

Tanner, T. (2010). Shifting the narrative: child-led responses to climate change and disasters in El Salvador and the Philippines. *Children & Society*, 24(4), 339-351.

Shifting the narrative: From vulnerability to agency through child-led responses to climate change and disasters

Thomas Tanner

Institute of Development Studies, University of Sussex, BN1 9RE.

Abstract

Children and young people are commonly treated in the climate change and disasters literature as victims of natural events requiring protection by adults. This article critiques this narrative, drawing on examples from the Philippines and El Salvador that explore how children's groups have responded through child-centred initiatives. This highlights the importance of understanding children's perception and communication of risks facing their lives and livelihoods, their potential as agents of change in preventing disasters and adapting to climate change, and the implications for the theory and practice of child participation, particularly in developing countries.

Introduction

This article seeks to contribute to understanding of the ways that children can prevent, respond and adapt to disaster and climate change impacts. Until recently, children have not been the focus of attention for research or practice in climate change and disasters communities (Tanner *et al*, 2009a; Peek, 2008; Back *et al*, 2009). This may be linked to limited child-sensitive expertise of professionals, but also to children's status in society; children do not set the research agenda, carry out the research, participate in decision making or hold professional positions to prioritise and champion such issues (Anderson, 2005). This article highlights the prevailing narratives of vulnerability and protection, using empirical examples from developing countries to develop a counter-narrative that children can play an active role in communicating risks, participating in decision-making processes, and taking action to facilitate adaptation to climate change and prevent disasters. We use the term 'children' in this article because the research has focused primarily on participants under 18 years of age, including those as young as 3.

Child Vulnerability to Disasters and Climate Change

Climate change has moved from the realms of environmental concern to become a major international development issue, particularly emphasising the differentiated nature of impacts and capacities to respond across the world and within societies (Adger *et al*, 2003; Tanner and Mitchell, 2008). Alongside efforts to limit atmospheric greenhouse gas concentrations, there is growing emphasis on the adjustment of human and natural systems to actual or expected climate stimuli or their effects – a process known as 'adaptation' (McCarthy *et al*, 2001). Adaptation shares much in common with the policies and practices of disaster risk reduction (DRR), which looks beyond the environmental

conditions influencing hazards and disasters, to acknowledge the social, economic and political factors that influence social vulnerability (Schipper and Pelling, 2006; Wisner *et al* 2004).

To date, the linkages between children, climate change and disasters have focused on two main narratives: Vulnerability and protection. Vulnerability has been explored in particular through the use of statistics that draw attention to the specific vulnerability of children as an aggregate social group. For examples, climate change impacts are projected to increase the numbers of children affected by disasters each year from an estimated 66.5 million in the late 1990s to up to 175 million in the coming decade (Penrose and Takaki, 2006; Save the Children UK, 2007). Many studies focus on the high mortality and morbidity rates among children due to climate stresses and extreme events (Cutter, 1995; Telford *et al*, 2006; Waterson, 2006; McMichael *et al*, 2008; Costello *et al*, 2009). These aggregate numbers are underpinned by research documenting specific requirements for child protection during and after disaster events (Last 1994; Jabry 2002; Bartlett 2008; Weissbecker *et al* 2008). Such research has focused on vulnerabilities including psychological and physical health, protection from abuse, and education-related factors (Evans and Oehler-Stinnett, 2006; Waterson, 2006; Wisner, 2006).

There are a number of possible explanations for the dominance of these vulnerability narratives (Mitchell *et al*, 2009). First, they remain important advocacy instruments to call attention to and direct resources towards the specific needs of children, highlighting the injustice of impacts felt by those with little say in determining their causes (Save the Children, 2007, 2009; UNICEF, 2007; Children in a Changing Climate, 2008). This is increasingly linked to strategic questions around action and resources in light of international financial flows linked to climate change. Second, it reflects the continued dominance of top-down information flows on climate and disasters information, with scientific institutions at the top and the public at the bottom (Wynne 1992; Wisner *et al*, 2004). The emphasis on science has reinforced the central role of adults and focused attention on relationships between science and society as a whole rather than the diversity within society. The third possible explanation relates to paternalism, and the commonly held belief that parents make decisions about the level of risk their child faces (Liebel, 2007). This reinforces the belief that parents have the responsibility, capacity, will and free reign to make choices about risks their children face, without questioning the rights and agency of the child to make a difference.

Children's participation in disasters and climate change adaptation

Vulnerability narratives have been supplemented in recent years with those stressing children's active participation and agency in efforts to prevent, prepare for, cope with, and adapt to climate change and extreme events. While this has initially been linked to infrastructural protection and curriculum development in schools (Wisner, 2006), this has more recently considered participation through child-centred programmes, child rights based approaches, children's engagement in related policy spaces, and risk communication (Mitchell *et al*, 2008, 2009; Peek, 2008; Tanner *et al*, 2008, 2009b; Back *et al*, 2009). These have covered activities before, during and after disaster events (see Table 1). They are founded on rationales including children's ability to participate in DRR activities in their homes, schools and communities, to learn about disasters and climate change, and to communicate risks to their peers and relatives, as well as providing

practical and creative ideas to help their families and communities recover from disasters (Peek, 2008).

Table 1: Children’s contributions throughout the disaster lifecycle (after Peek, 2008)

Preparedness	Response	Recovery
<ul style="list-style-type: none"> • Disaster drills • Risk mapping • Evacuation planning • Home hazards adjustments • Search and rescue training • Risk communication • Formal and informal hazards education 	<ul style="list-style-type: none"> • Warning others • Risk communication • Translation of disaster materials • Evacuation assistance • Physical protection • Search and rescue 	<ul style="list-style-type: none"> • Effective coping strategies: writing, drawing, taking pictures • Peer counselling • Aid collection/distribution • Planning and rebuilding efforts • Caring for other children • Assisting with household chores • Participating in paid labour

These issues are bound up in a growing literature around child participation in development processes, particularly in a developing country context (Ansell, 2005; Hill *et al*, 2004; Sinclair, 2004; Hinton, 2006). A range of models attempt to explain and contextualise child participation, commonly framed in terms of either the amount of power shared between adults and children, or the type of activity undertaken. Hart’s (1997) adaptation of Sherry Arnstein’s (1969) ‘ladder of participation’, where the steps describe degree to which children initiate or are in control of the process, emphasises the importance of the different levels for including children in decision making processes, rather than their passive presence in adult decision making processes (Checkoway and Richards-Schuster 2001; Chawla and Johnson 2004).

Responding to critiques of the hierarchical nature of the ladder, Kirby *et al* (2003) develop a non-hierarchical model of children’s participation based on the assumption that no level is better or worse than another. The functionality of level will depend on the situation and comfort of children’s participation. Shier’s pathways to participation (Shier, 2001) provides a more nuanced adaptation designed to assess the appropriate degree of participation for a specific task, within team or across organizations, by asking those involved what power they are prepared to share and can realistically achieve. Francis and Lorenzo’s (2002) domains of children’s participation takes a more evolutionary approach based on historic experience in urban planning and design.

Evidence from children’s groups in El Salvador and the Philippines

This article links climate change and disasters issues with the practice of children’s participation in development processes, building on the results of ongoing participatory research in 20 communities in El Salvador and the Philippines. This research is linked to child-centred development projects implemented by the NGO Plan International (see Table 2). Both countries are among the most disaster-prone in the world, with hazard-burdens in many areas compounded by a high incidence of poverty and dependence on climate-sensitive natural resources. The research works with both children’s and adult groups to investigate their agency and voice in conceptualising risk and taking action to manage climate and disaster risks.

Table 2: Research locations

Country	Region	Number of communities in study
El Salvador	Chalatenango	5
	La Libertad	3
	San Salvador	2
Philippines	Camotes	3
	Eastern Samar	3
	Southern Leyte	3
	Rizal	1

Drawing on the extensive experience in participatory research, adults and children's groups are actively engaged with the research process, including reflecting on design, methods, results and analysis (Boyden and Ennew, 1997; Pole *et al*, 1999; Punch, 2002). Research ethics formed a central consideration, particularly regarding processes for informed consent and child protection (Mahon *et al*, 1996; Thomas and O'Kane, 1998), and ongoing engagement of development partners agencies in research case study communities ensures continuity and guards against potential psychological distress in the face of future disaster risks by providing ongoing space for discussion and support for initiatives once researchers have left the communities.

Research methods were based on established activities for vulnerability and capacity assessment such as hazard identification and ranking grids, mapping vulnerabilities and capacities in the community, stakeholder analysis and mapping, group time-lines, and guided walks (CDP, 2008; Theis, 1996). The research has also developed hybrid methods to capture risk perception, risk communication and action, including short video 'adverts' for adaptation and risk reduction projects, poems and songs, acting out hazards and risks in situ, drawings to represent motivations for participation, information and message flow diagrams, and local games used to differentiate group characteristics or opinions (Molina *et al*, 2009). These methods were used with children's groups and groups of adults from the community, including local disaster management committees, officials and parents, local governmental entities and NGOs. Groups were separated by age and by gender where possible. Semi-structured interviews were also carried out with adult key informants and older children.

Voice, agency and action: Children's perceptions and participation

The research findings help to inform three critical debates for the children and climate change nexus. First, the research provides insights into the ways that children perceive and communicate risk facing their lives and livelihoods. This highlights the importance of understanding communication pathways between children, their peers, parents and other stakeholders. Second, the research provides an empirical contribution to the evidence around children as agents of change in preventing disasters and adapting to climate change. Finally, the research brings practical examples to bear on the debates around the theory and practice of child participation, particularly in developing countries.

Children's risk perception and communication

The generation and communication of knowledge is central to the processes of preventing disaster events and adapting to climate change. The research demonstrates

how children have a valuable and unique ability to conceptualise and analyse risk. Children showed they have a close awareness of the risks facing their lives, identifying the complex mix of hazards as well as the people, families or geographical areas where greater vulnerability to these hazards exists. Risk mapping proved a simple way of representing these risks spatially, while matrices attempted to place these risks in the context of their frequency and relative impact (see Table 3).

Table 3: Children’s group risk matrix (example from El Ciprés, El Salvador)

		Impact	
		High	Medium/Low
Frequency	High	<ul style="list-style-type: none"> • Delinquency • Unemployment • Gangs 	<ul style="list-style-type: none"> • Poor waste disposal • Nearby luxury housing development causing environment damage and water shortages • Storm damage to school buildings
	Medium	<ul style="list-style-type: none"> • Unprotected hillsides next to streets • Falling electricity cables • Tree-fall near houses • Dengue 	<ul style="list-style-type: none"> • Houses on cliff edges • Unstable floors in school buildings and latrines • Lack of protection walls in schools and houses
	Low	<ul style="list-style-type: none"> • Drug addiction • Road safety on main street 	

As emerging and potentially urgent issues, there remains a danger that climate change and disaster risks are prioritised or treated separately from wider risks to livelihoods, especially given the increasing amounts of earmarked resources for these issues globally. In contrast, this research highlights how risks related to natural hazards represented only one part of a wider risk spectrum that also identified the human and societal dimensions of vulnerability and risk (Wisner *et al*, 2004) (see Table 4). This interlinking spectrum suggests that interventions that focus on climate-related risks alone are unlikely to reflect community perceptions or priorities, and may inadvertently lead to actions that contradict other development priorities, or indeed increase vulnerability to climate-related risks (so called ‘maladaptation’).

Table 4: Typical spectrum of risks identified by children (e.g. Palo Grande, El Salvador)

Risk component	Examples of identified risks
Hazard-based	Hurricanes, earthquakes, windstorms, droughts, heavy rains, falling trees, swollen rivers and gorges, rockfalls, landslides
Human vulnerability-based	Falling electricity posts, retention walls, poorly maintained housing, houses near ravines, burning waste, contaminated waste, winding and steep roads, rainy season water ponding, houses located in landslide/rockfall zones.
Socially generated	Speeding traffic in the main road through the community, gangs, drug and alcohol abuse, poverty, delinquency and unemployment.

Risk perception was grounded in children’s ability to conceptualise and understand risks in their own terms, often relating hazards and factors driving vulnerability to their own experiences (such as localised landslides, polluted watercourses or dangerous roads). These locally defined conceptions are combined with information gained from external information sources such as the media, school curricula, and training sessions. These commonly including an understanding of wider scale processes such as global climate change or El Niño climatic events on local livelihoods that was not present in adults risk perceptions. Perceptions also reflected age, gender, educational attainment, risk experience, livelihood activities, and cultural norms. Table 5 shows how perceptions of types of hazard and risk in one location in the Philippines were linked to gender and age differences. These reflect gendered norms around household and productive roles, but also demonstrate the influence of knowledge developed through external influences.

Table 5: Gender and age differences among risk perceptions in the Philippines

Hazard/risk type	Identified predominantly by which age/gender group
“Natural Disasters”	All (based on personal experience) although ‘extreme weather’ is dominant among children as it prevents access to school or play
Environmentally unsound livelihood practices	Dominantly children primarily due to school-based learning. Although women often aware, men focus on meeting immediate needs of the family e.g. food, school allowance
Health and Disease	Women and children (Community Health Workers and mothers, and those who are susceptible)
Poor waste management	Dominantly children, primarily due to school-based learning and training
Social hazards (gambling, drugs, community conflict)	Women and children as witnesses of male perpetrators, and sometimes as victims of drunken behaviour (wives)
Global environmental problems	Children, primarily due to school-based learning
Food & financial crisis	Adults, as providers for the family (women, as household budget managers, stressed commodity prices)
Unemployment/ Livelihood opportunities	Adults
Agricultural hazards such as pests and drought	Men as farmers

Risk communication is critical to the translation of these perceived risks into subsequent risk management actions, as communication to other members of the community creates active support and behavioural changes from others. Greater momentum was discernible in communities where adults were informed of and supportive of the activities of children’s groups. Established risk communication theories have traditionally failed to include children’s needs and concerns (Mitchell *et al*, 2009). Building on behavioural and systematic traditions of risk communication, communication processes were analysed in terms of sources, messages, channels and receivers (Lindell and Perry, 2004). This communication includes formal and informal channels, both directly and indirectly, extending from the conversations of children with each other and their parents in everyday life, to more formal communications with municipal authorities (see Table 6). The strategies used present a wide range of possibilities, from informative meetings to the use of more elaborate resources such as drama, film exhibition and the use of megaphones, among others. For communication with local and institutional authorities, written forms of communication were more commonly used.

Table 6: Risk communication channels and actors identified by children from Cadian, Eastern Samar, Philippines

ACTORS	COMMUNICATION CHANNELS			
	Formal		Informal	
	Direct	Indirect	Direct (<i>opportunistic</i>)	Indirect
Child to child/youth	Formal meetings School classes Training workshops	Informal meetings	Influencing friends' behaviour Informal chatting Story telling Internet	Word of Mouth
Child to Adult	Face-to-face meetings Training Community Assembly Representation at council sessions Community activities	Letter writing Word of Mouth Invitations Public megaphone	Talking with family members in the home, street, or at events Text messaging or phonecall	Word of Mouth Student to Principal via Class Adivser/ Parents
Child to wider community	House to house survey Conferences, meetings, workshops	Public megaphone Advocacy slogans		
Adult to Child	Formal meetings House to house information dissemination Training workshops	Public megaphone	Talking with children in household	
Officials to wider community	Training, seminars	Legal ordinance Community assembly and consultations Public megaphone		
Inter-Officials	Formal meetings Workshops	Memorandum, Letter		

Children's role as risk communicators is constrained by issues of credibility of children as an information source (Renn and Levine, 1991; Haynes *et al*, 2008). In many cases trust and credibility in child voices was lacking not because of the messages presented but because of their social position as children. Children were commonly conceived by adults as not having the required knowledge and experiences. Crucially, where effective informal communication channels were found to be successful, these were underpinned by the presence of formal spaces for children's voice in community decision making processes, such as representation on community councils.

Agency and participation: Action to manage risks

At its heart, the research demonstrates that children represent more than simply a passive, vulnerable group in society who require protection by adults from climate related impacts. In many of the study communities, children are actively taking

community-based action to reduce climate and disaster risks, sometimes supported by NGO facilitation and resources. External agencies generally provided guidance on the tools, leaving analysis and choice of actions to the children's groups. The result is that disaster risk management responses do not necessarily conform to externally prioritised perceptions of risk.

Some of these activities focused on disaster preparedness and monitoring, organising and facilitating operations for effective warning, rescue and rehabilitation of the population in the event of a disaster. Others entailed preventative risk reduction actions, based on creating general risk awareness in the community and extending to actions such as creating speed bumps to slow passing traffic, building live barriers, trimming potentially dangerous trees, the collection of plastic waste to avoid pollution and flooding, campaigns around specific issues, establishment of nurseries and marine protected areas, and reforestation programmes.

In El Salvador, community children's groups have led the establishment of emergency camps following hurricane events, organising themselves into different brigades to travel to vulnerable areas to ensure families have the appropriate support when the community's warning systems are activated. After Hurricane Stan in 2005, the group in El Ciprés mobilised the community to request support from the mayor's office and other institutions, constructing a support network for the affected families until they were donated safer and stronger houses several months later. Community recognition of their capacity to confront complex situations has since widened their engagement with the community development association and the mayor's office. In the community of Potrerillos, a children's group pinpointed risk to children from a ravine neighbouring the school. Enlisting the help of other community members they led a process to create a supporting wall at the rear of the school and the construction of a concrete platform at the rear to stabilise grounds and create a safe area which is now used for recreational activities.

Children in community groups in Teguis, on the Camotes Islands of the Philippines, have worked together to restore degraded mangrove ecosystems by assembling teams to collect and replant saplings in sanctuaries behind protective barriers. The groups have combined local knowledge on mangroves with a range of sources including school textbooks, training sessions, discussion with parents and the media. In doing so they identified the multiple benefits of restoration including livelihoods gains by providing aquatic spawning grounds, maintaining biodiversity, disaster protection from typhoon winds and surges, adaptation to sea level rise and enhance wind and surge risks, as well as the sequestering of greenhouse gases.

The mangrove example suggests that the ability to mobilise and collaborate with others is crucial to successfully enabling child agency and participation. In the Philippines, child-led mobilisation around environmental issues such as mining in Eastern Samar and relocation of schools away from disaster zones in communities of Southern Leyte demonstrate the potential of children's groups to mobilise others (Tanner *et al*, 2009a). Drawing in other members of the community and developing social networks, they have mobilised constituencies behind key issues affecting their communities. Such concrete actions are a vital means of informing and persuading others of the value of child agency within the community.

Child participation in a changing climate

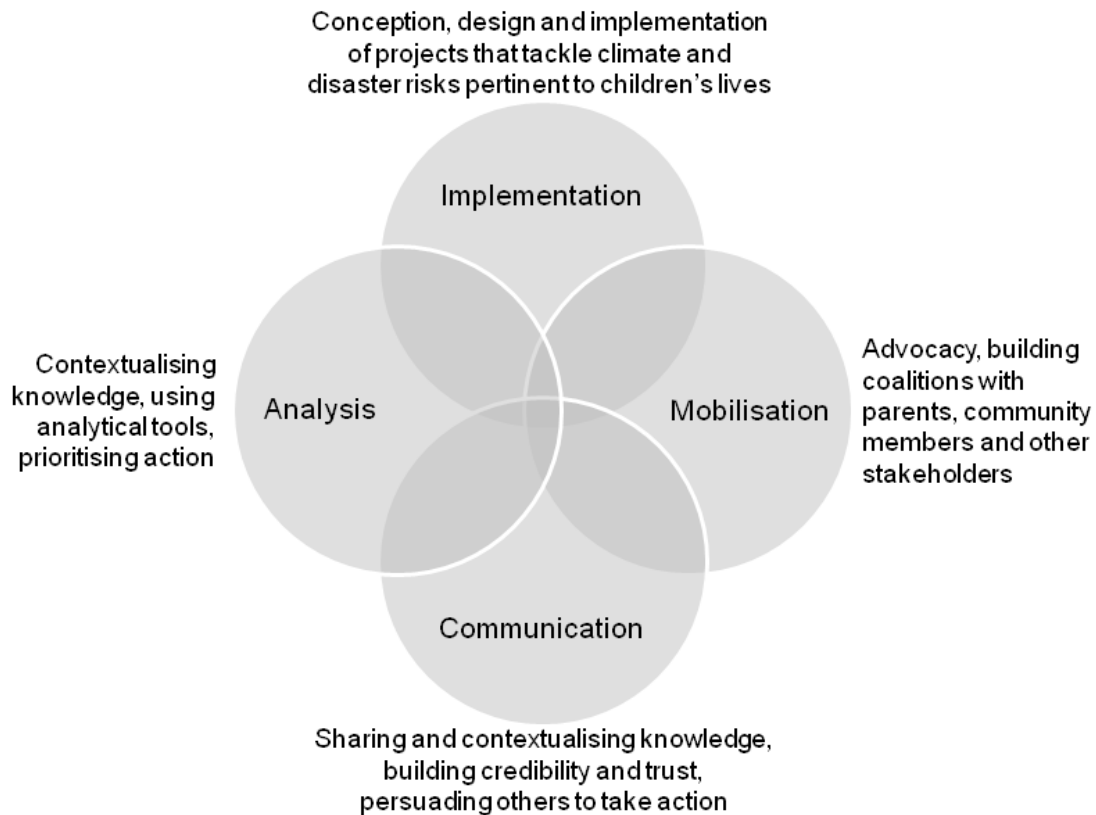
The research provides an illustration of the tensions and challenges of child participation within an emerging field of practice. Findings from both countries emphasise the latent capacity of children to participate directly in their community's development processes (Hart 1997; Ackermann *et al* 2003; Ansell 2005). Children are able to develop capacities to reduce risk based not just on physical aspects of risk, but also the culturally constructed aspects of risk requiring behavioural change (Chawla and Johnson 2004; Peek 2008). The interlinking spectrum of risks perceived at community level among both adults and children suggests that interventions need to avoid focusing on specifically climate-related risks alone if they are to avoid inadvertent increasing vulnerability through mal-adaptation.

These examples suggest that no single mode of child participation is universally appropriate for tackling DRR and climate change (Shier, 2001; Lansdown, 2006). The nature and mode of participation is influenced by a combination of community and institutional dynamics, livelihoods strategies and living standards, and cultural factors, as well as the hazard burden facing the communities. This study reflects on the participation of children through community based groups, which represents just one of the ways that children might organise their involvement in development, climate change and disasters processes.

While concrete actions implemented by children are often the participatory mode that is most frequently highlighted in advocating for children-centred approaches to climate change and disasters, the facilitation of multiple modes of participation will be required to meet the synergistic objectives of inclusion, empowerment and risk reduction (Tanner *et al*, 2009b; see Figure 1). This includes the ability of children to contextualise knowledge based on their social and physical environment, a process in which traditional approaches to curriculum development are now being supplemented by analytical tools to analyse and prioritise risks and vulnerabilities (Wisner, 2006; CDP, 2008; Benson and Bugge, 2007).

The focus of attention therefore needs to shift from one that considers children's agency not only in terms of their ability to enact direct, autonomous risk management practices, to one that considers children as risk communicators to create behavioural change in other people in their communities. Such risk communication processes, at household, school, and community level remain poorly understood in different cultural contexts (Lindell and Perry, 2004). Adults commonly retain household and legislative governance, resources, and higher levels of credibility in communities, and evidence suggests that successful child engagement must be conscious of wider issues of stakeholder inclusion and exclusion (Hill *et al*, 2004). As such, engagement of child-led efforts with adults and adult-led processes are central to their success. At household level, this research results suggest that when parents are excluded from the process of awareness raising, action and empowerment, they may question the motivation or activities of their family members. In this sense, child participation on risk reduction and adaptation to climate change will rarely reach the autonomous top rung of Hart's participation ladder (Hart, 1997).

Figure 1: Multiple participatory modes for the children, disasters and climate change interface



At a broader level, children's agencies or others facilitating child-led processes need to consider their own motivations for child-centred or child-led actions (Sinclair, 2004). Applying questions from Shier's (2001) pathways model may be one way of ensuring that the motivations and parameters for child participation are clarified from the outset. Equally, initiatives may confuse conceptualisations of children's participation in the public and private spheres. While in the former this may focus on actions within the familial context, in the latter it tends to be considered in terms of their role in their futures as adults, often invoking concerns intergenerational equity (Prout, 2000). This is particularly the case for climate change debates, and may lead to capture by adult agendas or ignorance of concerns about children's lives as children.

Risk perception and communication are central concepts in defining the ability of children's groups to mobilise both other actors and resources to reduce climate change and disaster risks facing their communities. Improved understanding of the cultural construction of risk, and of key actors, channels, messages and media within communities will therefore need to play an increasingly important role in future programmes aimed at increasing child voice and agency to tackle climate change and disaster risks.

Acknowledgements

The research described in this paper was carried out with financial support from the Economic and Social Research Council under the ESRC First Grants Programme (grant no. RES-061-25-0148) and Plan International. The ESRC is the UK's leading research and training agency addressing economic and social concerns. The author is indebted to the support of Plan staff in the UK, El Salvador and the Philippines, to research partners in both countries for making this study possible.

References

- Ackermann L, Feeny T, Hart J, Newman J. 2003. Understanding and Evaluating Children's Participation: A review of contemporary literature. London: Plan International/ Childreach.
- Adger WN, Huq S, Brown K, Conway D, Hulme M. (2003) Adaptation to climate change in the developing world. *Progress in Development Studies* 3(3):179–195
- AfDB (African Development Bank) and others. 2003. Poverty and climate change: Reducing the vulnerability of the poor through adaptation. Washington DC: World Bank.
- Anderson WA. 2005. Bringing the Children into Focus on the Social Science Disaster Research Agenda. *International Journal of Mass Emergencies and Disasters*. 23(3): 159-175.
- Anderson K, Bows A. 2008. Reframing the climate change challenge in light of post-2000 emission trends. *Philosophical Transactions A of the Royal Society*. 366 (1882). 3863-3882.
- Ansell N. 2005. *Children, Youth and Development*. London: Routledge
- Arnstein SR. 1969. Eight rungs on the ladder of citizen participation. *Journal of the American Institute of Planners* 35: 216–224.
- Back E, Cameron C. 2008. Our climate, our children, our responsibility: The implications of climate change for the world's children. London, UNICEF UK.
- Back E, Cameron C, Tanner TM. 2009. Children and Disaster Risk Reduction: Taking stock and moving forward. *Children in a Changing Climate Coalition Research Paper*. Brighton: Institute of Development Studies.
- Bartlett S. 2008. The Implications of Climate Change for Children in Lower-Income Countries. *Children, Youth and Environments* 18(1): 71-98.
- Benson L, Bugge J. 2007. *Child-led disaster risk reduction: A practical guide*. Stockholm: Save the Children.
- Boyden J, Ennew J. 1997. *Children in Focus: a Manual for Participatory Research with Children*. Stockholm: Radda Barnen.
- CDP. 2008. *Child-Oriented Participatory Risk Assessment and Planning (COPRAP): A Toolkit*. Manila: Center for Disaster Preparedness.
- Chawla L, Johnson V. 2004. Not for children only: lessons learnt from young people's participation. *Participatory Learning and Action* (50): 63-72.
- Children in a Changing Climate Coalition. 2008. *A right to participate: Securing children's role in climate change adaptation*. Brighton: Institute of Development Studies.

- Checkoway B, Richards-Schuster K. 2001 Lifting new voices for socially just communities. *Community Youth Development*, 2, 32-37.
- Costello A, et al. 2009. 'Managing the health effects of climate change', *The Lancet*, 373: 1693–733.
- Cutter SL. 1995. The forgotten casualties: women, children, and environmental change. *Global Environmental Change* 5.3: 181-94
- Evans L, Oehler-Stinnett J. 2006. Children and Natural Disasters: A Primer for School Psychologists. *School Psychology International* 27(33): 33-55.
- Francis M, Lorenzo R. 2002. Seven realms of children's participation. *Journal of Environmental Psychology* 22: 157–169.
- Hart RA. 1997. *Children's Participation: The theory and practice of involving young citizens in community development and environmental care*. Earthscan: London.
- Haynes K, Barclay J, Pidgeon NF. 2008. The issue of trust and its influence on risk communication during a volcanic crisis. *Bulletin of Volcanology* 70(5) 605-621.
- Hill M, Davis J, Prout A, Tisdall K. 2004. Moving the participation agenda forward. *Children & Society* Vol. 18, Issue 2 pp. 77–96
- Hinton R. 2006. *Theorising Children's Participation: An Overview of International and Interdisciplinary Perspectives*. Available at www.childhoodstudies.ed.ac.uk/research/RHinton%20overview.doc [Accessed 9 June 2009].
- IPCC. 2007. *Climate change 2007: synthesis report. Contribution of working Groups I, II and III to the fourth assessment*. In Report of the Intergovernmental Panel on Climate Change. Pachauri RK, Reisinger A, eds. Geneva: IPCC.
- Jabry A. (ed.) 2002. *Children in Disasters: After the Cameras Have Gone*. London: Plan UK.
- Johnson V, Ivan-Smith E, Gordon G, Scott P. 2009. *Stepping Forward: Children and young people's participation in the development process*. London: Intermediate Technology Publications
- Kirby P, Lanyon C, Cronin K, Sinclair R. 2003. *Building a Culture of Participation: Involving Children and Young People in Policy, Service Planning, Delivery and Evaluation*. Research Report. London: Department for Education and Skills.
- Lansdown G. 2006. International developments in children's participation: lessons and challenges. In *Children, Young People and Social Inclusion: Participation for What?* Tisdall K, Davis J, Prout A, Hill M (eds). Policy Press: Bristol; 139–156.
- Liebel M. 2007. Paternalism, participation and children's protagonism. *Children, Youth and Environments* 172: 56–73.
- Last M. 1994. Putting Children First. *Disasters* 18.3:192-202
- Lindell M, Perry RW. 2004. *Communicating Environmental Risk in Multiethnic Communities*. Thousand Oaks: Sage Publications.
- Mahon A et al. 1996. Researching children: methods and ethics. *Children and Society*, 10(2) 145-154

McCarthy J, Canziani OF, Leary NA, Dokken DJ, White KS. (eds.) 2001. *Climate Change 2001: Impacts, Adaptation and Vulnerability*, Cambridge: Cambridge University Press

McMicheal A, Friel S, Nyong A, Corvalan C. 2008. Global environmental change and health: impacts, inequalities and the health sector, *BMJ*, 336: 191–194.

Mitchell T, Haynes, K. Hall N, Choong W, Oven K. 2008. The Role of Children and Youth in Communicating Disaster Risk. *Children, Youth and Environments* 18(1): 254-279.

Mitchell T, Tanner TM, Haynes, K. 2009. Children as agents of change for Disaster Risk Reduction: Lessons from El Salvador and the Philippines. *Children in a Changing Climate Working Paper 1*. Brighton: Institute of Development Studies.

Molina G, Molina F, Tanner TM, Seballos F. 2009. Child-friendly participatory research techniques for community-based adaptation and disaster risk reduction. *Participatory Learning and Action* 60.

Peek L. 2008. Children and Disasters: Understanding Vulnerability, Developing Capacities and Promoting Resilience – An Introduction. *Children, Youth and Environments* 18(1): 1-29.

Penrose A, Takaki M. Children's rights in emergencies and disasters. *The Lancet*. 2006; 367: 698-699

Pole C, Mizen P, Bolton A. 1999. Realising children's agency in research: partners or participants? *International Journal of Social Research Methodology* 20: 39–54.

Prout A. 2000. Children's Participation: Control and Self-Realisation in British Late Modernity, *Children and Society* 14: 304-15.

Punch S. 2002. Research with Children: The Same or Different from Research with Adults? *Childhood*, 9(3): 321-341.

Renn O, Levine D. 1991 Credibility and Trust in Risk Communication, in Kasperson R, Stallen PJ. (eds). *Communicating Risk to the Public*. Dordrecht: Kluwer Academic Publishers.

Save the Children. 2007. *Legacy of Disasters: The impact of climate change on children*. London; Save the Children UK.

Save the Children. 2009. *Feeling the Heat: Child Survival in a Changing Climate*. London; Save the Children UK.

Schipper ELM, Pelling M. 2006. Disaster risk, climate change and international development: Scope for, and challenges to, integration. *Disasters*, 30(1): 19–38.

Shier H. 2001. Pathways to participation: openings, opportunities and obligations. *Children & Society* Vol. 15, Issue 2 pp. 107-117.

Sinclair R. 2004. Participation in practice: making it meaningful, effective and sustainable. *Children & Society* Vol. 18, Issue 2 pp. 106–118

Tanner TM, Mitchell T. (eds.). 2008. *Poverty in a Changing Climate*. *IDS Bulletin* 39(4). Brighton: Institute of Development Studies.

Tanner TM, Rodriguez G, Lazcano J. 2008. Los niños y niñas, y la gestión de riesgo: Un rol clave en la prevención de desastres. *Medio Ambiente y Urbanización* 69(1) pp118-133.

Tanner TM, Lazcano J, Lussier K, Polack E, Oswald K, Sengupta A, Rajabali F. 2009a. *Children, Climate Change and Disasters: An Annotated Bibliography*. Brighton: Children in a Changing Climate.

Tanner, TM, Garcia M, Lazcano J, Molina F, Molina G, Rodríguez G, Tribunalo B, Seballos F. 2009b. Children's multiple modes of participation in community based disaster risk reduction and adaptation to climate change'. *Participatory Learning and Action* 60.

Telford J, Cosgrave J, Houghton R. 2006. *Joint Evaluation of the international response to the Indian Ocean tsunami: Synthesis Report*. London: Tsunami Evaluation Coalition.

Theis J. 1996. 'Children and participatory appraisals: experiences from Vietnam', *PLA Notes* 25, pp70-72

Thomas N, O'Kane C. 1998. The ethics of participatory research with children. *Children & Society*, 12:3 pp336-348.

UNICEF. 2007. *Climate Change and Children*. New York, United Nations Children's Fund.

Waterson T. 2006. Climate change - the greatest crisis for children? *Journal of Tropical Pediatrics* 52(6): 383-385.

Weissbecker I, Sephton SE, Martin MB, Simpson DM. 2008. Psychological and Physiological Correlates of Stress in Children Exposed to Disaster: Review of Current Research and Recommendations for Intervention. *Children, Youth and Environments* 18(1): 30-70.

Wisner B, Blaikie P, Cannon T, and Davis I. 2004. *At risk: Natural hazards, people's vulnerability and disasters*. London: Routledge.

Wisner B. 2006. *Let our children teach us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction*. Bangalore: Books for Change.

Wynne BE. 1992. Misunderstood Misunderstanding: Social Identities and Public Uptake of Science. *Public Understanding of Science* 1.3: 281-304.