

Institutional Reforms to Protect China's Water Resources: Focus on the Pearl River Basin

by Reut Barak, Economics Department, SOAS

Along with creating dramatic increases in income and living standards, China's rapid economic growth has had a devastating impact on the natural environment. The accompanying processes of industrialization, urbanization and increasing consumption have intensified the pressure on natural resources, caused severe air and water pollution, and contributed to rising levels of acid rain, desertification and land erosion.

Although the central government has been taking various measures to fight environmental degradation, such as through increases in funding, changes in legislation and support for large-scale environmental protection campaigns, its efforts have produced, so far, only modest results. More than 80% of China's coastal water and about 70% of its rivers and lakes are polluted with industrial waste, raw sewage and agricultural runoff.

This Development Viewpoint contends that the core reasons for the lack of progress in China are institutional. They relate to the incentive structure of local government officials, the relationship between the central government and local governments and the limited independence and powers of the Ministry of Environmental Protection (MEP).

This Viewpoint focuses on a regional effort to achieve bottom-up environmental cooperation in the Pearl River basin in Southern China (see Map). Although this innovative effort aims to consolidate joint water-pollution abatement among 11 provinces, its achievements have been hampered by institutional constraints of the Chinese governance system.

Institutional Structure

China's government is constructed as a multilevel and territorial hierarchal model: the central government in Beijing, together with the headquarters of the Communist Party, is the highest level in the command chain. Every office has an assigned bureaucratic rank, which determines its decision-making and bargaining powers. Each government official is appointed and promoted by an official higher in the command structure and thus accountable mainly to that person.

It is important to note that provincial governments hold the same bureaucratic rank as central ministries. Thus, since they are of similar rank, they are unable to compel one another to pursue certain policies.

Government officials at the regional and local level tend to regard producing high economic growth as their main barometer of success, and the basis for their promotion. Since environmental protection is often seen to conflict with advancing growth, such officials rarely invest in environmental projects. Moreover, China's upward accountability governance system also means that public pressure from below is rarely successful in obliging local government officials to emphasize protecting the environment and safeguarding public health.

Although in the past decade the central government has been channelling more investment towards environmental protection, the impact has been mitigated at the local level. The Chinese governance structure currently

suffers from a 'principal-agent' problem. While the central government designs national policies, it is not always able to motivate local officials to enforce their implementation.

Policies related to environmental protection do not always receive firm backing since the central government is not unified behind them and thus sends mixed messages to local governments. Hence, local governments choose to implement only those policies that they cannot ignore. In the process, they generally choose not to implement costly environmental protection policies. An example of this problem is that the compliance with the central government requirement for treatment of domestic wastewater is less than 20% in most of China's cities.

The Ministry of Environmental Protection (MEP) is the body responsible for the protection of the natural environment in China. However, it is an extremely weak body, which has limited funding and staff. Moreover, it received Ministerial-level authority only on March 2008. Most importantly, the local branches of the MEP, the Environmental Protection Bureaus (EPBs), depend on local governments for funding. Thus, when local governments are not willing to invest in environmental protection, the work of the EPBs is severely constrained.

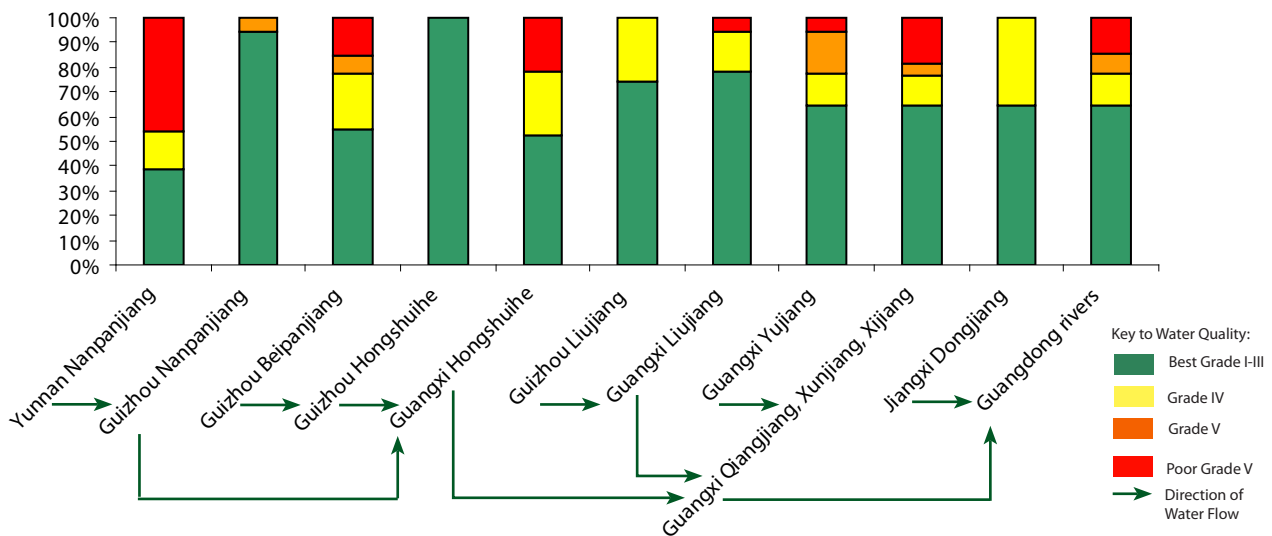
In addition, China's process of decentralization has created fierce competition among localities for resources, investment and market shares of products. Hence, they have great difficulty in managing shared resources. In addition, the central government is unable to compel the localities to act jointly. Hence, although 86% of the Chinese population reside by and depend upon transboundary rivers, such as the Pearl River, there is little sustainable management of these water resources.

The Pearl River Basin



Source: Author's adaptation based on Nikkei Business Publications, 2005

Figure: Water Pollution Level across the Pearl River Basin, 2007



Source: Statistical Yearbooks of Yunnan, Guizhou, Guangxi, and Guangdong, Water Resource Bureaus and Environmental Protection Bureaus 2007, and for Jiangxi 2006.

The Pearl River Basin

A unique case of bottom-up cooperation has been developing in the Pearl River Basin since 2004. The basin covers one-fifth of China's area, contains one-third of its population and produces 40% of its GDP.

Unlike in any other river basin in China, the Environmental Protection Bureaus of the 11 provinces and administrative regions sharing the basin have joined together to reduce water pollution along the river and improve environmental protection practices across the basin. This cooperation was initiated by Guangdong province, the main downstream victim of pollution, which has been attempting to encourage poorer upstream provinces to reduce water pollution.

The Figure shows pollution levels in the main tributaries of the Pearl River Basin. The pollution index (which has been established by the Ministry of Water Resources) varies between a) levels I-III, which are suitable for agricultural and human use, b) level IV, which is suitable only for some industrial use, and c) levels V and 'poor V', which are unsuitable for any use. The arrows show the direction of the river flow.

The Figure reveals that levels of pollution that render the river water unsuitable for any use are significant across many of the provinces, especially those downstream such as Guangdong. The Figure also helps illustrate why water pollution is a transboundary problem and must be addressed jointly by all parties.

Cooperation among the 11 provinces and administrative regions has been successful in improving the exchange of experience and information, producing joint education and environmental-awareness programs and strengthening trust and solidarity among the Environmental Protection Bureaus. However, the cooperation has not led to active, concerted steps to combat water pollution.

Such actions are held back by constraints that are caused by the institutional framework in which the Environmental Protection Bureaus operate. These constraints include:

1. The dependence of Environmental Protection Bureaus on funding by local governments;
2. The unwillingness of local governments of poorer upstream provinces to invest in joint efforts to reduce pollution;
3. The inability of Guangdong to oblige upstream provinces to act because of the hierarchical rank structure of the respective governments;

4. The unwillingness of Guangdong, though a rich province, to bear a heavy burden of the costs of regional cooperation; and
5. The efforts of Guangdong as well as other provinces to shift the responsibility for funding onto the central government.

Institutional Reforms

Thus, the cooperative efforts in the Pearl River Basin continue without producing any substantial abatement of water pollution. However, even within the existing hierarchical system, the Chinese government could carry out institutional reforms that could strengthen the fight against environmental degradation.

Firstly, evaluating local government officials in terms of their efforts to protect the environment would enhance their incentives to invest in programs of environmental protection. Currently, there are plans to publish measures of 'Green GDP' (which discount GDP for environmental losses) in parallel to regular GDP figures. However, unless 'Green GDP' becomes the main reference for the assessment of local officials, they will continue to focus on achieving rapid economic growth.

Secondly, strengthening the independence of the Ministry of Environmental Protection and the Environmental Protection Bureaus, through direct funding of their operations, would enable them to act independently of local governments and help enhance their enforcement of regulations on environmental protection across China, regardless of the level of economic development in a particular locality or region.

Finally, the central government could improve the incentives of provinces and localities to participate in cooperative mechanisms, such as the one in the Pearl River Basin. Strong cooperation platforms would allow quicker and more efficient conflict resolution among parties and increase the localities' sense of responsibility for sustainable development in their region.

The central government could both support the existing cooperation platforms and assist in the creation of new platforms. This support could include both clearer administrative recognition of such mechanisms and financial assistance when it is needed.

References:

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 Nikkei Business Publications (2005). *Pearl River Delta Map*, retrieved 25-12-2008, from <http://www.nikkeibp.co.jp/jp/report/shared/china20050124zaizen11.jpg>