which is applicable.

- ☐ 1. Total employment, changes in total employment, technical progress, changes in market tastes, new legislation and how it affects your employment and pay policies.
- ☐ 2. Composition of workforce in terms of sex and age distribution, (dates of birth).
- ☐ 3. Length of service and its distribution, (dates of joining or re-joining).
- ☐ 4. Sources of recruits, recruitment needs, when and at what levels to recruit, and the selection procedures.
- ☐ 5. Manpower training, retraining and development needs.
- ☐ 6. Promotion prospects and potential for individual employees; the levels in the organisation from which potential promotees move from and to; and when these are likely to be effected.
- ☐ 7. Educational qualifications/job knowledge for individual employees.
- ☐ 8. Vacancies and the reasons for their existence and how they will be filled.
- ☐ 9. Skill and career development patterns and staff progression and succession charts.
- ☐ 10. Tribal/Provincial origins of employees.
- ☐ 11. Country of origin in cases of expatriates.
- ☐ 12. Marital status, number of children.
- ☐ 13. Occupations of employees' parents.
- ☐ 14. Employees' past employment/employers and experience.
- ☐ 15. Staff accommodation and lodgings.
- ☐ 16. Manpower deployment and utilisation, machine utilisation, operation times, disputes, learning times and working conditions.
- ☐ 17. Monitoring the effectiveness of the various training programmes.
- ☐ 18. Manning levels, work methods, safety, quality control, sales, and the organisation structure.
- ☐ 19. Wages and salary structures, i.e., differences of rates of pay between different occupational categories, educational levels/training, length of service/experience, location, nationality, etc.
- ☐ 20. Labour turnover, wastage, reasons as to why and how often they occur, which department and/or branch/division, dates of leaving, etc.

☐ 21. Induction, interpersonal conflicts and work demands.

☐ 22. The movements and changes in the national economy as well as the changes in the external market, like educational trends, availability of skills, training facilities, etc.

☐ 23. Future manpower requirements and training needs by occupational categories.

☐ 24. Projected investment, production (capacity utilisation), sales, profits, etc.

OTHER (Specify)

BI-1 Are the records which you have indicated under BI-0 consulted on making decisions relating to acquisition of manpower, training, re-training, promotions, deployment, etc. and disposal of manpower? (Tick one)

- A. Usually consulted ☐
- B. Sometimes consulted depending on the nature of the problem ☐
- C. Hardly consulted ☐
- D. Not consulted because record keeping is not up-to-date ☐
- E. OTHER (specify) ☐

BI-2 How many people were employed by the company on or about 30th June 1986. (This should include staff in permanent employment, excluding temporary (hourly paid)/relief personnel and contract workers)

| | ZAMBIAN | EXPATRIATES/ NON-ZAMBIAN | MALE | FEMALE |
|-----------|---------|-----------------------------|-------|--------|
| FULL-TIME | ----- | ----- | ----- | ----- |
| PART-TIME | ----- | ----- | ----- | ----- |
| TOTAL(S) | ----- | ----- | ----- | ----- |

B1-3 Please, complete the following schedule of total employment in your organisation since 1964 (or since the date of your establishment in Zambia - if after Independence) and expected employment up to the year 2000.

| YEAR | 1964 | 1968 | 1970 | 1975 | 1978 | 1980 | 1981 | 1982 | 1983 | 1984 |
|------|------|------|------|------|------|------|------|------|------|------|
|------|------|------|------|------|------|------|------|------|------|------|

ZAMBIANS

NON-ZAMBIANS

MALE

FEMALE

TOTAL

| YEAR | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1995 | 2000 |
|------|------|------|------|------|------|------|------|------|------|
|------|------|------|------|------|------|------|------|------|------|

ZAMBIANS

NON-ZAMBIANS

MALE

FEMALE

TOTAL

B. 1-4 Using the occupational categories classification tables in Appendix A, fill in the distributions of your workforce according to branches/divisions of your company and the age and length of service. (NB EST = establishment of posts/jobs; ACT = actual posts filled; E = expatriate; L = local personnel; As at 31 March 1986.

| Division/works/factory/branches/head office | | | Age Distribution (age groups in years) | | | | | | | | | | | | Length of Service Distribution (in years) | | | | | | | | | | | |
|---|--------------------------|-------|--|---|-----|---|-----|---|-----|---|-----|---|-----|---|---|---|-----|---|-----------------|-----|-----|-----|------|-------|-------|-----|
| General occupational categories | Type of worker/ title | Code# | ACT | | EST | | ACT | | EST | | ACT | | EST | | ACT | | EST | | Less than 1 yr. | 1-2 | 3-4 | 4-5 | 5-10 | 10-15 | 15-20 | 20+ |
| | | | EST | L | EST | L | EST | L | EST | L | EST | L | EST | L | EST | L | EST | L | | | | | | | | |
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| Educational levels | Level in organisation/occupational category(mainly) | Zambian | Expatriates | Male | Female |
|--|---|---------|-------------|------|--------|
| 1. Higher degree | | | | | |
| 2. Postgraduate diploma/cert. | | | | | |
| 3. First degree/certificate | | | | | |
| 4. College/Trades Inst. dip./cert. | | | | | |
| 5. Professional qualifications equivalent to a degree | | | | | |
| 6. Form V cert. Divisions 1-3 Div.4 and below | | | | | |
| 7. Post Form III: a) Technician level b) Craftsmen level c) Operative level | | | | | |
| 8. Form III cert/failures | | | | | |
| 9. Form II cert. | | | | | |
| 10. Grade VII or below | | | | | |
| 11. Other (specify) | | | | | |

[illegible]

B1-7 If vacancies exist in your company (see B1-4 above), please complete the following table.

| POST VACANT (and how many) | EDUCATIONAL LEVEL/ EXPERIENCE REQUIRED | REASON FOR VACANCY | IS VACANCY CURRENTLY ADVERTISED | LENGTH OF TIME VACANCY REMAINED UNFILLED |
|-------------------------------|---|-----------------------|---------------------------------------|--|
|-------------------------------|---|-----------------------|---------------------------------------|--|

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C. LABOUR SHORTAGES.

C1-0 During the period, April 1983 to March 1986, did your organisation experience difficulty in recruiting any type of worker? YES₁ [], NO₂ []

If NO, TURN TO QUESTION C1-6.

C1-1 Were such recruitment difficulties experienced persistently over that period?
YES₁ [] NO₂ []

C1-2 Show whether recruitment difficulties in the local labour market have had any of the following effects:

Tick

| | | |
|----|--|--|
| 1. | Actual reduction in output from previous levels | |
| 2. | Actual decline in output quality or service | |
| 3. | Turn down desirable orders | |
| 4. | Delivery periods lengthened | |
| 5. | Orders lost due to long delivery dates | |
| 6. | Postponement or curtailment of investment | |
| 7. | Shortage in key occupations prevented expansion of the employment | |
| 8. | Perpetual dependence on expatriate professionals, managers and technicians | |

C.1-3 Did recruitment difficulties mean that existing capital equipment was undermanned compared with manpower needs for the current production of goods and services? YES ☐ NO ☐ ☐

If YES, please complete the schedule below. (Tick one per box.)

| POSSIBLE REASONS FOR EXISTENCE OF LABOUR SHORTAGES IN YOUR ORGANIZATION | 1 Very important | 2 | 3 Quite important | 4 | 5 Not important at all |
|--|---------------------|---|----------------------|---|---------------------------|
| Result of colonial labour and educational policies which did not promote education for Africans because of racism. | 1 | 2 | 3 | 4 | 5 |
| Foreign owners/shareholders resent increases in local skill/professional supply as it threatens their dominance and/or reduces the market (job) for their nationals | 1 | 2 | 3 | 4 | 5 |
| Fast advances in technology outpace training | 1 | 2 | 3 | 4 | 5 |
| Lack resources for training in shortage occupations as no training grants are forthcoming from government | 1 | 2 | 3 | 4 | 5 |
| Foreign exchange and other economic problems necessitated declaring shortage occupations employees redundant or laid-off, and when business picked up they could not be taken on as they had been employed elsewhere | 1 | 2 | 3 | 4 | 5 |
| Workers being attracted away by higher pay | 1 | 2 | 3 | 4 | 5 |
| Workers being attracted away by other employers | 1 | 2 | 3 | 4 | 5 |
| Some firms (local and national) not contributing sufficiently to general and apprentice training | 1 | 2 | 3 | 4 | 5 |
| Union/works council restrictions on efforts to increase labour supply | 1 | 2 | 3 | 4 | 5 |
| Inadequate training places and facilities in local institutions which contribute to the supply of skills/professions | 1 | 2 | 3 | 4 | 5 |
| Institutions of higher learning's training not geared to local shortages (i.e. key occupations in short supply) | 1 | 2 | 3 | 4 | 5 |
| General rise in demand for shortage labour | 1 | 2 | 3 | 4 | 5 |
| School-leavers not interested in shortage-skill occupations | 1 | 2 | 3 | 4 | 5 |
| High failure rates among trainees in shortage-labour occupations | 1 | 2 | 3 | 4 | 5 |
| Difficult journey to work for possible employees | 1 | 2 | 3 | 4 | 5 |
| Difficult/dangerous working conditions (in case of skilled manual workers) | 1 | 2 | 3 | 4 | 5 |
| Work involves anti-social hours | 1 | 2 | 3 | 4 | 5 |
| Unemployed in shortage occupations are physically unfit | 1 | 2 | 3 | 4 | 5 |
| Cannot attract new workers because of high rents, housing problems | 1 | 2 | 3 | 4 | 5 |
| General scarcity of shortage labour in Zambian labour market | 1 | 2 | 3 | 4 | 5 |
| Poor location (in rural or remote areas) away from urban centres or railway | 1 | 2 | 3 | 4 | 5 |
| Others (specify) | 1 | 2 | 3 | 4 | 5 |

C1-9 Do you experience any opposition to any actions in C1-8:

- (a) from trade unions/works councils YES ☐ NO ☐ Tick
(b) from your workforce YES ☐ NO ☐
(c) from the party and its government YES ☐ NO ☐
(d) from foreign (minority) shareholders/owners YES ☐ NO ☐

If YES to any of the above, explain briefly:

C1-10 Do you think the level of pay is an important factor in relation to recruitment difficulties? YES ☐ NO ☐

If YES, explain briefly

C1-11 How do you think your organisation is regarded by employees in the relevant catchment area?

| | |
|------------------------------------|------|
| As a pace-setter in the wage round | Tick |
| As a pace-follower | |

C1-12 How do you think the level of gross earnings in your firm is typically regarded by employees in the relevant labour catchment area?

| | |
|--------------------|----------|
| Among the top rank | Tick one |
| Above average | |
| About average | |
| Below average | |

C1-13 Is absenteeism a serious problem in your organisation? YES ☐ NO ☐
If YES, state level of absenteeism (i.e. % of manhours/ days lost to total manhours/days per year) %

C1-14 If your answer to C1-13 is YES, state whether you think a reduction to 'non-serious' levels of absenteeism would:

Tick one

- a) Remove the shortage problem
b) Ease the shortage problem
c) Not have much effect on the shortage problem

D. TRAINING, LABOUR RETENTION AND UTILIZATION

D.1-0 Number of employees currently undergoing training:
Staff away from the organization on full-time training: _____
Recruits/sponsored students away on full-time training: _____
Staff away from organization on part-time (day release) training conducted within the organization: _____

D.1-1 Do you practise on-the-job training (i.e., in-service training) for new graduate* recruits in order to fit them better to the needs of your organization?

Tick
YES ☐
NO ☐

D.1-2 Do you have provisions for on-the-job training for recruits with only Form V or Form III levels of education?

Tick
YES ☐
NO ☐

D.1-3 If you do not run any in-service training, do you intend to start some in the future?
If YES, when do you intend to start? _____

Tick
YES ☐
NO ☐

D.1-4 Do you send staff/recruits abroad for training?

Tick
YES ☐
NO ☐

D.1-5(a) If your answer to D.1-4 is YES, which particular occupational categories go abroad for training?

(b) Are there no local training facilities for these occupational categories? Please explain briefly.

D.1-6 If your answer to D.1-4 is NO, then which local institution of higher learning do you use and for which occupational categories?

Local Institution Used

Type of Training/Occupational Category

D.1-7 Is there any form of contact or co-ordination between your organization and the local institutions of higher learning, from which you recruit some of your employees, over such areas as curricula appropriate to job needs.

Tick
YES ☐
NO ☐

*A graduate here is defined as any person who has taken any course with a Form V school certificate entry requirement, and which last for at least one year and in a formal institute of higher learning.

D.1-8 Which of the following, in your view, should the institutions of higher learning adopt to become more responsive to the labour needs of your type of organization?

| | Tick one per line | | |
|---|---------------------|----------------|--------------------|
| | Very Important 1 | Important 2 | Not Important 3 |
| A. In formulating their curricula | | | |
| B. In choosing the method of instruction | | | |
| C. In developing new training programmes | | | |
| D. By carrying out research programmes related to your organization | | | |
| E. Explain job prospects to trainees | | | |
| F. Course quotas according to demand | | | |
| G. Other (specify) | | | |

D.1-9 How effective have the various types of training been on the following:

| | (Tick one in each category of training) | | | | | |
|--------------------------------|---|-------------------------|---------------------|-------------------------|---------------------|-------------------------|
| | On-the-job training | | Formal Training | | Day Release | |
| | Very Effective 1 | Marginal/Effective 2 | Very Effective 3 | Marginal/Effective 1 | Very Effective 3 | Marginal/Effective 1 |
| Easing labour shortages | | | | | | |
| Raising productivity | | | | | | |
| Reducing absenteeism | | | | | | |
| Raising workers' morale | | | | | | |
| Improving industrial relations | | | | | | |
| Zambianization of workforce | | | | | | |

D.1-10 Please indicate how many trained employees (at your organization's expense) and other employees (who were recruited after completing their training elsewhere) left the firm between 1 April 1983 and 31 March 1986. Please enter the total of leavers in the first column, together with a breakdown (where possible) according to reason for leaving.

| Post/occupational category at leaving | Total leavers | Dismissal | Redundancy | Early Retirement | Retirement | Death | Voluntary leaving/resignation | Other |
|---------------------------------------|---------------|-----------|------------|------------------|------------|-------|-------------------------------|-------|
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D.1-11 Among voluntary leavers, which of the following factors do you think are most important in explaining their leaving?

| | Tick one per line | | |
|---|-------------------|-----------------|---------------|
| | Very important | Quite Important | Not Important |
| Poor pay in your organisation | 1 | 2 | 3 |
| Poor training and career prospects | 1 | 2 | 3 |
| Abilities/training not used to the full | 1 | 2 | 3 |
| Poor working conditions and employee-management relations | 1 | 2 | 3 |
| Bondage period over and trained staff are free to move | 1 | 2 | 3 |
| Other (specify) | 1 | 2 | 3 |

E. FORECASTING MANPOWER

E.1-0

(a) Does your organisation (tick one):

- A. Practise fairly long-term manpower forecasting/planning, or
B. Has it not done so except for short-term improvisation in response to changes in demand?

Tick
YES ☐
NO ☐

(b) If B, are manning levels determined by technology or capacity utilization and hence there is no need for longer-term planning?

E.1-1

If you plan manpower, on what basis is it done? (Tick one)'

- A. Annual basis
B. Three- to five-year broad plans which provide a framework for shorter-term operations and decisions
C. Both A and B.

E.1-2

What methods do you use in estimating market requirements (demand) and then translating them to arrive at machine and labour hours and manning levels? Please explain briefly.

E.1-3.

Do the various departments, i.e., production, marketing, personnel, etc., co-operate in developing and implementing these plans? Please explain briefly.

E.1-4

Do you monitor the retirement age and the trends in voluntary wastage to help you estimate the number of people who are likely to leave the organization in future.

Tick
YES ☐
NO ☐

E.1-5 If your answer to E.1-4 is YES, then complete the following schedule.

| Time/period | Number of people likely to leave company over period | Indicate reason for leaving, e.g., retirement, redundancy, etc | Qualifications and experience at expected time of leaving | Contribution of leavers and the effect of the loss on the organization |
|-----------------------|--|--|---|--|
| Up to 31 March 1987 | | | | |
| April 1987-March 1988 | | | | |
| April 1988-March 1989 | | | | |
| April 1989-March 1990 | | | | |
| April 1990-March 1991 | | | | |

E.1-6 How much of your manpower supply will come from your current training activities? Specify what type of training (e.g. full-time during courses such as accountancy, engineering, etc., and part-time during day-release and on specific kinds of job-training).

| General type of training | Specific kinds of training (courses) | Number of trainees | Occupations/levels likely to join on graduation |
|--------------------------|--------------------------------------|--------------------|---|
| Full-time course | | | |
| Part-time (day-release) | | | |
| On-the-job training | | | |

E.1-7

How much of your manpower supply is likely to come from the local educational system (i.e., likely recruitment in future from these institutions)? Please specify the type of labour and the as well as when.

| Type of labour | Institution of learning/ educational level | When/i.e. year |
|----------------|--|----------------|
| | | |

E.1-9

Is there a person (or group of persons) in the organization who knows what those requirements are likely to be, and who is responsible for finding out? Does he need help in making the assessment, and if so, what type of help? Please explain briefly.

E.1-10

(a) Is your organization likely to expand in future? YES ☐ NO ☐ Tick
 (b) What are the business and operations prospects, plans and hopes for the future? Complete the following schedule either by specifying the new products and when, or ticking under the appropriate time period

Plans and options 1987/ 1988/ 1989/ 1990/ 1995 2000
 1988 1989 1990 1991

| 1. New product lines (specify) | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| 2. Increase capacity utilization or invest in new capital | | | | | | | | | |
| 3. Rationalize operations by dropping some product lines and declaring some workers redundant | | | | | | | | | |
| 4. Horizontal integration (i.e. mergers along same line of activity) | | | | | | | | | |
| 5. Vertical integration (acquiring the sources of raw materials and the outlets of your products) | | | | | | | | | |
| 6. Produce raw materials locally and reduce dependence on imports | | | | | | | | | |
| 7. Privatization/nationalization | | | | | | | | | |
| 8. Others (specify) | | | | | | | | | |

ESTIMATING DEMAND

E.1-8 What are your future manpower requirements in terms of skills, numbers, training, experience and location?

| Requirements Time period | Numbers | Skill types | Training needs | Experience | Location and/or dept. |
|-----------------------------|---------|-------------|----------------|------------|-----------------------|
| 1987/88 Financial year | | | | | |
| 1988/89 | | | | | |
| 1989/90 | | | | | |
| 1990/91 | | | | | |
| 1995 | | | | | |
| Year 2000 | | | | | |

Plans/options which you have indicated in (b) above

Implications for manpower requirements (i.e., increased recruitment and/or training, early retirement, redundancy, rapid promotions, etc.)

[illegible]

Given the nature of the estimates of your organization's likely growth, changes in scale and nature of your organization's activities, is it possible to identify clearly the current and future manpower requirements?

YES ☒

NO_2 ☐ (tick)

Would you say your present workforce is overloaded?

YES ☐ I

☐ NO₂ (tick)

If NO, can productivity be improved without increasing the supply of personnel? Please explain briefly.

Is it possible to change the methods of working and/or to introduce labour-saving techniques to reduce the demand for labour? Please explain briefly.

Do you need external help in converting 'work' or defined tasks into manpower requirements?

YES, ☐

☐ NO₂ (tick)

If YES, state what type of help and whether local (Zambian) or from abroad.

Type of help

Local/abroad

[illegible]

F1.1 Planned output, value added, sales, turnover, total profits and wage bills.

| Financial year ending | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1995 | 2000 |
|--|------|------|------|------|------|------|------|------|
| Output Product (in units) (specify) | | | | | | | | |
| 1. _____ | | | | | | | | |
| 2. _____ | | | | | | | | |
| 3. _____ | | | | | | | | |
| 4. _____ | | | | | | | | |
| 5. _____ | | | | | | | | |
| 6. _____ | | | | | | | | |
| Sales (in units) _____ | | | | | | | | |
| (total) _____ | | | | | | | | |
| Capital investment (K000) (K000) _____ | | | | | | | | |
| Value added (K000) | | | | | | | | |
| Turnover (K000) | | | | | | | | |
| Gross profits (K000) | | | | | | | | |
| Total wages & salary costs (K000) | | | | | | | | |
| Capacity utilisation % | | | | | | | | |

Thank you for completing the questionnaire. Your return of this questionnaire by the end of December 1986 will be greatly appreciated. Since it has not been possible to ask all the relevant questions with regard to labour shortages and manpower planning in your company, I am planning to conduct interviews after questionnaires have been completed and returned. IF YOUR FIRM IS INTERESTED IN PARTICIPATING, PLEASE TICK HERE ☐

Name of person to be contacted: _____

Position in company: _____

Please indicate by ticking in this box ☐ if you would like to receive a brief report on the findings of the project, which will be circulated through the office of the INDECO Managing Director some time next year.

APPENDIX A : OCCUPATIONAL CATEGORIES TO BE USED IN COMPLETING
THE TABLES IN THE QUESTIONNAIRE

A. Professional, technical and related workers

| Code # | Type of worker/title |
|--------|---|
| 100 | Architects |
| 101 | Town planners |
| 102 | Surveyors, cartographers |
| 103 | Civil engineers |
| 104 | Chemical scientists and engineers |
| 105 | Mining, quarrying and drilling engineers |
| 106 | Mechanical engineers |
| 107 | Fabricating engineers |
| | Metallurgists |
| 108 | Electrical engineers |
| | Electronic engineers |
| | Electrical/electronic engineers |
| 109 | Production engineers |
| | Planning and quality-control engineers |
| 110 | Heating and ventilating engineers |
| | General and other engineers |
| 111 | Electrical and electronics technicians/draughtsmen |
| 112 | Mechanical technicians |
| 113 | Metallurgical technicians |
| 114 | Engineering technicians, technician engineers and engineering draughtsmen |
| 115 | All other technologists |
| 116 | Laboratory technicians (scientific and medical) |
| 117 | All other technicians |
| 118 | Medical doctors |
| 119 | State-registered and state-enrolled nurses and midwives |
| 120 | Other medical paramedical and nursing workers, e.g., dentists, pharmacists, assistants and aides. |
| 121 | Systems analysts and computer programmers |
| 122 | Geologists, hydrologists |
| 123 | Agronomists |
| 124 | Economists, mathematicians, statisticians, actuaries |
| | Finance, investment, insurance and tax specialists |
| | Estimators, valuers and assessors |
| | Librarians and information officers |
| | Sociologists, psychologists, etc. |
| 125 | Industrial designers, artists and commercial artists |
| 126 | Other professional, technical and related workers, e.g., teachers, instructors, religious and cultural workers. |

B. Administrative, managerial and clerical (and related) workers

| Code # | Type of worker/title |
|--------|---|
| 200 | General, central, divisional managers |
| 201 | Deputy/Assistant General/central divisional managers |
| 202 | Company secretaries |
| 203 | Company solicitors and other legal counsels |
| 204 | Accountants |
| | Auditors |
| | Book-keepers/accounts clerks |
| 205 | Personnel and industrial relations officers and managers |
| 206 | Organization and methods, work-study and operational research officers |
| 207 | Property and estate managers |
| 208 | Marketing and sales managers and executives |
| 209 | Advertising and public relations managers and executives |
| 210 | Purchasing officers and buyers |
| 211 | Production managers, works managers, works foremen |
| 212 | Engineering maintenance managers |
| 213 | Site and other managers, agents and clerks of works, general foremen (building and civil engineering) |
| 215 | Transport managers - air, rail, road |
| 216 | Managers - warehousing and materials handling |
| 217 | Managers - wholesale distribution |
| 218 | Managers - department store, variety chain store, supermarket and departmental managers |
| 219 | Branch managers of shops other than above |
| 220 | Hotel and residential club managers |
| 221 | Catering and non-residential club managers |
| 222 | Entertainment and sports managers |
| 223 | Farm managers |
| 224 | Executive officers and above |
| 225 | Supervisors of clerks |
| 226 | Clerks |
| 227 | Retail shop cashiers |
| 228 | Retail shop check-out and cash-and-wrap operators |
| 229 | Receptionists |
| 230 | Supervisors of sypists, etc. |
| 231 | Personal secretaries, stenographers, shorthand writers and shorthand-typists |
| 232 | Other typists |

B (continued).

Code # Type of worker/title

233 Supervisors of office machine operators
 234 Office machine operators
 235 Supervisors of telephonists, radio and telegraph operators
 236 Telephonists
 237 Radio and telegraph operators
 238 Supervisors of postmen, mail sorters and messengers
 239 Postmen, mail sorters and messengers

C. Selling

Code # Type of worker/title

300 Sales supervisors
 301 Salesmen, sales assistants, shop assistants and shelf-fillers
 302 Petrol pump-forecourt attendants
 303 Roundsmen and van salesmen
 304 Technical sales representatives
 305 Sales representatives (wholesale goods)
 306 Other sales representatives and agents

D. Production, manufacturing, construction and maintenance workers

NB Under this heading various groups of production and manufacturing workers are listed according to the various production activities. This is done because different activities may require different skills or types of workers, and as such respondents are asked to choose those groups which accurately describe their company's/organization's various types of activities.

Code # Group I: Materials processing (excluding metal). (hides, textiles, chemicals, food, drink and tobacco, wood, paper and board, rubber and plastics)

400 Foremen - tannery production workers
 401 Tannery production workers
 402 Foremen - textile processing
 403 Preparatory fibre processors
 404 Spinners, doublers/twisters
 405 Winders, reelers
 406 Warp preparers
 407 Weavers
 408 Knitters

D (continued)

Code # Group I (continued)

409 Bleachers, dyers, finishers
 410 Burlers, menders, darners
 411 Foremen - chemical processing
 412 Chemical, gas and petroleum process plant operators
 413 Foremen - food and drink processing
 414 Bread bakers (hand)
 415 Flour confectioners
 416 Butchers, meat cutters
 417 Foremen - paper and board making
 418 Beatermen, refinemen (paper and board making)
 419 Machinemen, dryermen, calendermen, reelmen (paper and board making)
 420 Foremen - processing - glass ceramics, rubber, plastics, etc.
 421 Glass and ceramic furnacemen and kilnmen
 422 Kiln setting
 423 Masticating millmen (rubber and plastics)
 424 Rubber mixers and compounders
 425 Calender and extruding machine operators (rubber and plastics)
 426 Man-made fibre makers
 427 Sewage plant attendants
 428 All others in processing materials (other than metal).

Code # Group II: Painting, repetitive assembling, product inspecting, packaging and related

600 Foremen - painting and similar coating
 601 Painters and decorators
 602 Pottery decorators
 603 Coach painters
 604 Other spray painters
 605 French polishers
 606 Foremen - product assembling (repetitive)
 607 Repetitive assemblers (metal and electrical goods)
 608 Foremen - product inspection
 609 Inspectors and testers (skilled) (metal and electrical engineering)
 610 Viewers (metal and electrical engineering)
 611 Foremen - packaging
 612 Packers, bottlers, canners, fillers
 613 All other in painting, repetitive assembling, product inspecting, packaging and related.

D (continued)

| Code # | Group III: Making and repairing (excluding metal and electrical) (glass, ceramics, printing, paper products, clothing, footwear, woodworking, rubber and plastics) |
|--------|---|
| 500 | Foremen - glass working |
| 501 | Glass formers and shapers |
| 502 | Glass finishers and deconators |
| 503 | Foremen - clay and stone working |
| 504 | Casters and other pottery makers |
| 505 | Cutters, shapers and polishers (stone) |
| 506 | Foremen - printing |
| 507 | Compositors |
| 508 | Electrotypers, stereotypers Other printing plate and cylinder preparers |
| 509 | Printing machine minders (letterpress) Printing machine minders (lithography) Printing machine minders (photogravure) Printing machine assistants (letterpress, lithography, photogravure) |
| 510 | Screen and block printers |
| 511 | Foremen - bookbinding Foremen - paper products making |
| 512 | Bookbinders and finishers |
| 513 | Cutting and slitting machine operators (paper and paper products making) |
| 514 | Foremen - textile materials working |
| 515 | Bespoke tailors and tailoresses |
| 516 | Dressmakers |
| 517 | Coach trimmers Upholsterers, mattress makers |
| 518 | Milliners |
| 519 | Furriers |
| 120 | Clothing cutters and markers (measure) Other clothing cutters and markers |
| 521 | Hand sewers and embroiderers |
| 522 | Linkers |
| 523 | Sewing machinists (textile materials) |
| 524 | Foremen - leather and leather substitutes working |
| 525 | Boot and shoe makers (bespoke); and repairs |
| 526 | Leather and leather substitutes - cutters |
| 527 | Footwear lasters |
| 528 | Leather and leather substitutes - sewers |
| 529 | Footwear finishers |

D (continued)

| Code # | Group III (continued) |
|--------|--|
| 530 | Foremen - woodworking |
| 531 | Carpenters and joiners (maintenance) Carpenters and joiners (others) |
| 532 | Cabinet makers |
| 533 | Case and box makers |
| 534 | Wood Sawyers and veneer cutters |
| 535 | Woodworking machinists (setters and setter operators) |
| 536 | Other woodworking machinists (operators and minders) |
| 537 | Patternmakers (moulds) |
| 538 | Labourers and mates to woodworking craftsmen |
| 539 | Foremen - rubber and plastics working |
| 540 | Tyre builders Moulding machine operators/attendants (rubber and plastics) |
| 541 | Dental mechanics |
| 542 | ALL other in making and repairing (excluding metal and electrical). |

| Code # | Group IV: Processing, making, repairing and related (metal and electrical) (iron, steel and other metals, engineering (including installation and maintenance), vehicles and shipbuilding. |
|--------|---|
| 700 | Foremen - metal making and treating. |
| 701 | Metal fabrication workers |
| 702 | Rollermen (steel) |
| 703 | Metal drawers |
| 704 | Moulders and moulder/coremakers Machine moulders, shell moulders and machine coremakers Die casters |
| 705 | Smiths, forgemen |
| 706 | Electroplaters |
| 708 | Annealers, hardeners, temperers (metal) |
| 709 | Foremen - engineering machining |
| 710 | Press and machine tool setters Roll turners, roll grinders Other centre lathe turners |
| 711 | Machine tool setter operators Machine tool operators (not setting-up) |
| 712 | Press and stamping machine operators |
| 713 | Automatic machine attendants/minders and machinists |
| 714 | Metal polishers Fettlers/dressers |

| D (continued) | | D (continued) | |
|---------------|---|---------------|---|
| Code # | Group IV (continued) | Code # | Group IV (continued) |
| 715 | Foremen - production fitting (metal) | 751 | Other welders |
| 716 | Toolmakers, tool fitters, markers-out | 752 | Foremen - other processing, making and repairing (metal and electrical) |
| 717 | Precision instrument makers | 753 | Goldsmiths, silversmiths and precious stone workers |
| 718 | Metal working production fitters (fine limits) | 754 | Engravers and etchers (printing) |
| 719 | Metal working production fitter-machinists (fine limits) Other metal working production fitters (not to fine limits) | 755 | Coach and vehicle body-builders/makers |
| 720 | Foremen - installation and maintenance - machines and instruments | 756 | Maintenance and installation fitters (mechanical and electrical) |
| 721 | Machinery erectors and installers | 757 | Setter operators of woodworking and metal-working machines |
| 722 | Maintenance fitters (non-electrical) plant and industrial machinery | 758 | All other processing, making and repairing (metal and electrical) |
| 723 | Knitting-machine mechanics (industrial) | | |
| 724 | Motor vehicle mechanics (skilled) | Code # | Group V: <u>Construction and related not identified elsewhere</u> |
| 725 | Other motor vehicle mechanics | 780 | Foremen - building and civil engineering not identified elsewhere |
| 726 | Maintenance and service fitters (aircraft engines) | 781 | Bricklayers, plumbers |
| 727 | Watch and clock repairers | 782 | Fixer/walling masons |
| 728 | Instrument mechanics | 783 | Plasterers |
| 729 | Office machinery mechanics | 784 | Foor and wall tilers, terrazzo workers |
| 730 | Foremen - production fitting and wiring (electrical/electronic) | 785 | Roofers and slaters |
| 731 | Production fitters (electrical/electronic) | 786 | Glaziers/painters, carpenters and joiners (construction sites) |
| 732 | Production electricians | 787 | Asphalt and bitumen road surfacers Other roadmen |
| 733 | Foremen - installation and maintenance - electrical/electronic | 788 | Concrete erectors/assemblers Concrete levellers/screeders |
| 734 | Electricians (installation and maintenance) plant and machinery | 789 | General builders |
| 735 | Electricians (installation and maintenance) premises; auto-electricians | 790 | Sewermen (maintenance) |
| 736 | Telephone fitters | 791 | Mains and service layers and pipe jointers (gas, water, drainage) |
| 737 | Radio, TV and other electronic maintenance fitters and mechanics | 792 | Waste inspectors (water supply) |
| 738 | Cable jointers and linesmen | 793 | Craftsmen's mates and other builders labourers not identified elsewhere |
| 739 | Foremen/supervisors - metal working - pipes, sheets, structures | 794 | Civil engineering labourers |
| 740 | Plumbers, pipe fitters | 795 | All other in construction, quarrying, well-drilling and related not identified elsewhere. |
| 741 | Heating and ventilating engineering fitters | | |
| 742 | Gas fitters | Code # | Group VI: <u>Transport operating, materials moving and storing, and related</u> |
| 743 | Sheet metal workers | 800 | Heavy goods drivers (over 3 tons unladen weight) |
| 744 | Platers and metal shipwrights | 801 | Other goods drivers |
| 745 | Caulker burners, riveters and drillers (constructional metal) | | Other motor drivers |
| 746 | General steelworkers (shipbuilding and repair) | 802 | Drivers' mates |
| 747 | Steel erectors | 803 | Foremen - civil engineering plant operating |
| 748 | Scaffolders, staggers | | |
| 749 | Steel benders, bar benders and fixers | | |
| 750 | Welders (skilled) | | |

D (continued)

| Code # | Group VI (continued) |
|--------|--|
| 804 | Mechanical plant drivers/operators (earth-moving and civil engineering) |
| 805 | Foremen - materials handling equipment operating |
| 806 | Crane drivers/operators |
| | Fork-lift and other mechanical truck drivers/operators |
| 807 | Foremen - materials moving and storing |
| 808 | Storekeepers, warehousemen |
| 809 | Furniture removers |
| 810 | Warehouse, market and other goods porters |
| 811 | Refuse collectors/dustmen |
| 812 | All other in transport operating, materials moving and storing and related not identified elsewhere. |

| Code # | Group VII: Catering, cleansing, security and miscellaneous |
|--------|--|
| 900 | Catering supervisors |
| 901 | Chefs, cooks |
| | Waiters, waitresses |
| 902 | Barmen, barmaids |
| | Counter hands/assistants |
| 903 | Kitchen porters/hands |
| 904 | Supervisors - housekeeping and related |
| | Domestic housekeepers |
| | Home and domestic helpers, maids |
| 905 | Supervisors/foremen - caretaking, cleaning and related |
| 906 | Caretakers |
| 907 | Road sweepers (manual) |
| | Other cleaners |
| 908 | Life and car park attendants |
| 909 | Garment pressers |
| 910 | All other in catering, cleaning, hairdressing and other personal service |
| 911 | Security officers |
| 912 | Security guards, patrolmen |
| 913 | Foremen - miscellaneous |
| 914 | Electricity power plant operators and switchboard attendants |
| 915 | Turncocks (water supply) |
| 916 | General labourers/general workers |
| 917 | All other in miscellaneous occupations not identified elsewhere |

STUDY OF MANPOWER PLANNING AND LABOUR SHORTAGES IN AFRICA : THE EXPERIENCES OF
ZAMBIA'S INDUSTRIAL DEVELOPMENT CORPORATION : PROBLEMS AND PROSPECTS

INDECO CENTRAL : QUESTIONNAIRE A

Dear Respondent,

I would like to draw on your knowledge and experiences of planning and utilising human resources in the Indeco Group of Companies. The questionnaire hereunder covers general issues like changes in the structure of Indeco over time, changes in total employment, profitability, etc. The other issues covered are those relating to labour shortages, and the organisational structure of the Group.

To have a standard meaning, the concept enterprise is, for the purposes of this study, taken to mean a whole group of companies or divisions under one overall management - e.g., the Indeco Group of Companies is an enterprise because it falls under the auspices of management at Indeco Central in Lusaka.

Be assured also that the information you provide in this questionnaire will be treated in the strictest confidence, and will only be used for academic purposes.

I thank you in advance for your co-operation.

(Mushiba Nyamazana)

INDECO CENTRAL : QUESTIONNAIRE A

A. General

1. Names of departments and or units at Indeco Central.

Name of department/unit Main responsibilities/activities

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

2. On formulating corporate objectives and policies, do these various departments meet to discuss the issues?

YES _____ NO _____ SOMETIMES _____

If YES or SOMETIMES, how often? _____

3. Do the objectives of Indeco still remain the same as those which were prescribed by the 1968 economic reforms?

YES _____ NO _____

If NO, what are the new objectives? _____

4. What is the position of the following, for the whole Group, now (January 1987) as compared to five years ago (i.e. the 1981/82 financial year) Tick one per item

| | 1 Improved | 2 About the same | 3 Worsened |
|--|---------------|---------------------|---------------|
|--|---------------|---------------------|---------------|

- | | | | |
|---|-------|-------|-------|
| Total employment | _____ | _____ | _____ |
| Total sales | _____ | _____ | _____ |
| Total capital investments | _____ | _____ | _____ |
| Profitability | _____ | _____ | _____ |
| Production/capacity utilisation | _____ | _____ | _____ |
| Industrial disputes | _____ | _____ | _____ |
| Total labour costs | _____ | _____ | _____ |
| Labour shortages, i.e., recruitment difficulties | _____ | _____ | _____ |
| Availability of foreign exchange, i.e. imported inputs, spare parts, etc. | _____ | _____ | _____ |
| Plant closures/liquidation | _____ | _____ | _____ |

5. Over the past five years (i.e. since the 1981/82 financial year), have you experienced any plant closures among your subsidiaries and associated companies?

YES _____ NO _____

If YES, complete the following table.

| Name of plant/company closed | Date of closure | Date of reopening | Reasons for the closure |
|------------------------------|-----------------|-------------------|-------------------------|
| | | | |
| | | | |
| | | | |

a) Hiving off to the private sector of some

b) Receivership/liquidation/closure

c) A buy-out of existing private minority shareholders (minority partners) by another private group but with Indeco still remaining majority shareholders

d) Contract with new partners to overhaul operations of existing companies

e) Merger of existing companies

f) Take-overs

q) Others (specify)

7. a) Are there plans for new projects in the next five years (up to 1992)?

YES NO

b) If YES, what are the types of the projects, name of partners (also indicate MN if they are minority shareholders, or MJ if they are majority shareholders, against the name), proposed location and date of execution (implementation), manpower requirements (indicate E for expatriates and Z for Zambians), and sources of raw or intermediate materials (i.e. L if local and I if imports. C if both).

| Type of project | Name of partners (indicate if MN or MJ) | Location | Proposed date of require- ments execution | Manpower require- ments (E or Z) | Sources of inputs (L, I or C) |
|-----------------|---|----------|--|-------------------------------------|-------------------------------|
| | | | | | |

8. Do the conditions imposed by the IMF and the World Bank affect some of your objectives?

| | |
|-----|----|
| YES | NO |
|-----|----|

If YES, how are the following objectives affected? Tick one per line.

| | 1 Positively affected | 2 Negatively affected | 3 No effect at all |
|--|-----------------------------|-----------------------------|--------------------------|
| Generation of adequate profits for reinvestments and future expansion | | | |
| Honour dividend and interest payments to foreign shareholders and debtors | | | |
| Rapid Zambianisation of key decision-making occupations/posts and transfer the management of the economy to Zambians | | | |
| Promote self-reliant and diversified import-substituting industrialisation | | | |
| Promote balanced growth by increased use of local resources | | | |
| Generate more employment opportunities | | | |
| Invest more in rural areas to check migration | | | |
| Strengthening the role of the public sector in the national economy by improving the sector's overall economic performance | | | |
| Increase production of manufactured goods so as to check inflation | | | |
| Others (specify) | | | |

B. Labour Shortages

9. Over the last five years, in what particular occupational categories did the Group as a whole face recruitment difficulties? (Use the attached appendix A for classifying occupational groups or types of workers.)

| Occupational group | Type of worker | Indicate whether such recruitment difficulties were persistent |
|--------------------|----------------|--|
| | | |

11. At the macro-economic level, i.e. the national economy, which of the following reasons do you think are the main reasons for the skilled and professional labour shortages problems in Zambia? Tick the applicable.

| | Tick |
|---|------|
| Mismatch between education and training system outputs and the requirements of the labour market | — |
| Employers generally have poor policies relating to recruitment, development, retention and redeployment of labour | — |
| Poor information services for job or training seekers, and/or poor job placement services | — |
| Influence of social and cultural factors on allocation of labour, mobility, type of work, reliability and/or manpower stability | — |
| Failure by employers to commit more resources towards training and development of manpower | — |
| Unrealistic social values out of step with economic realities - e.g. looking down upon skilled manual jobs | — |
| Inadequate training facilities in the local institutions of higher learning | — |
| Poor pay for most of the shortage occupations | — |
| Influence of expatriates' advice or technical assistance programmes | — |
| Poor quality of school-leavers make both apprenticeship and on-the-job training difficult | — |
| Too many projects, often capital-intensive, being implemented with no regard to the availability of the necessary manpower | — |

10. Which of the following effects did such recruitment difficulties have on the overall performance of the Group?

| | Tick |
|--|------|
| Reduced production and sales/critical shortages of essential goods on the market | — |
| Plant closures | — |
| Reduced profitability | — |
| Increased machine breakdowns | — |
| Increased pay structure (pay differentials) | — |
| Curtailment of new investments | — |
| Increased use of capital-intensive methods | — |
| Failure to achieve envisaged objectives | — |
| Other (describe) | — |

12. Out of your top managers of the various subsidiary and associate companies, indicate the number of Zambians and non-Zambians, minimum qualifications for the post (both academic and work-experience), the number of those who may hold any such management posts without the minimum qualifications and state whether they are Zambians or not.

Key: L = Zambians
E = Expatriates/non-Zambians
MQ = Minimum qualifications for the particular posts

| Title | Total number | L | E | MQ | No. of L with MQ | No. of E with MQ |
|---------------------------------------|--------------|---|---|----|------------------|------------------|
| Managing Directors | | | | | | |
| General Managers | | | | | | |
| Company Secretaries | | | | | | |
| Company Solicitors/ Legal Counsels | | | | | | |
| Chief Accountants | | | | | | |
| Financial Accountants | | | | | | |
| Managements Accountants | | | | | | |
| Personnel Managers | | | | | | |
| Property/estate Managers | | | | | | |
| Marketing/Sales/ Advert/Managers | | | | | | |
| Works/Production Managers | | | | | | |
| Engineering Managers | | | | | | |
| Farm Managers | | | | | | |

13. What effects, if any, has Zambianisation of management posts in your Group had on operational efficiency or performance? Please list any such effects below (in order of importance).

1.

2.

3.

4.

14. Do you have written-down management development policies, plans, and training programmes in operations?

YES _____ NO _____

15. Do you have any internal training capabilities to meet management development and training needs?

YES _____ NO _____

C. Organisational Structure

16. In which of the following areas does management at Indeco Central monitor the performance (or activities) of the various subsidiary companies? Indicate also whether actual targets are set for them to achieve. Circle the applicable.

| | Monitored | Targets set |
|--|-----------|-------------|
| Training: specific types of training activities aimed at reducing manpower shortage problems, identification of training needs, and forms of training. | 1 | 1 |
| Recruitments standards, promotions, redundancy, retirements, etc. | 2 | 2 |
| Financial performance | 3 | 3 |
| Quality standards | 4 | 4 |
| Production schedules | 5 | 5 |
| Unit labour costs | 6 | 6 |
| Acquisition of new capital/machinery | 7 | 7 |
| Implementation of works councils/committees | 8 | 8 |
| Use and generation of foreign exchange | 9 | 9 |
| Levels of employment (numbers) | 10 | 10 |

17. How many management-level staff, including yourself, work in the manpower and training department here at the Group headquarters?

Write number:

18. From the following areas of work responsibility which cover the whole company, would you please tick the ones which form part of your job or those in your department. tick
- Identify occupations in which labour shortages exist, why they exist, and in which companies _____
- Identify present and future training needs, assess training costs, and make training schedules _____
- Organise training, retraining and development of present employees _____
- Management training and development _____
- Communication with employees _____
- Determining or negotiating pay or conditions of employment _____
- Formulating industrial relations procedures _____
- Designing recruitment and selection procedures for employees _____
- Designing or reviewing incentive schemes _____
- Designing and reviewing job-evaluation or job-grading schemes _____
- Pensions and workers' contributions to NPF _____
- Designing promotion and redeployment procedures _____
- Dismissals and disciplinary cases _____
- Using legal sanctions against unlawful industrial action _____
- Others (specify) _____

19. Are these responsibilities in relation to (tick the applicable):

- a) All sections of the workforce in the Group
- b) Manual workers only in the Group
- c) Non-manual workers only in the Group
- d) Managers only in the Group.

21. a) Is there a committee at this level of the enterprise to determine manpower/personnel policy?

YES ☐ NO ☐
 b) If YES, do you sit on this committee? YES ☐ NO ☐
 c) Which other managers sit on this committee?

21. Has the influence of manpower considerations, i.e., the personnel function, over management decision-making at the enterprise level (i.e. decisions by management at Indeco Central covering the Group) increased, decreased or stayed the same over the past five years? Tick one.

Increased ☐
 Decreased ☐
 Stayed the same ☐

22. If it changes, i.e., increased or decreased, was it (tick one):

a) A lot ☐
 b) A little ☐

23. For what reasons did this increase/decrease come about?

Tick applicable

Increased problems of recruitment difficulties (labour shortages) ☐
 Increased problems of labour turnover ☐
 Effect of employment legislation ☐
 Enterprise policy on employee involvement ☐
 Implementation of the Party's (UNIP) Industrial Participatory Democracy ☐
 Growing trade union power ☐
 Declining trade union power ☐
 Financial stringency ☐
 Problems associated with foreign exchange availability ☐
 Rationalisation of operations ☐
 Increased awareness of the value of trained and stable workforce ☐
 Decentralisation of decision-making to subsidiary companies ☐
 Few personnel and/or industrial relations problems ☐
 Acquisition of new technically advanced machinery and equipment ☐
 Other (specify) ☐

24. Have manpower considerations (or personnel function) concerning the following increased, decreased, or stayed the same over the past five years? Tick one per line.

| | 1 Increased | 2 Decreased | 3 Stayed the same |
|--|----------------|----------------|-------------------------|
| Apprenticeship/on-the-job training | ___ | ___ | ___ |
| Numbers employed | ___ | ___ | ___ |
| Size of pay settlements | ___ | ___ | ___ |
| Acquisition of new capital machinery | ___ | ___ | ___ |
| Location of new industries | ___ | ___ | ___ |
| Choice on the sources of material inputs | ___ | ___ | ___ |

25. Has Indeco got an OVERALL policy or philosophy for the management of employees?

YES ___ NO ___

If YES, is your policy written down in a formal document, such as an enterprise manpower/personnel manual?

YES ___ NO ___

26. If YES, are employees generally given this document?

YES ___ NO ___

27. How do you describe your policy or philosophy?

28. For which of the following elements, if any, is there a formal policy at the enterprise level?

| | Tick |
|---|------|
| Communication of financial and performance information to employees (annual report) | ___ |
| Briefing groups | ___ |
| Quality circles/standards | ___ |
| Work methods, e.g. shiftwork, overtime, etc. | ___ |
| Employee-management relationships | ___ |
| Manpower training and development | ___ |
| Recruitment and selection standards | ___ |
| Promotion and redeployment procedures | ___ |
| Redundancy and retirements | ___ |
| Apprenticeship/on-the-job training standards and procedures | ___ |
| Recruitment and development | ___ |
| Investments in line with national needs and priorities | ___ |
| Others (specify) | ___ |

29. Are subsidiary companies REQUIRED to implement enterprise policy, or is it MERELY ADVISORY? Tick one.

Required to implement ___

Merely advisory ___

30. Do you monitor the extent to which they are put into practice?

YES ___ NO ___ SOMETIMES ___

31. For each of the following areas, please indicate whether:

- a) The enterprise INSTRUCTS subsidiary companies as to what to do;
- b) The enterprise ADVISES subsidiary companies as to what to do;
- c) The enterprise gives subsidiaries BROAD GUIDELINES as to what to do;
- d) The enterprise gives subsidiaries TOTAL AUTONOMY as to what to do.

Also indicate whether the enterprise's policy for the subsidiaries in each particular area is written down in a formal document, or not?

| Area | Tick the applicable | | | | WRITTEN POLICY | |
|------|---------------------|---------------|--------------|--------------|----------------|----|
| | (a) Inst. | (b) Advise | (c) Guide | (d) Auton | YES | NO |

| | | | | | | |
|--|--|--|--|--|--|--|
| Union recognition | | | | | | |
| Union membership agreements/ arrangements | | | | | | |
| Handling of industrial relations issues | | | | | | |
| Total numbers employed | | | | | | |
| Recruitment of senior management personnel | | | | | | |
| Terms of redundancy | | | | | | |
| Patterns of work, e.g. use of shiftwork or overtime | | | | | | |
| Employee incentive schemes | | | | | | |
| Training and retraining procedures | | | | | | |
| Promotion and redeployment procedures | | | | | | |
| Introduction of new techniques and/or work methods | | | | | | |
| Length of the working week | | | | | | |
| Membership of employers' association (ZFE) | | | | | | |

32. In which of the following areas does the enterprise collect data from its subsidiary companies on a regular basis?

Tick

| | |
|---|--|
| Numbers employed | |
| Labour turnover | |
| Recruitment | |
| Overtime working | |
| Absenteeism | |
| Strikes and other forms of industrial action | |
| Redundancies, dismissals or disciplinary cases | |
| Occupations with recruitment difficulties | |
| Training activities and expenditures | |
| Promotions, transfers, redeployment and retirements | |
| Changes in pay | |
| Levels of capital investment | |
| Capital-output ratios | |
| Output-labour ratios | |
| Capital-labour ratios | |
| Others (specify) | |

33. For what purposes is the information used?

Tick

| | |
|---|--|
| Influence allocation of funds for investment | |
| Influence choice of technology | |
| Use it for manpower planning and determining training needs | |
| Assess future manpower requirements and availability | |
| Make comparisons between subsidiaries in terms of industrial relations performance | |
| Identify particular manpower shortages to industrial relations problems that require intervention from this level of the enterprise | |
| Other (specify) | |

THANK YOU VERY MUCH INDEED FOR THE TIME AND EFFORT YOU HAVE PUT INTO COMPLETING THIS QUESTIONNAIRE

UNION RECOGNITION, COLLECTIVE BARGAINING, PAY AND MANAGEMENT DEVELOPMENT

1. Are any unions recognised by management for negotiating the pay and conditions of any of the various categories of workers at the subsidiaries in the enterprise?

YES _____ NO _____

2. Are trade unions recognised in all subsidiaries of the enterprise, or in just some, for the following type of workers: (Tick one per column)

Non-manual _____

Manual _____

In all _____

In just some _____

3. Do the different types of workers (i.e. manual and non-manual) in the enterprise have their own separate negotiating arrangements?

YES _____ NO _____

4. At what level are these negotiations with unions that EITHER form the basis for subsequent negotiations, OR result directly in pay increases for the Indeco Group? Tick the applicable.

| | Manual | Non-manual |
|---|--------|------------|
| National/industrial-wise covering more than one employer | | |
| ZIMCO Ltd. but covering all subsidiaries and establishments | | |
| Indeco Ltd. but covering all subsidiaries and establishments in the Group | | |
| Indeco Ltd. but only covering individual subsidiaries and establishments | | |

5. Is Indeco Central management involved in these negotiations?

YES _____ NO _____

6. If NO, which of the following practices apply to the Indeco Central management? Tick the applicable.

| | Manual | Non-manual |
|---|--------|------------|
| Issue guidelines to subsidiaries on pay negotiations | | |
| Convene meetings of subsidiary and establishment managers to discuss pay policy prior to pay negotiations | | |
| Issue instructions on pay negotiations | | |
| Has to approve the final offer | | |
| None at all | | |

7. Is the management at Indeco Central directly involved in decisions for pay increases for workers in the whole Group?

YES _____ NO _____

OR

Are Zimco-conditions of service (including pay) applied uniformly to all employees of the Indeco Group with no regard to any differences that may obtain between the various different subsidiary companies?

YES _____ NO _____

8. a) If possible, state both the highest and lowest paid occupational groups in your enterprise, their respective average annual earnings and the average annual earnings for all employees in the Indeco Group.

| Occupational group | Average annual earnings for the occupational group (K) |
|--------------------|--|
| Highest | |
| Lowest | |

- b) i) On average, what are the expatriate's annual earnings? K _____
 ii) On average what are the Zambian's annual earnings? K _____

9. For which of the following occupational groups, if any, is there:

- a) A common incentive, performance or bonus payment scheme;
 b) A formal job grading or evaluation scheme that covers most establishments in the Indeco Group?
 Tick the applicable.

| | (a) Incentives | (b) Job-grading and evaluation |
|--------------------|-------------------|--------------------------------------|
| Manual workers | | |
| Non-manual workers | | |
| Managers | | |
| None of above | | |

10. Are regular meetings held between management and employees at this level of the enterprise (Indeco Central) which are primarily concerned with CONSULTATION rather than negotiation?

YES _____ NO _____

If YES, which categories of workers are involved, and how often are these meetings held?

| | <u>Tick</u> <u>Applicable</u> | <u>How Often? (Tick one for each worker category)</u> | | | | |
|---------------------|----------------------------------|---|----------------|------------------|-----------------|---------------|
| | | <u>Weekly</u> | <u>Monthly</u> | <u>Quarterly</u> | <u>Annually</u> | <u>Ad hoc</u> |
| Manual | — | | | | | |
| Non-manual | — | | | | | |
| Managerial | — | | | | | |
| Others (specify) | — | | | | | |

11. Of the following methods used by managements in some organisations to communicate or consult with their employees
 a) Which do you use as a matter of policy?
 b) Was the decision to establish any particular method you specified under (a) taken by management here or at the subsidiaries?
 c) For which of the reasons was the consultation method established?
 Ring the applicable.

SEE NEXT PAGE (5) for methods table.

12. Which of the following areas does management at the Group headquarters level give information to employees? Tick the applicable.

- Tick _____
 a) Financial position of the enterprise (group) _____
 b) Financial position of each subsidiary company _____
 c) Investment plans _____
 d) Manpower problems and training needs _____
 e) Movements in the national economy _____
 f) None of the above _____

MANAGEMENT DEVELOPMENT AND MANPOWER PLANNING

13. a) When was your manpower planning unit (department) set up?
 b) What were the particular manpower problems and/or reasons then which prompted your organisation to establish a distinct manpower planning unit/department?

Manpower problems/reasons

1.
 2.
 3.
 4.
 5.

14. Have there been any improvements in any of the above problems since then? State the affected problem and tick the level of improvement.

| Manpower problems specified in 13(b) | Significant improvement | Some improvement | No change |
|--------------------------------------|-------------------------|------------------|-----------|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

15. Is manpower planning for the whole Group done from the Group headquarters, or is it done or supplemented at the individual subsidiary level? Please explain briefly.

16. For the information needed for planning manpower or determining training needs, does your manpower planning department visit each subsidiary company to collect all the necessary information, or do you ask your subsidiary and associated companies to forward such information? Explain briefly.

[illegible]

17. Given the variety of activities of the Group, what particular problems do you face on forecasting demand for specific manpower requirements for the different companies?

18. What particular problems do you face in relation to your practising manpower planning (e.g., economic instability, inadequate resources, inherent labour scarcities in the local labour market, etc.)?

20. Which of the following manpower issues do you consider when introducing new plant, machinery or equipment?

Tick

Availability of necessary types of labour

Effect on numbers employed

Effect on pay

Effect on pay differentials

Effect on organisation of work

Effect on availabilities of inputs

Others (describe)

21. What is your policy with regard to union representatives when introducing new plant, machinery or equipment? Is it to

Tick one

Negotiate with union representatives with introduction being dependent upon their agreement

Discuss with union representatives in a way that takes their views into account but leaves management free to take the decisions

Not to discuss the matter with union representatives

19. When new plant, machinery or equipment is being considered, which of the following statements describes the situation that applies?

Tick

Individual subsidiaries/establishments can recommend what to do, but have to get final approval from the Group headquarters

Individual companies can decide what to do without having to get approval from here (Indeco Central)

Group headquarters decides what to do and individual companies merely put it into practice

Other (specify)

22. Which of the methods of recruitment below generally applies to:

- a) Manual workers
b) Non-manual workers
c) Managers?
(Tick the applicable.)

| | Manual | Non-manual | Managers |
|--|--------|------------|----------|
| Recruitment carried out by subsidiary company | | | |
| Subsidiary/associate companies recruit but have to seek approval from Indeco Central | | | |
| Subsidiary/associate companies recruit and DO NOT NEED to seek approval from higher levels of the enterprise | | | |
| Recruitment carried out by Indeco Central - overall enterprise headquarters | | | |
| Varies/no common pattern | | | |

23. Do senior managers and directors who work at subsidiary companies generally have contracts of employment with:

- The enterprise (Indeco Central) _____
The division/subsidiary company in which they work _____
Both Indeco Central and the respective company _____

24. Is a common evaluation scheme applied to all these managers?

- YES _____ NO _____

25. Is there any person at Indeco Central (enterprise headquarters) with direct responsibility for the recruitment, development and determining the remuneration package of these managers?

- YES _____ NO _____
If YES, is this his/her main job? YES _____ NO _____

26. Generally speaking, do you see these managers as an enterprise resource, or is their career and development the responsibility of the subsidiary companies at which they work?

- Enterprise resource _____
Subsidiary company's resource _____
Both enterprise and subsidiary resource _____

27. As a Group,

- a) Which of the areas below are personnel and industrial relations issues TAKEN INTO ACCOUNT in enterprise-level decision-making?
b) What influence have personnel and industrial relations considerations compared with financial and technical ones? Circle the issues taken into account, and ONLY ONE influence associated with such issues.

| | (a) Taken into account | (b) Influence of personal/ir Lot Bit more the same less account | Lot Bit less less |
|---|---------------------------------|--|----------------------------|
| Establishment closures or disposals | 1 | 5 4 3 | 2 1 |
| Redundancies | 2 | 5 4 3 | 2 1 |
| Run-down of establishments | 3 | 5 4 3 | 2 1 |
| Acquisitions or takeovers | 4 | 5 4 3 | 2 1 |
| Major changes in production or operational arrangements | 5 | 5 4 3 | 2 1 |
| New capital investment decisions | 6 | 5 4 3 | 2 1 |
| Setting operational budgets for subsidiary companies | 7 | 5 4 3 | 2 1 |

THANK YOU VERY MUCH INDEED FOR COMPLETING THIS QUESTIONNAIRE

THE UNIVERSITY OF ZAMBIA
AND THE SCHOOL OF ORIENTAL AND AFRICAN STUDIES, UNIVERSITY OF LONDON

STUDY OF MANPOWER PLANNING AND LABOUR SHORTAGES
IN THE ZAMBIAN PARASTATAL AND PRIVATE INDUSTRIAL SECTORS

Dear Respondent,

You are kindly requested to participate in a study on manpower planning and labour shortages in Zambia by providing information of your personal knowledge and experience as regards some aspects of your employment. The aim of the study is to find out employees' views on job satisfaction and other relevant matters which may affect their mobility in the labour market, and any consequential effects on labour shortages to affected employers. The other aim is to determine how your views may help employers to improve both their recruitment processes and retention rates by adopting measures which aim at reducing labour turnover.

Given the inherent skilled and professional labour shortages in Zambia, your response to this questionnaire may provide valuable information which may help the various employers in Zambia to improve their methods of hiring, developing (training) and retaining the necessary labour. I would be most grateful if you would complete the questionnaire as soon as possible, and hand it to me or one of my research assistants who will be visiting your company at the time.

Please be assured that any information you provide will be treated in strictest confidence, and will not be shown to your employers, and that no individual names or organisations will be identified in the final documented study.

Should you be interested to know more about this study, please contact me personally at the time I am visiting your workplace, or write to me at the following address:

The University of Zambia,
Department of Economics,
PO Box 32379,
Lusaka.

Telephone: 213221

Thank you in advance for your co-operation and assistance.

Yours sincerely,



(Mushiba Nyamazana)

EMPLOYEES' QUESTIONNAIRE

A. BACKGROUND INFORMATION

11(a) Sex: MALE Date of birth: 19

2
FEMALE

(Tick as applicable)

(b) PRESENT EMPLOYER, name, address and business activities:

NAME, ADDRESS AND LOCATION:

BUSINESS ACTIVITIES:

(c) Date of joining present employer: _____

(d) Do you belong to a trade union, works council, or professional organisation?
Tick as applicable

YES

NO

Trade union

UNIP works council

Professional organisation

(e) What does your present job involve? Please also state, if possible, your job title and post.

(f). (i) What was your starting salary/wage with your present employer per annum (gross taxable earnings)? K

(ii) What is/are your present salary/wages per annum (gross taxable earnings)? K

2. PREVIOUS EMPLOYMENT

(1) Have you been employed somewhere else before? YES NO
If YES, please give name of previous employer and
address (including province or country in case of
expatriates).

(ii) Starting salary with previous employer per annum gross: K

(iii) Leaving salary per annum (gross): K

(iv) Year of starting with previous employer: 19__

Year of leaving previous employer: 19__

Was this your first job since leaving school/college/institute/
university? (Delete where inapplicable.)

YES

NO

NO

If NO, please list below, in chronological order, the various jobs you may have held since leaving school/college/institute/university, for at least one month?

| EMPLOYER | DATE OF JOINING | DATE OF LEAVING | FUNCTIONS/ DUTIES | REASONS FOR LEAVING |
|----------|-----------------|-----------------|----------------------|---------------------|
| | | | | |

B. TRAINING AND QUALIFICATIONS

NOTE: Answer Question 3 if you are formally qualified; answer Question 4 if you did internal company training, i.e., on-the-job training or apprenticeship.

3. Please list below, in chronological order, (a) your educational qualifications, school certificates, college/trades institute certificates, university degrees, etc., and also (b) any professional or other relevant qualifications (such as in accountancy, personnel management, law, etc.)

a) Educational qualifications

| <u>QUALIFICATIONS</u> | <u>YEAR OBTAINED</u> | <u>INSTITUTION</u> | <u>MAJOR SUBJECT</u> | <u>CLASS/DIVISION</u> | <u>PART-FULL-TIME, CORRESPONDENCE, NIGHT SCHOOL, ETC.</u> | <u>SPONSORED (If so by whom?)</u> |
|-----------------------|----------------------|--------------------|----------------------|-----------------------|---|-----------------------------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |

b) Professional and other qualifications (if any)

| <u>QUALIFICATION</u> | <u>DATE OBTAINED</u> | <u>OTHER DETAILS (if appropriate, or if you are still studying for the qualification but you are a member of a professional organisation)</u> |
|----------------------|----------------------|---|
| | | |
| | | |
| | | |

4. (a) (i) If on leaving school you did not go to college etc. for whatever reasons, did you train for your present job through an on-the-job training scheme, or through apprenticeship?

(ii) If so, was it with your present employer or somewhere else? Please explain briefly.

(b) If you only did on-the-job training and/or apprenticeship to enable you to qualify for your present job, is your rate of pay the same as your colleagues who obtained similar qualifications from trade institutes or colleges? Tick as applicable.

YES ₁ NO ₂

If **NO**, what do you think are the reasons for such differentials? Explain briefly.

5. Would further training and/or retraining in any way improve your job performance or your work versatility?

YES NO

If so, are you prepared to go for such further training or retaining? Please explain briefly.

C. THE METHOD OF FINDING YOUR JOB

6. If you have held only one job since you left school, college/institute/university, complete only column A; if more than one job, please complete both columns A and B. (Please tick only one case per column.)

| | A Present | B Previous |
|---|--------------|---------------|
| Visits by employers at the institution where you did the course | | |
| School/college/university career advisory services/masters | | |
| Employment exchange office (labour office) | | |
| Newspaper/magazine advertisement | | |
| Professional and executive recruitment | | |
| Private employment agencies | | |
| Visited/wrote speculatively/personal contacts with employer | | |
| Friends or relations/personal connections or contacts | | |
| Sponsorship/tied to employment by 'bonding' | | |
| Previous work in the firm (e.g. vacation jobs) | | |
| Taken on as journeyman for apprenticeship, or on-the-job training | | |
| Other (please specify) | | |

7 (a) How accurate a picture of what your job would entail did you get:
(i) during the recruitment process; (ii) through the recruitment literature, and (iii) through the company representative you met?
(Please tick one box for each of (i), (ii), (iii).)

| | Very Accurate 1 | Fairly Accurate 2 | Rather Inaccurate 3 | Very Inaccurate 4 |
|----------------------------------|-----------------------|-------------------------|---------------------------|-------------------------|
| (i) The recruitment process | | | | |
| (ii) The recruitment literature | | | | |
| (iii) The company representative | | | | |

(b) If you were in charge of recruitment of new employees in your present organisation, would you make any changes in the way in which it is done?

YES NO DON'T KNOW

If YES, what changes would you make?

D. YOUR REASONS FOR CHOOSING THE PRESENT JOB

8. How important were each of the following factors to you when deciding on your present job? (Please tick one of the columns for each case.)

| | Very Important 1 | Of some Importance 2 | No Importance 3 |
|---|------------------------|----------------------------|-----------------------|
| Type of work | | | |
| Job security | | | |
| Personal independence | | | |
| Salary/wage level | | | |
| Using your abilities to the full | | | |
| Good career prospects | | | |
| Flexible opportunities for career change | | | |
| Opportunities for further training locally or abroad | | | |
| Opportunities for professional qualifications | | | |
| Size of company | | | |
| Company's record as good employer/good industrial relations | | | |
| Variety of work | | | |
| Opportunities to use certificate/degree skills/subject | | | |
| Opportunities to travel abroad | | | |
| Doing a socially or economically 'useful' job | | | |
| Contact with people | | | |
| Plenty of responsibility | | | |
| Good equipment | | | |
| Intellectually demanding or satisfying | | | |
| Flexibility of working hours | | | |
| Pleasant working conditions | | | |
| Congenial colleagues | | | |
| Company car or other fringe benefits | | | |
| Geographical location | | | |
| Job offer came at opportune time | | | |
| Company ownership (specify private or parastatal) | | | |
| Other (please specify) | | | |

E. FUTURE JOB CHANGES

9 (a) How does your present employment compare with your expectations when you joined the firm/company in terms of the following job attributes? (Please tick one column for each of the attributes.)

| | Better than expected 1 | Same as expected 2 | Worse than expected 3 |
|---|------------------------------|--------------------------|-----------------------------|
| Job security | _____ | _____ | _____ |
| Personal independence | _____ | _____ | _____ |
| Salary/wage levels | _____ | _____ | _____ |
| Using your abilities to the full | _____ | _____ | _____ |
| Good career/promotion prospects | _____ | _____ | _____ |
| Flexible opportunities for career change | _____ | _____ | _____ |
| Opportunities for further training | _____ | _____ | _____ |
| Opportunities for professional qualifications | _____ | _____ | _____ |
| Variety in work | _____ | _____ | _____ |
| Opportunities to use certificate/degree subjects/skills | _____ | _____ | _____ |
| Opportunities for travel abroad | _____ | _____ | _____ |
| Doing a socially or economically 'useful' job | _____ | _____ | _____ |
| Contact with people | _____ | _____ | _____ |
| Plenty of responsibility | _____ | _____ | _____ |
| Good equipment | _____ | _____ | _____ |
| Intellectually demanding and satisfying | _____ | _____ | _____ |
| Flexibility of working hours | _____ | _____ | _____ |
| Pleasant working conditions | _____ | _____ | _____ |
| Congenial colleagues | _____ | _____ | _____ |
| Interesting work | _____ | _____ | _____ |
| Employment-management relations/industrial relations | _____ | _____ | _____ |
| Political pressures | _____ | _____ | _____ |

(b) Are there any other ways in which you consider that your present employment differs from what you expected/

(c) How much relevance do your certificate/diploma/degree have to your present job?

(Tick one.)
1. A great deal 2. Some 3. Very little 4. None at all

10 (a) How likely is it that you will be with the same employer in the next one, two or three years? Please tick one box for each time period.

| | Very likely 1 | Quite likely 2 | Not very likely 3 | Unlikely 4 |
|----------------------|---------------------|----------------------|-------------------------|---------------|
| Within next one year | _____ | _____ | _____ | _____ |
| In two years' time | _____ | _____ | _____ | _____ |
| In three years' time | _____ | _____ | _____ | _____ |

(b) If you were to move, are your main reasons for doing so the same as those you have ticked in column 3 of Question 9(a)?

YES NO

If NO, specify your other reasons for your likely future leaving.

(c) If you were to move, where would your next employment most likely be? (Please tick one or more boxes.)

Tick one or more (up to three) and rank on the side by order of likelihood

- Public sector/civil service _____
- Similar-sized organisation in private sector _____
- Similar-sized organization in parastatal sector _____
- Smaller organisation in private sector _____
- Smaller organisation in parastatal sector _____
- Larger organisation in private sector _____
- Larger organisation in parastatal sector _____
- A family enterprise _____
- A small organisation where you would work in a smaller group _____
- Set up your own business/private practice _____

F. JOB SATISFACTION

11 (a) Overall, how satisfied are you with your present employment?
Tick one box.

1. Very satisfied
2. Quite satisfied
3. Not very satisfied
4. Dissatisfied

(b) What do you consider to be the best aspects of your present employment?
(Please list in order of importance.)

(c) What do you consider are the worst aspects of it?
(Please list in order of importance.)

(d) Do you discuss either your personal or work-related (professional) problems with your immediate boss and/or members of top management?
Explain briefly.

Tick one: YES NO SOMETIMES

Brief explanation:

(e) Do you consider your employers to be attentive or considerate to your personal problems which may affect your work, such as funerals, paying for school fees for your children, etc?

Tick one: YES NO SOMETIMES

Brief explanation:

(f) (i) When decisions on new investments, new machines, new work/organisational methods, etc. are made or considered, are you usually consulted well in advance?

YES NO SOMETIMES

(ii) If NO, would you feel happier/or part of the organisation if you were consulted?

YES NO

THANK YOU FOR COMPLETING
THIS QUESTIONNAIRE

APPENDIX V: REASONS FOR CHOOSING PRESENT JOB AND ACTUAL EXPERIENCE IN THE JOB.

A: INDECO EMPLOYEES

| | Very Important | Of Some Importance | No Importance | Not Applicable | Row Total |
|---|-------------------|-----------------------|------------------|-------------------|--------------|
| Type of Work | 63 74.1 | 21 24.7 | 1 1.2 | - - | 85 |
| Job Security | 61 71.8 | 21 24.7 | 2 2.4 | 1 1.2 | 85 |
| Personal Independence | 37 43.5 | 33 38.8 | 13 15.3 | 2 2.4 | 85 |
| Salary/wage Level | 46 54.1 | 32 37.6 | 6 7.1 | 1 1.2 | 85 |
| Using Personal Abilities to the Full | 68 80.0 | 13 15.3 | 4 4.3 | - - | 85 |
| Good Career Prospects | 59 70.2 | 18 21.4 | 4 4.8 | 3 3.6 | 84 |
| Flexible Opportunities for Career Change | 23 27.1 | 33 38.8 | 26 30.6 | 3 3.5 | 85 |
| Further Training Opportunities | 62 72.1 | 18 20.9 | 6 7.0 | - - | 86 |
| Opportunities for Professional Qualifications | 55 64.7 | 24 28.2 | 5 5.9 | 1 1.2 | 85 |
| Size of Company | 28 32.9 | 38 44.7 | 16 18.8 | 3 3.5 | 85 |
| Company's Record as a Good Employer | 36 42.4 | 36 42.4 | 13 15.3 | - - | 85 |
| Variety of Work | 35 41.2 | 29 34.1 | 19 22.4 | 2 2.4 | 85 |
| Opportunity to Use Skill/Training | 41 48.2 | 33 38.8 | 9 10.6 | 2 2.4 | 85 |
| Opportunities for Travelling Abroad | 8 9.4 | 29 34.1 | 46 54.1 | 2 2.4 | 85 |
| Doing Something Useful (socially or economically) | 32 38.1 | 35 41.7 | 15 17.9 | 2 2.4 | 84 |
| Contact/Meeting People | 36 42.4 | 35 41.2 | 14 16.5 | - - | 85 |
| Plenty of Responsibility | 50 58.8 | 25 29.4 | 9 10.6 | 1 1.2 | 85 |
| Good Equipment | 36 42.4 | 23 27.1 | 25 29.4 | 1 1.2 | 85 |
| Intellectually Demanding/Satisfying Job | 48 56.5 | 23 27.1 | 9 10.6 | 5 5.9 | 85 |
| Flexible Working Hours | 24 28.2 | 24 28.2 | 33 38.8 | 4 4.7 | 85 |
| Pleasant Conditions of Service | 40 47.1 | 35 41.2 | 10 11.8 | - - | 85 |
| Congenial Colleagues | 21 24.7 | 37 43.5 | 23 27.1 | 4 4.7 | 85 |
| Company Car or other Fringe Benefits | 10 11.8 | 41 48.2 | 30 35.3 | 4 4.7 | 85 |
| Geographical Location of Firm | 13 15.3 | 30 35.3 | 40 47.1 | 2 2.4 | 85 |
| Job Offer Came at Opportune Time | 25 29.4 | 30 35.3 | 24 28.2 | 6 7.1 | 85 |
| Ownership of the Company (parastatal) | 27 35.1 | 19 24.7 | 27 35.1 | 4 5.2 | 77 |
| Other | 3 60 | 1 20 | 1 20 | - - | 4 |

COMPARISON OF EXPECTED AND ACTUAL CONDITIONS IN PRESENT JOB

| | Better than Expected | Same as Expected | Worse than Expected | Not Applicable | Row Total |
|--------------------------------------|-------------------------|---------------------|------------------------|-------------------|--------------|
| Job Security | 22 25.9 | 45 52.9 | 18 21.2 | - - | 85 |
| Personal Independence | 21 24.7 | 48 56.5 | 14 16.5 | 2 2.4 | 85 |
| Salary/Wage Level | 15 17.9 | 34 40.5 | 34 40.5 | 1 1.2 | 84 |
| Using Personal Abilities to the Full | 27 32.5 | 32 38.6 | 23 27.7 | 1 1.2 | 83 |
| Good Career/promotion Prospects | 8 9.9 | 43 53.1 | 30 37.0 | - - | 81 |

| | Better than Expected | Same as Expected | Worse than Expected | Not Applicable | Row Total |
|---|-------------------------|---------------------|------------------------|-------------------|--------------|
| Flexible Opportunities for Career Change | 12 | 48 | 20 | 4 | 84 |
| | 14.3 | 57.1 | 23.8 | 4.8 | |
| Opportunities for Further Training | 11 | 28 | 44 | 1 | 84 |
| | 13.1 | 33.3 | 52.4 | 1.2 | |
| Opportunities for Professional Qualifications | 13 | 37 | 30 | 4 | 84 |
| | 15.5 | 44.0 | 35.7 | 4.8 | |
| Variety of Work | 27 | 43 | 13 | 1 | 84 |
| | 32.1 | 51.2 | 15.5 | 1.2 | |
| Use of Skills/Training | 14 | 47 | 21 | 1 | 83 |
| | 16.9 | 56.6 | 25.3 | 1.2 | |
| Opportunities for Travel Abroad | 8 | 31 | 36 | 9 | 84 |
| | 9.5 | 36.9 | 42.9 | 10.7 | |
| Doing Something Useful | 23 | 48 | 11 | 1 | 83 |
| | 27.7 | 57.8 | 13.3 | 1.2 | |
| Contact with People | 33 | 46 | 4 | 1 | 84 |
| | 39.3 | 54.8 | 4.8 | 1.2 | |
| Plenty of Responsibility | 34 | 32 | 14 | 2 | 82 |
| | 41.5 | 39.0 | 17.1 | 2.4 | |
| Good Equipment | 19 | 38 | 22 | 4 | 83 |
| | 22.9 | 45.8 | 26.5 | 4.8 | |
| Intellectually Demanding/Satisfying Job | 18 | 46 | 15 | 1 | 80 |
| | 22.5 | 57.5 | 18.8 | 1.2 | |
| Flexible Working Hours | 14 | 63 | 2 | 4 | 83 |
| | 16.9 | 75.9 | 2.4 | 4.8 | |
| Pleasant Working Conditions | 17 | 43 | 23 | - | 83 |
| | 20.5 | 51.8 | 27.7 | - | |
| Congenial Colleagues | 17 | 55 | 9 | 1 | 82 |
| | 20.7 | 67.1 | 11.0 | 1.2 | |
| Interesting Work | 28 | 39 | 14 | - | 81 |
| | 34.6 | 48.1 | 17.3 | - | |
| Good Industrial Relations | 12 | 42 | 27 | - | 81 |
| | 14.8 | 51.9 | 33.3 | - | |
| Political Pressures | 19 | 51 | 6 | 6 | 82 |
| | 23.2 | 62.2 | 7.3 | 7.3 | |

B: PRIVATE SECTOR

| | Very Important | Of Some Importance | No Importance | Not Applicable | Row Total |
|---|-------------------|-----------------------|------------------|-------------------|--------------|
| Type of Work | 23 | 9 | 2 | - | 34 |
| | 67.6 | 26.5 | 5.9 | - | |
| Job Security | 17 | 13 | 4 | - | 34 |
| | 50.0 | 38.2 | 11.8 | - | |
| Personal Independence | 14 | 13 | 7 | - | 34 |
| | 41.2 | 38.2 | 20.6 | - | |
| Salary/wage Level | 15 | 12 | 6 | - | 33 |
| | 45.5 | 36.4 | 18.2 | - | |
| Using Personal Abilities to the Full | 26 | 6 | 1 | 1 | 34 |
| | 76.5 | 17.6 | 2.9 | 2.9 | |
| Good Career Prospects | 16 | 12 | 3 | 2 | 33 |
| | 48.5 | 36.4 | 9.1 | 6.1 | |
| Flexible Opportunities for Career Change | 8 | 12 | 13 | 1 | 34 |
| | 23.5 | 35.3 | 38.2 | 2.9 | |
| Further Training Opportunities | 20 | 10 | 4 | - | 34 |
| | 58.8 | 29.4 | 11.8 | - | |
| Opportunities for Professional Qualifications | 18 | 12 | 4 | - | 34 |
| | 52.9 | 35.3 | 11.8 | - | |
| Size of Company | 5 | 17 | 11 | 1 | 34 |
| | 14.7 | 50.0 | 32.4 | 2.9 | |
| Company's Record as a Good Employer | 11 | 16 | 7 | - | 34 |
| | 32.4 | 47.1 | 20.6 | - | |
| Variety of Work | 12 | 15 | 6 | 1 | 34 |
| | 35.3 | 44.1 | 17.6 | 2.9 | |
| Opportunity to Use Skill/Training | 13 | 9 | 11 | 1 | 34 |
| | 38.2 | 26.5 | 32.4 | 2.9 | |
| Opportunities for Travelling Abroad | 4 | 9 | 19 | 2 | 34 |
| | 11.8 | 26.5 | 55.9 | 5.9 | |
| Doing Something Useful (socially or economically) | 15 | 15 | 4 | - | 34 |
| | 44.1 | 44.1 | 11.8 | - | |
| Contact/Meeting People | 13 | 16 | 4 | 1 | 34 |
| | 38.2 | 47.1 | 11.8 | 2.9 | |
| Plenty of Responsibility | 12 | 16 | 5 | 1 | 34 |
| | 35.3 | 47.1 | 14.7 | 2.9 | |

| | Very Important | Of Some Importance | No Importance | Not Applicable | Row Total |
|---|-------------------|-----------------------|------------------|-------------------|--------------|
| Good Equipment | 11 | 12 | 10 | - | 33 |
| | 33.3 | 36.4 | 30.3 | - | |
| Intellectually Demanding/Satisfying Job | 16 | 12 | 5 | 1 | 34 |
| | 47.1 | 35.3 | 14.7 | 2.9 | |
| Flexible Working Hours | 9 | 11 | 14 | - | 34 |
| | 26.5 | 32.4 | 41.2 | - | |
| Pleasant Conditions of Service | 17 | 13 | 4 | - | 34 |
| | 50.0 | 38.2 | 11.8 | - | |
| Congenial Colleagues | 5 | 16 | 10 | - | 31 |
| | 16.1 | 51.6 | 32.3 | - | |
| Company Car or other Fringe Benefits | 10 | 12 | 12 | - | 34 |
| | 29.4 | 35.3 | 35.3 | - | |
| Geographical Location of Firm | 6 | 13 | 15 | - | 34 |
| | 17.6 | 38.2 | 44.1 | - | |
| Job Offer Came at Opportune Time | 19 | 10 | 4 | 1 | 34 |
| | 55.9 | 29.4 | 11.8 | 2.9 | |
| Ownership of the Company (private) | 12 | 9 | 13 | - | 34 |
| | 35.3 | 26.5 | 38.2 | - | |
| Other | 3 | - | 2 | 1 | 6 |
| | 50.0 | - | 33.3 | 16.7 | |

COMPARISON OF EXPECTED AND ACTUAL CONDITIONS IN PRESENT JOB

| | Better than Expected | Same as Expected | Worse than Expected | Not Applicable | Row Total |
|---|-------------------------|---------------------|------------------------|-------------------|--------------|
| Job Security | 6 | 14 | 12 | - | 32 |
| | 18.8 | 43.8 | 37.5 | - | |
| Personal Independence | 10 | 17 | 6 | - | 33 |
| | 30.3 | 51.5 | 18.2 | - | |
| Salary/Wage Level | 10 | 10 | 13 | - | 33 |
| | 30.3 | 30.3 | 39.4 | - | |
| Using Personal Abilities to the Full | 12 | 9 | 11 | - | 32 |
| | 37.5 | 28.1 | 34.4 | - | |
| Good Career/promotion Prospects | 10 | 9 | 15 | - | 34 |
| | 29.4 | 26.5 | 44.1 | - | |
| Flexible Opportunities for Career Change | 6 | 16 | 10 | 1 | 33 |
| | 18.2 | 48.5 | 30.3 | 3.0 | |
| Opportunities for Further Training | 9 | 7 | 17 | - | 33 |
| | 27.3 | 21.2 | 51.5 | - | |
| Opportunities for Professional Qualifications | 8 | 9 | 16 | 1 | 34 |
| | 23.5 | 26.5 | 47.1 | 2.9 | |
| Variety of Work | 11 | 12 | 10 | - | 33 |
| | 33.3 | 36.4 | 30.3 | - | |
| Use of Skills/Training | 4 | 13 | 15 | 2 | 34 |
| | 11.8 | 38.2 | 44.1 | 5.9 | |
| Opportunities for Travel Abroad | 6 | 6 | 20 | 2 | 34 |
| | 17.6 | 17.6 | 58.8 | 5.9 | |
| Doing Something Useful | 8 | 18 | 6 | - | 32 |
| | 25.0 | 56.3 | 18.8 | - | |
| Contact with People | 9 | 17 | 6 | 1 | 33 |
| | 27.3 | 51.5 | 18.2 | 3.0 | |
| Plenty of Responsibility | 10 | 14 | 9 | 1 | 34 |
| | 29.4 | 41.2 | 26.5 | 2.9 | |
| Good Equipment | 8 | 14 | 10 | 1 | 33 |
| | 24.2 | 42.4 | 30.3 | 3.0 | |
| Intellectually Demanding/Satisfying Job | 8 | 12 | 12 | 1 | 33 |
| | 24.2 | 36.4 | 36.4 | 3.0 | |
| Flexible Working Hours | 4 | 25 | 5 | - | 34 |
| | 11.8 | 73.5 | 14.7 | - | |
| Pleasant Working Conditions | 6 | 13 | 14 | - | 33 |
| | 18.2 | 39.4 | 42.4 | - | |
| Congenial Colleagues | 3 | 21 | 6 | 1 | 31 |
| | 9.7 | 67.7 | 19.4 | 3.2 | |
| Interesting Work | 9 | 16 | 8 | - | 33 |
| | 27.3 | 48.5 | 24.2 | - | |
| Good Industrial Relations | 6 | 13 | 15 | - | 34 |
| | 17.6 | 38.2 | 44.1 | - | |
| Political Pressures | 7 | 21 | 4 | 2 | 34 |
| | 20.6 | 61.8 | 11.8 | 5.9 | |

NOTE: Decimal figures are row percentages.

Source: Employees' Questionnaire, Questions 8 and 9.

APPENDIX VIA

PAST AND PROJECTED PERFORMANCE, 1980-2000, FOR SELECTED INDECO SUBSIDIARY COMPANIES

| COMPANY | ITEM | Past Performance..... | | | | | | | | | | Projections..... | | | | | | | | | |
|---------|----------------|-----------------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|------------------|---------|--------|-------|-------|--|--|--|--|--|
| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1995 | 2000 | | | | | |
| 2 | Employment | 375 | 372 | 391 | 402 | 393 | 368 | 235 | 235 | 236 | 236 | 339 | 240 | - | 240 | 240 | | | | | |
| | Capital Inv. | 4500 | 5361 | 6550 | 10041 | 10123 | 9329 | 23297 | 113271 | 138520 | 124924 | 133858 | 148183 | 172042 | - | - | | | | | |
| | Value Added | 3902 | 5310 | 6142 | 7777 | 9638 | 7750 | 12423 | 21676 | 41673 | 49648 | 60180 | 74988 | 70545 | - | - | | | | | |
| | Turnover | 9775 | 12700 | 14429 | 15985 | 19275 | 22432 | 36932 | 56682 | 89420 | 110328 | 137910 | 172388 | 215584 | - | - | | | | | |
| | Gross Profits | 5399 | 7340 | 8095 | 8192 | 10363 | 9337 | 14996 | 25779 | 51212 | 63998 | 80187 | 100135 | 124534 | - | - | | | | | |
| | Labour Costs | 1338 | 1599 | 1899 | 2058 | 2316 | 2827 | 4674 | 2997 | 3372 | 4048 | 4858 | 5829 | 6995 | - | - | | | | | |
| 3 | Capacity Util. | 60 | 65 | 62 | 60 | 55 | 45 | 46 | 60 | - | - | - | - | - | - | - | | | | | |
| | Employment | 435 | 459 | 492 | 471 | 513 | 515 | 449 | 448 | 442 | - | - | - | - | - | - | | | | | |
| | Capital Inv. | - | 5544 | 5101 | 3860 | 3418 | 3572 | 18054 | 29826 | 31063 | 33146 | 36240 | 40002 | - | - | - | | | | | |
| | Value Added | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | |
| | Turnover | - | 6097 | 6691 | 9122 | 11985 | 16039 | 23845 | 60479 | 71372 | 85009 | 101291 | 121569 | - | - | - | | | | | |
| | Gross Profits | - | 360 | 698 | 1673 | 2838 | 2972 | 4668 | 15010 | 17005 | 18740 | 21560 | 23856 | - | - | - | | | | | |
| 5 | Labour Costs | - | 610 | 669 | 912 | 1199 | 1604 | 2385 | 5110 | 5620 | 6182 | 6801 | 7481 | - | - | - | | | | | |
| | Capacity Util. | 38 | 56 | 62 | 55 | 60 | 73 | 78 | 65 | 95 | 95 | 95 | 95 | - | - | - | | | | | |
| | Employment | 373 | 390 | 380 | 398 | 361 | 379 | 385 | - | - | - | - | - | - | - | - | | | | | |
| | Capital Inv. | - | 2750 | 2328 | 1933 | 4049 | 4441 | 5316 | 7041 | 10459 | 3100 | 2150 | 2000 | 2500 | - | - | | | | | |
| | Value Added | - | 1545 | 1041 | 1774 | 3527 | 3739 | 5826 | 5804 | 12556 | 17905 | 20450 | 21500 | 23972 | - | - | | | | | |
| | Turnover | - | 10986 | 9480 | 10176 | 12684 | 13191 | 22009 | 30376 | 58967 | 69238 | 76162 | 83778 | 92156 | - | - | | | | | |
| 6 | Gross Profits | - | 2471 | 2022 | 2750 | 4097 | 4804 | 7984 | 7551 | 13936 | 17742 | 20564 | 22620 | 24882 | - | - | | | | | |
| | Labour Costs | - | 1085 | 1347 | 1589 | 1503 | 1817 | 2874 | 3404 | 3876 | 4241 | 4665 | 5131 | 5644 | - | - | | | | | |
| | Capacity Util. | - | 30 | 37 | 46 | 45 | 46 | 46 | 38 | 59 | 65 | 68 | 78 | 89 | - | - | | | | | |
| | Employment | 561 | 636 | 640 | 654 | 649 | 652 | 647 | 653 | - | - | - | - | - | - | - | | | | | |
| | Capital Inv. | - | - | - | - | - | - | - | 16680 | 22045 | 27855 | 34527 | 42511 | 52061 | - | - | | | | | |
| | Value Added | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | |
| 7 | Turnover | 25770 | 30907 | 36311 | 42439 | 51917 | 59880 | 74636 | 105844 | 134168 | 166225 | 209144 | 259682 | 310352 | - | - | | | | | |
| | Gross Profits | 5226 | 7380 | 8204 | 10838 | 11958 | 11687 | 21441 | 29272 | 35058 | 40735 | 51459 | 61115 | 78201 | - | - | | | | | |
| | Labour Costs | 1365 | 1655 | 1933 | 2014 | 2364 | 2986 | 3621 | 4964 | 5026 | 5780 | 6647 | 7644 | 9172 | - | - | | | | | |
| | Capacity Util. | - | - | - | - | - | - | - | 60 | 63 | 68 | 71 | 74 | 77 | - | - | | | | | |
| | Employment | 417 | 511 | 530 | 562 | 590 | 569 | 419 | 350 | 350 | 350 | - | - | - | - | - | | | | | |
| | Capital Inv. | 3155 | 3097 | 2979 | 3411 | 5021 | 8124 | 6086 | 11742 | 11045 | 12191 | 13300 | 14400 | 15900 | 17300 | 18900 | | | | | |
| 10 | Value Added | - | - | - | 2619 | 3109 | 4292 | 4975 | 7350 | 11872 | 13000 | 14200 | 15500 | 16800 | 18200 | 19400 | | | | | |
| | Turnover | 3525 | 4261 | 5460 | 6955 | 9446 | 10037 | 8454 | 14100 | 35560 | 38049 | 40712 | 43562 | 46611 | 49874 | 53364 | | | | | |
| | Gross Profits | 897 | 1150 | 1551 | 1959 | 2321 | 4420 | 4394 | 3552 | 3434 | 3777 | 4055 | 4485 | 4965 | 5645 | 6050 | | | | | |
| | Labour Costs | 800 | 957 | 1158 | 1471 | 1904 | 2164 | 2372 | 3600 | 3400 | 3790 | 4114 | 4936 | 5430 | 5975 | 6570 | | | | | |
| | Capacity Util. | - | - | - | - | - | - | - | 38 | 50 | 55 | 60 | 63 | 66 | 70 | 75 | | | | | |
| | Employment | 825 | - | 883 | 866 | 898 | 879 | 810 | 681 | 664 | - | - | - | - | - | - | | | | | |
| | Capital Inv. | - | 1685 | 343 | 623 | 660 | 852 | 810 | 2150 | 3128 | 3350 | 2700 | 2500 | 2000 | - | - | | | | | |
| | Value Added | - | 5132 | 7005 | 4959 | 5971 | 7639 | 6066 | 8488 | 14229 | 15650 | 16433 | 17254 | 18116 | - | - | | | | | |
| | Turnover | - | 19875 | 25750 | 21143 | 23018 | 31929 | 32794 | 51761 | 77543 | 85297 | 89562 | 94040 | 98742 | - | - | | | | | |
| | Gross Profits | - | 6269 | 7966 | 5213 | 6045 | 7761 | 5626 | 8010 | 13006 | 14301 | 14345 | 1432525 | 142333 | - | - | | | | | |
| | Labour Costs | - | 1853 | 2357 | 2779 | 3034 | 3805 | 5062 | 6679 | 7319 | 7868 | 8458 | 9092 | 9774 | - | - | | | | | |
| | Capacity Util. | - | 70 | 78 | 67 | 74 | 74 | 43 | 36 | 44 | 49 | 54 | 59 | 62 | - | - | | | | | |

| COMPANY | ITEM | Past Performance | | | | | | | | | | Projections | | | | | | | | | |
|---------|----------------|------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------------|--------|--------|--------|--------|---|---|---|---|---|
| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1995 | 2000 | | | | | |
| 12 | Employment | 894 | - | 964 | 981 | 1022 | 1081 | 1007 | 1022 | - | 756 | 756 | 756 | 756 | 756 | 756 | - | - | - | - | - |
| | Capital Inv. | 121 | 118 | 120 | 120 | 115 | 112 | 113 | 4774 | 11046 | 6069 | 7000 | 8000 | - | - | - | - | - | - | - | - |
| | Value Added | 7015 | 5051 | 13036 | 12794 | 12905 | 9573 | 19564 | 26835 | 37736 | 39600 | 41580 | 43660 | - | - | - | - | - | - | - | - |
| | Turnover | 27908 | 26897 | 33658 | 35863 | 43659 | 43475 | 53166 | 80066 | 123796 | 138250 | 165900 | 199080 | - | - | - | - | - | - | - | - |
| | Gross Profits | 10915 | 9976 | 13036 | 15825 | 18758 | 18818 | 28061 | 27533 | 44401 | 44501 | 53400 | 64080 | - | - | - | - | - | - | - | - |
| | Labour Costs | 2172 | 3517 | 4525 | 5961 | 5128 | 5304 | 7692 | 13408 | 16152 | 18156 | 19972 | 21968 | - | - | - | - | - | - | - | - |
| | Capacity Util. | 42 | 44 | 48 | 50 | 47 | 43 | 35 | 33 | 50 | 52 | 54 | 56 | - | - | - | - | - | - | - | - |
| 13 | Employment | 827 | - | - | 840 | 842 | 847 | 833 | 840 | 756 | 756 | 756 | 756 | 756 | 756 | 756 | - | - | - | - | - |
| | Capital Inv. | 11648 | 15551 | 16191 | 19738 | 24840 | 31071 | 38163 | 78000 | 80000 | 82000 | 84000 | 86000 | 88000 | 90000 | 100000 | - | - | - | - | - |
| | Value Added | - | - | 12830 | 15639 | 17997 | 18777 | 23404 | 75000 | 75000 | 80000 | 85000 | 87000 | 87000 | 90000 | 100000 | - | - | - | - | - |
| | Turnover | 14350 | 20194 | 25039 | 29605 | 32669 | 35308 | 49408 | 144000 | 150000 | 155000 | 160000 | 165000 | 170000 | 175000 | 200000 | - | - | - | - | - |
| | Gross Profits | -5775 | -1561 | 2157 | 4440 | 6218 | 6207 | 7447 | 18000 | 27000 | 30000 | 30000 | 30000 | 30000 | 30000 | 35000 | - | - | - | - | - |
| | Labour Costs | 2965 | 3920 | 4195 | 4438 | 5266 | 5195 | 6614 | 9600 | 11000 | 11550 | 12000 | 12750 | 13500 | 14500 | 15500 | - | - | - | - | - |
| | Capacity Util. | 63 | 68 | 69 | 66 | 63 | 62 | 67 | 68 | 68 | 68 | 68 | 68 | 68 | 68 | 80 | - | - | - | - | - |
| 14 | Employment | - | - | - | - | 176 | 196 | 199 | 198 | 202 | 202 | 202 | 202 | 202 | 202 | 202 | - | - | - | - | - |
| | Capital Inv. | 5166 | 5184 | 4846 | 4775 | 4693 | 4843 | 5338 | 6425 | 6565 | 6619 | 7469 | 7786 | 8067 | 9697 | 11028 | - | - | - | - | - |
| | Value Added | 55 | 92 | 1295 | 1525 | 3038 | 2764 | 3902 | 6202 | 7872 | 7479 | 8936 | 10723 | 12868 | 18900 | 32229 | - | - | - | - | - |
| | Turnover | 899 | 3819 | 8252 | 11244 | 15572 | 16959 | 21307 | 26986 | 31164 | 37397 | 44678 | 53615 | 64338 | 111176 | 179052 | - | - | - | - | - |
| | Gross Profits | 110 | 222 | 1363 | 1725 | 3185 | 2683 | 3959 | 5326 | 5700 | 6553 | 8265 | 9918 | 11903 | 20568 | 33125 | - | - | - | - | - |
| | Labour Costs | 61 | 381 | 358 | 494 | 626 | 800 | 1289 | 1037 | 1231 | 1477 | 1772 | 2126 | 2551 | 4592 | 6457 | - | - | - | - | - |
| | Capacity Util. | 50 | 50 | 50 | 51 | 52 | 52 | 49 | 52 | 62 | 74 | 89 | 100 | 100 | 100 | 100 | - | - | - | - | - |
| 15 | Employment | 314 | 307 | 300 | 296 | 313 | 310 | 269 | 175 | 267 | 267 | 267 | 267 | - | - | - | - | - | - | - | - |
| | Capital Inv. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Value Added | 1512 | 1496 | 2614 | 4348 | 2633 | 2114 | 6251 | 4366 | 9315 | - | - | - | - | - | - | - | - | - | - | - |
| | Turnover | 5108 | 4850 | 1221 | 4502 | 5086 | 8163 | 17553 | 13365 | 27076 | - | - | - | - | - | - | - | - | - | - | - |
| | Gross Profits | -117 | 92 | -720 | 1085 | 693 | 2020 | 5883 | 3476 | 9413 | - | - | - | - | - | - | - | - | - | - | - |
| | Labour Costs | 851 | 1094 | 1139 | 1244 | 1406 | 1635 | 2183 | 3182 | 2920 | - | - | - | - | - | - | - | - | - | - | - |
| | Capacity Util. | 15 | 20 | 6 | 21 | 20 | 16 | 15 | 8 | 13 | - | - | - | - | - | - | - | - | - | - | - |
| 16 | Employment | 72 | 72 | 74 | 71 | 82 | 94 | 87 | 86 | - | - | - | - | - | - | - | - | - | - | - | - |
| | Capital Inv. | - | - | - | 1875 | 1832 | 1608 | 1586 | 5438 | 6060 | 6237 | 6531 | 6337 | 6369 | - | - | - | - | - | - | - |
| | Value Added | - | - | 1726 | 1742 | 2535 | 2979 | 3832 | 2489 | 3494 | 4063 | 4564 | 5332 | 6268 | - | - | - | - | - | - | - |
| | Turnover | - | - | 1142 | 2034 | 2728 | 3206 | 4419 | 12025 | 13343 | 21373 | 23449 | 25884 | 28546 | - | - | - | - | - | - | - |
| | Gross Profits | - | - | -560 | 92 | 193 | 227 | 587 | 1529 | 1242 | 1649 | 1717 | 1679 | 1679 | - | - | - | - | - | - | - |
| | Labour Costs | - | - | 289 | 310 | 382 | 498 | 652 | 373 | 576 | 650 | 775 | 890 | 996 | - | - | - | - | - | - | - |
| | Capacity Util. | - | - | 51 | 66 | 27 | - | 55 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 17 | Employment | 1365 | 1378 | 1385 | 1358 | 1468 | 1424 | 1395 | 1398 | 1400 | - | - | - | - | - | - | - | - | - | - | - |
| | Capital Inv. | 19105 | 21829 | 27056 | 30563 | 33207 | 35548 | 59577 | 23253 | 25861 | 28240 | 30125 | 34158 | - | - | - | - | - | - | - | - |
| | Value Added | 2333 | 5198 | 6378 | 8765 | 15240 | 12620 | 24913 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Turnover | 30426 | 34350 | 40024 | 55677 | 73270 | 87259 | 147333 | 251850 | 314482 | 392110 | 488316 | 607505 | - | - | - | - | - | - | - | - |
| | Gross Profits | -2938 | -172 | 760 | 1095 | 5921 | 1459 | 5691 | 10122 | 14144 | 18689 | 22144 | 24992 | - | - | - | - | - | - | - | - |
| | Labour Costs | 2429 | 3854 | 4653 | 5253 | 7443 | 9472 | 13080 | 11418 | 12560 | 13816 | 15197 | 16717 | - | - | - | - | - | - | - | - |
| | Capacity Util. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Note: All financial statistics are in thousands of kwacha (at current prices);
capacity utilization is in per cent of total rated capacity.

PERCENTAGE CHANGES

| COY No. | ITEM | 1 80-81 | 2 81-82 | 3 82-83 | 4 83-84 | 5 84-85 | 6 85-86 | 7 81-86 | 8 87-88 | 9 88-89 | 10 89-90 | 11 90-91 | 12 91-92 | 13 87-91 | 14 87-92 | 15 (7-13) |
|---------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|--------------|
| 2 | Employment | -0.80 | 5.11 | 2.81 | -2.24 | -6.36 | -36.14 | -7.9 | 0.43 | 0.00 | 1.27 | 0.42 | - | 0.53 | - | -7.90 |
| | Capital Inv. | 19.13 | 22.18 | 53.30 | 0.82 | -7.84 | 149.73 | 66.91 | 22.29 | -9.82 | 7.15 | 10.70 | 16.10 | 7.71 | 10.38 | 59.19 |
| | Value Added | 36.08 | 15.67 | 26.62 | 23.93 | -19.59 | 60.30 | 26.79 | 92.25 | 19.14 | 21.21 | 24.61 | -5.92 | 61.49 | 45.09 | -34.70 |
| | Turnover | 29.92 | 13.61 | 10.78 | 20.58 | 16.38 | 64.64 | 38.16 | 23.38 | 25.00 | 25.00 | 25.00 | 25.06 | 51.03 | 56.07 | -12.87 |
| | Gross Profits | 35.95 | 10.29 | 1.20 | 26.50 | -9.71 | 60.27 | 20.86 | 98.66 | 24.97 | 25.30 | 24.88 | 24.37 | 72.11 | 76.62 | -51.25 |
| 3 | Labour Costs | 19.51 | 18.76 | 8.37 | 12.54 | 22.06 | 65.33 | 38.46 | 12.51 | 20.05 | 20.01 | 19.99 | 20.00 | 23.62 | 26.68 | 14.84 |
| | Capacity Util. | 8.33 | -4.62 | -3.23 | -8.33 | -18.18 | 2.22 | -5.85 | - | - | - | - | - | - | - | - |
| | Employment | 5.52 | 7.19 | -4.27 | 8.92 | 0.39 | -12.82 | -0.44 | -1.34 | - | - | - | - | - | - | - |
| | Capital Inv. | - | -7.99 | -24.33 | -11.45 | 4.51 | 405.43 | 45.13 | 4.15 | 6.71 | 9.33 | 10.38 | - | 8.53 | - | 36.60 |
| | Value Added | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | Turnover | - | 9.74 | 36.33 | 31.39 | 33.83 | 48.67 | 58.22 | 18.01 | 19.11 | 19.15 | 20.02 | - | 25.25 | - | 32.97 |
| | Gross Profits | - | 93.89 | 139.68 | 69.64 | 4.72 | 57.07 | 239.33 | 13.29 | 10.20 | 15.05 | 10.65 | - | 14.73 | - | 224.60 |
| | Labour Costs | - | 9.67 | 36.32 | 31.47 | 33.78 | 48.69 | 58.20 | 9.98 | 10.00 | 10.01 | 10.00 | - | 11.60 | - | 46.00 |
| | Capacity Util. | 47.37 | 10.71 | -11.29 | 9.09 | 21.67 | 6.85 | 7.86 | 46.15 | 0.00 | 0.00 | 0.00 | - | 11.54 | - | -3.68 |
| | Employment | 4.56 | -2.56 | 4.74 | -9.30 | 4.99 | 1.58 | -0.26 | - | - | - | - | - | - | - | - |
| 6 | Capital Inv. | - | -15.35 | -16.97 | 109.47 | 9.68 | 19.70 | 18.66 | 48.54 | -70.36 | -30.65 | -6.98 | 25.00 | 42.48 | 47.48 | -23.82 |
| | Value Added | - | -32.62 | 70.41 | 98.82 | 6.01 | 55.82 | 55.42 | 116.33 | 42.60 | 14.21 | 5.13 | 11.50 | 67.61 | 62.61 | -12.19 |
| | Turnover | - | -13.71 | 7.34 | 24.65 | 4.00 | 66.85 | 20.07 | 94.12 | 17.42 | 10.00 | 10.00 | 10.00 | 43.95 | 40.68 | -23.88 |
| | Gross Profits | - | -18.17 | 36.00 | 48.98 | 17.26 | 66.19 | 44.62 | 84.56 | 27.31 | 15.91 | 10.00 | 10.00 | 49.89 | 45.90 | -5.27 |
| | Labour Costs | - | 24.15 | 17.97 | -5.41 | 20.89 | 58.17 | 32.98 | 13.87 | 9.42 | 10.00 | 9.99 | 10.00 | 12.68 | 13.16 | 20.30 |
| 7 | Capacity Util. | - | 23.33 | 24.32 | -2.17 | 2.22 | 0.00 | 10.67 | 55.26 | 10.17 | 4.62 | 14.71 | 14.10 | 26.32 | 26.84 | -15.65 |
| | Employment | 13.37 | 0.63 | 2.19 | -0.76 | 0.46 | -0.77 | 0.35 | - | - | - | - | - | - | - | - |
| | Capital Inv. | - | - | - | - | - | - | - | 32.16 | 26.36 | 23.95 | 23.12 | 22.46 | 38.72 | 42.42 | -38.72 |
| | Value Added | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Turnover | 19.93 | 17.48 | 16.88 | 22.33 | 15.34 | 24.64 | 28.30 | 26.76 | 23.89 | 25.82 | 24.16 | 19.51 | 36.34 | 38.64 | -8.04 |
| 10 | Gross Profits | 41.22 | 11.17 | 32.11 | 10.33 | -2.27 | 83.46 | 38.11 | 19.77 | 16.19 | 26.33 | 18.76 | 27.96 | 27.20 | 33.43 | 10.91 |
| | Labour Costs | 21.25 | 16.80 | 4.19 | 17.38 | 26.31 | 21.27 | 23.76 | 1.25 | 15.00 | 15.00 | 15.00 | 19.99 | 13.50 | 16.95 | 10.26 |
| | Capacity Util. | - | - | - | - | - | - | - | 5.00 | 7.94 | 4.41 | 4.23 | 4.05 | 5.83 | 5.67 | -5.83 |
| | Employment | 22.54 | 3.72 | 6.04 | 4.98 | -3.56 | -26.36 | -3.60 | 0.00 | 0.00 | - | - | - | - | - | - |
| | Capital Inv. | -1.84 | -3.81 | 14.50 | 47.20 | 61.80 | -25.09 | 19.30 | -5.94 | 10.38 | 9.10 | 8.27 | 10.42 | 5.66 | 7.08 | 13.64 |
| 10 | Value Added | - | - | - | - | - | - | - | 61.52 | 9.50 | 9.23 | 9.15 | 8.39 | 27.72 | 25.71 | -27.72 |
| | Turnover | 20.88 | 28.14 | 27.38 | 35.82 | 6.26 | -15.77 | 19.68 | 152.20 | 7.00 | 7.00 | 7.00 | 7.00 | 52.24 | 46.11 | -32.56 |
| | Gross Profits | 28.21 | 34.87 | 26.31 | 18.48 | 90.44 | -0.59 | 56.42 | -3.32 | 9.99 | 7.36 | 10.60 | 10.70 | 6.57 | 7.96 | 49.85 |
| | Labour Costs | 19.62 | 21.00 | 27.03 | 29.44 | 13.66 | 9.61 | 29.57 | -5.56 | 11.47 | 8.55 | 19.98 | 10.01 | 9.28 | 10.17 | 20.29 |
| | Capacity Util. | - | - | - | - | - | - | - | 31.58 | 10.00 | 9.09 | 5.00 | 4.76 | 16.45 | 14.74 | -16.45 |
| 10 | Employment | - | - | -1.93 | 3.70 | -2.12 | -7.85 | - | -2.50 | - | - | - | - | - | - | - |
| | Capital Inv. | - | -79.64 | 81.63 | 5.94 | 29.09 | -4.93 | -10.39 | 45.49 | 7.10 | -19.40 | -7.41 | -20.00 | 4.07 | -1.40 | -14.46 |
| | Value Added | - | 36.50 | -29.21 | 20.41 | 27.94 | -20.59 | 3.64 | 67.64 | 9.99 | 5.00 | 5.00 | 5.00 | 25.82 | 22.69 | -22.18 |
| | Turnover | - | 29.56 | -17.89 | 8.87 | 38.71 | -27.51 | 13.00 | 49.81 | 10.00 | 5.00 | 5.00 | 5.00 | 20.42 | 18.15 | -7.42 |
| | Gross Profits | - | 27.07 | -34.56 | 15.96 | 28.39 | -27.51 | -2.05 | 62.37 | 9.96 | 0.31 | -0.14 | -0.64 | 19.71 | 15.54 | -21.76 |
| 10 | Labour Costs | - | 27.20 | 17.90 | 9.18 | 25.41 | 33.04 | 34.64 | 9.58 | 7.50 | 7.50 | 7.50 | 7.50 | 9.03 | 9.27 | 25.61 |
| | Capacity Util. | - | 11.43 | -14.10 | 10.45 | 0.00 | -41.89 | -7.71 | 22.22 | 11.36 | 10.20 | 9.26 | 5.08 | 15.97 | 14.44 | -23.68 |

| COY No. ITEM | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|----------------|---------|---------|---------|--------|--------|---------|--------|--------|--------|-------|-------|-------|-------|-------|--------|
| | 80-81 | 81-82 | 82-83 | 83-84 | 84-85 | 85-86 | 81-86 | 87-88 | 88-89 | 89-90 | 90-91 | 91-92 | 87-91 | 87-92 | (7-13) |
| 12 | | | | | | | | | | | | | | | |
| Employment | - | - | 1.76 | 4.18 | 5.77 | -6.85 | - | - | - | - | - | - | - | - | - |
| Capital Inv. | -2.48 | 1.69 | 0.00 | -4.17 | -2.61 | 0.89 | -0.85 | 131.38 | -45.06 | 15.34 | 14.29 | - | 16.89 | - | -17.74 |
| Value Added | -28.00 | 158.09 | -1.86 | 0.87 | -25.82 | 104.37 | 57.47 | 40.62 | 4.94 | 5.00 | 5.00 | - | 15.67 | - | 41.80 |
| Turnover | -3.62 | 25.14 | 6.55 | 21.74 | -0.42 | 22.29 | 19.53 | 54.62 | 11.68 | 20.00 | 20.00 | - | 37.16 | - | -17.63 |
| Gross Profits | -8.60 | 30.67 | 21.39 | 18.53 | 0.32 | 49.12 | 36.26 | 61.26 | 0.23 | 20.00 | 20.00 | - | 33.18 | - | 3.08 |
| Labour Costs | 61.92 | 28.66 | 31.73 | -13.97 | 3.43 | 45.02 | 23.74 | 20.47 | 12.41 | 10.00 | 9.99 | - | 15.96 | - | 7.78 |
| Capacity Util. | 4.76 | 9.09 | 4.17 | -6.00 | -8.51 | -18.60 | -4.09 | 51.52 | 4.00 | 3.85 | 3.70 | - | 17.42 | - | -21.51 |
| 13 | | | | | | | | | | | | | | | |
| Employment | - | - | - | 0.24 | 0.59 | -1.65 | - | -10.00 | 0.00 | 0.00 | 0.00 | - | -2.50 | - | - |
| Capital Inv. | 33.51 | 4.12 | 21.91 | 25.85 | 25.08 | 22.83 | 29.08 | 2.56 | 2.50 | 2.44 | 2.38 | 2.33 | 2.56 | 2.56 | 26.52 |
| Value Added | - | - | 21.89 | 15.08 | 4.33 | 24.64 | - | 0.00 | 6.67 | 6.25 | 2.35 | -2.30 | 4.00 | 2.67 | -4.00 |
| Turnover | 40.72 | 23.99 | 18.24 | 10.35 | 8.08 | 39.93 | 28.93 | 4.17 | 3.33 | 3.23 | 3.12 | 3.03 | 3.65 | 3.61 | 25.28 |
| Gross Profits | -72.97 | -238.18 | 105.84 | 40.05 | -0.18 | 19.98 | 115.41 | 50.00 | 11.11 | 0.00 | 0.00 | 0.00 | 16.67 | 13.33 | 98.74 |
| Labour Costs | 32.21 | 7.02 | 5.79 | 18.66 | -1.35 | 27.31 | 13.74 | 14.58 | 5.00 | 3.90 | 6.25 | 5.88 | 8.20 | 8.12 | 5.54 |
| Capacity Util. | 7.94 | 1.47 | -4.35 | -4.55 | -1.59 | 8.06 | -0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.29 |
| 14 | | | | | | | | | | | | | | | |
| Employment | - | - | - | - | 11.36 | 1.53 | - | 2.02 | 0.00 | 0.00 | - | - | - | - | - |
| Capital Inv. | 0.35 | -6.52 | -1.47 | -1.72 | 3.20 | 10.22 | 0.59 | 2.18 | 0.82 | 12.84 | 4.24 | 3.61 | 5.30 | 5.11 | -4.71 |
| Value Added | 67.27 | 1307.61 | 17.76 | 99.21 | -9.02 | 41.17 | 828.26 | 26.93 | -4.99 | 19.48 | 20.00 | 20.00 | 18.22 | 21.50 | 810.04 |
| Turnover | 324.81 | 116.08 | 36.26 | 38.49 | 8.91 | 25.64 | 91.58 | 15.48 | 20.00 | 19.47 | 20.00 | 20.00 | 24.67 | 27.68 | 66.91 |
| Gross Profits | 101.82 | 513.96 | 26.56 | 84.64 | -15.76 | 47.56 | 336.67 | 7.02 | 14.96 | 26.13 | 20.00 | 20.01 | 21.55 | 24.70 | 315.12 |
| Labour Costs | 524.59 | -6.04 | 37.99 | 26.72 | 27.80 | 61.12 | 47.66 | 18.71 | 19.98 | 19.97 | 19.98 | 19.99 | 26.25 | 29.20 | 21.41 |
| Capacity Util. | 0.00 | 0.00 | 2.00 | 1.96 | 0.00 | -5.77 | -0.40 | 19.23 | 19.35 | 20.27 | 12.36 | 0.00 | 23.08 | 18.46 | -23.48 |
| 15 | | | | | | | | | | | | | | | |
| Employment | -2.23 | -2.28 | -1.33 | 5.74 | -0.96 | -13.23 | -2.48 | 52.57 | 0.00 | 0.00 | 0.00 | - | 13.14 | - | -15.62 |
| Capital Inv. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Value Added | -1.06 | 74.73 | 66.34 | -39.44 | -19.71 | 195.70 | 63.57 | 113.35 | - | - | - | - | - | - | - |
| Turnover | -5.05 | -74.82 | 268.71 | 12.97 | 60.50 | 115.03 | 52.38 | 102.59 | - | - | - | - | - | - | - |
| Gross Profits | -178.63 | -882.61 | -250.69 | -36.13 | 191.49 | 1258.91 | 170.80 | - | - | - | - | - | - | - | - |
| Labour Costs | 28.55 | 4.11 | 9.22 | 13.02 | 16.29 | 33.52 | 19.91 | -8.23 | - | - | - | - | - | - | - |
| Capacity Util. | 33.33 | -70.00 | 250.00 | -4.76 | -20.00 | -6.25 | -5.00 | 62.50 | - | - | - | - | - | - | - |
| 16 | | | | | | | | | | | | | | | |
| Employment | 0.00 | 2.78 | -4.05 | 15.49 | 14.63 | -7.45 | 4.17 | - | - | - | - | - | - | - | - |
| Capital Inv. | - | - | - | -2.29 | -12.23 | -1.37 | - | 11.44 | 2.92 | 4.71 | -2.97 | 0.50 | 4.13 | 3.42 | -4.13 |
| Value Added | - | - | 0.93 | 45.52 | 17.51 | 28.63 | - | 40.38 | 16.29 | 12.33 | 16.83 | 17.55 | 28.56 | 30.37 | -28.56 |
| Turnover | - | - | 78.11 | 34.12 | 17.52 | 37.84 | - | 10.96 | 60.18 | 9.71 | 10.38 | 10.28 | 28.81 | 27.48 | -28.81 |
| Gross Profits | - | - | -116.43 | 109.78 | 17.62 | 158.59 | - | -18.77 | 32.77 | 4.12 | -2.21 | 1.07 | 2.45 | 2.20 | -2.45 |
| Labour Costs | - | - | 7.27 | 23.23 | 30.37 | 30.92 | - | 54.42 | 12.85 | 19.23 | 14.84 | 11.91 | 34.65 | 33.40 | -34.65 |
| Capacity Util. | - | - | 29.41 | -59.09 | - | - | - | - | - | - | - | - | - | - | - |
| 17 | | | | | | | | | | | | | | | |
| Employment | 0.95 | 0.51 | -1.95 | 8.10 | -3.00 | -2.04 | 0.25 | 0.14 | - | - | - | - | - | - | - |
| Capital Inv. | 14.26 | 23.95 | 12.96 | 8.65 | 7.05 | 67.60 | 34.59 | 11.22 | 9.20 | 6.67 | 13.39 | - | 11.72 | - | 22.87 |
| Value Added | 122.80 | 22.70 | 37.43 | 73.87 | -17.19 | 97.41 | 75.86 | - | - | - | - | - | - | - | - |
| Turnover | 12.90 | 16.52 | 39.11 | 31.60 | 19.09 | 68.85 | 65.78 | 24.87 | 24.68 | 24.54 | 24.41 | - | 35.30 | - | 30.48 |
| Gross Profits | -94.15 | 541.86 | 44.08 | 440.73 | -75.36 | 290.06 | 6.82 | 39.74 | 32.13 | 18.49 | 12.86 | - | 36.73 | - | -29.91 |
| Labour Costs | 58.67 | 20.73 | 12.89 | 41.69 | 27.26 | 38.09 | 47.88 | 10.00 | 10.00 | 10.00 | 10.00 | - | 11.60 | - | 36.28 |
| Capacity Util. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

NB: The percentage figures for periods 1981-86, 1987-91 and 1987-92 are annual averages for these respective periods.

Source: Main Questionnaire, Questions Bl-3, Fl-0 and Fl-1

APPENDIX VIB

ZAMBIA CONSOLIDATED COPPER MINES LIMITED:
GRADUATE/TECHNOLOGIST DEVELOPMENT PROGRAMMES

ZCCM CORPORATE OBJECTIVE

The primary objective of the Company is to achieve maximum financial returns on all the Group's assets, with due regard to the well-being of its personnel, plant and financial resources. In accomplishing this objective we will mobilise all the Group's resources in a proper and efficient manner.

To meet this objective, the Company must be manned and controlled by capable people, properly trained and developed for the roles they occupy. The Graduate/Technologist Development Programme is designed to ensure that the Company meets this criterion in two ways:

1. By providing a comprehensive, structured development programme designed to equip the new graduate/technologist with requisite skills for his role within the Industry in accordance with the stated Company objective.
2. By ensuring that, as far as is possible, the Company is able to fill all vacancies occurring from its own ranks. The Development programme therefore, must have as a prime measure of its success, an ability to identify in house candidates who are experienced and suitably qualified in the broader sense, for all vacancies as they occur.

ADMINISTRATIVE PROCEDURES FOR THE DEVELOPMENT OF GRADUATES AND
TECHNOLOGISTS IN ZAMBIA CONSOLIDATED COPPER MINES LIMITED

Graduates/Technologists

1.0 INTRODUCTION

The 1985 changes in the method of developing Graduates and Technologists are aimed at enhancing graduate/technologist understanding, with training that will include 'hands-on' assignments and departmental responsibilities commensurate with increasing capability.

The change in emphasis will give:

1. a more practical approach to the development programmes.
2. more involvement from the operating department officials.
3. more involvement by the Personnel Department.
4. a standard approach with regard to assessments, records, interviews and panels.
5. the creation of an atmosphere that allows the graduate/technologist to speak openly and freely about his career development.

1.1 Revised provisions

1. Graduates will be engaged at G1 level for pay purposes, technologists will be paid at G2 level.
2. All graduates/technologists will undertake the development programmes as laid down for their respective disciplines for the stipulated periods.
3. After successful completion of the programme, graduates will be substantiated at the G1 level of the General Payroll and technologists at G2.

The position to which he/she is assigned will depend upon ability and personal preferences and the extent to which the latter can be accommodated in the Company's interests.

From this point in his/her career, the graduate/technologist becomes eligible for vacancies that occur at the Sectional Officer (SO) level within the chosen field.

2.0 THE ZCCM ROLES

In order to effectively implement the development programme, specific roles are allocated to:

1. The Division to which the graduate/technologist is assigned.
2. The Directorate of Personnel, Manpower Services and Training Department (MST)
3. The Graduate/Technologist
4. The relevant Staff Development Panel (SDP).

2.1 Division Role

The role of the Division is to:

- (i) Provide an appropriate development plan.
- (ii) Ensure that the development of each graduate/technologist is monitored and assessed regularly.
- (iii) Ensure, as much possible, that the graduate/technologist is a full working member of his/her department.

2.2 Operating Department's Role

- (i) Immediately after initial orientation, the new Zambian graduate/technologist will be placed on the establishment of his/her operating department wherein he/she will rely upon and learn from the experienced operators below and from the experienced officials above. Graduates/Technologists on development will be supernumerary to departmental establishments.
- (ii) A Technical Advisor will be appointed for each graduate or group of graduates by the Assistant Personnel Manager Manpower Services (APM-MPT) in consultation with the appropriate Superintendent who will have overall responsibility for the development of the graduate in his department. The Technical Advisor should be of at least Divisional Officer level. The appointment as Technical Advisor will be mandatory.

The Official so designated will be accountable to the APM-MPT on the accountability involving graduate development and will appear before the SDP when so required to clarify certain points relating to the development of the graduate.
- (iii) The APM-MPT will be responsible for the preparation of the development programme in consultation with the Technical Advisor.
- (iv) It will be the responsibility of the Technical Advisor, through the graduate's immediate supervisor, to ensure that the graduate/technologist is not relegated to an "observer" during the period of his/her stay in the section. For this to be achieved, responsibility as demanded by the job should be given and appropriate guidance made available.

2.3 Training Department's Role

- (i) The APM-MPT in consultation with the Operating Department will appoint the Technical Advisor for each graduate or group of graduates. The person so designated should be suitably qualified and experienced
- (ii) The APM-MPT will monitor the progress of graduates and technologists over the different phases of their development programmes.
- (iii) The Technical Advisor will identify the immediate supervisor for the graduate at the beginning of each phase of development.
- (iv) The APM-MPT will ensure that the official under whose charge the graduate/technologist is placed is clear about his role as well as that of the graduate.

Specifically, he should make it clear to both parties that they have the responsibility and indeed the right to seek advice from himself and should not wait to be called upon all the time.
- (v) The graduate/technologist will be required to attend a Domestic Panel after six months. This Panel will review performance and job effectiveness.

At the end of the next six months (i.e. after twelve months of service) the graduate will appear before the appropriate Company 'C' Panel and thereafter every twelve months.
- (vi) The APM-MPT will provide the communication channel on all graduate/technologist information to Manpower Services and Training (MST).
- (vii) Information to be supplied (as necessary) will include:
 - (a) Promotions
 - (b) Resignations
 - (c) Disciplinary measures
 - (d) Transfer to another Division
 - (e) Overseas technical visits
 - (f) Acting Appointments
 - (g) Assessments
- (viii) **The overall Division responsibility for the development of graduates/technologists lies with the Manager Administration.**
- (ix) Manpower Services and Training (MST) officials will have access through the APM-MPT to Technical Advisors in order to monitor Graduate Affairs more closely.
- (x) Graduate development will be one of the **critical** accountabilities in the job description of the APM-MPT and other Personnel Department officials assigned with the responsibility of developing graduates. Graduate development will be an **important** accountability for the Technical Advisor and other line officials.

3.0 MANPOWER SERVICES AND TRAINING (MST) ROLE

The Manpower Services and Training has the responsibility to:

- (i) Ensure that graduate/technologist development programmes are implemented in accordance with Company Policy.
- (ii) Monitor the progress of a graduate's /technologist's development.
- (iii) Recommend a graduate/technologist to be moved to a different area of work.
- (iv) Recommend a graduate/technologist to move from one Division to another.
- (v) Recommend a graduate/technologist to be developed for a specific job.
- (vi) Recommend that a graduate/technologist be placed on special courses, i.e., supervisory, report writing, etc.
- (vii) Be able to inspect him at work or request a special interview at any time.
- (viii) Request special assessment, e.g. in problem cases, etc.

3.1 Graduate Affairs

The Research and Graduate Affairs Officer will liaise with the APM-MPT regarding any problems affecting graduates/technologists.

3.2 Records/Assessments

- (i) MST will retain a system of records and files
- (ii) Graduate Register
- (iii) Technologist/Technician Register
- (iv) Graduate Assessment Summary Sheet to be completed by the Division bi-annually for every graduate/technologist or as and when required by MST e.g. problem cases, investigations, etc.
- (v) Membership of the Domestic Panels to interview graduates/technologists will be decided upon by the Division subject to the approval of the Director of Personnel.
- (vi) The Manpower Services and Training will receive SDP2 and SDP3 forms for all graduates/technologists.

4.0 GRADUATES/TECHNOLOGISTS

- (i) Graduates should be given productive jobs which should as far as possible make full use of their technical know-how throughout their development.
- (ii) Graduates must contribute fully to the efficient working of their department. **Educational qualifications are an advantage only in cases where an individual demonstrates the ability to assume greater responsibilities.**
- (iii) The graduate is to liaise with the departmental supervisor and the Technical Advisor regarding any domestic problems affecting him.
- (iv) The APM-MPT will communicate with MST about requests for special interviews required by the Graduate. The proceedings of such an interview may be restricted to MST officials and the graduate/technologist only but Division will be involved in the investigation and advised of the outcome.

5.0 PLACEMENT

The Directorate of Personnel working through established channels will maintain ultimate responsibility for the placement of graduates/technologists.

SELECTED DEVELOPMENT PROGRAMMES

INTRODUCTION

- (i) Using the guideline development programmes, Divisions will draw up development plans for their graduates/technologists. The plans will be submitted to the MST Unit for comment before the completion of the orientation period.

MST will audit the development plans in order to ensure a uniform approach to content and implementation.

- (ii) Graduates and technologists will be treated basically in the same manner with respect to development procedures and time limit.
- (iii) The blasting licence course for Geologists will be mandatory
- (iv) Metallurgists will be placed on a narrow development programme as specified in the booklet.

DEVELOPMENT PROGRAMME FOR ACCOUNTANTS

This programme outlines the accounting function as practised in ZCCM Limited. There are four departments that perform this function, namely:-

- Accounting Section
- Finance Section
- Corporate Planning Section and
- Internal Audit Section

A graduate accountant should follow the above sequence. The development will be complete only after a graduate - ACCA or equivalent- has been through all the departments.

1.0 ORIENTATION PROGRAMME (1Month)

- 1.1 Engagement formalities - Responsibility of Personnel/
- 1.2 Induction and familiarisation -Training Department

2.0 DEVELOPMENT PROGRAMME

Duration: The Programme should run for about 30 months

- 2.1 Accounting
 - Management Reporting
 - Operations
- 2.2 Finance
 - Metal Sales
 - Accounts Payable
 - Payrolls and Pensions
- 2.3 Supervisory Course
- 2.4 Corporate Planning
 - Project Evaluation
 - Financial Planning
- 2.5 Internal Audit
 - Investigation of accounting systems and associated controls.

- 1. It is envisaged that the high flier should complete the development programme than the stipulated 30 months.
- 2. Extension to the programme for whatever reason will require justification and agreement between the Division and MST.
- 3. Upon completion of the programme, the graduate/technologist will be assigned to a department at G1 status.

DEVELOPMENT PROGRAMME FOR ELECTRICAL AND MECHANICAL ENGINEERING GRADUATES

This development programme is designed to equip the graduate for the full responsibilities of Senior Assistant Engineer (G1).

1.0 ORIENTATION PROGRAMME (1 month)

- 1.1 Engagement Formalities - Responsibility of Personnel
- 1.2 Induction and Plant familiarisation - Training Department

2.0 DEVELOPMENT PROGRAMME

Duration: The Programme should run for about 30 months

- 2.1 Engineering workshops operations.
- 2.2 Engineering operations in the metallurgical plants.
- 2.3 Engineering operations in service sections - Power Plant, Townships, etc.
- 2.4 Supervisory course.
- 2.5 Aspects of Engineering work in underground working places
- 2.6 Drawing office practice.
- 2.7 Projects - Design, Planning, Estimating, Procurement, Rate fixing (where applicable).

The graduate's performance should be monitored at every stage and, where necessary, remedial action taken accordingly,.

DEVELOPMENT PROGRAMME FOR GRADUATES IN PERSONNEL

This programme is designed to equip the graduate for the full responsibilities of G1 status position within the Personnel Department.

1.0 ORIENTATION PROGRAMME (1 Month)

- 1.1 Engagement Formalities - Responsibility of Personnel/
- 1.2 Induction - Training Department.

2.0 DEVELOPMENT PROGRAMME

Duration: The programme should run for about 30 months

- 2.0.1 Manpower Planning Training
- 2.1.1 Manpower Services
- 2.1.2 Recruitment

- Selection and Interviews
- Candidate Testing
- Medical Examinations
- Mine Identity Cards
- Employment Act

- 2.1.3 Central Records
 - Filing of personal documents
 - Updating of personal records
 - Annual Increments
 - Pneumoconiosis examination arrangements
 - Workmen's Compensation Interviews

- 2.1.4 Manning Control
 - Daily Time Cards
 - Daily Movement of Labour
 - Daily Statistics
 - Updating Manning Boards
 - Manpower Planning
 - Monitoring Acting Appointments
 - Monthly Reports

- 2.1.5 Job Analysis
 - Interview of Job Holders
 - Job evaluation requests
 - Writing Job descriptions
 - Drawing Organization Charts
 - Sending Jobs to PRU
 - Notification of Job evaluation results
 - Appreciation of Job evaluation at PRU

- 2.1.6 Expatriate Employment and Staff Advisory
 - Telexes and Overseas Correspondence
 - Interview and briefing
 - Documentation
 - Settling of families
 - National Registration Cards
 - Income Tax Office
 - Banking Arrangements
 - Car Loan facilities
 - Work permits and passports
 - Travel Arrangements
 - Contracts
 - Annual Increments
 - Supplements
 - Gratuities and pensions
 - Passages
 - Repatriation
 - Education Allowance
 - Medical Cover (Medical Specialist Fund & Bristol
Contributory Medical Scheme)

- 2.1.7 Education and Training
 - Co-ordination of Training Activities
 - Graduate Development Programmes
 - Assessment Interviews
 - Identification of Training Requirements

- Organisation of Short Courses/Seminars
- Maintenance of Training Records
- Preparation of Zambianisation Statistical reports
- Preparation of Training reports
- Vacation Employment
- Stores Training
- Secretarial Training
- Accounting Training
- Supervisory Training
- Mining Training
- Engineering Training
- Metallurgical Training
- Personnel Training
- Visits

2.1.8 Supervisory Course

2.2.0 INDUSTRIAL RELATIONS AND COMMUNITY DEVELOPMENT

2.2.1 Industrial Relations

- Grievance procedure
- Disciplinary procedure
- Union representation
- Cases, summaries and statement taking
- Case hearing and appeals
- Communications
- Exit Rating Interviews
- Employment Act
- Industrial Relations Act
- Pneumoconiosis Ordinance
- Standard Conditions of Service and Employment
- Expatriate Conditions Code Book
- Zambia National Provident Fund
- Workmen's Compensation Board
- Early and Normal Retirements
- Repatriation of Retirees
- Widows and Dependants
- Mining Industry Pension Scheme

2.2.2 Community Services-Housing

- Allocation of Houses: Low, Medium and High Cost Areas
- Record Keeping
- Waiting Lists
- House Repairs

- Furniture Sales
- Tenancy Agreement
- Township Inspection and Reporting
- Markets and Trading
- Home Ownership Scheme
- Permits for Ceremonies in Townships
- Retention Money

2.2.3 Community Development

- Social Case work
- Community Social Clubs
- Youth Centres and Youth Schemes
- Home Economics
- Women Centres
- Nutrition
- Sports and Recreation

The graduate's performance should be assessed at every stage, and where necessary, remedial action taken accordingly.

ASSESSMENT FORM

NAME _____ MINE NO. _____ DIVISION _____
POSITION HELD _____ DEPARTMENT _____
PERIOD COVERED BY THE REPORT: FROM _____ TO _____

Set out below are a number of items in the work of a Graduate on Development. The above named person is to be assessed on each item by ticking in the appropriate column. Assessors should guard against central tendency.

Write N/A in areas where not applicable.

- | | |
|---------------------|--|
| 1. MARGINAL | - Performance in clearly below the acceptable standard. |
| 2. INCOMPLETE | - Performance not yet proved or is noticeably below the acceptable standard. The need for further development is recognised. |
| 3. FULLY ACCEPTABLE | - Performance is fully acceptable, achieves the job requirement completely. Entirely satisfactory in every way. |
| 4. SUPERIOR | - Performance is noticeably better than the acceptable standard called for in the job. |
| 5. OUTSTANDING | - Outstanding and distinguished performance would be clearly obvious to anyone who observed this individual at work. |

TECHNICAL KNOWLEDGE AND APPLICATION

| High | | | | | Low | | | | | Comments |
|------|---|---|---|---|-----|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 | 5 | 4 | 3 | 2 | 1 | |
| 1. | | | | | | | | | | Understanding of the 'why' and 'how' of the job |

| | | | | | | | |
|-----|--|--|--|--|--|---|-------|
| 2. | \| | \| | \| | \| | \| | Ability to complete reports concisely and accurately | ..... |
| 3. | \| | \| | \| | \| | \| | Ability to follow instructions correctly | ..... |
| 4. | \| | \| | \| | \| | \| | Ability to plan in advance to get maximum work output | ..... |
| 5. | \| | \| | \| | \| | \| | Attention to regulations and standard practice | ..... |
| 6. | \| | \| | \| | \| | \| | Ability to cope with everyday problems | ..... |
| 7. | \| | \| | \| | \| | \| | Ability to cope with special or emergency problems | ..... |
| 8. | \| | \| | \| | \| | \| | Ability to express himself clearly and concisely | ..... |
| 9. | \| | \| | \| | \| | \| | Amount of work done by him in a given time | ..... |
| 10. | \| | \| | \| | \| | \| | Ability to work without close supervision | ..... |
| 11. | \| | \| | \| | \| | \| | Safety consciousness | ..... |
| 12. | \| | \| | \| | \| | \| | Ability to make suggestions for work improvement | ..... |

SUPERVISORY ABILITY

| | | | | | | | |
|-----|--|--|--|--|--|---|-------|
| 13. | \| | \| | \| | \| | \| | Effectiveness of his instructions to subordinates in getting jobs done | ..... |
| 14. | \| | \| | \| | \| | \| | Ability to enforce disciplinary measures | ..... |
| 15. | \| | \| | \| | \| | \| | Organisation of workload | ..... |
| 16. | \| | \| | \| | \| | \| | Follow up to ensure his instructions are correctly carried out | ..... |
| 17. | \| | \| | \| | \| | \| | Checking of work-places and equipment | ..... |
| 18. | \| | \| | \| | \| | \| | Setting an example to his subordinates | ..... |
| 19. | \| | \| | \| | \| | \| | Consideration for his subordinates | ..... |
| 20. | \| | \| | \| | \| | \| | Ability to communicate relevant information to subordinates and superiors | ..... |
| 21. | \| | \| | \| | \| | \| | Reaction to authority or discipline | ..... |
| 22. | \| | \| | \| | \| | \| | Reaction to advice or necessary criticism | ..... |
| 23. | \| | \| | \| | \| | \| | Apparent interest in the work | ..... |
| 24. | \| | \| | \| | \| | \| | Ability to grasp new ideas | ..... |
| 25. | \| | \| | \| | \| | \| | General suitability of temperament to the job | ..... |
| 26. | \| | \| | \| | \| | \| | Ability to get on well with colleagues | ..... |
| 27. | \| | \| | \| | \| | \| | Relationship with subordinates | ..... |

OVERALL PERFORMANCE

| High | | Low | | |
|------|---|-----|---|---|
| 5 | 4 | 3 | 2 | 1 |

JOB KNOWLEDGE AND APPLICATION

SUPERVISORY ABILITY

PERSONAL ATTRIBUTES

GENERAL COMMENTS

Please include a brief statement of the individual's

STRONG
POINTS:.....
.....
.....
WEAK:.....
.....
.....

.....

| | | | | |
|-------------|----------|------------------|------------|----------|
| Outstanding | Superior | Fully Acceptable | Incomplete | Marginal |
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

SIGNATURE DATE

NAME:..... DIVISION.....
MINE NO. DISCIPLINE:

[illegible]

APPENDIX VII

A. ESTIMATING WASTAGE PROBABILITY FUNCTIONS USING THE CENSUS METHOD

For reasons given in the text, we shall not concern ourselves with the cohort analysis method here. We feel that cross-sectional (census) and not historical data may be easier to collect in many INDECO companies. The notation and derivation used in this appendix follows that of Forbes (1971) and Bartholomew and Forbes (1979).

The survivor function $G(x)$ is the probability that an individual survives in the job for time x , defined for all values of x up to the maximum possible length of service, and $F(x)$ is the distribution function, then $G(x) = 1 - F(x)$. The probability density function of x is then

$$f(x) = \frac{dF(x)}{dx} = -\frac{dG(x)}{dx} \quad (A1)$$

and conversely,

$$G(x) = \int_x^{\infty} f(u) du \quad (A2)$$

The probability f_i of an individual leaving between interval (x_i, x_{i+1}) may be expressed as $f_i = \int_{x_i}^{x_{i+1}} f(u) du / (x_{i+1} - x_i)$, which is the average value of the density over the interval.

Consider the conditional probability of leaving in the next time interval. We define the instantaneous rate of leaving or the force of separation $m(x)$ over a smaller time interval $(x, x+dx)$ as

$$m(x)dx = \text{probability of an individual with length of service } x \text{ leaves in } (x, x+dx)$$

$m(x)$ is not a probability function but a rate of intensity. However, a simple probability argument gives

$$m(x) = f(x)/G(x) \quad (A3)$$

A version of (A3) which is used for estimation is

$$m(x) = \frac{-d \ln G(x)}{dx} \quad (A4)$$

And integrating both sides of (A3)

$$G(x) = \exp[-\int_0^x m(u) du] \quad (A5)$$

These results show that $f(x)$, $G(x)$, and $m(x)$ are equivalent as they can be obtained from any of the others.

The rate function $m(x)$ is more useful than the continuous probability q_i . If q_x is the probability of an individual with length of service x leaving before $x+1$, this may be expressed in terms of $m(x)$ based on the idea of (A5). Thus, $1-q_x$ is the probability of surviving to time $x+1$ starting at x and so

$$q_x = 1 - \exp[-\int_x^{x+1} m(u) du] \quad (A6)$$

To estimate the above functions using the census method, we need the following data:

(a) Leavers' CLS distribution: the completed length of service distribution for all the people who left the company during one calendar year (or any other time interval).

(b) In-service LS distribution: the lengths of service distribution of all employees in service at the mid-point of the time intervals (the average of the number at the beginning and end of year).

From such data, we can calculate the transition and central wastage rates.

(i) The transition wastage rate (w) is given by

$$w = \frac{\text{Number of leavers during the year from amongst those in the class at the start of the year}}{\text{Number in this class at the start of the year}}$$

$$= L'/S' \quad (A7)$$

(ii) The central wastage rate (m) is given by

$$m = \frac{\text{Number of leavers during the year who were in this class when they left}}{\text{Average number in this class during the year}}$$

$$= L^*/S^* \quad (A8)$$

On the assumption that each individual in the initial stock has the same probability w of leaving during the year, and that individuals act independently, the binomial distribution applies and we thus can calculate the estimated standard error of w

$$se(w) = [w(1-w)/S']^{1/2} \quad (A9)$$

To calculate the standard error of m we assume that the number in the class remain constant and equal to S^* throughout the year, with each class having S^* 'jobs' whose occupants experienced a probability mx of loss during each interval (x_i, x_{i+1}) . Thus the number of losses would have a Poisson distribution with mean S^*m ; and the standard error of $m(x)$ would be

$$se(m) = [m/S^*]^{1/2} = m/\text{root } L^* \quad (A10)$$

Although the number in a class may fluctuate during the year, we may take its average (S^*) to be fixed.

Consider the following example from Bartholomew and Forbes (1979:26):

Suppose we have the following data

- 1000 people in a class at the beginning of year.
- 350 total number of leavers during year of which 250 were in class at beginning of year and 100 from those who entered the class during the year.
- the number of new entrants during the year is 450

We can calculate both w and m from the above figures.

For w : $L' = 250$, $S' = 1000$ so $w = 250/1000 = 0.25$ and $se(w) = [0.25(1-0.25)/1000]^{1/2} = 0.014$

For m : $L^* = 350$, Number in class at beginning of year = 1000,
 Number at end of year = $1000 - 250 + (450 - 100) = 1100$, $S^* = \frac{1}{2}(1000 + 1100) = 1050$
 $m = 350/1050 = 0.333$, $se(m) = (0.333/1050)^{1/2} = 0.018$

It is suggested that entrants should be divided into gross and net inflows. Gross inflow is the total of new entrants in a year (450 in the example) and net inflow is those who remain at the end of the year ($450 - 100 = 350$). Those who join and leave within the year are counted in the gross and not in the net inflow and as such, they are not included in the numerator or denominator of w but they are included both in m .

The term entrants as used here implies recruitment and not promotion and transfers (but the principle and the model can be applied to the latter). In many INDECO companies, the current objective is to reduce employment and as such recruitment, will be very small: and thus making the net inflow either very small or even zero. With this type of policy, it is not clear whether redundancies, early and age retirement should be treated as part of the wastage or as special cases. This is because wastage analysis here presupposes that it is the uncontrollable voluntary wastage (resignations) which is being considered. It may therefore be prudent to apply these analyses to those occupational categories where redundancies are less likely and voluntary and other uncontrollable wastage are likely. We however proceed on the assumption that we are dealing with voluntary and uncontrollable wastage

The transition rates (w) calculated above can be used for forecasting by applying them to stocks at the beginning of the year and thereby predicting those who are likely to leave during the year. If the net inflow is added, the forecast of the stock at the beginning of the following year will be determined. This is the central idea of the Markov models discussed in the text. Note that if leavers are classified by status at the beginning of the year, then the transition rate (w) applies, and if on exit, the central rate (m) should be used. If the assumptions on which the calculation of standard errors are based hold, a relationship between the two rates can be established. The probability, w , that an individual subject to a force of separation, m , leaves in a unit interval of time is $1 - \exp(-m)$, hence

$$w = 1 - \exp(-m) \quad (A11)$$

Estimating the Wastage Pattern Using Central Rates

We calculate rates for classes defined by the length of service.

Let S_i = Average number in service during the year in length-of-service class (x_i, x_{i+1}) ,

L_i = The number of leavers during the year in length-of-service class (x_i, x_{i+1}) when they left.

From this kind of data, we can estimate the function $m(x)$ by making a step function approximation $m(x) = m_i$ for $x_i < x < x_{i+1}$.

The central rate m_i can be estimated by

$$m_i = L_i/S_i, \quad se(m_i) = (m_i/S_i)^{1/2} \quad (A12)$$

Suppose one company in the INDECO Group has the above variables as in table A1.

Table A1: Imaginary INDECO Subsidiary Company Ltd production workers 1988: Current (central) data and estimates for length-of-service specific rate, m_i

| Length-of service (x_i, x_{i+1}) | <u>Current Data</u> | | Estimated Central rates m_i | Estimated standard error $se(m_i)$ |
|--|--|--|-------------------------------------|--|
| | Leavers by class class on exit L_i | Average Numbers in service S_i | | |
| 0- | 87 | 124.5 | 0.699 | 0.075 |
| 1- | 23 | 83.0 | 0.277 | 0.058 |
| 2- | 11 | 63.0 | 0.175 | 0.053 |
| 3- | 15 | 50.0 | 0.300 | 0.077 |
| 4- | 8 | 40.0 | 0.200 | 0.071 |
| 5-8 | 17 | 109.5 | 0.155 | 0.038 |
| 8-10 | 5 | 50.5 | 0.099 | 0.044 |
| 10-15 | 12 | 107.0 | 0.112 | 0.032 |
| 15-20 | 5 | 79.5 | 0.063 | 0.028 |

Source: Adapted from Bartholomew and Forbes, 1979, p. 27

From the estimates of $m(x)$, $G(x)$ or $f(x)$ can be calculated using equations (A1) and (A5). The stability curve method of Lane and Andrew (1955) would replace $m(x)$ by its step-function estimator in (A5) to give

$$G(x) = \exp[-\text{summation } (j=0, i-1) c_j m_j - (x-x_i) m_i], \quad x_i \leq x < x_{i+1}; \quad (i = 1, 2, \dots, k) \quad (A13)$$

where $c_j = (x_{j+1} - x_j)$ the length of the interval

From Forbes (1971) we calculate the standard error as follows

$$se(G_i) = G_i [\text{summation } (j=0, i-1) m_j c_j / S_i]^{1/2} \quad (A14)$$

Other wastage functions can be calculated as follows

$$f_i = (G_i - G_{i+1})/c_j \quad \text{and} \quad q_i = (G_i - G_{i+1})/c_j G_i \quad (A15)$$

The expected further duration (the expected remaining service of a person who has reached a length-of-service x , denoted by D_x) can be estimated as

$$D_i = 1/G_i [\text{summation } (j=1, k-1) (G_j - G_{j+1})/m_j + \frac{1}{2} c_k G_k], \quad i = 0, 1, \dots, k-1 \quad (A16)$$

Table A2 gives the estimates of $G(x)$, $f(x)$, $q(x)$ and $D(x)$ calculated from the data in table A1, using the stability curve method.

Table A2 Imaginary INDECO Subsidiary Company Ltd production workers 1988: Stability estimates for G_i , f_i , q_i and D_i

| Length of service x_i | Survivor function G_i | Estimated Standard error $se(G_i)$ | Density function f_i | Conditional Probability of leaving q_i | Further Expected Duration D_i |
|----------------------------|----------------------------|---------------------------------------|---------------------------|---|------------------------------------|
| 0 | 1.000 | 0.000 | 0.503 | 0.503 | 3.3 |
| 1 | 0.497 | 0.037 | 0.120 | 0.242 | 5.2 |
| 2 | 0.377 | 0.036 | 0.060 | 0.160 | 5.7 |
| 3 | 0.316 | 0.034 | 0.082 | 0.259 | 5.6 |
| 4 | 0.234 | 0.031 | 0.042 | 0.181 | 6.4 |
| 5 | 0.192 | 0.029 | 0.024 | 0.124 | 6.8 |
| 8 | 0.120 | 0.023 | 0.011 | 0.090 | 7.0 |
| 10 | 0.099 | 0.021 | 0.008 | 0.086 | 6.3 |
| 15 | 0.056 | 0.015 | 0.003 | 0.054 | 4.3 |
| 20 | 0.041 | 0.012 | - | - | 0.0 |

Source: As table A1, p. 29.

The survivor function can also be estimated using the actuarial method. This method is discussed in both Forbes (1971) and Bartholomew and Forbes (1979). An interested reader should consult these works.

For calculating transition rates, we redefine S_i to be the number in service at the start of year in the length-of-service (x_i , x_{i+1}); and L_i to be the number of these S_i who leave before the end of the year. The transition rate w_i and its standard error will be given by

$$w_i = L_i/S_i, \text{ se}(w_i) = [w_i(1-w_i)/S_i]^{1/2} \quad (\text{A17})$$

The rates calculated using (A17) can be converted into central rates by applying equation (A11). The methods used above can then be applied to estimate the wastage probability functions. Thus (A11) will be re-written as $m_i = -\ln(1-w_i)$. It is not possible to estimate wastage functions at points (x_i) using this equation but at intervals ($x_i + \frac{1}{2}$, $x_i + 3/2$). However, this may not be convenient. The preferred method uses the transition rates directly to estimate the survivor function. This method multiplies together all the previous survival probabilities—for details of the specification of this method, see Bartholomew and Forbes, pp. 31-32.

B. THE RENEWAL MODEL

While vacancies (where they are not frozen) are filled through promotion, transfer and external recruitment in many INDECO companies, the existence of skill shortages in the local labour market means that some of these vacancies go for longer periods of time without being filled. For this reason, we shall only consider the renewal (fixed) model which assumes that vacancies are filled one at a time—there may always be vacancies in the system.

Let $v_j(T)$ denote the expected number (stock) of vacancies in grade j at time T with $V(T)$ denoting the vector $[v_j(T)]$;

s_{ij} the probability that a vacancy existing in grade i at the beginning of the interval will be filled from grade j by the end of the period.

The expected number of vacancies is thus

$$v_j(T) = \text{summation } (i=1,k) v_j(T-1)s_{ij} + (\text{new vacancies entering } j), (j = 1, 2, \dots, k) \quad (\text{B1})$$

If the grade sizes (number of posts or establishment) are n_1, n_2, \dots, n_k , the expected number of vacancies in grade j at time T will be

$$e_j(T) = [n_j - v_j(T-1)]w_j; \text{ and in matrix form}$$

$$\mathbf{V}(T) = \mathbf{V}(T-1)\mathbf{S} + \mathbf{e}(T) \quad (\text{B2})$$

where \mathbf{S} is the transition matrix governing the path of the vacancy chain.
Since $\mathbf{e}(T)$ depends on $\mathbf{V}(T-1)$, (B2) can be re-written as

$$\mathbf{V}(T) = \mathbf{V}(T-1)\mathbf{S}^* + \mathbf{R} \quad (\text{B3})$$

where $\mathbf{S}^* = \mathbf{S} - \mathbf{W}$ and $\mathbf{R} = \mathbf{eW}$, \mathbf{W} being a diagonal matrix formed from wastage probabilities. \mathbf{S}^* is not a stochastic matrix, but the same computer programme used in Markov models (see text) can still be used for calculating the vacancy chain model.

The expected recruitment and transfer flows can be calculated as follows:

$$\text{expected recruitment flow to } j \text{ at time } T = v_j(T-1)s_{j,k+1} = P_{k+1,j} \quad (\text{B4})$$

$$\text{the expected transfer flow from } i \text{ to } j = v_j(T-1)s_{ji} = P_{ij} \quad (\text{B5})$$

where $s_{j,k+1}$ is the expected loss; $P_{k+1,j}$ is the recruitment flow into j ; s_{ji} is the movement of vacancies from j to i ; and P_{ij} is the expected promotion from i to j .

The main weakness of the above model is that wastage is assumed to be grade and not length-of-service specific. But whereas the grade sizes may be fixed, the length-of-service and age distributions of the respective grade occupants are not. Although it is mathematically difficult to specify the renewal models with fixed grades but varying attributes, computer programmes (KENT) have been written to deal with the problem. The KENT computer programme has been used in the British Civil Service's MANPLAN package (see Smith, 1976). We briefly describe the structure and subroutines of the KENT computer model using age as the attribute for analysing each grade.

STAGE I: Make assumptions about wastage, promotion and recruitment. Let n_{ij} be the initial number in the j^{th} age group of the i^{th} category and let w_{ij} be the wastage rate of that category, that is $n_{ij}w_{ij}$ for all i and j . This, plus any planned activities would determine the vacancies entering the system.

STAGE II: Fill the vacancies by recruitment and promotion:

- (i) decide whether the vacancy is filled through external recruitment. If not from which grade is the replacement to come from. The vacancy transition matrix will be used here.
- (ii) determine the age distribution of those to be promoted or recruited. If there are many age groups with only a few people in each, the number required from any group may exceed the number available. The KENT model has routines which deal with this kind of problem. It finds substitutes from the neighbouring age groups. Alternatively, the promotion rules can be changed to make selection of promotees random.

Example Using the Renewal (Vacancy Chain) Model

Assume the data in table 8.2 in the text applies to a fixed manpower system. We would thus have

| | G1 | G2 | G3 | G4 |
|---|-----|-----|-----|----|
| Number needed to maintain current stock | 280 | 200 | 140 | 80 |
| Wastage next year | 70 | 34 | 12 | 2 |

If only promotion is used to fill (renew) the vacancies created by wastage, we will have:

- 2 staff will be promoted from grade G3 to G4;
- 14 (= 2 + 12) promoted from grade G2 to G3;
- 48 (= 2 + 12 + 34) promoted from grade G1 to G2;
- 118 (= 2 + 12 + 34 + 70) will be recruited into G1.

If the recruitment distribution r in table 8.2 is maintained, we will instead have:

- 83 (= 0.7 x 118) will be recruited into G1
- 24 (= 0.2 x 118) will be recruited into G2; 24 promoted from G1

12 (= 0.1 x 118) will be recruited into G3; 2 promoted from G2 and 2 promoted from grade G3 to G4.

This simple hypothetical example shows that for a fixed manpower system, external recruitment reduces the chances of promotion, especially for those in lower grades. Such a state of affairs may lead to increased wastage of experienced and committed employees (Clowes' model). If only part of the vacancies are filled (either due to lack of suitable promotees or recruitment difficulties), it means that the organization will have vacancies most of the time.

C. THE CAMBRIDGE MODELS: PROMOTION RATES AND CAREER PATTERNS

Between two time intervals, say T and T+1, an individual employee can either be promoted, leave or remain in the same grade. We assume that the probabilities of these events do not depend on time T but on the transition probabilities p, w, and $s = 1 - p - w$. We assume further that $T = k$ which is the maximum length-of-service an individual can stay in a grade before retirement. For individual career planning purposes, we would wish to estimate the following probabilities

$P_r = \text{Pr (individual is promoted between } T = r \text{ and } T = r + 1)$

$P_u = \text{Pr (individual is ultimately promoted)}$

If successive transitions are independent, then

$$P_r = s^r p \quad (r = 1, 2, \dots, k-1) \quad (C1)$$

The probability of eventual promotion is therefore

$$P_u = \sum_{r=0, k-1} P_r = p(1 - s^k)/(1 - s) \quad (C2)$$

If p, w, and s are dependent on T, then this would be the expected proportion of entrants who will exit by promotion--which is of interest to both management and individual employees. Another promotion probability for those individuals who would not like to leave the organization until retirement is expressed as conditional probability.

$P_u^* = \text{Pr (individual is ultimately promoted | he does not leave before retirement)}$

Between T and T+1, such an individual can either be promoted or stay in the same grade. Let the probabilities for these events be p^* and $s^* = 1 - p^*$, respectively. The probability of eventual promotion is given by

$$P_u^* = 1 - (s^*)^k \quad (C3)$$

As k tends to infinity, P_u^* will tend to unity, as promotion is the only means of exit.

To calculate P_u^* , the value of p^* should not necessarily be the same as p. The value of p^* will depend on the assumption made about the promotion and wastage events:

(a) If promotion occurs before wastage, or takes precedence over it (e.g., if individuals wait to see if they are promoted in any one year before deciding whether or not to leave), then

$$p^* = p$$

because the conditional event does not take place until after promotion.

(b) If wastage occurs before promotion or takes precedence over it (e.g., if promotions are only made from among those known to be staying through that time interval) then

$$p^* = p/1 - w$$

(c) If promotion and wastage events occur together and if they are independent of each other, then we need the theory of competing risk (Chiang, 1968)

$$p^* = 1 - sP/(p+w)$$

The different expected durations before promotion for those promoted are represented by P_u and P_u^* . We denote these by T_p and T_p^* , respectively. The probability of an individual being promoted at time $T = r$, given that they are ultimately promoted is Pr/P_u , and if we assume a person promoted in $(T, T+1)$ is on average promoted half-way through this interval, we have

$$T_p = \text{summation } (r=0, k-1) (r + \frac{1}{2}) Pr/P_u = (1-s)^{-1} - \frac{1}{2} - ks^k/(1-s^k) \quad (C4)$$

Where it is conditional on no leaving before retirement, the expected time to promotion is

$$T_p^* = (1-s^*)^{-1} - \frac{1}{2} - k(s^*)^k[1-(s^*)^k]^{-1} \quad (C6)$$

where $s^* = 1 - p^*$

[NB: The estimated stream sizes and average ages here will refer to non-leavers--which if read from CAMERA diagrams would show the proportion of those at each grade--see Bartholomew and Forbes, p. 175).]

Consider the following worked example using data from table 8.2 in the text.

| | k | p | w | s | p* | s* | Pu | Tp | Pu* | Tp* |
|---------|----|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Grade 1 | 15 | 0.20 | 0.25 | 0.55 | 0.233 | 0.767 | 0.444 | 1.720 | 0.981 | 3.506 |
| Grade 2 | 9 | 0.12 | 0.17 | 0.71 | 0.132 | 0.868 | 0.395 | 2.516 | 0.720 | 3.581 |
| Grade 3 | 6 | 0.07 | 0.085 | 0.845 | 0.073 | 0.927 | 0.287 | 2.517 | 0.365 | 2.800 |

The probability P_u in the example is the expected proportion of a group of entrants promoted to the next grade: within 15 years, out of a group of entrants into grade 1, a proportion $P_u = 0.444$ would expect to be promoted. The remainder would either leave or retire within the grade. The promotion chances for individual employees who are prepared to wait for as long as is necessary is given by P_u^* , which progressively falls as one climbs the hierarchy. T_p gives the average length of service (experience) of promotees. For example, with $T_p = 2.516$ for grade 2, it means that those promoted to grade 3 will need to have spent an average of two and a half years in grade 2 before being promoted. T_p^* is hypothetical in that it tells entrants in a grade how long they should expect (if they are prepared to wait for the maximum necessary time) before they are promoted. That T_p^* is greater than T_p is because those individuals who do not intend to leave before retirement can only increase their chances of promotion by waiting longer than average--both long-service promotees and average time to promotion would increase.

The main weakness of the preceding analysis is the assumption that an individual's promotion chances do not depend on how long he stays in a grade. In practice, the chances of promotion are usually low initially, then rise to their peak and then decline over time--hence the concept of promotion zones. Suppose the length-of-service is denoted by seniority and divided into three zones with boundaries a and b . Below seniority a and above seniority b , no one is promoted. The interval (a,b) is the promotion zone whose occupants have p_2 promotion probability at each time point. The wastage and staying probabilities for the three zones will respectively be w_1, w_2, w_3 , and s_1, s_2, s_3 . Using equations (C2) and (C4), the indices of promotion prospects can be calculated as follows

$$\begin{aligned} P_u &= \text{Pr (survives to } a) \text{ Pr (promotion occurs during } (a,b)) \\ &= s_1^a p_2 (1 - s_2^{b-a}) (1 - s_2)^{-1} \end{aligned} \quad (C6)$$

$$\begin{aligned} T_p &= a + \text{expected time to promotion in } (a,b) \\ &= a + (1 - s_2)^{-1} - \frac{1}{2} - (b-a)s_2^{b-a}(1 - s_2^{b-a})^{-1} \end{aligned} \quad (C7)$$

From (C3) and (C5) we get

$$P_u^* = 1 - (s_2^*)^{b-a} \quad (C8)$$

$$T_p^* = a + (1 - s_2^*)^{-1} - \frac{1}{2} - (b - a)(s_2^*)^{b-a}[1 - (s_2^*)^{b-a}]^{-1} \quad (C9)$$

It is usually difficult in practice to specify the promotion zones and as such, data may not be available to estimate the zone-specific rates. Only grade-specific rates may be available, in which case we proceed as follows:

- (a) Estimate the promotion rate p_2 using the approximation

$$p_2 = p(1 - s^k)/(s^a - s^b) \quad (C10)$$

where p and s are grade-specific rates, and k is the maximum possible length-of-service in the grade. The main assumption here being that the seniority distribution within the grade is stationary and thus approximate the grade-specific rates (Forbes, 1977).

- (b) Assume wastage rates for each zone are equal, and estimate them by grade-specific rates, i.e. put $w_1 = w_2 = w_3 = w$ —which is a very strong assumption to make and therefore needs to be qualified and checked along with the value of p_2 .

Worked examples by Bartholomew and Forbes (pp. 175-180) using data from Forbes (1971a) show that the main differences between the above assumptions are in the waiting times: with the value of T_p and T_p^* almost double and significantly higher than those where promotion zones are ignored.

The theory of absorbing Markov chains may also be used to model promotion and career patterns. Where the renewal system is in equilibrium, the Markov chain models will be identical with the renewal models. This method is discussed in Bartholomew and Forbes (1979:180-183) and Bartholomew (1973).