The London School of Economics and Political Science

Understanding the Adaptation Paradox: Can Global Climate Change Adaptation Policy be Locally Inclusive?

Jessica Ayers

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Declaration

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

I warrant that this authorization does not, to the best of my belief, infringe the rights of any third party.

Statement regarding publications adapted from this thesis

During the course of this study I have published several articles adapted from material in this thesis. These articles are listed below, and the relevant passages that have been adapted for publication are clearly indicated by footnotes or in the text of this thesis.

In cases where articles are co-authored, only material written solely by me shares any similar passages with this thesis. Therefore this thesis does not contain any co-authored material.

Articles adapted from this thesis include:

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Ayers, J and Huq, S. 2009. Supporting adaptation through development: What role for ODA? *Development Policy Review* 27(6).

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Abstract

The governance of climate change adaptation presents a paradox: Climate change is a global risk, yet vulnerability is locally experienced. In order to address this paradox, debates in environmental governance need to find ways of integrating local perceptions of risk with global risk assessments. But how can local inclusiveness be achieved in the context of global environmental risks, and what kinds of institutions are needed?

Accordingly, this thesis looks at three inter-related concepts from the social sciences that address the challenge of inclusive policy making, but are as yet under-examined in the context of climate change adaptation: (i) Participation, drawing from development studies; (ii) Expertise, drawing from Science and Technology Studies (STS); and (iii) Deliberation, drawing from political science. It is argued that these concepts have not been sufficiently advanced to take account of the challenges raised by the 'adaptation paradox.' The hypothesis of this thesis is that this paradox gives rise to a globalised discourse on adaptation that restricts discussion of risk to 'global' and technical expertise, and is not open to localised vulnerability-based knowledge about how risks are experienced.

This hypothesis is tested by asking: i) What is the evidence that conflicting definitions of climate risk inhibit inclusive adaptation policy making? And ii) Under what circumstances is local inclusiveness achieved under global climate change policy frameworks? This study collects and analyses a new set of data on the main avenue for the inclusion of vulnerable groups in adaptation policy making: National Adaptation Programmes of Actions (NAPAs). Through a detailed empirical case study analysis of the NAPA process in Bangladesh and Nepal, this study examines the evidence that NAPAs achieved inclusiveness, and the circumstances of more inclusive decision-making. This data suggests Nepal took a more inclusive approach to NAPA preparation than Bangladesh; and that this was a result of the choices around how to 'do inclusiveness' that were in turn influenced by the historical and political contexts within which these decisions were made.

Based on these findings, the thesis argues that current approaches to 'local inclusiveness' in global adaptation policy need to pay more attention to the *deliberative* component of participatory policy making, in terms of how deliberative institutions can shape participatory spaces, and how history and politics have in turn shaped how deliberation takes place in each location.

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Chapter 1: Introduction

> *"Convention wording and the rhetoric of the nation states stand in stark contrast to the news reports of flooding, drought, and continued misery for many of the world's most vulnerable people."*
>
> Adger et al, 2006:xi

1.1 The problem: Introducing the "Adaptation Paradox"[1]

The emergence of adaptation

Although the world is now fully engaged in the climate change debate, international efforts to limit greenhouse gas emissions are not translating into a detectable slowing down of the rate of global warming. According to the Intergovernmental Panel on Climate Change (IPCC)[2], the impacts of climate change will be severe, particularly for the most vulnerable developing countries that have the least capacity to cope (Schneider et al., 2007). Furthermore, there is evidence of greater and more rapid impacts of climate change than those reported by the IPCC, with some leading climate change scientists suggesting that we should prepare for mean global surface temperature breaching the currently widely accepted 2°C threshold of 'dangerous climate change' (Parry et al., 2008). As the inevitability of climate change becomes apparent, and the impacts of climate change are beginning to be felt, the need to support adaptation to these impacts in developing countries is growing in urgency.

The IPCC defines adaptation as the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC 2007). Adaptation can be any process, action or outcome in a system (ecosystem, household, community, group, sector, or region) that helps that system to better cope with, manage, or adjust to the changing conditions, stresses, hazards, risks or opportunities associated with climate change (Smit and Wandel, 2006). Adaptation is generally taken as one of two options for managing climate change, the other being mitigation, which involves the limiting of greenhouse gasses (GhGs), particularly carbon dioxide and methane, to mitigate against further global warming.

[1] The concept of the "Adaptation Paradox" has been introduced in Ayers, 2011, a publication adapted from chapter four of this thesis.

[2] The IPCC was established in 1988 by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) as the international scientific body tasked with assessing the state and risks of climate change (see www.ipcc.ch).

Until recently, adaptation was a controversial topic in climate change policy debates; while mitigation was seen to present a globally relevant solution to climate change, action on adaptation is generally perceived as 'locally' focused on particularly vulnerable groups or places, generating fears that attention to adaptation could detract from mitigation efforts for the "global good" (Ayers and Forsyth, 2009). The fear was that some countries might consider the costs of adaptation to be so much lower than mitigation, and the benefits so much more immediate, that "no mitigation action" would be a tempting prospect (Kjellen, 2006). Indeed, in the United States, some climate change campaigners interpreted support for adaptation as an attempt by the Republicans to undermine any action on climate change. In his 1992 book, Earth in the Balance, Al Gore wrote,

> Believing that we can adapt to just about anything is ultimately a kind of laziness, an arrogant faith in our ability to react in time (Gore, 1992:240).

As such, adaptation has historically been seen as a marginal policy option for climate change, mitigation's "poor cousin" in the climate policy arena (Pielke *et al*., 2007).

However, perspectives have recently changed, and slow progress on mitigation coupled with increasing evidence of the impacts of climate change, especially in vulnerable developing countries least able to manage them, has seen adaptation rise up the international policy agenda. Adaptation is now seen as a crucial supplement to mitigation under the United Nations Framework Convention on Climate Change (UNFCCC), the main international governance architecture for climate change. As recently as 2007, the Thirteenth Conference of the Parties to the UNFCCC (COP 13) in Bali finally brought adaptation formally onto equal footing with mitigation, highlighting it as one of the four 'building blocks' (along with mitigation, technology cooperation, and finance) of a comprehensive climate change response. Even Al Gore has been reported in the Economist (Sep 11 2008) as saying:

> I used to think adaptation subtracted from our efforts on prevention. But I've changed my mind…Poor countries are vulnerable and need our help. (Ayers and Dodman, 2010: 163).

But despite this turn in attention to adaptation, actors from development studies and disaster risk reduction fields have commented that climate change governance is failing to adequately address the needs of the most vulnerable (Ayers et al., 2010; Burton, 2004; Schipper, 2007). This thesis proposes that part of the problem lies in an "Adaptation Paradox": Climate change is a global risk, yet vulnerability is locally experienced.

The concept of a "paradox" generated by the assessment of climate change risks for adaptation policy-making was first brought to the fore by Adger et al., (2003), who suggested that there exists a clear "discrepancy between the conclusions of a global assessment and the past experience of societies living with environmental change" (Adger et al., 2003: 181). On the one hand, climate change has been established as a "global phenomenon" (Jasanoff, 2010:1). As a 'global risk', the UN General Assembly formally took up climate change in 1988. Following quickly on the heels of other 'global' environmental problems such as acid rain and the ozone layer, climate change was framed as another cross-border, international systemic issue that should be managed through international cooperation, to mitigate the causes of pollution 'upstream' (Ayers and Dodman, 2010; Schipper, 2006). Discussions were dominated by the mitigation of greenhouse gas emissions, and the ultimate objective of the UNFCCC was expressed in Article 2 of the UNFCCC as:

> The stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. (UNFCCC, 1992, Article 2).

The UNFCCC never explicitly defines 'dangerous climate change' but discusses it terms of breaching thresholds where, among other factors, ecosystems can no longer adapt 'naturally' (UNFCCC, 1992). Thus, adaptation emerged under global governance structures from discussions of climate change impacts and how the uncertain thresholds of 'dangerous climate change' could be managed, despite inherent uncertainty as to what these thresholds would be.

Burton and colleagues suggest that the resulting UNFCCC was conceived as,

> A pollution control instrument at the global level, and only as an afterthought was the concept of adaptation included. (Burton et al., 2008:26).

The purpose of adaptation, under this initial framing, is to respond to this uncertain risk - the impacts of this biophysical change - in order to bring the system back to its 'original' state. This has developed into an "impacts-based" approach to adaptation (Burton et al., 2002), which has resulted in what Klein defines as "technology-based" interventions such as dams, early-warning systems, seeds and irrigation schemes based on specific knowledge of future climate conditions

(Klein, 2008). Such an approach requires scientific, climate change expertise to identify and quantify the existing or predicted impacts of climate change, and then designing interventions to specifically target those impacts.

On the other hand, many observers have pointed out that an 'impacts-based' framing of adaptation is problematic, because it is a response targeted at an uncertain risk (Boyd et al., 2009; Burton et al., 2008; Pelling and High, 2005). As will be described in chapter three, the uncertainty inherent in climate change impacts (see box 1.1) has resulted in problems assessing the extent to which adaptation assistance is needed, and how support should be provided.

Box 1.1: Uncertainty and climate change risk

Adaptation is underpinned by three areas of uncertainty:

I. Uncertainty around what the UNFCCC means by 'dangerous climate change', and thus what 'thresholds of dangerous climate change' need to be avoided. Who defines what is dangerous, and dangerous for whom?
II. Uncertainty around the science of climate change projections. While there is scientific consensus that anthropogenic climate change is happening, uncertainty exists around defined future climate change scenarios and their biophysical impacts (see chapter three).
III. Uncertainty around the complex interactions between climate change and the social-development context of climate change impacts (Adger et al., 2009b). As noted by Boyd et al: "Development futures are already unclear and difficult to plan, even before adding the trump of the uncertainty of climate change into the mix" (Boyd et al., 2009:60).

Further, the concept of a paradox between globalised and localised perspectives of risk draws on a much deeper-rooted dichotomy between science/hazard and social science/vulnerability perspectives around risk management, that emerged during the 1980s and 1990s in development studies and disaster risk reduction (Blakie, 1994; Handmer, 2009; Pelling, 2001). For example, Pelling (2001) describes how the early attempts to develop guidelines for mitigating disasters stemmed from human ecology theories that defined natural hazards as,

> "those elements of the physical environment harmful to man and caused by forces extraneous to him" (Burton and Kates, 1964, cited Pelling, 2001:174).

Such perspectives gave rise to a "physicalist orientation [that] has come to dominate disaster management policy" (Pelling, 2001:170), with policy recommendations for managing disasters focusing on narrowly technological engineering approaches to controlling the physical environment (Blakie et al., 1994; Pelling, 2001).

However, during the 1980s many observers from disaster risk reduction and development studies began to draw attention to the link between the risks people face, and the reasons behind their vulnerability to these risks in the first place (Sen, 1981). Such arguments noted that even if it were possible to isolate and assess the biophysical impacts of a hazard, defining risks in physicalist terms ignores the ways in which local and wider contexts determine people's *vulnerability* to these hazards (Blakie et al. ,1994; Boyd et al., 2009; Pelling, 2003; Smit and Wandel, 2006). Applied to climate change, rather than assuming vulnerability is a function of the damage that climate change may do to a system (Watson et al., 1997) – i.e. contingent on the impacts of climate change - this alternative perspective emphasises social dimensions of vulnerability (Kelly and Adger, 2009).

Drawing on food security and natural hazards literature, a 'social vulnerability'[3] perspective on climate change has emerged that focuses on how climate risks are experienced locally. This highlights the role of socio-economic and property relations in determining the risk posed by natural hazards (Blakie et al., 1994; Kelly and Adger, 2009). Blakie et al., (1994), suggest that resilience to hazards is shaped by an actor's access to rights, resources and assets. For example, individuals and households that have reliable access to food and adequate food reserves, clean water, health care and education, will inevitably be better prepared to deal with a variety of shocks and stresses – including those arising because of climate change (Dodman et al., 2009).

This access is not only constrained by physical factors related to the impacts of natural disasters, but also the social dimensions of access – or the '"architecture of entitlements" (Kelly and Adger, 2009:161): the social, economic and institutional factors that influence levels of vulnerability, which can promote or constrain options for adaptation. This perspective is closely tied in with a Senian capabilities approach[4] - a 'natural' hazard only becomes hazardous when it affects a person's capabilities to perform their desired tasks. In turn, other factors that constrain someone's capabilities (be they financial, cultural, political, or physical) will impact on that person's ability to cope with hazardous situations.

A basic theoretical example would be where climate change is associated with increasing rainfall in an area. We might say that the impact of this change is "more people and more land get wetter". However, this impact will not matter equally to everyone. Large landowners may have more efficient irrigation and drainage systems than small farmers; wealthier households may have

[3] "Vulnerability" is of course complex and not uniform. Some key approaches to vulnerability are introduced here, but these are further unpacked and problematised in chapter three of this thesis.

[4] This approach sees development not simply as improving income but decreasing the "deprivation of basic capabilities" (Sen, 1999:132). A person's capabilities take into account his natural and learned abilities to perform a task.

secure housing structures, while poorer households may have low quality shelter that results in increased exposure to storms and floods. This is summed up by Ribot in the following statement:

> The poor and wealthy, women and men, young and old, and people of different social identities or political stripes, experience different risks while facing the same climatic event…the inability to manage stress does not fall from the sky. (Ribot, 2010:49).

A social vulnerability perspective therefore focuses on how vulnerability to 'global' climate change impacts is determined 'locally': The way in which vulnerability is experienced is determined not only by the globally generated impacts of climate change, but also the local contexts that determine people's resilience to these impacts in the first place. The interaction between basic development and the social, economic, cultural and political factors that can underpin vulnerability has led many observers to conclude that poverty, rather than predicted climate change impacts, is one of the most salient indicators of climate-related vulnerability (Cannon et al., 2003;Huq et al., 2004; Ribot, 2010).

Assessing climate change "risk"

The way in which climate change risks are defined – as 'impacts-based' or 'vulnerability-based' - has significant implications for how those risks are assessed, and therefore how adaptation policy decisions are made. An impacts-based perspective implies a particular type of scientific or technological expertise is needed to assess climate risks for policy making. This would involve codifying future climate change hazards into defined climate impacts, and producing calculated responses to these impacts (Pelling and High, 2005). For example, Klein (2008) describes a scenario where an impacts-based risk assessment suggests that the primary climate risk in an area is increasing drought, impacting on domestic and agricultural water supplies. An 'impacts-based' adaptation response would be to install a water management system, to address the specific problem of water scarcity in that area.

However, Klein suggests that this scheme would only be effective in as far as everyone has equal access to the system. If the unequal distribution of water rights or the price of water excludes certain users from the system, the most vulnerable people will remain vulnerable to drought, and to other stresses, regardless of the adaptation intervention (Klein, 2008). Further, the uncertainty inherent in climate change impacts makes impacts-based risk assessments problematic.

Taking a 'social vulnerability' based perspective on climate change risk shifts the emphasis of risk assessment away from climate change impacts and towards the local circumstances of vulnerability. Focusing on vulnerability, rather than impacts, to some extent overcomes the issue of how to respond to uncertainty, because vulnerability is addressed to a range of imagined and unimagined possible future scenarios resulting from complex social and environmental interactions (Pelling and High, 2005). As such, many proponents of a 'social-vulnerability' approach to adaptation argue that 'impacts-based' risk assessments, and the resulting adaptation measures, can only be partially effective if they do not also address non-climatic factors that are the underlying drivers of vulnerability (Ayers and Dodman, 2010; Burton, 2004; Ribot, 2010; Schipper, 2007).

However, there are different approaches to assessing vulnerability. For example, in her assessment of vulnerability to "global change", Susan Cutter (1995) introduces her assessment by stating that,

> Women and children….are the forgotten causalities…continually overlooked in the global change literature, yet as a group they often have the greatest social and biophysical vulnerability. (Cutter, 1995:181).

From this assessment of vulnerability to "global change", "women and children" are therefore the starting point of the vulnerability assessment. Yet, identifying such essentialist categories a priori to the assessment of vulnerability to 'global change' overlooks the complex ways in which vulnerability is locally experienced and determined. As discussed, at the local level vulnerability is underpinned by structural processes that are not linked to such predefined categories. Proponents of a social-vulnerability approach to adaptation suggest that there is a need to move beyond essentialist discussions around vulnerability and risk in the assessment of 'global' risks, towards assessments that identify the local and context specific factors that drive highly differentiated vulnerability at the local level (Few et al., 2007; Huq et al., 2004; Tompkins et al., 2008). Climate change impacts will exacerbate these existing inequalities.

This recognition has led proponents of a 'social vulnerability' approach to argue that risk assessments that inform adaptation policies need to be more locally responsive, and therefore inclusive (Dodman and Mitlin, 2011; Few et al., 2007; Huq et al., 2004 Dodman and Mitlin, 2011). Few et al., (2007) suggest that understanding these 'local' contexts of vulnerability requires a different kind of knowledge and expertise to the scientific and technological approach to impacts and vulnerability assessments conducted under globalised risk assessments. The authors suggest

that if the factors that determine vulnerability are context-specific, designing adaptation interventions to address these factors requires a knowledge base that is tailored to local settings, and therefore argue for 'local inclusion' in climate vulnerability assessments on both ethical and practical grounds (Few et al., 2007:48). Thus such perspectives suggest that to address vulnerability, the localised contexts of vulnerability need to be understood; and such understanding comes from risk assessments that are inclusive of local perspectives (Dodman and Mitlin, 2011; Few et al., 2007;Huq et al., 2004 Dodman and Mitlin, 2011).

However, this thesis proposes that a paradox is generated by adaptation arising as a response to a global environmental problem, creating challenges for enabling such locally inclusive adaptation policy making. Framing climate change risk as global promotes scientific assessments of climate change impacts that are based on universalist assumptions of risk and vulnerability. Such an impacts-based approach to risk assessment tends to overlook the complex and disaggregated nature of vulnerability on the ground. This is evidenced by three decades of work in disaster risk reduction that have highlighted the ways in which technological approaches to risk management have focused consultations on expert judgement to the exclusion of the project or programme beneficiaries (Pelling, 2001). For example, in relation to the United Nations' International Decade for Natural Disaster Reduction, 1990-2000 (IDNDR), Pelling (2001) notes:

> The [IDNDR's] focus displayed an environmentally deterministic worldview that downplayed the human dimension and overemphasised the naturalness of disasters...there is repetitious mention of technological response...and little mention of vulnerability reduction...Such an approach begs the question: were the real target beneficiaries those vulnerable to hazard and disaster...? Certainly, vulnerable people were largely absent from the discussions that set the agenda. (Pelling, 2001:175)

This thesis therefore suggests that the 'adaptation paradox' raises a key challenge for adaptation policy making: How can local inclusiveness be achieved in the context of global environmental risk? And, what kind of institutional designs allow global risks to be reassessed in locally meaningful terms?

This thesis will address this challenge, by seeking to answer the following questions:

1. What is the evidence that conflicting definitions of risk across scales inhibit inclusive adaptation policy making?; and
2. Under what circumstances is local inclusiveness achieved under international climate change policy frameworks?

1.2 Achieving 'local' inclusiveness in 'global' environmental problems: Perspectives from the social sciences.

This global governance/local reality paradox predates debates about climate change adaptation. Many social science critics have pointed to ways in which globally uniform approaches to managing environmental (and other) risks have overlooked the diverse ways in which risk can be experienced, depending on the contextual nature of risks, and the factors that make people vulnerable (Bassett and Zeuli, 2000; Blakie et al., 1994; Sen, 1999; Wynne, 1994; 1996). Such critics have argued that globalised approaches to environmental risk can both obscure and disempower alternative, localised environmental explanations of vulnerability. The result can be environmental risk assessments that do not reflect the concerns and experiences of vulnerable people; and environmental policies that may not be the most effective means of addressing local experiences of risk (ibid).

For example, Brian Wynne discusses the case study of a risk assessment carried out in response to post-Chernobyl radioactive fallout on sheep farming in the Lake District in the north west of England (Wynne, 1996). Wynne describes how after the Chernobyl disaster of 1985, the isotope Cesium 134 was deposited via rainfall on the land used by sheep farmers. Government scientists visited the region to assess the risk that these deposits could have on food production in the area. Basing their assessments on uniform, scientific assumptions about how the radio-active fallout would impact on the environment, they provided a range of advice to farmers, for example suggesting that farmers feed their sheep hay instead of grass. However, such advice was rejected by farmers, on the grounds that the external scientists knew little about the local practicalities of actually implementing their advice; for example, farmers pointed out that sheep rarely, if ever, ate hay.

Wynne suggests that the uniform approach taken to risk assessment gave rise to generalised policy recommendations that did not match the complexity of the problem at the local scale (Wynne 1994). Further, Wynne shows how risk assessments can serve to define and propagate power dynamics between "experts" and "lay" people where risks are seen as universal: The supposedly neutral language of science and risk assessment reinforced the role of external, state experts in defining policy solutions, subjugating the more contextualised knowledge of the farmers and generating mistrust in, and ultimately failure of, the policy-making process.

Such universalist approaches to assessing risks have also been applied to the assessment of climate change vulnerability. For example, in her paper "*Exploring the invisibility of local knowledge in decision-making: The Boscastle Harbour Flood Disaster*", Tori Jennings discusses the policy responses to a major flooding event that took place in Boscastle, a small town off the Cornish coast in the South West of England, in 2004. Jennings argues that from the perspective of Cornish residents, the 2004 flood was the result of inept government land management practices as much as extreme weather events. Cornish residents suggested that a recent drive to support the local tourism industry through subsidies had resulted in over-dependence on an otherwise unsustainable industry, which itself was extremely weather-sensitive (Jennings, 2009).

Government and Environment Agency officials, however, framed the event as an indicator of climate change that could have severe implications for the future of the tourism industry. While local residents acknowledged the role of extreme weather events on their local livelihoods and economy, they felt that assumptions about the role of climate change overshadowed the more important historical and institutional factors that had led to their dependency on a climate-sensitive industry (Jennings, 2009:247). Jennings suggests that despite apparent widespread efforts to ensure participation in decision making around policy responses to the event, knowledge perceived as 'local' was subordinated in favour of externally generated expertise related to hydrological and climate systems. The resulting policy response was an expensive, highly technical engineering solution: the 'Valley Flood Defence Scheme,' which Jennings suggests many locals viewed with scepticism and even derision.

These cases support the numerous examples from political ecology that have revealed similar disparities between local and global perceptions of the same environmental issues (Bassett and Zeuli, 2000; Leach and Mearns, 1996; Tiffen et al., 1994). In each case, authors have demonstrated how risk assessments based on globalised, universalist statements of environmental problems resulted in policy solutions that did not meet the needs of people vulnerable to those risks. On the contrary, the authors show how greater attention to 'lay' experiences can reveal locally embedded understandings of perceptions and experiences of risk that can allow a more locally relevant risk-reduction solutions. Such cases have resulted in calls for environmental risk assessments to better reflect the realities of how risks are experienced on the ground, to inform policies that support provide locationally and culturally appropriate technical and economic options in environmental planning (Bassett and Zeuli, 2000; Wynne, 1994).

These calls have given rise to many directions in the social sciences related to making 'global' environment and development policy-making more 'locally inclusive.' This thesis will draw on

three interrelated concepts from this growing body of work: (i) Participation, drawing from development studies; (ii) Expertise, drawing from Science and Technology Studies (STS); and (iii) Deliberation, drawing from political science.

Participation

The importance of local participation in decision-making around development interventions arose from a recognition that the managerialist approaches of the 1970s and 1980s, dominated by professional expertise and bureaucratic control, were failing to achieve significant improvements in the livelihoods of the world's poor (Cornwall, 2002). Many academics and development practitioners began to attribute such failures to a lack of attention to the local contexts of poverty (Chambers, 1997; Scott, 1998). Such observations gave rise to a "participatory turn" in development studies and practice, emerging from the NGO community but rapidly being taken up by government and international development agencies (Williams, 2004). The trend towards more participatory approaches to development has resulted in decades of research and advocacy into locally inclusive approaches to doing development (Blackburn and Holland, 1998; Chambers, 1983, 1997; Castells, 1984; Korten, 1980).

The appeal of participation is based on the rationale that involving citizens in the decisions that affect them means those decisions will better reflect citizen needs, resulting more widely accepted interventions, and more effective and sustainable outcomes (Cornwall, 2002). As noted by Robert Chambers, one of the first and leading exponents of participatory approaches in rural development:

> [The] poor and exploited people can and should be enabled to analyze their own reality. (Chambers, 1997:106)

More recently, this logic of inclusiveness has been applied to environmental policy making in general, and climate change adaptation in particular (Dodman and Mitlin, 2011; Few et al., 2007; Tompkins et al., 2008Dodman and Mitlin, 2011); if adaptation is to address social vulnerability, then information is needed about the highly contextual socio-economic, cultural and political factors that contribute to their vulnerability. The best source of this information, is vulnerable people themselves, who are best placed to say why they are vulnerable, how they experience vulnerability, and what changes could help them adapt to climatic and other stresses.

For example, a recent study by Doria et al., (2009) reviewed 'expert opinion'[5] on how to define "successful adaptation" (see chapter thee for further discussion on this issue). The authors note that while there was some disagreement over exactly how to define adaptation and its indicators of success, there was general agreement that "successful adaptation to climate change may be best evaluated by those adapting or affected by the adaptation measures" (Doria et al., 2009:818). As such, "participation" has not only become a standard practice across development (Cornwall, 2000), but is also now a stated objective in most sectors of environmental policy making (Few et al., 2007) and, more recently, also adaptation policy making (see chapter three).

However, the value of participation, and attempts to access and include 'local' knowledge, have been questioned and much work has been done on problematising participatory processes (Cooke and Kothari, 2001; Cornwall, 2000; Leal and Opp, 1998; Mohan and Stokke, 2000; Nelson and Wright, 1995). This work has coalesced around two themes (Cooke and Kothari, 2001); first, critiques of the methods of participatory practices, that seeks to improve the technical limitations of participation (IIED, 1995; Nelson and Wright, 1995); and more recently, a deeper critique of participation that focuses on the power effects of participatory discourses (Cooke and Kothari, 2001; Mohan and Stokke, 2000; Williams, 2004). This section will focus on the latter of these criticisms, which overlap strongly with those of 'impacts-based' approaches to environmental risk assessments discussed in section 1.1.

Perhaps one of the most influential criticisms of the power politics of participation, is Cooke and Kothari's edited volume, *The Tyranny of Participation* (2001), in which the contributing authors suggest that participation can be used as a form of political control. The authors in this volume present various ways in which participation has 'depoliticised development', showing how the veil of participation has been used as a way of obscuring local power differences; uncritically homogenising 'the community'; and using a language of emancipation to mask other means of regaining political control over development (Cooke and Kothari, 2001; Williams, 2004). Such criticisms mirror those of globalised and 'impacts-based' approaches to assessing environmental risks, around adopting universalist approaches to 'local' and 'risk' that overlook the diverse ways in which vulnerability is actually driven and experienced.

Drawing these insights together, Cooke and Kothari (2001) lay out three ways in which participation can functions as a "tyranny": First, the "tyranny of decision-making and control", in which participatory facilitators override existing legitimate decision-making processes. The

[5] This study used the Delphi methods to elicit expert opinion on a definition of successful adaptation to climate change. "Experts" were defined as those actively working with or studying climate change adaptation. This study is further discussed in chapter three of this thesis.

authors are primarily referring to the way in which conveners of participatory exercises, particularly donor agencies, influence and control the dynamics of participation, given that significant investments depend on the outputs of participatory processes.

Second, the "tyranny of the group", in which the group dynamics of participatory exercises inevitably favour the most powerful. Any process of participation has a social side, and the outputs of participation can be significantly affected by, for example, compliance with group norms (Cohen, 2007; Cornwall, 2000; Mendelberg and Karpowitz, 2007). Participatory spaces are not neutral, but created spaces that provide opportunities for agency and inclusion; and also exclusion. The group dynamics of participation specify whose knowledge and meanings count, reinforcing power dynamics through the production and then replication of power relations. Any participatory exercise will therefore reflect the power dynamics between different actors that influence what is said, by who, and who is listening.

Third, the "tyranny of method", in which participatory methods themselves may be overwhelming and potentially drive out alternative approaches to 'doing development,' that in some cases may generate preferable outcomes to participation alone (Dodman and Mitlin, 2011). For example, Kothari (2001) suggests that although participatory programmes do draw in marginalised groups, the act of doing so binds participants to structures of power that they are not able to question.

These criticisms, focusing on the 'who' and the 'how' of participation, are valid and well supported by examples from development studies of how engagement in participatory practices has not necessarily resulted in more participatory outcomes (Cooke and Kothari, 2001; Cornwall 2000, 2006; Mohan and Stokke, 2000). Consequently, simply arguing for 'more participatory' approaches to conducting climate risk assessments is not necessarily the solution to ensuring more inclusive adaptation policy making.

Further, it is suggested here that such 'tyranny of participation' critiques themselves run the risk of being rather uncritical in their treatment of the power politics *within* participatory spaces, that are equally important for inclusive governance of environmental risks. As Williams (2004) suggests, critiques of participation can,

> Suffer almost as much as Chamber's own work from a reductionist view of power… while participation may appear to be all-pervasive, this account of its operation is in danger of ignoring the fact that any configuration of power and knowledge opens up its own particular spaces and moments for resistance. (Williams, 2004:565).

This thesis builds on the agenda proposed by Williams for the 're-politicisation of participation', and suggests that in seeking opportunities for the inclusion of 'local' perspectives in addressing 'global' risks, closer attention is needed to the power politics of participatory spaces. Specifically, while "tyranny of participation" debates have usefully focused on the 'who' and the 'how' of participation, this thesis proposes that equally important (and interconnected), is the 'what' of participation; how does the framing of the content of participatory exercises impact the dynamics of participatory processes (including the 'who' and the 'how'), and what impact does this have on the potential for participation to produce inclusive outcomes?

It is suggested here that the issue of 'what' is the focus of discussion in participation is particularly relevant to the inclusive governance of issues such as climate change that have come to be framed as 'expert' and 'global'; and therefore consideration needs to be given both to the politics of expertise, and the politics of scale.

The politics of risk and expertise

In relation to the '*what*' of participation, scholars from the fields of Science and Technology Studies (STS) have begun to critically examine 'expertise' in participation, especially in relation to the assessment of technical or scientific issues (Leach et al., 2005; Martello and Jasanoff, 2004:16). In particular, STS perspectives highlight the way in which problems framed as 'global', 'scientific' or 'technical' risks tend to elevate technocratic expertise in risk assessment, resulting in the inherent subjugation of 'local' and 'lay' knowledge in the generation of global expertise.

For example, this chapter has described how the dominant approach in environmental governance to assessing risks, is a 'science speaks to policy' approach (as illustrated by the studies presented above from Jennings, 2009 and Wynne, 1994). Such risk assessments are used as a tool by scientific networks to answer policy relevant questions and communicate technical advice to decision-makers (Farrell, et al., 2001). The 'expert networks' that define for policy makers what the risks are, and how they should be addressed, have been described by Peter Haas (1992) as "epistemic communities", defined as:

> A network of professionals with recognised experience and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area. (Hass, 1992:3).

Such networks have been described as positive developments, particularly for the promotion and legitimating of "global" environmental problems. For example, many observers have suggested that IPCC has helped consolidate a global climate change epistemic community, helping to mobilise science in support of climate change campaigns (Gough and Shackley,2001; Hulme and Mahony, 2010; see also chapter three).

However, as demonstrated by the cases presented in this chapter (Jennings, 2009 and Wynne, 1994), there are different kinds of 'expertise', and knowledges labelled as 'lay' can provide useful insights into how to manage 'global' problems in local contexts. Yet strong epistemic communities tend to promote one framing of the issue in order to gain politically powerful consensus around that issue, rather than be open to alternative, less powerful perspectives. Lay knowledge is perceived as being 'unscientific', or 'untechnical'; as noted by Lahsen, while scientific knowledge is commonly associated with universal, objective 'truth',

> Only knowledge that cannot and does not aspire to the status of science is labelled local or indigenous, as against science itself, which remains putatively universal and free from local coloration. (Lahsen, 2004:13).

This is not taken into account by advocates of epistemic communities who suggest that the spread of the community is the progressive conversion of more people to the normative judgement, and the greater number of people within the community, the more likely it is to represent 'correct' beliefs which should in turn be further promoted (Haas, 1992). Yet as highlighted by Litfin (1994) and others (Jasanoff, 1996; Lahsen, 2004), rationalising a single approach to managing risk overlooks the messy politics behind how risks are defined, and the implications this has for power and inclusion in the making of those risks. For example, the IPCC has faced criticisms of "epistemological hegemony" (Mayer and Arndt, 2009), with implications for exclusion and inclusion of alternative types of expertise, that will be further analysed in chapter three of this thesis.

More critical approaches have therefore emerged that draw attention to the social conditions that cause "universal" perceptions of risk to become fixed in the first place. One important concept that examines how expertise are defined, established, and transferred, is the "immutable mobile" put forward by Bruno Latour (1987). According to Latour, immutable mobiles are socially identified objects, representations, or processes, which are unchallenged when moved between different social or cultural settings. In terms of environmental risks, biophysical risks such as global

warming can be seen as 'immutable mobiles' in that they are now perceived as globally problematic regardless of social context. Framing issues as 'objectively' scientific or technical in the eyes of those promoting science as objective, increases their status as immutable mobiles because there seems little reason to question their legitimacy: they are presented as objectively 'true'. In turn, the status of an issue as an immutable mobile means it is more likely to be analysed in scientific terms that focus on universal, biophysical properties .

Applied to adaptation, this has implications for inclusive governance. The 'impacts-based' approach to adaptation stems from 'global' concepts of climate change as a universal, systemic problem, requiring an understanding of the possibilities of current and future climate changes that are both intangible and very difficult to predict. Hence, the 'expertise' required to manage adaptation from an impacts-based perspective is even more exclusive than many other, more tangible, environmental problems. As Taylor and Buttel (1992) note:

> We know we have global environmental problems because, in short, science documents the existing situation and ever tightens its predictions of future changes. (Taylor and Buttel, 1992:405).

Thus, 'the science tells us so.' This is even more the case with atmospheric problems, because we cannot 'see' the atmosphere. Miller and Edwards (2001) therefore suggest that,

> The meanings attached to the climate and weather are often highly 'black-boxed' (i.e., they are complex, socially mediated concepts that are generally taken for granted). (Miller and Edwards, 2001:7).

From this perspective, 'lay', knowledge about vulnerability Is not valued.

The framing of adaptation as a response to specific, 'global', climate risks has led observers such as Few et al., (2007) to suggest that, "where the pursuit of adaptation to climate change is the pre-determined goal", engaging the pubic in adaptation decisions is not necessarily productive, because,

> Lay stakeholders cannot be 'trusted' to decide on an adaptation path because of competing priorities and short term interests, so what would be the result of the participation process? (Few et al., 2007: 52).

Yet, as highlighted by Jennings (2009) and others (Lahsen, 2004; Martello and Jasanoff, 2004; Wynne, 1994), it is precisely this lay knowledge that can be useful in informing sustainable and realistic adaptation policies in the face of uncertain climate change impacts. That is not to say that 'all knowledge is expert', or that every viewpoint on a problem is equally valid. Clearly, not every possible opinion on every problem can be taken into account for policy-making to be inclusive. However, many observers have argued that, especially in relation to scientific or technical problems that have come to be seen as 'uncertain' or publicly controversial, encouraging wider public consultation in policy decision-making can improve the legitimacy of the policy-making process.

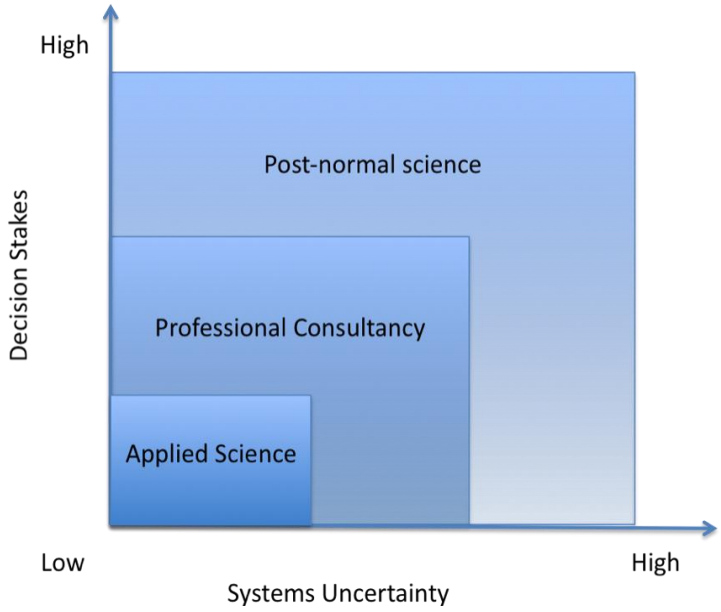
For example, building on the seminal work of Kuhn (1962) who introduced the concept of "normal science,"[6] Funtowicz and Ravetz (1990, 1993) argue that achieving "normal science" necessarily forecloses alternative problem framings and expertise. This is illustrated by the way that adaptation 'science' is approached, which is becoming a paradigm where it is normal to do scientific research on climate change impacts, and lay or 'local' knowledges are excluded from the status of expertise.

Instead, Funtowicz and Ravetz suggest that where issues are 'high risk' or 'highly uncertain' (as is the case with climate change), a "post-normal" science develops, which incorporates 'extended facts' – those that are introduced into the scientific debate on policy but are not 'scientific' in the traditional sense. These include people's beliefs and anecdotes circulated verbally, which do not make claims about scientific certainty but are nevertheless "technically competent but representing interests outside the paradigm of official expertise" (Funtowicz and Ravetz, 1990:20). Therefore rather than subjugating all lay knowledge as unscientific and therefore invalid, post-normal science allows for a "plurality of legitimate perspectives" (Funtowicz and Ravetz, 1993), where certain types of lay knowledge are in fact legitimate on the basis of their value as 'extended facts'.

Locating post-normal science in relation to more conventional 'normal science' problem solving strategies, Funtowicz and Ravetz propose a framework comprised of two axes: "system uncertainties" and "decision stakes" (see figure 1.1):

[6] Kuhn (1962) introduced the concept of "normal science" as the routine work of scientists done within an agreed scientific paradigm. Normal science is part of this theory to describe the way in which scientific knowledge progresses through socially constructed "paradigm shifts". Paradigm shifts occur when "normal science" which refers to routine puzzle solving, cannot resolve a problem. This gives rise to "revolutionary science" in which important scientific rules are called into question, and new rules are developed that can solve these contradictions. The paradigm then shifts to a new "normal science" where new rules are accepted and science once again returns to problem solving under this new paradigm (Kuhn, 1962).

Figure 1.1: Diagram of Post Normal Science.
Source: Funtowicz and Ravetz, 1993



According to this framework, where uncertainty and decision-stakes are both low, 'normal' or 'applied' science will provide legitimate information to inform risk assessments and policy decisions. Beyond this level, the application of routine scientific techniques is not enough, and the skills and judgement of new participants need to be consulted in order to resolve policy dilemmas. Where risks cannot be quantified, or when possible damage is irreversible, then 'traditional' sorts of expertise and problem solving approaches cannot be relied upon, and 'experts' may need to share enquiries with 'lay' stakeholders to either reduce the decision stakes or the broad uncertainty (Funtowicz and Ravetz, 1993). But, over time, complex problems become increasingly 'certain' through the application of these broader types of expertise, and thus more applied scientific approaches are once again the norm.

Applying this framework to climate change adaptation, climate change emerged as a hugely complex and varied subject in the 1980s, but has over time become dominated by a "normal science" approach to mitigation: measuring carbon emissions, allocating values to these emissions, and modelling the impacts of these emissions. But as this chapter has shown, taking such an applied "impacts-based" approach to adaptation is problematic because of the high levels of uncertainty around climate change risks (see box 1.1). Under a 'post-normal' framework, vulnerability-based knowledge is important in justifying action on adaptation where scientific uncertainty justifies inaction: While the science cannot currently provide accurate information on

what climate change impacts will be (risking potentially mal-adaptive investment), 'extended facts' related to existing vulnerability (to climatic and other stresses) justifies investments in building resilience to an uncertain range of impacts. This model is also useful in helping to explain how barriers are created to public inclusion in policy making around 'expert' problems; for example, why the dominance of a global, impacts-based approach to policy-making restricts the relevance of these 'extended facts' of vulnerability.

However, the framework of post-normal science has been questioned from STS perspectives because it assumes that uncertainty and decision stakes are independent of each other; and also because it assumes that a reduction in uncertainty would automatically reduce the decision stakes (Forsyth, 2003; Jasanoff and Wynne, 1998; Mackenzie, 1990). Yet, in the same way as perceptions of 'risk' differ between different groups and across different scales, so it follows that perceptions of 'certainty' and the decision-stakes of the risk in question will also differ. For example, an impacts-based framing of climate change risk gives rise to a high level of uncertainty around what the potential impacts of climate change will be, and how they should best be adapted to. On the other hand, vulnerable people may have a high level of certainty around the factors that make them vulnerable to a range of uncertain risks.

"Uncertainty" is therefore not simply the statistical probability of successful explanation achieved via science, but is also dependent on the degree to which different perspectives have been incorporated into the initial definition of risk. From this perspective, uncertainty around a policy problem is not uniform but depends on how a problem is defined, and by whom, which in turn is a function of public participation in the formation of risk. Thus, as highlighted by the Bostcastle example above, efforts to reduce uncertainty by asserting and privileging the role of 'expert' science may paradoxically increase other uncertainties for different groups. Such approaches could serve to reinforce barriers between experts and lay people, and the subordination of lay knowledge that is important for understanding vulnerability to a range of uncertain risks.

This thesis therefore takes a more political approach to the construction of uncertainty in risk, and the implications for who participates in the analysis of risk and decision-making around risk-reduction policies. In doing so, this thesis questions the extent to which uncertainty in climate change risk is a function of participation in the generation of knowledge about that risk. This requires a deeper analysis of the politics of participation around 'global environmental risks', which examines how concerns about risks and uncertainty are communicated between science, policy, and lay arenas.

The politics of scale

The discussion above also brings to light the politics of spatial scales on the potential for participation to achieve inclusiveness. Any attempt at doing 'local' deliberation for 'global' risks carries assumptions about scale. Many models of participation that strive for 'local inclusiveness' are based on assumptions that scales are part of a pre-existing conceptual hierarchy, useful for ordering social or political units. Under such an approach, 'global' is defined by the geographic boundaries of the earth; 'local' is a spatial resolution smaller than 'regional'; which in turn is smaller than 'national', and so on. Yet, as this thesis will show, scales such as 'the local' and 'the global' are also socially constructed and continuously contested.

Criticisms of this normative approach to scale stem from Marxist approaches to materialism, and suggest that scales are not fixed, uniform and static arenas, but processes that are continually being remade by social actions (Herod, 2003:233). For example, in relation to adaptation, Pelling et al., (2008) and Adger et al., (2005) suggest that adaptive behaviour emerging at one scale can be the result of learning that has been ongoing amongst a range of actors, that are networked across a range of spatial or temporal scales. As Pelling et al., argue:

> Adaptation at one spatial (or temporal) scale can impose externalities or constrain adaptive capacity at other scales. In short, the system-hierarchic scale where adaptation is or is not enacted is a sociopolitical construction. (Pelling et al., 2008:871).

Herod (2003) and Herod and Wright, (2002) suggest that taking for granted normative approaches to scale can have implications for the politics of participatory spaces. For example, as noted earlier one criticism of participatory approaches is that they assume that the communities being consulted are homogenous, ignoring the structural inequalities within communities (Cooke and Kothari, 2001; Rose, 1997). In the case of 'globally' governed problems, this issue is exacerbated because the objective of undertaking participation is to achieve 'local' inputs, in 'global' problems. This strengthens the binary categories of 'global' and 'local', and results in both being homogenised. Homogenisation of the category 'local' under global environmental strategies means the ambition of deliberative processes stops at consulting 'the local' for 'its' view on a globally defined purpose. This not only ignores differentiation within communities, but also between communities and any other units that have been packaged under the label of 'local'.

For example, in the case study of flood management in Boscastle, Jennings (2009) discusses the difficulties with labelling knowledge as either 'local' or 'external' in the consultation exercises undertaken by the Environmental Agency. Jennings states that 'local' was interpreted as 'residential', and so 'local' consultations were undertaken with all residents and did not differentiate between them. However, Jennings suggests that the knowledge and experience at the 'local' level was in fact highly differentiated, and included both 'in-comers', who the author describes as new residents or residents with second homes, and those who have been 'local' for generations. Jennings suggests that the two groups had very different knowledge and values that affected their opinions on how the floods should have been managed in Boscastle. Yet this diversity of opinion was not adequately reflected in consultation outputs. This is well illustrated through one of the author's interviews with an elderly 'local' Cornish resident, who in response to the flooding of many second-homes in the disaster, stated: "proper Cornish would know better than to put their houses at the bottom of the valley" (Jennings, 2009:248). Jennings suggests such a comment is both an implicit statement about the notion of 'local' and its relation to knowledge of place; and also reveals the depth of diversity of 'local' environmental knowledge versus that of 'incomers'.

Further barriers are presented where definitions of risk also differ across scales. For example, where the global discourse on climate change promotes an impacts-based approach to adaptation, the 'expert' nature of the risk is reinforced because, as STS scholars point out, 'global' knowledge is located higher up the knowledge hierarchy, while local knowledge tends to be subjugated and perceived as 'inexpert'. Agrawal (1995) notes that the definition of any social group as 'local' often implies that such groups are less powerful than their 'global' counterparts. Framing such groups, or the knowledge of such groups, in this way can serve to reinforce the impression of these groups as subaltern and reiterate these power relations, decreasing the value of 'local' knowledge in 'global' arenas (Argrawal, 1995). This makes access to the adaptation debate even more difficult for actors who are not 'global' and not considered 'expert', i.e. local actors whose knowledge is based on vulnerability, rather than impacts. The implications of the politics of scale for deliberation are well summed up by Martello and Jasanoff, who state:

> The construction of both the local and the global crucially depends on the production of knowledge and its interaction with power… And which issues are defined as meriting the world's attention has everything to do with who has the power and resources… to press for them. (Martello and Jasanoff, 2004:5)

In terms of adaptation, adaptation priorities will vary across scales depending on how risk is interpreted and weighted by different groups; but the criteria for defining successful adaptation at one scale may influence or obscure indicators of adaptation and vulnerability at another. For example, Lemos and Boyd (2009) show how the global level politics of adaptation shape the ways in which local level adaptive decisions are made. At the global level, support is provided for adaptation that is conceived as 'additional' to development. Yet, as noted above and further elaborated in chapter three, at the 'local' level vulnerability to climate change impacts is inseparable from the development context of vulnerable people. The authors suggest that the need to meet the 'additionality' criteria of the international adaptation funding frameworks creates a tension between domestic and international accountability for national-level adaptation decision makers, and constrains the kinds of local level adaptation options that can be developed. The result is that national and local level decision makers are encouraged by an international climate change discourse to segregate 'adaptation' from more general 'development', when in fact the most appropriate means of addressing vulnerability may be to take the two together (Lemos and Boyd, 2009).

Thus, simply creating 'participatory spaces' is not sufficient for enabling meaningful 'local' inclusion in the governance of global risks. This is not to argue that there is no such thing as 'local knowledge', or that there is no point trying to incorporate it into policy-level decision-making. Rather these insights suggest that attention is needed to how the politics of scale influence the dynamics of inclusive decision making – of how inclusion is done, the power politics of participatory spaces, and how these influence the outcomes of participation. This thesis will pay greater attention to the politics of participatory spaces, which are influenced not only but the 'who' and the 'how' of participation, but significantly, the 'what': What is the subject of participation, and how is it framed? This means paying closer attention to the dynamics of *deliberation* in participatory processes.

Deliberation and inclusiveness

The discussion above suggests that current approaches to participation in environmental policy-making do not pay adequate attention to the ways in which normative approaches to risk, expertise, and scale can present barriers to achieving meaningful 'local' inclusiveness. As such, debates around participation are shifting towards creating opportunities in participatory spaces for democratising these normative concepts (see for example Cornwall, 2006).

One common approach from political science that seeks to democratise environmental explanations and decision-making, is "deliberative governance." "Deliberation" literally means opening up a concept to "careful consideration or discussion" (Oxford dictionary), but in governance terms it has come to refer to:

> Debate and discussion aimed at producing reasonable, well-informed opinions in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants. (Chambers, 2003:309).

Deliberation as an ideal implies rational, reasoned debate around a policy problem, which ideally can result in consensual decisions that are perceived by all involved as legitimate, rational, and just (Rosenberg, 2007). In relation to environmental governance, deliberative institutions have been proposed as a way of empowering environmental discourses to challenge oppressive states and industry (see Dryzek, 1987, 1990), and thus making environmental policy more inclusive. However, the dynamics of deliberation, and the potential for 'reasoned discussion', are debated.

One of the earliest proponents of deliberation was Jürgen Habermas, who saw it as a means of bringing citizens together to discuss public policy in a setting that emphasises equal participation, mutual respect and reasoned argument, for the governance of complex and uncertain problems (Habermas, 1989). Habermas proposed that deliberation had the potential to democratise discourses through a process of 'communicative rationality', drawing from debates in Critical Theory around 'instrumental rationality': instrumentally rational agents will take the optimal course of action to achieve their desired ends, and thus during deliberation, consensus would be reached through rational argument.

An alternative approach to deliberation follows the work of Michel Foucault[7] (1976, 1980), who argues that all discourses are situated in wider knowledge systems, and thus support for a shared perception reached through deliberation, is often the result of diverse social and political influences rather than 'reasoned argument.' These differing perspectives on deliberation as a tool for inclusive policy making have given rise to varying perspectives on how deliberative governance can be achieved.

[7] These approaches have been simplified for the purposes of this chapter, but in reality this debate is much more complex than this brief summary implies. More in depth discussions are presented in Hoy (1986, ed.) and Dews (1999, ed.) (critical readers on these debates) or of course in the original texts cited above.

Habermas argued that institutional arrangements that enable meaningful deliberation are more likely to have the ability to respond to high levels of complexity and uncertainty (Dryzek, 1987; Habermas, 1989). As Smith (2001) suggests:

> When faced with high levels of uncertainty and risk [as is the case with climate change], deliberative institutions promise an ingenious mechanism through which the application of scientific and technical knowledge and expertise might be democratically regulated – an institutional setting within which the barriers between 'expert' and 'lay' knowledge can be challenged and reformed. (Smith, 2001:71).

The intended outcome of a deliberative approach to governance is what Dryzek (2006) terms "deliberative democracy", when all those affected by a decision are provided with the opportunity for participating meaningfully in the decision-making process; and every 'reasonable' argument relevant to the decision should be weighed up with a view to making a decision on the basis of that weighing (Dryzek, 2006:27). According to Cohen (2007),

> The point of deliberative democracy is to subject the exercise of collective power to reason's discipline, to what Habermas famously described as "the force of the better argument", not the advantage of the better situated…deliberative democracy is about reasoning together among equals. (Cohen, 2007:220).

Focusing on deliberative institutions, rather than participatory spaces, presents opportunities for governing discourses – spaces where stakeholders can create and contest powerful problem-framings, and promote alternative ones. In terms of governing adaptation, in principle deliberative governance should provide arenas for 'global', 'impacts-based' and 'local', 'vulnerability based' adaptation discourses to come together and be resolved. "Inclusiveness" from a deliberative perspective is therefore more than participation: Participation implies people are brought together into one space to participate in the governance of a problem; achieving deliberation depends on whether, and how, people make use of that space, and the impact this has on policy outcomes. There can be participation without achieving deliberation, but many critics argue that under such circumstances participation will not be meaningful; it will not be *inclusive* (Rosenberg, 2007; Warren, 2007).

But what do deliberative institutions look like, and how are they different from more traditional institutional theories of governance? For example, many 'institutional' approaches to inclusive governance point to decentralised institutional design principles. Ostrom (1990) discusses

"polycentric institutions" as a way of relating local and higher level authorities in decision-making. Under a polycentric system, resources are managed at different scales, under one, formal, set of rules, accepted by all parties, where each institutional scale is 'nested' under the level above (Ostrom, 1990). Polycentric institutions have been argued to facilitate 'local inclusion', and even, in some senses, deliberation, because actors from lower governance scales are brought together into governance units for "face-to-face" discussion and the achievement of common understanding (Ostrom, 2010:3). These units are incorporated into higher level decision-making scales, and thus opportunities are created for 'local deliberations' to 'feed into' higher level policy making. Ostrom suggests that a polycentric approach can be useful in explaining the multi-scale politics of climate change because:

> While many of the effects of climate change are global, the causes of climate change are the actions taken by actors at smaller scales. The familiar slogan ''Think Globally but Act Locally'' hits right at the dilemma facing all inhabitants of the world. (Ostrom, 2010:2).

However, such 'inclusiveness' is not the same as 'deliberation' as it is intended here. First, polycentric institutions implies that deliberations take place within each scale and outputs of deliberation are 'fed-upwards' into the scales above, rather than there being incidences of multi-scale deliberations. Second, discussions at 'local' scales may be constrained by the decision-making rules of the levels above. This leaves little room the kind of multi-level engagement of stakeholders, or for the creation of spaces for the deliberation of alternative definitions of risk, required for the deliberative governance of adaptation.

Third, a 'nested' approach might impede deliberation where institutions are rooted in universal, positivist notions of risk and political behaviour; such a framework overlooks the ways in which risks are created, constructed, and contested, across and among scales (Bulkely, 2005). For example, Pelling (2008) discusses how competing definitions of vulnerability across scales can generate conflict in risk management. Discussing the measurement of vulnerability in an urban context, Pelling suggests that city level vulnerability assessments based on city-wide priorities, could lead to risk management options that have detrimental intended and unintended consequences for the assets and livelihoods used by local (Pelling, 2008). Pelling states:

> For one way of seeing the city or of constructing its vulnerability there are multiple stakeholders whose ways of measuring and acting on vulnerability are dictated by the sector and scale of their responsibilities. (Pelling, 2008:3)

Thus, the much-lauded concept of "think global, at local" for achieving sustainable development, is somewhat of an oxymoron.

Deliberative institutions on the other hand require spaces that allow global risks to be reassessed in locally meaningful terms, across scales and political communities. Habermas (1989) proposed that institutions for deliberation need to create a 'perfect public sphere', in which discourses could be contested, deliberated, and agreed. For Habermas, the public sphere consists of a space in which independent, equal citizens can collect on a voluntary basis and undertake reasoned debate around an issue of common interest, for the public good (Dews, 1999; Habermas, 1989). Deliberative theorists have since taken up the concept of the public sphere as the cornerstone for designing deliberative institutions. Dryzek (1990, 2000) suggests that public spheres can operate across scales, from sub-national to international, and can be composed of a broad variety of actors deliberating on issues of common interest, from NGOs, individual activists, journalists, corporations, government members, and international government organisations.

From this perspective, the questions that need to be asked about inclusive institutional designs centre on creating these conditions of equality within the public sphere: "Do all participants have equal voice"? (Rosenberg, 2007:13); and, "how can the conditions of equality, mutual respect, and rational, reasoned debate, be encouraged to ensure all participants have equal voice?" This may be a question of managing externally induced inequalities (such as class, caste, race or education) that may interfere with the full and fair contribution of individual participants to the debate (Rosenberg, 2007:13).

Within the public sphere: The dynamics of deliberative processes

However, this chapter has shown that the way in which environmental risks are framed, and the implications for how expertise and scales are defined, can have an impact on deliberation. This observation is more in line with a Foucauldian approach to deliberative institutions, which calls in to question the basis of environmental concerns and definitions of risk in the first place. Yet relatively less attention has been paid to managing the dynamics of the deliberative process itself; the factors that affect these dynamics; and the impact of deliberative dynamics for enabling truly deliberative outputs (Rosenberg, 2007). As Smith states:

> Equality is only one aspect of deliberative design. What about the fostering of deliberation? (Smith, 2001:87).

For example, this thesis proposes that the politics of expertise and the politics of scale may be significant in enabling 'climate risk' to be democratised, influencing not only who has access to deliberative forums, but how those forums are managed, and whether deliberative outputs are seen as relevant to the policy problem.

Such cases reinforce arguments from deliberative theorists influenced by the work of Foucault, who pay considerable attention to the power of discourses in shaping deliberative outcomes. Rather than accepting that different discourses equally reflect a 'rational' point of view, a Foucauldian perspective argues instead that certain discourses can become overly powerful, even hegemonic, stifling opportunities for alternative discourses to be of any influence at all. This approach views statements of scientific 'truth' as "storylines" or "narratives" which dominate hegemonic discourses. Maarten Hajer (1995) was significant in developing this approach with regards to environmental discourses, and proposed that narratives and storylines created around environmental problems are fundamental in dictating the discursive power of a concept, arguing that "the discursive construction of reality becomes an important realm of power" (Hajer, 1995:21).

Therefore in contrast to Habermas' 'perfect public sphere,' these insights suggest that deliberative arenas are not neutral mediums, but can orchestrate how individuals are engaged with one another, the kinds of understandings and values they can collectively construct, and even the kinds of people the participants are likely to be (Rosenberg, 2007). The way a problem is framed (the 'what' of deliberation) has consequences for the 'who' and 'how' of deliberation around that problem.

The implications of powerful and hegemonic discourses for designing deliberative institutions are fairly pessimistic; if discourses are so pervasive and powerful, they become unrecognisable as discourses and instead become part of the 'natural order of things', and so subverting the dominant approach is almost impossible (Dryzek, 2000:8). Other critics have pointed to the power dynamics that influence the formation of discourses of risk in the first place (Hajer, 1995). It is perhaps such perspectives that have resulted in a clustering of research on deliberation around either the goal of deliberative democracy, or the failure to achieve it; but very little on *how* institutions should be designed to achieve deliberative goals.

This thesis proposes that rather than reject the task of designing deliberative institutions outright, it is possible to acknowledge the implications of power and knowledge on deliberative spaces, and

design deliberative institutions *in light of* them. The capacity for people to deliberate should not be taken as given, but something that needs to be facilitated by the deliberative process itself.

Such insights could inform a future institutional design process that asks the questions posed by Rosenberg:

> Given these limitations, how can deliberation be structured so as to foster a more …deliberative and democratic form of cooperative decision-making? (Rosenberg, 2007:14).

Such questions give rise to institutional design considerations that focus on the dynamics of deliberative exchange, and how they can be influenced: the 'who', the 'who', and the *'what'* of deliberative processes. In the case of climate change adaptation, this means: firstly, understanding the ways in which risks are perceived, especially at the 'local' level; secondly, considering the impact of alternative definitions of risk at other scales, and the ways these interact; and finally, by unpacking what we mean by scale itself. There is a need to re-think institutions for managing vulnerability, in a way that acknowledges the usual constructs of local/global; expert/lay; and hence the underlying discourses that need to be governed.

This thesis therefore understands inclusiveness in adaptation policy to mean both a participatory approach to policy making – i.e. policy makers actively encourage the participation of vulnerable groups in the policy-making process; but also that this participation is *deliberative* – the participatory process enables stakeholders across scales to deliberate common objectives and practices for developing policy. The next section of this chapter will show how attempts have been made to operationalise concepts of inclusive policy-making in environmental governance, revealing challenges for achieving deliberative inclusiveness in the governance of risk.

1.3 Policy orientated approaches to managing 'global' risk

This section will discuss three levels of attempts to operationalise inclusiveness in global environmental risks: through international governance structures; national planning; and decentralised governance.

International governance of global environmental risks

One case that is often held up by both academics and the NGO community alike as a successful model of how to 'do' global environmental governance, is the case of international ozone governance under the 1987 Montreal Protocol (see for example Action Aid, 2007; Benedick, 1991). For example, in his book *Ozone Diplomacy,* Benedick (1991) suggests ozone governance is a laudable example of positive international political action, informed by evidence-based scientific research, that resulted in the global adoption of environmental policies under the Montreal Protocol to limit ozone-depleting substances (Benedick, 1991).

However, many scholars have also shown how ozone governance exemplifies many of the issues raised in the discussion above, around how universalist framings of environmental problems as 'global' and 'scientific' can result in 'closed' approaches to governance that create barriers to local inclusion (Eden, 1996; Litfin, 1994; Miller and Edwards, 2001). These issues will be discussed in turn.

First, like climate change, the ozone layer was framed as a policy problem of 'global' and 'scientific' nature. Eden (1996) discusses the emergence of international ozone policy, which she describes as a problem derived from modernisation (the new chemical compounds, chlorofluorocarbons or CFC's); constructed in atmospheric chemistry (observations taken from a small number of scientists); communicated to the public and other groups in the environmental debate; and finally recognised as a global problem in the Montreal Protocol, the international agreement to control CFC emissions. The author suggests:

> It is not too simplistic to say that without the science of atmospheric chemistry, we would not see any ozone problem. (Eden, 1996:187).

Such statements are echoed by Miller and Edwards (2001):

> Expert knowledge was a sine qua non of the Montréal Protocol on ozone depleting substances and its successors. (Miller and Edwards 2001:3).

Second, and in turn, Litfin (1994) shows how such an 'expert framing' supports an "epistemic communities" explanation for ozone governance: scientists convened around the problem and developed a convincing evidence base on ozone depletion to present to policy makers as a decision making tool. However, while Litfin does not contest the role of scientists in facilitating political agreement, she argues that the orthodox 'epistemic communities' explanations of 'science speaks to policy' overlook the role of politics in defining the science. For example, Litfin

shows how the influence of science on policy making was mediated by powerful "knowledge brokers" drawn from the US Environmental Protection Agency (EPA), NASA, and UNEP, who selected, interpreted, and communicated scientific findings to policy makers. Further, Litfin points to the role of public pressure on defining policy, particularly following the discovery of the Antarctic ozone hole and the high level of media attention given to this (Litfin, 1994). Thus, Litfin presents a powerful criticism of "epistemic communities" as an explanation for how 'global' and 'expert' problems are governed, stating,

> Epistemic community approaches underestimate the extent to which scientific information simply rationalizes or reinforces existing political conflicts (Litfin, 1994:184,186).

Third, Eden points to the implications of such orthodox 'science speaks to policy' assumptions for inclusive governance. Eden shows that, although the public were active in lobbying for policy, boycotting CFC-containing spray cans (a move primarily orchestrated by Friends of the Earth in 1998), the expert framing of the ozone problem inhibited public participation in policy development. This is not surprising; as Taylor and Buttel (1992) argue:

> The science of global environmental change continues to reflect, and in turn reinforce, the moral-technocratic formulation of global environmental problems…[there is] inattention to the national and localised political and economic dynamics or socio-environmental change (Taylor and Buttel, 1992:409).

It is only this understanding of the localised social and political dynamics of environmental problems that would warrant local participation and make it meaningful; without it, attempts at local inclusiveness in global environmental problems can at best contribute to policy implementation, but not policy design.

Climate change echoes these governance patterns of other 'atmospheric' environmental problems, framed as an issue of:

> Scientific construction…a global scale environmental problem caused by the universal physical properties of greenhouse gasses. (Demeritt, 2001:307).

As will be shown in chapter three, framing climate change as a scientific and technical problem has made public participation in both mitigation and adaptation governance especially problematic.

But, as this thesis will show, climate change, and adaptation in particular, presents specific challenges:

First, the continuing scientific controversy, and an absence of simple, politically non-contentious solutions, render relations between 'expert knowledge' and environmental governance far more contested (Miller and Edwards, 2001:3). Second, adaptation under other atmospheric issues such as the ozone layer or even acid rain, has not been a major policy option; both have been managed, fairly successfully, by mitigation alone. However, the failure to effectively mitigate the causes of climate change means that adaptation must now be managed under this same global governance framework as mitigation.

Yet, as shown in the literature analysis presented above, many scholars have suggested that if adaptation is to effectively address local vulnerabilities, then it should be locally inclusive (Huq and Reid, 2007; Polack, 2008); adaptation is what grounds the intangible, global atmospheric problem of climate change in a local, tangible reality (Ayers and Huq, 2009a). But global risk assessments that reinforce the impacts-based approach to adaptation, present challenges for the exclusion o local level insights that could otherwise contribute to understanding and effectively responding to climate change risk. This thesis will consider the consequences of risk assessments that perpetuate an impacts-based approach to adaptation framing, on the inclusiveness of adaptation policy making at the international (chapter three), national and sub-national levels (Chapters four and five).

National Planning for Environmental Risks

A common tool used by international and multilateral environmental agreements (MEAs) for implementing 'global' plans 'locally', is the development of a national action plans. For example, all three Rio Conventions (the UNCBD, the UNCCD, and the UNFCCC) call for national plans to translate the global priorities of the various conventions into implementation actions on the ground. The development of national plans for environmental conventions all begin with environmental assessments, through which scientific networks are intended to communicate their findings to policy makers (Farrell et al., 2001).

Yet, the outcomes of such international risk assessments described above can influence the ways in which nation states approach the national and sub-national management of 'global' risks. Where 'global' framings of environmental risk conflict with perceptions of risk at sub-national

scales, nation states are faced with the challenge of reconciling international and sub-national interests. This is particularly the case where international agencies are tasked with providing the resources and guidelines for undertaking national risk assessments. Under such circumstances, and often despite claims and attempts at ensuring local participation, national planning processes can end up replicating the assumptions and priorities of global risk discourses, rather than incorporating and responding to local realities of how those risks are being experienced (Ayers, 2011; Forsyth, 2003).

One case that illustrates well the consequences of unresolved tensions between competing definitions of risk across scales, is discussed by Bassett and Zeuli (2000). The authors describe the development of National Environmental Action Plans (NEAPs), required by the World Bank in low-income countries receiving its financial assistance. Taking the West African case study of the Cote d'Ivoire, they show that globally uniform, 'blue print' methods of designing NEAPs resulted in the identification of a misconceived problem of desertification, that contrasted to the more wooded landscapes experienced by farmers (and confirmed by aerial photographs). The authors reveal that on the contrary, one of the problems experienced by local farmers was tree and bush encroachment that was hindering livestock development.

Bassett and Zeuli (2000) show that, although the NEAP process claims to be participatory, the tensions between sub-national and regional risk discourses inhibited meaningful local deliberation. For example, the authors argue that the 'problem' of desertification identified by 'experts' from the World Bank was in fact not based on reliable data, but instead on powerful "regional discursive formations"[8] (Bassett and Zeuli, 2000:69). These gave rise to an idea of desertification that was so integral to the discursive environmental history of the region, it dominated the policy discourse to the extent that the actual dynamics of environmental change were overlooked (Bassett and Zeuli, 2000:69). The resulting NEAP was littered with images of desert-like conditions spreading into the Savannah, despite the findings of the authors to the contrary. The voices of the experienced farmers and herders whose understanding of environmental change were more nuanced and often contradicting the dominant narrative were largely excluded from the participatory process.

The authors also show how assumptions about scale influenced the design of participatory processes. For example, 'local' inclusion was achieved through the "civilian phase" of NEAP

[8] "Regional discursive formations" were originally theorized by Peet and Watts (1996:15), and described as "modes of thought, logics, themes, styles of expression, and typical metaphors run through the discursive history of a region, appearing in a variety of forms, disappearing occasionally, only to reappear with even greater intensity in new guises'' (Peet & Watts, 1996: 16).

preparation. This phase involved holding regional meetings at which '"local" political leaders and government officials as well as "selected" farmers and herders were invited to give their views on regional environmental issues and the NEAP process. This group was identified as representative of 'the local'. Yet, the authors state that:

> This form of "participatory planning" did not involve consultations with ordinary men and women living in rural areas about what they considered to be the most important environmental issues. (Bassett and Zeuli, 2000:74).

Thus, assumptions about who was considered local had implications for who was included, and resulted in the exclusion of "ordinary men and women." Further, the authors suggest that this aggregation of very different stakeholders into 'the local' affected the dynamics of the participatory process. They state that inviting a small number of peasants to a regional meeting that was dominated by civil servants meant that, unsurprisingly, peasants and herders were reticent to contribute freely under such circumstances (ibid).

The resulting policy recommendations to combat the assumed reduction in tree cover, included coercive measures to reduce bush fires, wood cutting, and the promotion of village level tree planting. The authors suggest that not only were these measures a waste of limited resources, but also exacerbated the actual problem vegetation encroachment (Bassett and Zeuli, 2000:90). Combining their own case study analysis with similar examples that reveal disparities between local and global perceptions of the same environmental issues (Leach and Mearns, 1996; Peet and Watts, 1996; Tiffen et al., 1994), they argue for the need to provide locationally and culturally appropriate technical and economic options (Bassett and Zeuli, 2000;76).

In light of such experiences, Farrell et al., (2001) suggests that greater attention needs to be paid to four aspects of the design of environmental assessments: first, to the initiation and context of the assessment – who called for the assessment and why? Second, to the science-policy interaction of the assessment – are scientists isolated from policy makers and how? Third, who participates in the assessment and under what conditions? And fourth, to the capacities of different stakeholders and arenas to ensure adequate participation in assessments, and effective communication between parties (Farrell et al., 2001).

Such insights are helpful in highlighting how apparently 'neutral' environmental assessments are also themselves constructed through social processes. Yet, the case of the NEAP above suggests that questions remain over the extent to which assessments can actually offer avenues for the

inclusion of 'local' perspectives in policy making under 'global' environment agreements.

Similar approaches to national planning have been adopted under the UNFCCC, which requires all Least Developed Countries that are Party to the Convention, to develop National Adaptation Plans of Action (NAPAs). As with NEAPs, the guidelines for developing NAPAs are uniform across all LDCs, and must be adhered to if the resulting plans are to meet the requirements for funding under the UNFCCC. However, NAPAs do place an emphasis on participatory approaches and community-level inputs as an important source of information to inform national and international adaptation policy (LEG, 2002). As such, NAPAs have been touted as the most promising opportunity for the participation of vulnerable groups in adaptation policy making (Ayers, 2008; Polack, 2008;). This thesis will examine the evidence for these claims related to NAPAs and consider the impact of competing definitions of climate change risk across scales on enabling local inclusiveness in national adaptation planning (Chapters four and five).

Localising risk: Community-based approaches

An alternative response to the critiques of 'top-down' management of environmental resources has been an increase in support for more localized, community-based natural resource management (CBNRM). For example, Agenda 21 and the Desertification Convention strongly advocate the combination of community initiatives, decentralization, and devolution of responsibility for natural resources to local communities (Forsyth and Leach, 1998).

This shift towards community-based approaches is discussed by Menakshi Ahiuwalia (1997), who describes how the social and environmental costs of earlier environmental policies in India that were based solely on state priorities and focused on large scale, technical projects, have stimulated a shift in focus towards more participatory and community-driven approaches to environmental management. Ahiuwalia provides the example of a community-based watershed management project in Rajasthan, India, the "Nayakheda Watershed Development Project" (Ahiuwalia, 1997:3), facilitated by the NGO Seva Mandir, based in Udaipur. One element of the project was the promotion of soil and water conservation on private lands. The author describes how the Nayakheda area had witnessed significant deforestation between 1975 and 1996, evidenced by aerial photographs and confirmed by oral histories. The common explanation was that such deforestation was induced by an increasing population of poor tribal people in order to meet their subsistence needs.

However, through participatory methods, the community-based Nayakheda project revealed that in fact the deforestation was a consequence of the delayed enactment of the 1995 land reform policies, which resulted in landowners exploiting timber and other resources on their lands in anticipation of government land seizures. Tribal people were indeed the ones to carry out the deforestation process; however this was in response to incentives provided by the landowners and not to meet their own subsistence needs. In response, in 1992 Seva Mandir intervened with a set of traditional soil and water conservation measures. The result was an overall increase in biomass and soil moisture, and a recharging of groundwater. The need for irrigation for local farmers was reduced, and crop yields increased. Thus, local farmers and labourers could gain more profit from farming existing lands reducing the pressure on forested land.

Seemingly, then, unlike the NEAP example described above, the community-based approach was successful in revealing alternative environmental explanations to the dominant deforestation narrative, and addressing environmental resource management challenges at the local level.

Learning from CBNRM experiences, "community-based adaptation" (CBA) is emerging as a key counter-proposal to UNFCCC-led processes for doing adaptation. CBA operates outside UNFCCC-led processes, starting at the community level to identify, assist, and implement community-based development activities that strengthen the capacity of local people to adapt. Proponents of a CBA approach suggest that this kind of institutional design could enable local deliberations that can identify the diversity and complexity of local vulnerability contexts (Ayers and Forsyth, 2009; Jones and Rahman, 2007). Many examples of localised, community-based adaptation (CBA) can be analysed as examples of legal-pluralism, and indeed many parallels have been drawn between CBA and CBNRM, with some even questioning a distinction between the two (IISD et al., 2003). In particular, the objectives of CBNRM - of poverty reduction, natural resource conservation and good governance – all contribute to building adaptive capacity and are therefore also the objectives of many adaptation strategies (Danida, 2007).

However, many critics of CBNRM have pointed out that such approaches are often based on naive assumptions about 'the community' and 'the environment' that can ignore the localized politics of resource allocation, and the local dynamics of environmental change. In the example above, Ahiuwalia points out that while the project achieved its target goals of recharging groundwater and improving agricultural lands, these benefits were not experienced equally by all members of 'the community'. In particular, the author highlights the influence of the initial distribution of endowments in terms of location of wells and land holdings in relation to the micro-topography of the area, which significantly affected the social distribution of the gains from the project. The

author notes:

> By making people sit on a common platform, one does not necessarily make them equal. (Ahiuwalia, 1997:34).

Further, CBNRM approaches have often assumed that 'the environment' is a static resource that may have succumbed to degradation through its exploitation by 'the community', and thus needs to be restored to a previous, stable state through the restoration of harmony between community livelihoods and natural resources (Leach et al., 1999). Yet, since the 1970s, a 'new ecology' has begun to emerge that challenges the idea of ecological equilibrium, drawing attention to an understanding of variability in space and time; and also the importance of history on current ecological dynamics (Leach et al, 1999).

Therefore simply 'localising' environmental management does not overcome problems of the politics of scale; in fact in many ways they become even more pertinent, because of assumptions that 'local management' will automatically result in 'local inclusion'. In terms of adaptation, a community-based approach to adaptation based on fixed assumptions about what is 'local' and 'global' does not address the adaptation paradox, but could serve to replicate it, albeit at a different scale. For example, as discussed in this chapter, the tendency to aggregate and homogenize the category 'local' is especially strong in the management of 'global' environmental problems, even where that management is decentralised. Further, assumptions about a stable ecological system are even less valid, given that the premise of adaptation is based on the need to respond to changing environmental conditions.

CBA is still in its infancy, and much can be learnt from criticisms of CBNRM in considering how CBA approaches could be promoted as avenues for local inclusiveness in climate change adaptation. This thesis will examine local approaches to adaptation policy making and consider the evidence that CBA is learning from this literature on CBNRM. In doing so, this thesis will consider the evidence that CBA can indeed provide opportunities for more inclusive policy making; and what the circumstances are that could encourage this (chapter six).

1.4 How can climate change adaptation be governed inclusively?

Learning from these insights, this thesis suggests that current approaches to achieving 'locally' inclusive governance of 'global' risks do not pay adequate attention to the actual mechanisms of

how risks are deliberated, and the political processes that shape these. These insights are particularly relevant for climate change adaptation, where the "Adaptation Paradox" has resulted in an inappropriate definition of climate change risk dominating the politics of climate change, which does not incorporate the locally and contextually specified nature of climate vulnerability.

The basic hypothesis of this thesis is that the paradox presented by conflicting definitions of risk across scales presents new challenges for participation, because it results in 'impacts-based' risk assessments for informing policy that do not reflect how vulnerability to those impacts is experienced. Thus, rather than examining methods of participation per se, this thesis will pay particular attention to how the arenas created for participation can restrict discussions of risk and create barriers to open and meaningful deliberation. Following on, it is proposed here that achieving meaningful local inclusion in the governance of adaptation depends not on participatory intentions, but on: Firstly, understanding the ways in which risks are perceived across scales; secondly, considering the impact of alternative definitions of risk at other scales, and the ways they interact; and finally, by democratising what we mean by scale itself. These propositions will be tested by addressing the following questions:

1. What is the evidence that conflicting definitions of risk across scales inhibit locally meaningful adaptation policy-making?
2. Under what circumstances is local inclusiveness achieved under international climate change policy frameworks?

Addressing these questions will contribute to debates in the social sciences around deliberative governance. Specifically, this thesis will aim to contribute to the following challenge for the policy makers and the social sciences more generally:

3. How can local inclusiveness be achieved in the context of global environmental risk? And, what kind of institutional designs allow global risks to be reassessed in locally meaningful terms?

Thesis overview

These questions are addressed through the collection and analysis of a new set of data on the main avenue for the inclusion of vulnerable groups in adaptation policy making: National Adaptation Programmes of Action. This study examines the emergence of the NAPA process under

the UNFCCC as a policy guidance tool, drawing on primary interview data and the analysis of secondary data; and then also compares two "sub-cases" of the NAPA process 'in action', in two countries: Bangladesh and Nepal. The purpose of this spatial comparison is to consider whether the different conditions in each country within which the NAPA process was undertaken, resulted in different outcomes for the inclusiveness of adaptation policy; and if so, what these conditions were.

The next chapter of this thesis describes in detail the methods adopted by this study for data collection and analysis, including a justification of the NAPA process as a case study, and Bangladesh and Nepal as 'sub-cases'. Methods adopted include key informant interviews at the international policy level and national level, as well as focus group discussions, household surveys and document analysis in Bangladesh and Nepal. Data analysis adopts a "discourse analysis" framework.

Chapter three of this thesis, "Understanding Adaptation", draws on debates from the natural hazards and development studies literatures to break down definitions of risk, vulnerability, and adaptation. Data from key informant interviews with stakeholders actively engaged at the international level in the IPCC and UNFCCC, as well as the outputs of document analysis, are presented. This data is used to trace the emergence of multiple interpretations of climate risk and the resulting approaches to risk assessment. The chapter goes on to show how these conflicting approaches to climate change risk have been operationalised in climate change governance arenas, looking at both the formal climate governance system of the UNFCCCC, and also development institutions that have taken up adaptation as part of their development agenda.

The analysis of primary interview data as well as secondary data sources presented support the contention that an 'impacts-based' approach to governing climate change risk does dominate UNFCCC frameworks, and that this has created barriers for the potential of UNFCCC mechanisms to address vulnerability on the ground. However, it is suggested that opportunities for managing climate change adaptation outside of the UNFCCC under development frameworks undermine core equity principles of adaptation finance; that adaptation finance must be additional to development finance. The chapter concludes that, given that it is important that climate change adaptation is managed under the UNFCCCC, National Adaptation Programmes of Action (NAPAs) present the most promising avenue for the inclusion of vulnerable groups in adaptation decision making.

Chapters four and five examine the potential for inclusive adaptation planning under the NAPAs, drawing on the case study research undertaken in Bangladesh and Nepal. These chapters provide evidence against all three main research questions by addressing the same two sub-questions designed for the empirical case studies: What is the evidence that the NAPA in each country achieved inclusive policy making? And, what were the circumstances that resulted in more or less inclusive policy-making processes?

Chapter four analyses data collected through key informant interviews, focus group discussions and household surveys to assess the extent to which the NAPA process in Bangladesh meet the requirements of deliberative governance, focusing on the 'who', 'how' and 'what' elements of deliberative institutional design. The data shows that the inclusive intentions of the NAPA process in Bangladesh were promising, but that the approach taken to risk assessments was driven by a 'global' and 'impacts-based' discourse. The analysis suggests that this discourse was reinforced by a national "environmental crisis" narrative, which served to strengthen the emphasis on large scale, technocratic approaches to defining environmental risks. These powerful discourses restricted the democratic potential of the participatory spaces created under the NAPA, affecting choices about who participated, how participatory exercises were structured, and what outputs of participation were considered 'legitimate'. The chapter concludes by questioning whether the task of 'deliberative democracy' in the governance of 'global' environmental problems is simply too ambitious?

Chapter five takes up this question, by focusing on the task of deliberative institutional design. Through the analysis of key informant interviews and participant observation, this chapter pays detailed attention to the process (rather than outcome) of the NAPA development in Nepal. This analysis moves beyond debates about the attributes and criticisms of the deliberative democracy ideal, focusing instead on the conditions that might be conducive to more or less inclusive governance. The chapter critically examines the NAPA process in Nepal, and shows that although both Bangladesh and Nepal used the same guidelines for NAPA preparation, Nepal took a very different approach to NAPA preparation that focused more attention on creating deliberative and participatory forums. The data suggest that a number of factors contributed to this difference in approach, including the history of environmental governance in Nepal; the lower availability of climate change data and 'expertise' in Nepal compared to Bangladesh; and the fact that Nepal was one of the last countries to develop its NAPA, creating an opportunity for lesson-learning. The chapter concludes that while it is still 'early days' for the Nepal NAPA, a greater focus on participatory practice in the design of the NAPA in Nepal presents more promising approach for achieving deliberative outcomes within the guidelines of adaptation planning under the UNFCCC.

Chapter six discusses the findings from these two case studies in relation to the empirical questions of this thesis. The chapter begins by considering the evidence that each NAPA was 'successful' in achieving meaningful policy deliberation. First, the chapter compares the inclusiveness of deliberative processes, drawing on the three indicators of deliberative institutional design introduced here and expanded in chapters four and five: Who was included in policy deliberations; how were deliberative processes structured; and what was deliberated about. Second, based on the premise that for policy-making to be inclusive, the outcomes of deliberative processes must actually have an influence on policy, the chapter considers the extent to which deliberative outcomes influenced the final NAPA document in each country. Third, the chapter discusses the circumstances that resulted in more- or less-successful adaptation policy deliberation, focusing on the factors that influenced deliberative institutional design choices. This section expands debates from chapter 5 around the influence of environmental risk narratives; the role of expertise; and opportunities for lesson-learning.

The discussion then moves to the consequences of these circumstances for deliberative institutional design. Returning to questions around the politics of scale, the chapter suggests that 'inclusive' approaches to adaptation need to pay greater attention to a disaggregated 'local'. With this in mind, the chapter considers two alternative institutional designs for adaptation planning that claim to be 'more' inclusive. First, the proposal of "community-based adaptation (CBA)" is discussed as one potential institutional design that proponents argue allows for a greater degree of 'local' inclusiveness. However, it is suggested that CBA in its current form cannot meet the requirements of adaptation governance, which needs to be managed across scales and not just at the 'local' level. Further, simply decentralising adaptation planning does not necessarily overcome existing politics of scale.

Second, paying greater attention to *how* inclusiveness is achieved, the chapter discusses the recent proposal from Nepal of "LAPAs", or "Local Adaptation Plans of Action". LAPAs are envisaged as a way of taking CBA a step further by using similar, detailed methods of local-level vulnerability assessments, but with a focus on the institutions at the local level that will play a role in the delivery of NAPAs. While the LAPA concept is still in the design phase, a key promising feature is the flexible approach taken to scale. 'Local' is not predefined as either community, household, district and so on; rather, local institutions are taken as the whichever formal or informal institutions are important in enabling vulnerable people to gain access to the assets they require to help them build their adaptive capacity.

Chapter seven is the concluding chapter of this thesis. This chapter brings the empirical findings from the discussion chapter back to the title question of this thesis: Can global climate change adaptation policy be locally inclusive? The concluding chapter reiterates that achieving "inclusiveness" in the context of 'global' environmental risks requires, firstly, understanding the ways in which risks are perceived across scales; secondly, considering the impact these conflicting definitions of risk on the potential for 'global' risk assessments to be 'locally' inclusive; and finally by taking into account the scalar politics of inclusiveness, which means reassessing what we mean by 'local', 'global', and 'inclusiveness'.

This chapter then discusses the 'contributions to theory' of this study, in relation to the theoretical framework presented in this introductory chapter. First, it is suggested that this study supports 'tyranny of participation' debates around the importance of paying attention to the 'who' and 'how' of participatory practice in analysing inclusiveness. However, this study also presents evidence that the power politics of participatory spaces are perhaps more complex than 'tyranny of participation' debates assume, and attention is also needed to the 'what' of deliberation, which in turn is affected by the contexts in which deliberative institutional design choices are made.

To explore the 'what' of participation, this study applies debates from science and technology studies that until recently had been reserved to an industrialised country context. This analysis shows that the framing of a problem in 'global' and 'expert' terms has implications for the inclusiveness of 'local' and 'lay' knowledge. But the evidence from the Bangladesh and Nepal sub-case studies also suggest that the labelling of information as 'global' or 'expert' is influenced by external factors that drive assumptions about the problems being deliberated. These include the political and historical factors that influence assumptions of risk, expertise, and approaches to inclusion. Based on these insights, this thesis concludes that approaches to deliberative institutional design need to pay greater attention not just to the internal dynamics of participatory spaces, but also to the external historical, political and cultural circumstances within which deliberation takes place. It is hoped that such insights can contribute to the under-researched area of deliberative institutional design.

The concluding chapter then discusses the policy consequences of failing to take a 'deliberative' approach to inclusiveness, drawing on examples from the Bangladesh and Nepal NAPAs. These include, firstly, opportunities for targeting the key drivers of vulnerability could be missed. Second, resources for adaptation may not be put to the most effective use. Thirdly, and perhaps most importantly, adaptation options could be implemented that exacerbate the vulnerability of the most vulnerable groups.

The thesis concludes by questioning the underlying normative assumption of this study; that 'inclusiveness' is actually an important policy goal in the governance of climate change adaptation. The value of 'inclusive policy making' in general is discussed; but it is also proposed that engaging vulnerable people in policy making can itself be a way of building adaptive capacity, especially where vulnerability is compounded by social and political exclusion. In line with shifts towards a 'rights-based' approach to development, inclusive deliberative governance can provide a platform for improving social and political capital, that can in turn help people to better access the services and assets that can improve resilience.

Note to reader:

Some of the primary research conducted for the purposes of this project has been written up in other articles and consultancy reports during the course of this project. Not all of this material has been included in this thesis for the sake of ensuring clarity and focus to the arguments presented here. However, throughout this thesis the reader will be directed to the relevant publications that enrich and add breadth to the material presented in this thesis.

Chapter 2: Methodology and Research design

This study tests the hypothesis that the "adaptation paradox" presents challenges for inclusive adaptation policy-making, because impacts-based risk assessments under 'global' climate change frameworks do not reflect how vulnerability is experienced 'locally'. This hypothesis is tested by asking: What is the evidence that definitions of risk across scales inhibit inclusive adaptation policy making? And under what circumstances can international climate change policy achieve inclusiveness? Answering these questions contributes to the broader objective of this thesis, which is to identify whether and how local inclusiveness can be achieved in the context global environmental risk; and what kinds of institutional designs allow global risks to be reassessed in locally meaningful terms.

This chapter describes the methodological approach adopted by this study for the collection and analysis of a new set of data to test the hypothesis of this thesis. In line with recommendations from Bauer et al., (2000), this chapter distinguishes between the three key methodological dimensions adopted for this study: the design principles (the research strategy); the methods of data elicitation; and the process of data analysis. This chapter will describe each of these in turn.

2.1 Design principles

Bauer et al., (2000) describe "design principles" as the underlying strategy of a research study, such as sample survey, participant observation, case studies, experiments, and quasi-experiments. The strategy chosen depends on the type of research question being asked. For example, experimental, quasi-experimental, or survey approaches are useful for measuring the 'how much' or 'to what extent' of a policy problem, when the relationship between cause and effect factors is established and needs quantifying. Alternatively, this study is concerned with exploring *what* the cause-effect relationship is between 'risk' (including the politics of scale and expertise), 'uncertainty', and 'inclusion', and *whether*, to what *extent*, and *why*, there is any relationship between these factors; and what the circumstances might be that have influenced this relationship. A more flexible approach is therefore needed, to enable the investigation of the complex relationship between these variables; to incorporate the context of the relationship; and to be open to other factors that might also be important in answering the questions proposed by this thesis.

Case study approach

The research strategy that best meets the requirements of this study is case study analysis. As a research strategy, a case-study approach is defined as:

> An empirical inquiry that investigates a phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. (Yin, 1989:22).

A "case" in this context refers to:

> A phenomenon of scientific interest, such as …types of government regimes…that the investigator chooses to study with the aim of developing theory (or "generic knowledge") regarding the causes or similarities or differences among instances (cases) of that class of events. (George and Bennet, 2005:17).

Case study research can include single and multiple case studies, and as a strategy can use multiple sources of evidence including quantitative evidence. George and Bennet (2005) identify four advantages of a case study strategy for social science analysis, that make it appropriate for investigating the hypothesis of this thesis: Fist, case studies can achieve "high conceptual validity". Many of the variables of interest to social scientists are difficult to measure, such as power, democracy, or political culture; indeed their very interpretation may vary in different contexts. The same can be said for trying to understand 'vulnerability'; as shown above, perceptions of vulnerability differ according to how risk is defined, which is not the same across contexts. A case-study approach allows researchers to carry out "contextual comparisons" that evaluate "analytically equivalent phenomena" across different contexts (George and Bennet, 2005:19).

Second, the analysis of case studies can foster new hypotheses in a way that statistical analyses cannot. For example, George and Bennet propose that "when a …researcher asks a participant "were you thinking X when you did Y" and gets the answer "no I was thinking Z" then this could give rise to a new variable" that may result in the development of new theories (George and Bennet, 2005:20). The ability to absorb unpredictable research outputs is important in enabling us to look beyond an 'impacts-based' approach to risk and allow people to redefine how and why they experience vulnerability which may or may not be related to climate change impacts. Thus, a

case study approach enables the analysis of different perceptions of risk, some of which may be expected, others of which may not be.

Third, case study analysis can closely examine the operation of a number of causal mechanisms in detail, and observe any unexpected aspects of a particular causal mechanism or identify what conditions activate any one causal mechanism over another. Statistical studies, on the other hand, necessarily leave out many contextual and intervening variables at the expense of studying those variables selected for study (George and Bennet, 2005:21). This is useful for considering the circumstances that may result in more inclusive adaptation policy making, which in this study are by no means predetermined.

Finally, case study analysis can accommodate complex causal relations; although George and Bennet note that this advantage is relative, and case studies require substantial process tracing to document complex interactions, while statistical methods are able to model several kinds of interactions, albeit only at the cost of requiring a large sample size (George and Bennet, 2005:22). Ragin (2007) suggests that this justifies the "small N" approach of case examination; a small number of cases allows the researcher to analyse a large number of historically, socially and culturally significant variables, hence as Ragin points out: "Fewer cases are often better. After all, with large N's, in depth knowledge of cases must be sacrificed" (Ragin, 2007:65). As this study is explicitly concerned with the processes of participation, and understanding how, and why NAPAs achieved inclusiveness (or not), it is important that ample space is given to analysing these processes in detail. It therefore makes sense to have a 'small N' and focus on conducting a detailed study.

For the purposes of this study, the "case" selected for analysis is the process of National Adaptation Programmes of Action (NAPAs). It is acknowledged that there are currently other avenues for local inclusion in adaptation policy-making. For example, the UNFCCC allows non-negotiators as 'observers' to the climate change negotiations. Active participation of observers in the climate change negotiations is limited, often to carefully crafted NGO statements on behalf of all registered NGOs, although observers are able to stage 'side events' and lobbying activities to influence the negotiations. Another example is the design of the recently established "Adaptation Fund", which has a 'window' for community-based adaptation projects, although at the time of writing this is not yet operational.

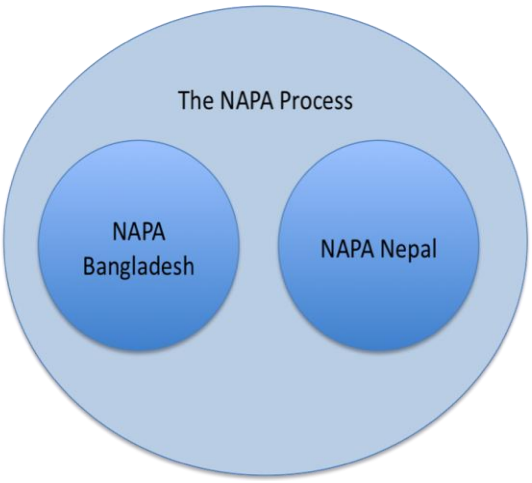
However, NAPAs have been selected because they are designed under the UNFCCC specifically to provide a direct avenue for the participation of vulnerable groups in adaptation policy making

(LEG, 2002:1). NAPAs are therefore a useful unit of analysis for examining the evidence that adaptation policy-making achieved this goal of inclusiveness. This also makes the research strategy of case study analysis suitable; the different ways in which 'inclusiveness' is approached under the UNFCCC are not numerous, and are also not comparable, with each of those listed above having very different objectives. As this study is primarily concerned with the inclusiveness of 'local', vulnerable stakeholders in the policy making processes that affect them, NAPAs are currently the most direct avenue for this purpose and therefore a suitable case study choice.

The selection of sub-cases

This study examines the emergence of the NAPA process under the UNFCCC as a policy guidance tool; and then also analyses two 'sub-cases' of the NAPA process 'in action', in two countries: Bangladesh and Nepal (see figure 2.1). The purpose of these sub-cases is to examine the different approaches taken to NAPA preparation in the two countries; the ways in which each NAPA approached inclusiveness in NAPA preparation; and the circumstances that resulted in more or less inclusive outcomes in each case.

Figure 2.1: Case study and sub-cases under analysis



Bangladesh and Nepal have been selected as appropriate case studies firstly because they are both identified by the United Nations as Least Developed Countries, and were therefore obliged under the UNFCCC to develop NAPAs. However, while both countries were committed under the Convention to adhering to the same NAPA development guidelines, each country took different approaches. Bangladesh was one of the first countries to develop its NAPA, submitting a draft to the UNFCCC in 2005. Nepal is one of the last countries to develop its NAPA, with the draft NAPA completed in July 2010 and still under review at the time of writing. As such, Bangladesh adhered fairly rigidly to the NAPA preparation guidelines, and was forced to adopt a 'learning by doing' approach to NAPA preparation. Nepal on the other hand had the experience of over 40 other NAPAs to draw from, and could learn from many of the lessons of good practice as well as common criticisms (especially around participation in NAPA processes) of NAPAs in other countries.

A comparative approach

This thesis takes a broadly comparative approach to analysing the NAPA processes in Bangladesh and Nepal. "Comparative analysis" can be interpreted in a number of ways in both quantitative and qualitative research. This thesis interprets comparative research in line with Ragin and Strand (2008), who suggests that the goal of comparative analysis is "to identify the different combinations of causally relevant conditions linked to an outcome" (Ragin and Strand, 2008:431). Applied to this study, this selection of sub-cases - the first and last NAPA countries – enables a comparative analysis of the initial barriers the NAPA guidelines may have presented to public participation in national planning for adaptation; whether or not these were able to be overcome within the constraints of the NAPA guidelines; and if so, under what circumstances. Specific elements of the sub-cases that can be compared include the ways in which each country interpreted the NAPA guidelines, the design of consultation strategies, and the types of participatory technologies employed.

However, this thesis does not present a straight forward comparison of the two NAPAs. Firstly, the outcomes of the two NAPA processes cannot be strictly compared, given that the NAPA process in Nepal is not complete. Therefore the focus of comparison is on the NAPA *process* in both Bangladesh and Nepal, and not the NAPA outcomes. Secondly, as will be shown below, the approaches taken to data collection in each country were different. In Bangladesh, because the NAPA had already happened, information around the NAPA processes was gleaned retrospectively – to find out 'what did happen', and 'what were the outcomes'? In Nepal, the NAPA process was studied from start to finish in real time, so the assessment was based on 'what is happening', and it was too early to assess the NAPA outcomes. Therefore this investigation does not yield two strictly comparable data sets. These limitations on enabling straightforward comparison are acknowledged in the discussion of results and the conclusions that this study gives rise to.

2.2 Methods of data elicitation

A case-study strategy can utilise multiple research methods. One of the most popular frameworks for organising data elicitation for case studies to meet these objectives is "process tracing". Process tracing "attempts to trace the links between possible causes and observed outcomes" (George and Bennet, 2005:6). Discussions around process tracing have been ongoing for some

time (George, 1979; George and Mckeown, 1985), but the approach has been most comprehensively developed in George and Bennett's 2005 text, *Case Studies and Theory Development in the Social Sciences,* in which the authors suggest:

> In process-tracing, the researcher examines histories, archival documents, interview transcripts, and other sources to see whether the causal process a theory hypothesizes or implies in a case is in fact evident in the sequence and values of the intervening variables in that case.(George and Bennet, 2005:6)

In line with the principles of process tracing, this study uses multiple research methods to elicit data against the two empirical questions of this study, where "possible causes" include conflicting framings of risk; and "observed outcomes" relate to the level of inclusiveness achieved in the policy process. Data collection therefore focused around the emergence of the adaptation agenda under international climate change governance structures, including the development of NAPAs; the emergence of adaptation discourses in development arenas; and the process of NAPA formulation at the national level in the two sub-cases of Bangladesh and Nepal. An explanation of each of the methods adopted for this study is presented in Box 2.1. This section will describe how each of the methods described in box 2.1 was adapted for the purposes of achieving the thesis aims.

Box 2.1: Research methods adopted for study
Adapted from Becker and Geer, 1957; Gaskell, 2000; and Bauer et al., 2000.

Participant observation
Participant observation is a "method in which the observer participates in the daily life of the people under study…observing things that happen, listening to what is said, and questioning people, over some length of time" (Becker and Geer, 1957:28). The value of participant observation is that the researcher is able to better understand perspectives of those being studied because, without assuming this to fully be the case, they have to some extent engaged in a common process: they have observed common events and their aftermath, and explanations of the meanings of events by participants and spectators, before, during, and after its occurrence (ibid). The researcher is open to a wide breadth and depth of information compared to other qualitative approaches, and is able to triangulate different impressions and observations, and to follow-up emergent discrepancies in the course of the fieldwork (Gaskell, 2000:44). As such, Becker and Geer describe participant observation as "the most complete form of sociological datum" (ibid). While the degree to which any 'observation' can be said to be 'participatory' has been questioned (indeed, some argue all observation is in some way participatory – see Atkinson and Hammersley, 1994), it is generally accepted that the researcher is, to some degree, engaged in the activities of the people or process being studied.

Semi-structured interviews
Qualitative interviewing is based on the assumptions that different individuals or groups actively construct the social world differently. The purpose of the qualitative interview is to understand the respondent's life-world and how this may differ from others. Gaskell states: "the qualitative interview provides the basic data for the development of an understanding of the relations between social actors and their situation" (ibid). Semi-structured interviews involve four key stages: first, developing a 'topic guide'; second, selecting respondents; third, undertaking the interview and finally, introducing interpretive frameworks to

understand the actor's accounts in more conceptual terms, often in relation to other observations. The topic guide is intended to act as an interview prompt only, to create a framework for discussion; however, when issues beyond the guide are raised by the respondent these should be recorded and encouraged by the interviewer. In terms of selecting respondents, Gaskell (2000) highlights that the purpose of qualitative research is not counting opinions but rather exploring a range of opinions; thus, it is important when selecting respondents to consider how a social milieu might be segmented on a particular issue, and attempt to cover the different perspectives adequately.

Focus Group Discussions (FGDs)

Focus-group discussions are a kind of in-depth interview with a group of people, and so have similar advantages and constraints as semi-structured interviews. Again, the broad content is structured by the topic guide, but discussion should be allowed to flow freely. The main difference is that FGDs allow respondents to interact with one another to build consensus or conflict around different points of view, a process which is itself interesting to the qualitative researcher in understanding how social dynamics can shape deliberative outcomes. The interviewer takes more of a moderator role, allowing participants to speak to one another, compare experiences and react to one another, giving rise to perceptions and ideas that may not come out of a one: one situation of semi-structured interviews alone. However, participants in FGDs tend to be somewhat self-selective. Not all those invited turn up, and some target groups are difficult to recruit. Further, the dynamics within an FGD can be dominated by one or two vocal individuals, although careful moderation can avoid this to some extent.

Household Surveys

The household survey used for the purpose of this study was not a large-scale survey for quantitative analysis. Instead, the objective of the household survey was to maximise the opportunity to understand the different positions taken by members of the social milieu; and to collect enough data on HH survey respondents to be able to see patterns between social indicators such as wealth and gender, with perceptions of risk, that could be elaborated on during FGDs. Thus, the HH survey was not undertaken to provide quantifiably defendable set of outputs, but get a broader idea of the range of views, and indicators of priorities, that could be used to guide FGD and key informant interview discussions. A sample HH survey is presented in Annex 5.

Understanding the international agenda on adaptation

First, to explore the adaptation discourses and the inclusiveness of adaptation policy making at the international level, between September 2007 and September 2009, I attended three UNFCCC meetings as an 'observer'[9] and tracked discussions on matters related to adaptation. These meetings were:

- December 2007: Thirteenth Conference of the Parties to the UNFCCC in Bali
- June 2008: 28th meeting of the S*ubsidiary Body for Scientific and Technological Advice,* Bonn.
- December 2009: Fourteenth Conference of the Parties to the UNFCCC in Poland

Major workshops on Community-based Adaptation were also attended, to understand the CBA agenda and its relationship with the UNFCCC. The meetings attended were:

- Dhaka 2007: Second International Workshop on Community-Based Adaptation

[9] In my capacity as a research consultant for the Climate Change Group at the International Institute for Environment and Development (IIED), London

- London, 2008: UK workshop on Community-Based Adaptation
- Dhaka 2009: Third International Workshop on Community-Based Adaptation

As well as undertaking participant observation, key informant interviews were undertaken with the Least Developed Country Expert Group Chair and members (who were responsible for developing NAPA guidelines), IPCC scientists (particularly those from working group II on Impacts and Adaptation) non-governmental partners, and donor agencies. A full list of interviewees can be found in Annex 1. The aim of interviewing these different groups of stakeholders was to:

- Gain a detailed understanding of how adaptation emerged in the international climate change discourse. By interviewing a range of actors I was able to triangulate different perspectives and get a good picture of key events that marked the progress and classification of adaptation as a climate change policy discourse.
- Get an understanding of whether, and if so how, different actors perceived adaptation in different ways and whether the promotion of different approaches to adaptation could be linked to any particular group (see chapter 3).

These two objectives shaped the analytical approach taken to both interviews and documentary work.

Interviews were semi-structured and the topic-guides for interviews were tailored according to the interviewee, and the objective of the interview. All interviews however were based around the same framework questions, including how interviewees understood adaptation; their recollection of how adaptation became a prominent part of the negotiations; whether they felt due attention was given to adaptation; whether adaptation should be inclusive; and if so, whether this was being achieved and any barriers to this. Depending on the experience of the interviewees, further specific questions were asked around the negotiation processes that resulted in the development of the NAPA funds and NAPA guidelines, and perception of the adequacy of these.

Sub-case studies in Bangladesh and Nepal

Second, the process of NAPA formulation in Bangladesh and Nepal was examined, focusing on the extent to which each NAPA process achieved inclusiveness, and the circumstances that influenced more- or less-inclusive institutional designs. Fieldwork was undertaken in both countries, although for opportunistic reasons a different approach was taken in each.

In Bangladesh, a two-phase study approach was adopted. First, four months were spent in Dhaka city identifying and interviewing stakeholders involved in the NAPA process including from the Ministry of Environment, and all lead NAPA working group members; as well as other climate change stakeholders not directly involved in NAPA preparation, including from NGOs, research institutes, as well as independent consultants (see Annex 2). During this time, climate change planning documents were also identified, collected and reviewed.

Second, to better understand local perceptions of risk, causes of vulnerability, and reactions to the NAPA project proposal, fieldwork was carried out in Noakhali, one of the sites for the first proposed project to be implemented from NAPA. Two field visits were undertaken to Noakhali, in November 2008 and February 2009. During these visits, research activities included key informant interviews with local stakeholders including government, NGOs and community-based organisations; household (HH) surveys of 50 households each in two Upazilas (sub-districts) of Noakhali; and transect walks.

HH surveys included data on gender and occupation of head of household; main and seasonal household income generating activities; education level of household members; asset holdings (evaluated through information about land ownership, livestock ownership, housing type, other relevant holdings); and access to basic services. Short, semi-structured questions were also included which focused on three main areas: Perceptions of general risks (including for income security; food security; health and personal safety; security of assets); perceptions of environmental risks; and perceptions of climate-related risks. Further questions included perceived changes to risks; the adequacy of government and non-government services; coping strategies under times of stress; and required support. The project proposal for the coastal afforestation programme was also raised and discussed.

The short-answer findings from the HH surveys were used as the basis for more open and detailed discussions about climate risk and vulnerability through focus group discussions (FGDs). FGDs took place with the three main livelihood groups of the area as categorised by the District Commissioners Office (agricultural farmers (small landowners); agricultural/other day labourers (landless); and fishermen). A separate FGD discussion was also held with women, as the livelihood categories focus groups were exclusively made up of men. It should be noted that livelihood groups are not exclusive, and many of those interviewed fell into more than one category, often varying livelihood activities seasonally.

In Nepal, a different approach was taken in response to an opportunity offered to me in April 2009, to spend 9 months working alongside the NAPA team preparing the Nepali NAPA. This opportunity enabled me to follow the NAPA preparation process as an observing participant from project inception in May 2009, through the design phase, and until the completion of the vulnerability and risk assessment data collection (the draft NAPA was completed in July 2010). Thus, the research strategy for Nepal was based around a detailed participatory observation study. I was based in the NAPA office inside the Ministry of Environment, and assisted the NAPA team in the design of the NAPA strategy; fieldwork; and preparation of the document itself.

In addition, independent and supporting key informant interviews were undertaken in my capacity as a PhD student with a wide range of stakeholders engaged with the NAPA preparation process. These included government officials, non-government agencies, academics, NAPA team members, donors, and implementing agencies (see Annex 3). The purpose of these interviews was to ensure a broad range of perspectives was gathered on the NAPA preparation process to complement my own. Interviews were semi-structured and questions were asked about impressions of the general NAPA process, but focused in particular on the adequacy of mechanisms for multi-stakeholder engagement.

2.3 Methods of data analysis

The methods of data collection gave rise to a broad selection of data types that required analysis, including transcripts from interviews and focus group discussions, household survey data, field notes, and numerous policy documents and grey literature. Given that the purpose of data analysis was to understand how risks are framed in different ways across different arenas, and the potential discursive barriers this may present to policy deliberation, an overarching framework of "discourse analysis" was decided on. "Discourse analysis" is a framework that covers a variety of approaches to the study of talk and texts, which have developed from diverse disciplinary traditions. Broadly, discourse analysis is a social constructivist approach to data analysis, which aims to identify the links between knowledge, social processes, and action (Jorgensen and Phillips, 2002). Rather than challenging the validity of the statements arising from the data, discourse analysis seeks to identify the meanings, and the relationships and phenomena they reflect (Roe, 1994).

However, the term 'discourse analysis' is contested (as indeed are the terms discourse and deliberation, see chapter one). The approach taken to discourse analysis depends on the purpose

of the analysis, and how discourse is understood. Gill (2000) suggests that the various approaches to discourse analysis can be categorised into four main "themes" (Gill, 2000:174-176):

i) A concern with discourse itself; discourse analysts are interested in the content and organisation of texts in their own right, rather than only seeing discourse as a pathway to some other reality;
ii) Language as *constructive* – in line with a Habermasian approach to deliberation (see chapter one), discourse analysts focus on what language does not just what language says; language is not just a transparent medium;
iii) Discourse as *social practice* – in line with a more Foucauldian approach to discourse and deliberation (see chapter one) discourse not happen in a social vacuum but is constantly orientated to and influenced by social contexts. Discourse analysts therefore pays attention to both the discourse itself and the interpretive context;
iv) Talk and texts are *organised rhetorically* – much discourse is involved in establishing one version of the world in the face of competing versions, so attention is needed to the ways in which discourses are organised to be persuasive.

All of the above are directly relevant to the study of deliberative processes. By studying discourses arising both during deliberation, and also as the products of deliberation, it is possible to gain insights into how discursive politics can restrict or facilitate inclusiveness in participatory spaces.

Based on these themes, Gill suggests that the various approaches to discourse analysis can be categorised into three broad traditions, differing in how they indentify the relationship between power and knowledge. The first has been developed in critical linguistic work, and has an explicit concern with the relationship between language and politics (Fairclough, 1989; Fowler et al., 1979; Kress and Hodge, 1979). The second broad tradition is influenced by speech-act theory, and stresses the function or action orientation of discourse (Atkinson and Heritage, 1984; Garfinkel, 1967;Myers, 2000). These approaches look in detail at the organisation of social interaction – at what interaction is designed to accomplish. The third body of work is associated with poststructuralists such as Foucault, and looks historically at discourses, rejecting the realist notion that that discourses have a single, coherent subject (Gill, 2000).

The method of discourse analysis taken by this study draws on ideas from each of these approaches and respective themes, but focuses in particular the role of discourse as social practice; specifically, how deliberative outcomes are affected by social and political contexts, rather than only the 'force of the better argument' (Habermas, 1990). The primary method of discourse analysis adopted is Critical Discourse Analysis (CDA), which focuses on:

> Social effects of discourse…[and] historical change: how different discourses combine under particular social conditions to produce a new, complex discourse. (Fairclough 1992:4).

This is appropriate to gleaning an understanding of how and why certain discourses have come to dominate the climate change policy arena, and what impact this has had on enabling inclusive policy making. In order to undertake discourse analysis on the data collected, all interview data was fully transcribed, because,

> Tapes and public transcripts have three advantages compared with other kinds of qualitative data: tapes are public record; they can be replayed and transcripts improved; and they preserve sequences of talk. (Silverman, 1993:34).

Further, the production of a transcript is the first step in the analysis of this material, as noted by Potter (1996),

> Some of the most revealing analytical insights come during the transcription because a profound engagement with the material is needed. (Potter, 1996:136).

The next step in the systematic analysis of texts is "coding", but there are various ways of approaching this, and then of analysing the coded text. Broadly, "coding" describes "the attachment of index words (codes) to unit segments of a record (e.g. an interview transcript or field protocol)" (Bauer and Gaskell, 2000:353). 'Codes' can have a referential function, representing "signposts" to certain text passages (Kelle, 2000:295); or they can have a "factual function", to denote certain facts (ibid). This study adopts the first function for coding, using an inductive style of inquiry to explore the relationship between emerging codes and related contexts. This is different from a deductive style, such as that adopted in methodologies such as "classical content analysis", (Bauer, 2000:132), that seek to quantify the outputs of discourse analysis. It is argued that for the purposes of this study a deductive approach to coding would diffuse the context in which certain statements or 'codes' appeared. These 'contexts' are critical for understanding the circumstances for when and how discourses of risk appear and change. As noted by Rose, "meanings are not discreet…and cannot be counted" (Rose, 2000:258). Instead, insights from the multiple research methods provides the empirical rigour to justify the conclusions drawn from this data.

The act of coding is commonly associated with the early methodological writings of Glaser and Strauss on "grounded theory" (Glaser and Strauss, 1967) (see box 2.2). The analyst can do coding manually, by coding each incident in the data according to as many categories that emerge (Glaser and Strauss, 1967). Alternatively, software programs can be used to support the process of categorising and comparing text segments through 'code-and-retrieve' facilities.

Box 2.2 Grounded Theory

Grounded theory is an approach developed by Glaser and Strauss in their seminal work *The Discovery of Grounded Theory* (1967). Grounded theory implies that a researcher enters their empirical field with no theoretical concepts, and the collection of empirical data and its subsequent coding leads to the emergence of 'underlying patterns' and the subsequent construction new theories.

Grounded theory has been criticised by scholars of modern philosophy on the grounds that researchers never enter the field with no preconceptions. This is acknowledged by both Glaser, who proposes 'theoretical codes' that represent the theoretical concepts that researchers have at their disposal independently from data collection and analysis (Glaser, 1978); and also by Strauss, who proposes a 'paradigm model' (Strauss and Corbin, 1990), in which a 'coding paradigm' represents a general theory of action that can be used to build a skeleton or 'axis' of the developing grounded theory (Kelle, 2000).

This study undertook manual coding rather than using computer assisted coding. A manual approach is more appropriate for the purposes of this study where a relatively 'open' style of inquiry is adopted. It is important that codes are flexible and analysed in their contexts to see if any other meanings simulataneously emerge that could inform the research conclusions. A manual approach allows the analyst to constantly work with the raw data sets, while computer-assisted coding often leads to the alienation of the reseacher with their original data sets, and an over-emphasis on codes versus the contexts of codes (Seidel and Kelle, 1995). A manual apporach also allowed for greater flexibility to accommodate the challenges of coding data from translated interviews (see research challenges, below).

Following insights from grounded theory, but learning from the more recent contributions of Glaser (1978) and Strauss and Corbin (1990) that acknowledge the contribution of an existing theoretical 'skeleton' to the development of codes (see box 2.2), this study coded data sets with categories emerging including: 'Impacts', 'vulnerability', 'participation', 'indigenous knowledge', 'scientific knowledge'; and then sub- or alternative categories emerging from the data as it became familiarised, for example 'vulnerability as a function of poverty', or 'vulnerability as a function of impacts'. More specific categories also emerged, for example in Bangladesh, 'impacts' discourses were characterised by categories of 'floods' and 'storms', whilst in Nepal impacts focused on 'glacial' impacts and attention to 'impacts on agriculture' (see chapters four and five for the paradigm origins of these codes). In both sub-cases, 'development-based' discourses were coded by categories around 'livelihoods' and 'poverty alleviation'. From this, patterns could be

seen from the data that identified different approaches to adaptation, and different understandings of climate change risks, between and within different arenas.

Different perceptions on adaptation were linked to different types of international actors (see chapter 3). The specific analysis of each data set from Bangladesh and Nepal is described in chapters four and five respectively.

2.4 Research challenges and research ethics

Research challenges

One of the major challenges encountered in this research was addressing language barriers in Bangladesh and Nepal, particularly given the importance of analysing discourses in these two countries. This was addressed in part by taking language classes in both countries to familiarise myself with 'the basics' and to be able to communicate to some extent with key informants in Dhaka and Kathmandu. This was especially useful for when I was invited to stakeholders meetings, as I was able to follow the general train of conversation. However, my capacity was limited and I was not able record accurately everything that was said, often turning to other participants for translation. In addition, many of my key informant respondents in Dhaka and Kathmandu spoke excellent English, although I acknowledge that speaking a second language may have effected how respondents interpreted and answered questions.

I faced a bigger challenge conducting field interviews, HH surveys and FGDs in the field sites in Bangladesh, and in accompanying the NAPA field studies in Nepal, as I was unable to communicate well in local dialects. In Bangladesh I enlisted the help of an excellent interpreter who was a student from Dhaka University, Mohammad Ashraful Haque, to assist in conducting interviews and FGDs. In the beginning I encountered some problems with the asking of 'leading' questions when the interpreter felt that he was not getting the 'right' answers. However, my Bengali was good enough to be able to recognise this early on, and after clarifying the need to be open to a range of responses to all research questions, this problem was largely overcome. Another issue was that I often felt that I was not given the 'whole story' of what respondents said, with the interpreter often assuming much information was 'irrelevant'; again I hope that clarification early in the research process addressed this to some extent.

In Nepal, I was following the NAPA thematic working groups all of whom had excellent English so

between us we were able to communicate well and I was able to focus on what was going on. Observing their FGDs and interviews was challenging as I did not have an official interpreter, however I was almost always assisted by a different member of the field team, again acknowledging that some information would have been 'lost in translation'.

The issue of translation was raised again when it came to conducting discourse analysis on the transcribed interviews and FGD discussions. I tried to address this by ensuring that coding categories were basic, broad and flexible, to avoid miscategorising information. Where I was unclear I asked for assistance from Bangladeshi or Nepali friends or colleagues about what terms actually meant. Asking a few people meant that I was fairly confident in the interpretations I arrived at.

Another challenge I faced particularly during my fieldwork in Bangladesh, was that of being female and also a foreigner. On the issue of gender, Bangladesh is predominantly Muslim and I had to ensure that I was respectful of expectations for women to behave conservatively particularly in my field sites. I wore a salwar kameez and a headscarf at all times and ensured I was sensitive to other gendered expectations. At the same time, I also faced the challenge of having a male interpreter, which may have impacted on the dynamics of FGDs and key informant interviews especially with women.

It was also a challenge being a foreigner conducting research as my time in Noakhali raised many expectations of future donor investments, and I often felt people responded to questions with this in mind. I was careful to repeatedly state that this was a research project and that it would not be followed up with investment. However, I also acknowledged that people were giving up time to participate. As such I ensured that food and tea was provided including for respondents families, and tried to ensure that the timings of FGDs did not coincide with other commitments of respondents so as to minimise the costs of participation (see box 2.3)

Box 2.3: Sampling challenges

Internationally

Selection of key informants at the international level was limited by time and availability of interviewees. The combination of attendance at the UNFCCC meetings and other international conferences on adaptation meant that I was able to encounter a diverse group of international adaptation actors. However, the availability of different actors was limited by time, and also interest. This may have added some bias to the kinds of responses: for example, those actors who wanted to contest a "dominant" adaptation paradigm had more interest in speaking to me. Those who may not have seen this as a relevant issue had less interest in being interviewed.

In Bangladesh

At the national level in Bangladesh, I was able to access NAPA sectoral working group members by contacting them directly in Dhaka (their contact details are presented in the NAPA document itself). While all interviewees were busy, I managed to interview most NAPA sectoral working group members at least twice by being responsive to their availability. Over time, I developed a good relationship with many of the actors involved, who became interested in the study and welcomed the opportunity to air some of the frustrations they had experienced along the way.

Gaining access to government stakeholders was more challenging. The MOEF members were extremely busy and also, at first, cautious about being interviewed on the process. My connections through the Bangladesh Centre for Advanced Studies (BCAS) who hosted me for much of my time in Dhaka helped significantly in getting me introductions to MOEF members. However, I had to be opportunistic at getting Government time, ensuring I could be ready at short notice when they were available for interview. This meant a great deal of time spent in Dhaka and a number of cancelled appointments. Many of the interviews that were carried out took place in cars as I was able to accompany Government members as they travelled to and from much more important engagements!

In Noakhali, many sampling challenges were encountered. Noakhlai is divided into six Upzilas (sub-district levels) and five municipalities (see chapter 5 for more details). Two Upzilas were selected as sites for detailed field work, Noakhali Sadar and Subarnochar. These Upzilas were selected because they were cited as the two priority sites for implementation of the NAPA priority project.

Within each Upzila, "key informant" interviewees were selected based on recommendations from the local facilitating NGO, SDC, who were kind enough to link me with local government officials, other NGOs in the area, and key community-based organisations. This method of sampling of course carried limitations because those interviewees initially selected were those who were linked to SDC. However, with each interview I also asked about other "key informants" who should be interviewed in the area, and stayed in Noakhali long enough to be able to follow-up on all suggestions. This ensured I had adequate breadth of KI interviewees and was not only relying on one source for recommendations.

HH survey selection was done according to "livelihood zones" that were fairly clearly marked in each Upzilla. This was on the suggestion of local district officers who suggested that I should ensure I get a balance of fishing and agricultural livelihoods in my sample. Within each livelihood zone, HH selection was random based on availability of HHs for interview. However, I was careful to ensure a balance of women (and a representation of female headed households) as well as landless. I was guided to these households by other members of the community.

FGDs were facilitated by the local NGO who was helping me to facilitate my trip. This meant that selection of FGD discussants may have been biased towards those who were familiar to the NGO. I made specific requests to try to reach out to those who were not part of NGO programmes, and who were known within the community to be among the poorest and most excluded. Although by definition these were also the least well-known individuals in the community, after some 'digging around' people seemed to agree on who those individuals were and where they resided.

To encourage attendance, FGDs were held at a time of day to minimise the inconvenience of participation for attendees. I gathered information about what different times would suit different groups and arranged FGDs accordingly. Food and tea was provided for FGD participants and, during the women-only FGD, for their families. This is because one of the major activities that women were taking time away from to participants was food preparation for their families.

In Nepal

In Nepal, the sampling challenge was different. As I was working within the Ministry of Environment, I was constantly in contact with key government, NGO, donor and multilateral agencies. This represented an extremely wide range of actors working on shaping climate change policy and discourse in Nepal. However, I had to actively seek out individuals who I was not in frequent contact such as those from other Ministries within Government or other members of civil society to ensure I got a balanced view of climate change policy in general, and NAPA in particular, and that my view was not biased only interviewing actors directly engaged in the process.

At the field level in Nepal my sampling approach was limited to that taken by the NAPA team. However, the Nepal study in this thesis examines the approach to fieldwork taken under the NAPA as the subject of the study itself, rather than focusing on the outputs of the fieldwork.

Research ethics

In Nepal my dual role as a researcher and also a consultant gave me unprecedented access to the workings of the NAPA team and the internal processes and politics of NAPA development. However, this also raised a range of complex ethical issues faced by many practitioners of active participatory observation. A key concern is that the researcher is open about their role and objectives as an observer of the processes in which they are participating. Earlier debates around the ethics of participatory observation centred around a contrast between the participant-as-observer (playing an open observing role), and the complete participant (in which the role of observer is disguised (Bulmer, 1982:251).

These concerns were taken on board from the outset of the case study research. The main purpose of my presence in the NAPA team was to support the NAPA team, but my identity as a researcher was made clear from the beginning. Indeed, a prerequisite of providing support to the NAPA team was that I would also be acting in my capacity as a researcher and would be able to use material and information gleaned during the process for the purposes of this thesis. This approach yields information that otherwise would not have been available directly in such detail had more conventional research methods been used. However careful planning and an open and honest approach to the study ensured that this was an advantage for the purposes of this study, rather than presenting a conflict of interest.

A second issue to raise is that my dual role as part of the NAPA team and also independent researcher, may have influenced the actual process of the NAPA development. My NAPA colleagues were aware of the nature of my study, and so may have been keen to ensure that my research showed Nepal to take a 'more inclusive' approach; further, I inevitably shared the lessons from my work in Bangladesh with colleagues, so my presence cannot be ruled out as a variable in the circumstances that may or may not have resulted in Nepal taking a more inclusive approach to adaptation policy making in Bangladesh. This potential influence is acknowledged in this study, and is incorporated into the discussion of results.

Finally, my role as both NAPA team member and researcher may have influenced the objectivity of my data analysis. I am aware of this and have made every effort to ensure objectivity in my research reporting. I nevertheless recognise this as a potential issue.

Chapter 3: Understanding Adaptation[10]

> *"Adaptation' has been taken out of the epistemological waste basket where it has lain as an unacceptable, even politically incorrect idea…The downside is that it may be overwhelmed by its own popularity and all meaning slowly leak out of it".*
>
> Burton, 1994:14.

3.1 Introduction

The aim of this chapter is to demonstrate why the tensions between risks that have come to be defined as 'local' and 'global', matter for the effective and inclusive governance of adaptation. This chapter will take forward the themes introduced in chapter one around the politics of risk and expertise, and apply them to the governance of adaptation.

First, this chapter will draw on debates from natural hazards and development literatures to explore the multiple interpretations of "vulnerability" and "adaptation", that have given rise to different (and in some cases conflicting) perspectives on what constitutes climate change risk, and what adaptation to this risk looks like.

Second, this chapter combines a review of the literature around climate change policy, with new data gleaned from the detailed analysis of climate change and development texts, and key-informant interviews. This analysis examines how different approaches to climate change risk have been operationalised in the adaptation governance architecture, to address the questions:

- What is the evidence that conflicting definitions of risk across scales inhibit inclusive adaptation policy making?; and

Under what circumstances is local inclusiveness achieved under international climate change policy frameworks? This analysis looks at both at the formal climate change governance framework for the UNFCCC and its associated bodies; and also at development institutions which have started to take up adaptation as a policy agenda.

3.2 What is adaptation? Dissecting the anatomy.

"Adaptation" is now well established as a legitimate response to climate change; yet, there is little consensus within the climate change and development community over what adaptation means, and how it should be opertaionalised (Ayers and Dodman, 2010; Doria et al., 2009; Füssel, 2007;

[10] Sections of this chapter have been adapted for inclusion in Ayers, 2009; and Ayers and Dodman, 2010.

Smit et al., 2000). In an influential paper for adaptation discourse and policy, "An anatomy of Adaptation to Climate Change", Barry Smit and colleagues (2000), suggest that while there is general agreement that interpretations of adaptation include,

> Adjustments in a system in response to actual or expected climatic stimuli … [different interpretations] also indicate differences in scope, application and interpretation of the term adaptation. (Smit et al.,2000:228).

Variations include "adaptation to what?" Which can refer to simply climate, climate variability, or climate change; "Who or what adapts?" Which might be people, social or economic sectors, processes, or system structures; and how does adaptation occur? For example is adaptation planned or reactive, and what is the related outcome? (Ibid). This section will review the various definitions of adaptation from both the biological and social sciences. Particular attention will be paid to the assumptions (related to vulnerability, resilience, and adaptive capacity) that underscore different perspectives on adaptation, and the implications these have for how adaptation is understood and analysed.

Defining adaptation

The term "adaptation' has been applied to both biological and social cultural systems. The *Oxford English Dictionary* (OED) provides the following definitions: "Organic modification by which an organism or species becomes adapted to its environment"; and, "The process of modifying a thing so as to suit new conditions".
OED provide the following example of the latter definitions:"Man has unrivalled powers of self-adaptation" (Kingsely, 1846, cited OED, www.oed.com).

Adaptation is therefore a process of change in response to changing circumstances or situations, to become better suited to those new circumstances or situations. A central concept is one of a change in state (or behaviour) that takes place in response to a change in environment. Several authors have drawn parallels between biological and social adaptations in relation to climate change (cf. Burton, 1994; Kates, 2009; Moench, 2009; Schipper and Burton, 2009), which have been influential for understanding how adaptation to environmental risks could occur. For example, in the *Origin of Species,* Charles Darwin introduces the theory of "natural selection", in which certain characteristics of organisms make them more likely to survive and reproduce, thus increasing the prevalence of those characteristics in the next generation. A change in the

environment brings about new 'selection pressures' that favour certain characteristics over others. Those organisms that have favourable characteristics in any particular environment are 'better adapted', more likely to survive, and reproduce.

Applying these principles to social systems, Moench (2009) suggests that, on a conceptual level, 'selective pressures' exist that can drive adaptation. Moench argues that the nature of selective pressures in social systems and the ability of different entities (households, individuals, businesses) to adapt to them vary greatly. Entities that exist in contexts where they have access to either key financial or other resources, or key inputs (for example labour, energy, water, agricultural) can,

> Evolve in ways that maximise their ability to capture, minimise dependency on, or make efficient use of scarce inputs. Often this evolution involves proactive (agency driven) courses of action undertaken by individual agents in response to opportunities and constraints emerging from the selection pressures encountered. (Moench, 2009:252).

Such comparisons between biological and social adaptations are a convenient conceptual tool for understanding adaptive processes; however, they are also rather forced. Significantly, 'natural selection' is not directional; organisms do not 'plan' for or 'manage'' adaptations. Genetic mutations that mean one organism is better suited to an environment than another, are random and not pre-selected or accrued in anticipation of a changing environment. Biological adaptation therefore cannot be planned or proactive.

By contrast, in social adaptation the capacity to respond is not 'inherent' but, as Moench indicates, a function of the social, political, economic and cultural circumstances that mean one has the resources to respond, and then *chooses* to do so in a particular way. Further, choices of how to respond are rarely influenced by calculations of the number of children a person wishes to have; this is another social choice that may be equally mediated by social, economic and cultural circumstances, but the two are not necessarily related. So, adaptive choices made by people do not necessarily result in more offspring surviving to the next generation; indeed, more affluent societies tend to show a preference for smaller family sizes.

Acknowledging the biological evolutionary roots of the term 'adaptation' is, however, useful in some respects. For example, it highlights the importance of the characteristics of organisms in determining their capacity to adapt to a changing environment. This concept of 'adaptive capacity' will be returned to later in this chapter. However, drawing a distinction between biological and

social adaptation is important, not least because of the connotations of 'social Darwinism' and the associated social philosophy of 'survival of the fittest' for social governance (Burton, 1994). Schipper and Burton (2009) suggest that so negative were the connotations of 'adaptation' in the context of the social sciences, that Gilbert White rejected the term in favour of 'human adjustment', in his pioneering book *Human Adjustment to Floods* (White, 1945).

Schipper and Burton suggest that in the years that followed, the concept of human adjustment became associated with other expressions such as 'coping', 'risk management', 'vulnerability reduction' and 'resilience'. The authors state that it was not until 1992 that the text of the United Nations Convention on Climate Change (UNFCCC), drafted at the Earth Summit in Rio de Janeiro, settled once again on the word 'adaptation' (Schipper and Burton, 2009:1). Since then, adaptation to climate change has been interpreted in a variety of different ways. Box 3.1 presents some examples from the range of definitions that have emerged for climate change adaptation.

Box 3.1 : Definitions of adaptation to climate change
Source: Adapted from Smit et al., 2000: An anatomy of adaptation to climate change.

Adaptation to climate is the process through which people reduce the adverse effects of climate on their health and well-being, and take advantage of the opportunities that their climatic environment provides. (Burton, 1992).

Adaptation involves adjustments to enhance the viability of social and economic activities and to reduce their vulnerability to climate, including its current variability and extreme events as well as longer term climate change. (Smit, 1993).

The term adaptation means any adjustment, whether passive, reactive or anticipatory, that is proposed as a means for ameliorating the anticipated adverse consequences associated with climate change. (Stakhiv, 1993).

Adaptation to climate change includes all adjustments in behaviour or economic structure that reduce the vulnerability of society to changes in the climate system. (Smith et., al., 1996)

Adaptability refers to the degree to which adjustments are possible in practices, processes, or structures of systems to projected or actual changes of climate. Adaptation can be spontaneous or planned, and can be carried out in response to or in anticipation of change in conditions. (Watson et al., 1997).

As Smit et al., point out, all of the above definitions refer to adjustments in response to, or in light of, climatic stimuli. However, there are differences in scope and application; for example, returning to the earlier set of questions laid out by Smit et al., *adaptation to what*? Is interpreted as climate change (Watson et al., 1997), climatic variability, or just to climate (Smit, 1993); as well as in response to adverse effects (Stakhiv, 1993), vulnerabilities, or opportunities (Burton 1992 and Smith et al., 1996).

These different definitions of climate change reflect the different ways in which global environmental changes can be interpreted more generally. For example, Turner et al., (1990) suggest that there are "two types of global environmental change"; "systemic global change", that operates through the major changes in the geo-sphere/biosphere; hence climate change is the result of a globally emitted greenhouse gasses that will have a global impact as a direct consequence of these gasses. The second is "cumulative global change", which represents the global through the accumulation of localised changes; in terms of adaptation, this perspective suggests that the impacts of climate change will be felt locally and should be managed locally. In terms of the definitions above, Watson's definition draws from a systemic perspective; adaptation is a response to the specific impacts of climate change that are the result of global greenhouse gasses. Burton, on the other hand, takes a cumulative approach; the impacts of climate change will be felt differentially at the local level, and should be managed as such (Burton, 1992).[11]

Thus, as Pelling (2008) suggests, it depends who you ask; how risk is understood depends on the risk paradigm of the person doing the defining. For example, in the study by Doria et al., (2009) discussed in chapter 1, which uses "expert elicitation" to develop a definition of "successful adaptation", the authors state that "expert respondents"[12] coalesced around the following definition based on risk and vulnerability:

> Successful adaptation is any adjustment that reduces the risks associated with climate change, or vulnerability to climate change impacts, to a predetermined level, without compromising economic, social, and environmental sustainability. (Doria et al., 2009:810).

However, the process of arriving at this raised many issues among respondents. For example, Doria et al., noted that there were significant differences in the backgrounds of respondents who felt that 'mitigation' should be included in the definition of adaptation (only 50% of economists felt mitigation was relevant, but 80% of environmental scientists thought this was). Respondents also questioned *who* should determine the "predetermined level", and how it could be possible to ensure that any adaptive action taken by any one social unit, did not compromise the economic, social and environmental sustainability of another (Doria et al., 2009).

[11] Although Burton has gone on to point out that the "adaptation is local mantra" is decreasingly valid as climate change impacts, and ways of governing them, cross localities (Burton, 2008).

[12] Doria et al., (2009) state the "expert group" was identified using a sampling procedure to identify experts working with or studying climate change adaptations. 54% of the group described themselves as environmental economists, 27% as environmental scientists, and 19% in other occupations.

By extension, defining adaptation also depends on who the intended "adaptors" are (Doria et al., 2009:816), which in return may be constrained by the definition. For example, a focus on climate impacts would point towards those most exposed to climate hazards as the targets of adaptation support; whilst more vulnerability-focused criteria may target 'the poorest' as 'the most vulnerable'. And indeed, who gives "the experts" the right to decide, and how are these "experts" selected? The Delphi approach taken by Doria et al., is one possible approach; other influential groups of "definers" include the IPCC; the Secretariat of the UNFCCC; those financing or managing the adaptation finding streams who may lay claims to a rite to decide how their money is spent. Yet as discussed in chapter one and will be further elaborated in section 3.3, all "expert bodies" hold their own assumptions about risk, and implications for inclusion and exclusion. The key point is that any definitions of adaptation, and its consequences for how adaptation is operationalised, are highly politicised decisions that are not taken based on neutral assessments of vulnerability.

Thus, while there is a seemingly broad consensus that adaptation to climate change, should reduce vulnerability to climate change risks; assumptions around "adaptation to what?" differ widely and depend on *how vulnerability* is understood, and therefore what is meant by climate change 'risk'.

Vulnerability, resilience, and adaptive capacity: Insights from disaster risk reduction

The term "vulnerability" is equally loaded with conflicting interpretations that have implications for how adaptation – or 'vulnerability reduction' - is realised. The field of disaster risk reduction has paid a great deal of attention to defining vulnerability and adaptation to hazards, and the relationship between them. Drawing on these insights, "vulnerability" is broadly understood as "being prone to or susceptible to damage or injury" (Blakie et al. 1994:9); but beyond this, vulnerability analysis is often polarised into hazard-risk, or social constructivist frameworks (Ribot, 2010).

From a 'hazard-risk' perspective, people are vulnerable when they are exposed to a hazard. "Hazard" here refers to biophysical risks, for example in the case of climate change, rising sea levels, drought, increased frequency of storms of cyclones. A hazard-risk perspective takes the hazard as the starting point of vulnerability analysis, and targets vulnerability reduction strategies specifically at the hazard in question. Vulnerability is therefore taken as a function of the extent to which a system is exposed to a hazard (Watson et al., 1997). Such hazard-specific approaches to risk management have in many cases been successful in terms of saving lives and reducing

property damage in light of 'natural' hazards. Handmer (2009) points to the success stories of shelters built in response to sea flooding that have saved thousands of lives in Orissa, India (Sparrow, 2001).

However, Handmer also points out that the success of hazard-specific interventions depends a great deal on both adequate resources and appropriate governance arrangements to channel these resources. Handmer suggests that such measures often do not tackle the 'underlying causes' of vulnerability – why people need such interventions, why they are so exposed to the hazard in the first place. As Blakie et al., (1994) point out, it is social systems that create the conditions in which hazards have an impact on various societies and different groups within a society. For example, the Netherlands and Bangladesh are 'exposed' to a similar hazard of sea-level rise under climate change, both being flat and low-lying countries. Yet, the Netherlands has an extensive and well-developed dyke network to protect its coastal shoreline, while Bangladesh, being one of the Least Developed Countries, does not have the resources or capacity to build adequate sea defences to protect its population in the same way.

An alternative 'social constructivist' model of vulnerability has emerged from the food insecurity and natural hazards literature. In their seminal work, *At Risk: Natural Hazards, People's Vulnerability and Disasters*, Blakie et al., argue that biophysical hazards do not present a uniform risk to everyone; vulnerability is determined not by the nature of the hazard, but by the social, economic, and political processes that determine how hazards effect people. The authors argue that "vulnerability" involves a combination of:

> Factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and identifiable event in nature or society…[key characteristics include] class, caste, ethnicity, gender, disability, age, or seniority. (Blakie et al., 1994:9).

This definition of vulnerability differs significantly from a hazard-risk approach; the 'risk' is not determined by the hazard itself, but by the social factors that make people vulnerable to that hazard. Interestingly, Kelly and Adger (2009) emphasise the role of social factors in determining vulnerability by tracing back the linguistic roots of the term "vulnerable" to "*vulnerabilis"*, the term used by the Roman to describe a wounded soldier 'vulnerable' to further attack. In this classic sense, *vulnerabilis* is defined primarily by the prior damage done to the soldier (the existing wound), and not by the future stress (the risk of further attack); thus, by extension, a person is vulnerable not because of the risk of future stress, but because of their capacity to manage that

stress (Kelly and Adger, 2009:163). The authors therefore reinforce Blakie et al.'s interpretation of vulnerability, defining it as:

> The ability or inability of individuals and social groups to respond to, in the sense of cope with, recover from or adapt to, any external stress placed on theory livelihoods and well-being. (ibid).

This interpretation of vulnerability that places an emphasis on the characteristics of a person and their situation to cope with an existing or expected hazard, is closely tied in with the concept of 'adaptive capacity'. Adaptive capacity has been defined as:

> The ability of a community (or country) to adapt to climate change…the inherent or existing capacity of a community or country as a whole to cope with climate impacts. (Huq and Reid, 2009:315).

From this perspective, adaptive capacity is the inverse of vulnerability; the greater the adaptive capacity, the less vulnerable people will be to climate change risks, and the easier they will be able to respond. Similarly, Anderson and Woodrow discuss "capability", as the ability to protect one's home, family, and community, and to re-establish one's livelihood. Importantly, underlying adaptive capacity is not something that has been developed in response to climate change risks; going back to the earlier comparison between biological adaptation, and adaptation to climate change, adaptive capacity is not directional. However, hazards that may or may not be associated with climate change expose areas of low adaptive capacity. Thus, enabling adaptation to climatic and non-climatic risks means paying attention to and addressing the factors that undermine adaptive capacity. From this perspective,

> [In supporting adaptation] we need to consider what is undermining adaptive capacity or making people more vulnerable. Without doing this we may be attempting to provide a solution to the wrong problem. (Handmer, 2009:218).

These concepts of adaptive capacity and capability are underpinned by 'resilience': the more resilient a unit, the greater its capacity to adapt, and so the less vulnerable to any existing or impending hazard; by extension, if adaptation is about reducing vulnerability, then adaptation needs to improve adaptive capacity in order to build resilience to climatic, and other, hazards.

However, like 'vulnerability', both 'resilience and 'adaptive capacity' have also been used by different actors with varying degrees of focus on hazard-risks and social-vulnerability. For example, in their paper *Building Resilience,* Dodman et al., (2009) show that when applied in engineering, resilience means the ability of a material to return to its original state after being subjected to a force; similarly in ecology it often means the time taken for a system to return to a state of equilibrium. Both of these meanings have been applied to human systems, in an analysis that focuses on the ability of individuals, households, and nations to return to 'normal' after disrupting events. The legacy of these definitions can also be seen in the Fourth Assessment Report of the IPCC, that defines resilience as,

> The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change. (IPCC 2007:880)

But, as Dodman et al., ask, is resilience of this type really desirable? Is adaptation simply a return to the "same basic structure" in which those who are vulnerable to climatic hazards still vulnerable to future hazards? Indeed, other critics have argued that such strategies are more 'coping' than 'adaptation' (Davies, 1993; Schipper and Burton, 2009). As Davies (1993) points out, 'coping' is based on short-term responses to environmental stresses that eventually prove to be unsustainable, through the depletion of assets, ultimately increasing long-term vulnerability and potentially proving 'maladaptive'.[13] With this in mind, the Dodman et al., suggest it is more appropriate to consider resilience as a process, as a way of functioning, that enables not only coping with added shocks and stresses, but also addressing the myriad challenges that constrain lives and livelihoods (Dodman et al., 2010).

Frameworks for integrating hazard-risks and social-vulnerability approaches

A 'risk hazards' approach and a 'social-vulnerability' approach describe two aspects of vulnerability: the hazard itself (or exposure to that hazard); and the factors that make a person vulnerable to that hazard. This is summarised by Blakie et al., 1994:

[13] Sattherthwaite et al., (2009) defines Maladaptations as: "actions or investments that enhance rather than reduce vulnerability to impacts of climate change. This can include the shifting of vulnerability from one social group or place to another; it also includes shifting risk to future generations and/or to ecosystems and ecosystem services. In many cities, investments being made are in fact maladaptive rather than adaptive. Removing maladaptations is often the first task to be addressed, even before new adaptations."

> There is no risk if there are hazards but vulnerability is nil; or if there is a vulnerable population but no hazard event (Blakie et al., 1994:21).

For example, Füssel and Klein, state that vulnerability to climate change has:

> An external dimension, which is represented…by the 'exposure' of a system to climate variations, as well as an internal dimension, which comprises its 'sensitivity' and its 'adaptive capacity' to these stressors. (Füssel and Klein, 2006:306).

Some authors from the fields of natural hazards and also climate change adaptation have therefore called for a more integrated model of vulnerability assessment that links the social-constructivist models of the factors that determine vulnerability, with the hazard-risk concepts of the threat of biophysical risks on social systems (Blakie et al., 1994; Füssel and Klein, 2006;Ribot, 2010).

One model for integration discussed by Blakie et al., (1994) is the "Pressure And Release" (PAR) model. The basis for PAR, is that a disaster is at the intersection of two opposing forces: processes that generate social vulnerability on the one side; and the physical exposure to the hazard on the other. If either one force is increased, the pressure builds up and the severity of the impact on people – the 'risk' – is correspondingly exacerbated. Targeting actions at reducing vulnerability would therefore release the pressure, and reduce the risk of the hazard.

However, as Blakie et al., (1994) point out, such models create a false separation of hazards from the social system, and the outcomes of such analyses depend entirely on how boundaries are drawn around the hazard-aspects and vulnerability-aspects of the system under analysis (Ribot, 2010). Instead, Blakie et al., suggest that hazards are deeply intertwined with human systems, affecting the patterns of livelihoods and assets that in turn determine vulnerability to hazards. To avoid drawing such false dichotomies between 'hazards' and 'vulnerability', Blakie et al., propose a livelihoods-based framework, which has since been taken up and further developed by a range of scholars in the natural hazards literature (see Cannon, 2000; Adger et al., 2009; Ribot, 2010; Sen, 1999). By livelihoods, the authors mean:

> The command an individual, family, or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks, legal rights, as well as tools, land, or other physical resources. (Blakie et al., 1994:9).

Blakie et al., further develop a livelihoods approach by emphasising the importance of "access" to resources and assets that determine livelihoods, defining "access" as:

> The ability of an individual, family, group, class or community to use resources which are directly required to secure a livelihood. Access to these resources is always based on social and economic relations, usually including the social relations of production, gender, ethnicity, status, age…less access to resources, in the absence of other compensations to provide safe conditions, leads to increased vulnerability. (Blakie et al., 1994: 48).

For example, Pelling and High (2005) and Pelling (2008) highlight the role of social capital[14] as a key asset that people are able to draw upon in times of stress to protect their livelihoods. Where social capital is weak, the authors argues this can impact directly on livelihood recovery. Pelling (2008) cites the example of the aftermath of Hurricane Mitch, in which widespread looting, on top of disaster losses, has been used to explain the slow rate of formal labour market re-entry in Nicaragua and Honduras (Delany andShrader, 2000; cited Pelling, 2008:7). Social capital is also vital for enabling access to other assets, for example strong social ties enable people to call on others for assistance such as loans or shelter to prevent them having to 'cash-in' material capitals that would be essential for livelihood recovery; strong social engagement with formal and informal governance structures to access social safety nets.

Building on livelihoods and asset-based approaches, scholars from DRR and development studies have described an "entitlements" approach, (Adger and Kelly, 1999; Kelly and Adger, 2009; Sen, 1990), which describes the extent to which individuals, groups, or communities, are 'entitled' to make use of resources. This entitlement in turn determines the ability of that particular population to cope with or adapt to stress. Both 'livelihoods' or 'entitlements' approaches analyse the underlying sensitivity and resilience of individuals, households, livelihoods systems, or, sometimes, linked human-biophysical systems. From this perspective, vulnerability is the risk that a household's commodity bundles will fail to buffer them against hunger, dislocation, or other losses (Ribot, 2010). Vulnerability is therefore lower when livelihoods are adequate and sustainable. Kelly and Adger (2009) suggest the factors that shape livelihoods and entitlements include poverty; inequality; and institutional context (see box 3.2).

[14] Social capital is the power that exists in myriad social relationships and is normalised through and contingent on social context (Pelling and High, 2005:2).

Box 3.2: Key characteristics that shape livelihoods and entitlements
Source: Adapted from Kelly and Adger, 2009:166.

Poverty is directly related to access to resources and the process of marginalisation (though wealth itself is not a guarantor of security as resources are mediated through property rights and so on)

Inequality within a population can heighten collective vulnerability, all other things being equal. Greater inequality may be associated with a reduction in communal resource allocation and in the pooling of risk and other social phenomena. There are also strong links between inequality and a lack of diversification of income courses as well as with poverty.

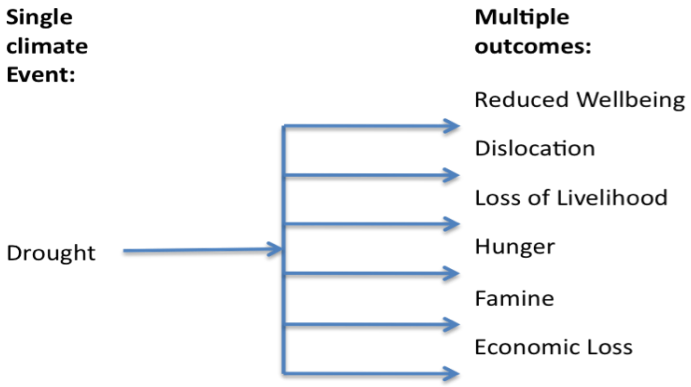
*Institutional contex*t. Poverty, the use of resources, and the distribution of wealth, are all institutionally determined. For example, formal political institutions devise and implement the legal enforcement of property rights, and all economic structures can be viewed as dependent on the institutional structure that frames them.

Assessing 'risk' and doing adaptation

The different frameworks for understanding risk determine how vulnerability is analysed, and how adaptations to risk are assessed. A hazard-risks model for climate change risk takes climate change impacts as the starting point of vulnerability analysis, giving rise to the 'impacts-based' to adaptation introduced in chapter one. An 'impacts-based' approach specifically seeks to address the existing and future impacts of climate *change*. An impacts-based approach is often the basis of 'planned adaptation', which is a proactive response to anticipated climate change, in response to externally generated information about specific climate change impacts that is used to plan for and review the suitability of current and planned adaptive practices, policies and infrastructure (ISET, 2009).

Conceptually, a 'purely' impacts-based approach to adaptation would give rise to "stand-alone adaptation" (Ayers and Dodman, 2010), or "discrete adaptations" (McGray et al.,2007): actions specifically targeted at climate change impacts only, for example coastal infrastructure in response to sea level-rise; irrigation systems in response to increasing drought, with no bearing on risks that stem from any other factors. In practice, however, an impacts-based approach does acknowledge some role for social vulnerability in shaping risks, because it is practically impossible to separate out completely a hazard from its context. As such, the starting point for analysis is the climate change hazard, and social vulnerability analysis is one of a number of factors assessed further down the line, which determine the extent of the impact (see figure 3.1). As Ayers and Dodman suggest, an 'impacts-based' approach to integrating adaptation and livelihoods approaches can be understood as "adaptation plus development": The role of livelihoods in vulnerability is acknowledged; but 'adaptation' is an additional need to already existing development needs, caused by the 'additional' stressors of climate change on development.

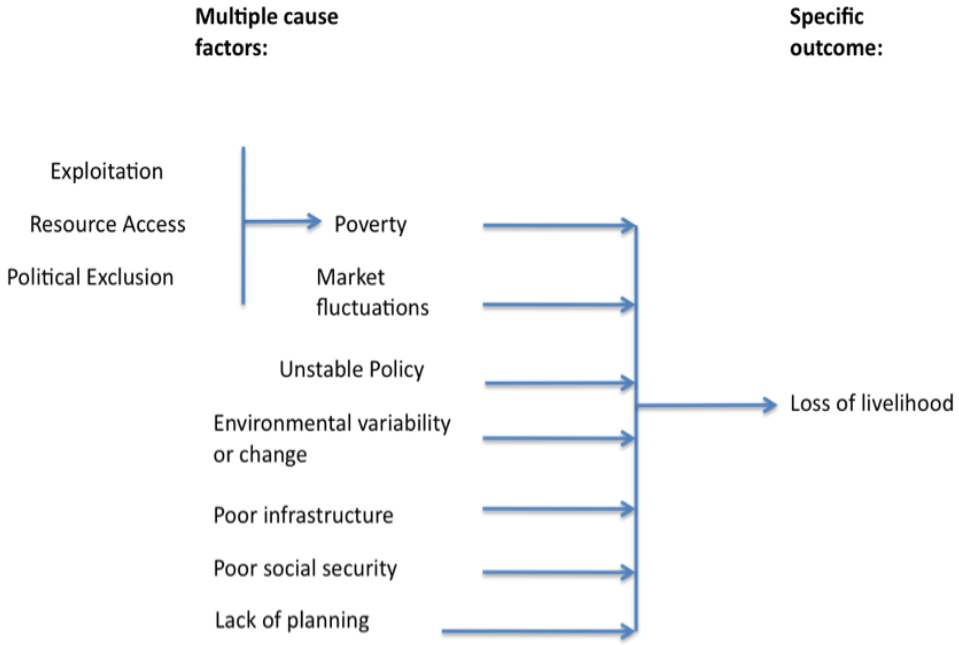
Figure 3.1: Impact analysis approach to risk assessment
Source: Ribot, 2010



This approach to risk assessment requires information about the current and expected nature of climate change risk; and the additional risk climate change presents to existing vulnerabilities. As shown in chapter one, an impacts-based risk analysis requires specific technical and externally generated information and expertise on existing and future climate change impacts.

On the other hand, a livelihoods model takes social vulnerability as the starting point for any impact analysis. So it is these underlying factors that would need to be assessed, analysed, and addressed in order to reduce vulnerability to climate change and other stresses (see figure 3.2).

Figure 3.2: Vulnerability analysis approach to risk assessment
Source: Ribot, 2010



As described in chapter one, assessing the factors that make people vulnerable requires a more participatory approach to risk analysis, in order to understand patterns and constraints of resource entitlements and access to these. Many scholars have pointed to the importance of understanding "autonomous adaptations" as part of adaptation analysis. Autonomous adaptations are actions that people would be expected to take in response to changing environmental stresses regardless of external (financial or technical) assistance; 'what people do anyway'. Adger et al., (2009) discuss a 'paradox' that although people in developing countries are cast as 'victims' of climate change, in the past they have shown the greatest resilience to floods and droughts, and have coped with these climatic challenges. The authors argue:

> Since climate is inherently variable for quite natural reasons, human societies have always and everywhere had to develop coping strategies in the face of unwelcome variations including climate or weather extremes (Adger et al., 2009:296).

The authors therefore call for a new research agenda for adaptation that builds on existing coping strategies, and strengthens these in relation to climate change impacts.

Outcomes of a livelihoods-based risk analysis would inevitably involve adaptation interventions that overlap strongly with development approaches. Burton (2004) suggests that analysing vulnerable communities would reveal an existing "adaptation deficit", which is the existing capacity of many vulnerable countries and groups to cope with and adapt to *existing* climate risks. Burton suggests that any climate change adaptation programme would need to reduce this deficit to increase people's resilience to climatic variation more generally, before they can adapt to future climatic changes. Such insights have led some scholars to conclude that much adaptation simply represents a practical means of achieving sustainable development. As stated by Huq and Ayers (2008),

> Good (or sustainable) development (policies and practice) can (and often does) lead to building adaptive capacity. Doing adaptation to climate change often also means doing good (or sustainable) development (Huq and Ayers, 2008:52).

For example, in relation to a case study of reducing the risk of storms and cyclone hazards for vulnerable groups in Vietnam, Kelly and Adger (2009: 180) propose that possible adaptive outcomes from a social-vulnerability analysis might include: making poverty reduction a priority (bearing in mind the need to also address issues of access); risk spreading through income diversification; and addressing land and common property management rights. Such interventions

could well be part of a development programme irrespective of climatic risks. Ayers and Dodman (2010) describe this development-based approach to doing adaptation, as "adaptation *as* development": there is little distinction between vulnerability reduction measures undertaken for climate change versus those undertaken to fulfil basic development objectives.

This latter perspective has been criticised by some climate change scholars who suggest that the role of hazards in defining risk could become too marginalised, proving problematic particularly for practical issues of governance and finance (as will be demonstrated later in this chapter) (Khris Ebi, IPCC, personal communication, February 2009). If climate change adaptation is simply good development, what makes it adaptation? Significantly, it is argued that much existing development will become unsustainable under changing climatic conditions, so 'development as usual' is not enough in light of a changing climate context. For example, where the rate of change or extent of climatic stress is unprecedented and new information or expertise is necessary; or where large-scale technological or infrastructural solutions may be required that are beyond the capacity of development institutions to manage. Undertaking 'business as usual' development that does not take into account potential climate change impacts on those interventions may prove maladaptive in the long term. For example, investing roads and communication infrastructure in coastal areas would encourage settlement in those areas; however, sea-level rise may mean that such settlements will untenable in the long term.

Other scholars have argued that treating adaptation as development places too great an emphasis on autonomous adaptation strategies risks undermining the agenda for much needed additional support for adaptation. In relation to the claim that "poor people adapt anyway", Kates argues;

> Yes, but with great difficulty and much pain…the social costs of adaptation have been enormous. (Kates, 2009:292)

Burton argues that under climate change, the 'adaptation deficit' will be exacerbated; so although there is evidence to support claims that adapting to current climate variability will increase adaptive capacity to future climate change, existing adaptations still need to be 'climate proofed' against future eventualities.

Following on, Manuel-Navarrete et al., (2009) suggest that attention is needed to what kinds of development and 'development for whom' need to be considered. The authors show that with the widely acknowledged need to integrate climate change and development, come assumptions about development trajectories that are often based on "monolithic claims about development

constructed from the status quo of global capitalism" (Manuel-Navarrete et al., 2009: 1). The authors suggest that approaches to integrating adaptation into development need to consider not only uncertain climate change futures, but also alternative development discourses that may give rise to different adaptation and development priorities for different groups.

Thus, differing interpretations of 'vulnerability' translate into different approaches for assessing climate change risk, which in turn give rise to alternative approaches to adapting to that risk. Ayers and Dodman (2010) suggest that different perspectives on climate change risk have given rise to three broad approaches to adaptation: "stand-alone" adaptation, where 'risk' is interpreted as climate change, and adaptation targets specific climate change impacts only; "adaptation *plus* development", where climate change impacts are the starting point of risk assessments, but the role of development in reducing vulnerability is acknowledged later as one of several other factors that are taken into consideration later in the risk assessment process; and finally, "adaptation *as* development", where the vulnerability of livelihoods is the starting point of any impact analysis, and climate change is considered as one of many additional stressors.

The following sections of this chapter will explore the implications of climate change vulnerability and risk discourses for the governance of adaptation. This section draws on the analysis of key informant interviews and documentation review to consider whether the interpretation of climate change risk under the UNFCCC and its associated mechanisms has had implications for the potential of the UNFCCC to address social vulnerability; and to be inclusive.

3.3 Adaptation under Global Climate Change Governance

First, I will explore how the adaptation discourse has evolved under the UNFCCC:

The evolution of adaptation discourse in global climate change frameworks

Over the last two decades adaptation has gained gradual prominence in both climate change science and policy alongside mitigation. Huq and Toulmin (2006) suggests we may track this progress through three "eras" of climate change and development discourse, which run from 1990s-2000; 2001-2007; and 2007 onwards. The first era is marked by the establishment of the Intergovernmental Panel on Climate Change by the United Nations Environment Programme (UNEP) and World Meteorological Organisation (WMO) tasked to evaluate the risk of climate change. The IPCC published its first report in 1990, which established climate change as a global,

long-term environmental problem that necessitates action. This stimulated the creation of the United Nations Framework Convention on Climate Change (UNFCCC) adopted in 1992 at the Earth Summit. The UNFCCC sets the overall framework for intergovernmental efforts to manage climate change. The "ultimate objective" of the UNFCCC is the mitigation of greenhouse gas emissions to prevent "dangerous"[15] climate change (see box 3.3).

Box 3.3: The UNFCCC objectives
Source: Article 2, UNFCCC, 1992

"The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adapt is to achieve, in accordance with the relevant provisions of the Convention stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

Schipper (2006) suggests that in the early years of the drafting of the Convention text, discussions of 'adaptation' were highly political, and the concept was initially sidelined in negotiations of how to manage climate change in favour of mitigation approaches. Adaptation was viewed as the 'defeatist' option, an admission that mitigation would not be enough. Burton (1994) argues that engaging in discussions around adaptation might be seen to demonstrate a country's lack of commitment to the mitigation agenda. Further, in the early days of high levels of uncertainty over the extent and rate of climate change, confirmation of the need to adapt was taken as a premature testament to the extent of the climate change problem, a level of certainty that did not exist at the time (Schipper, 2006). This early reluctance to commit to an agenda on adaptation is evidenced by the lack of any firm definition of adaptation in the Convention text.

Adaptation *is* noted as a policy response to climate change in the UNFCCC, but relative to mitigation is paid scant attention (adaptation is mentioned only 5 times in the actual Convention text), and is variously associated with different aspects of climate change policy rather than as one coherent approach. Burton et al., (2002) suggest there are two main ways in which adaptation is discussed in the UNFCCC: First, in terms of how it can contribute to the ultimate objective of preventing dangerous climate change. In this respect, adaptations are hypothetical or assumed, and considered for their potential to shift the margin of what is considered 'dangerous' – i.e. the higher the adaptive capacity of a system, the higher the threshold of what could be considered 'dangerous', and thus the less mitigation would be needed (Burton et al., 2002; Smithers and Smit, 2009). Burton (2002) refers to this approach as "adaptation research for mitigation policy".

[15] A discussion on the implications of 'dangerous climate change' for adaptation can be found in chapter 1

The second way in which adaptation is discussed in the UNFCCC, is in relation to developing policy responses to assist developing countries in managing the impacts of climate change: "adaptation for adaptation policy" (Burton et al., 2002:147). Article 4.1 of the UNFCCC commits countries to formulate and implement measures to facilitate adequate adaptation to climate change. Article 4.4 of the UNFCCC commits developed countries that are Party to the UNFCCC to "assisting the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaption to those effects" (UNFCCC, Article 4.4). Both these articles shift the emphasis from questions of 'net' climate change impacts (resulting from 'trade-offs' between mitigation and adaptation) towards policy-orientated questions about vulnerability, and how and where to deploy adaptation resources (Burton et al., 2002).

At first glance, 'adaptation for mitigation policy' analyses would give rise to an impacts-based approach to assessing climate change risks; the key question here being how far can adaptation buffer the impacts of climate change and reduce the need for mitigation? Whilst 'adaptation for adaptation policy' seems to require vulnerability analyses: which countries are 'particularly vulnerable'? What is the extent of their vulnerability and how can this be assessed?

However, closer consideration of the way in which the text of the UNFCCC justifies the direction of funding streams for adaptation – from developed to 'particularly vulnerable' developing countries - shows that 'adaptation for adaptation policy' under the UNFCCC also gives rise to an impacts-based approach to assessing climate risk. The UNFCCC sets out a principle of "common but differentiated responsibility" for managing the impacts of climate change, which is realised in Article 4.3 that commits developed countries to pledging money to the Convention Funds based on their capabilities and historical responsibility. By this principle, funding for adaptation should be 'additional' to development assistance, because climate change is an 'additional' burden, on top of development, that developing countries bear but are not responsible for creating. But, in order to fulfil this principle, adaptation itself must be taken as 'additional' to development: analysis is needed of the *additional impacts* of climate change on development, rather than of the drivers of vulnerability which, as shown above, are often taken as synonymous with development needs. So, 'adaptation for adaptation policy' also results in an impacts-based approach to climate risk assessment.

The first 'era' also includes the drafting of the Kyoto Protocol. The Kyoto Protocol was adopted in 1997 at the third Conference of the Parties (COP 3) to the UNFCCC, and defines obligations for developed countries to commit to mitigation targets. However, as Adger et al.,(2009) highlight, the Kyoto Protocol and its related mechanisms have authority only to focus on *environmental*

impacts and adaptation to *climate change.* Adger et al., suggest that this narrow interpretation of adaptation as specific to climate impacts, creates a fundamental dilemma:

The need for reductionist identification of the climate-related part of global social and economic trends, versus the desire to see climate change as another important dimension of global environmental threats to development.(Adger et al., 2009:307).

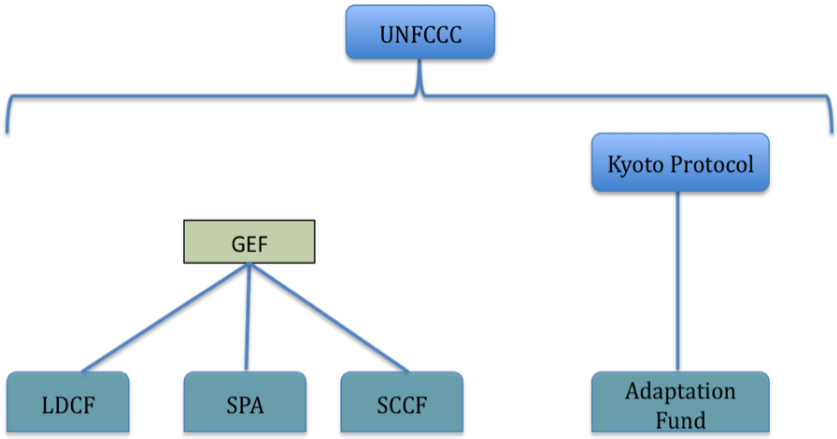
It is the first 'era' of climate change governance that shapes the Adaptation Paradox. The second era began with the third report of the IPCC, which recognised climate change as a development problem. It was shown that the efforts to reduce GHGs had not been able to 'solve' climate change, so impacts would occur, and the developing countries and particularly the Least Developed Countries would be most vulnerable. Adaptation therefore began to be associated with developing country interests. Following the publication of the third assessment report, an agenda item taking up adaptation was introduced in the UNFCCC's Subsidiary Body for Scientific and Technological Advice, and a work programme on adaptation was adopted.

This was translated into policy at the seventh Conference of the Parties to the UNFCCC (COP7) held at Marrakech in Morocco in 2001 where the "Marrakech Accords" were established. These included three new funds, the "Marrakech Funds": The Least Developed Countries Fund (LDCF), established under the Convention, to support the 49 least developed countries to adapt to climate change, and initially used to support the design of National Adaptation Programmes of Action (NAPAs); the Special Climate Change Fund (SCCF) to support a number of climate change activities including mitigation and technology transfer, but intended to prioritise adaptation; and the Kyoto Protocol Adaptation Fund (AF) to support concrete adaptation projects in developing countries that are Party to the Protocol. This fund sits under the Kyoto Protocol and is financed from a levy on the Clean Development Mechanism. Decision 6 of the Marrakech Accords further requested that the Global Environment Facility (GEF), the financial mechanism of the UNFCCC with responsibility for the transfer of funds from developed to developing countries, should fund:

> ...Pilot or demonstration projects to show how adaptation planning and assessment can be practically translated into projects that will provide real benefits.(UNFCCC, 2001).

This led the GEF to establish the Strategic Priority "Piloting an Operational Approach to Adaptation" (SPA) under the GEF Trust Fund (see figure 3.3).

Figure 3.3: UNFCCC Adaptation Funding Framework
Source: Author



At COP 8 in Delhi in November 2002, the "Delhi Declaration" reinforced the importance of adaptation, and linked it to the participation of the developing world in mitigation of emissions to action and funding on adaptation to the impacts of climate change (Adger et al., 2009). The second era, then, took steps to strengthen action on adaptation, and began to associated adaptation with developing country interests and thus lay the seeds for framing of adaptation as a development issue.

We are now in the third era, which is shaped by the IPCC's fourth assessment report, published in 2007, and moving towards the fifth assessment report, currently in the early stages of preparation. The fourth assessment report has shown that climate change impacts are already happening, because for the first time the IPCC has used observations over the last ten years rather than only working on predictions. The outcomes with regard to policy saw COP 13 in Bali in 2007 finally bringing adaptation onto equal footing with mitigation by highlighting it as one of the four 'building blocks' to come out of the negotiations alongside mitigation, technology cooperation and finance.

Preparations for the IPCC fifth assessment report demonstrate a further shift towards a 'vulnerability-based' understanding of adaptation, at least within the IPCC. For example, interviews with authors engaged in working group II of the IPCC responsible for reporting on "Impacts, Adaptation, and Vulnerability", revealed that debates are ongoing within working group II around the terminology of the group. The debate centres on the name of the group, which currently has "impacts" 'up front'. Many of the IPCC Working Group II authors have argued for *vulnerability* to be put before 'adaptation, so that the group becomes "Vulnerability, impacts, Adaptation" (Personal communications with the following lead and coordinating lead authors for

the IPCC fifth assessment report: Ian Burton, September 2010; Saleemul Huq, June 2010 ; and David Dodman, August 2010; Muyeye Chambwera, September 2010).The authors suggested that this would facilitate a move away from looking at impacts first in vulnerability assessments.

However, as noted by Kris Ebi, executive director of the IPCC Working Group II Technical Support Unit, the implications of this shift from impacts-first to vulnerability-first depend on how you define vulnerability. As discussed in the earlier sections of this chapter, vulnerability can be defined from a social-vulnerability perspective; or a hazards-risk perspective. Ebi suggests that, at the time of writing, there is still some debate within Working Group II over how vulnerability is understood (Ebi, personal communication, June 2010); thus, although there is a shift towards a vulnerability-based perspective within the IPCC, this shift is not necessarily indicative of a shift away from a 'hazards-based' understanding of vulnerability towards a social-constructivist one.

As adaptation gained prominence in the negotiations and policy, its context has shifted from being tied into discussions over impacts thresholds (the more that adaptation can be used to reduce impacts that might be considered dangerous, the higher impacts threshold of greenhouse gas concentrations can be accepted) (Burton, 2004) to being increasingly branded as a developing country issue and reflective of the profound global inequality of climate change; that those that will suffer the most from the impacts of climate change are least responsible. Nevertheless, the initial the framing of adaptation in the original text of the UNFCCC as an impacts-based issue of significance only in relation to mitigation, has left a legacy on the way in which adaptation to climate 'risk' has been governed under UNFCCC frameworks.

The following sections will look at the implications of this framing of adaptation under the UNFCCC in relation to the potential of adaptation mechanisms under the UNFCCC to address social-vulnerability.

The implications of an 'impacts-based' approach for addressing vulnerability under the UNFCCC

Many critics have pointed out that an 'impacts-based' approach to adaptation as promoted under the UNFCCC and associated IPCC guidelines, has contributed to confusing and inadequate finance and governance structures for adaptation that are not conducive to addressing the 'drivers' of climate change vulnerability (Ayers et al., 2010; Burton et al., 2002; Schipper, 2006). This section

will consider the consequences of an impacts-based approach on the fiscal and institutional arrangements for adaptation under the UNFCCC, and the implications for addressing vulnerability.

First, some critics have pointed out that an impacts-based approach to adaptation has discouraged commitment to the adaptation agenda because of the inevitable uncertainty tied into measuring and predicting climate change patterns (Ayers et al., 2010; Ayers and Huq, 2009b; Schipper, 2006). Chapter one showed that there are three areas of uncertainty around climate change impacts; first, around what the UNFCCC defines as 'dangerous' climate change impacts, i.e. the 'thresholds' that adaptation needs to avoid; second, around climate change projections; and third, around the interactions between climate change impacts and uncertain development trajectories. Such uncertainty has resulted in a historic reluctance to commit to action on adaptation on the basis that if we are adapting specifically to climate change, then we do not yet know exactly what we are adapting to. So the argument follows, pre-emptive action against an uncertain threat could be maladaptive.

The lack of commitment to the adaptation agenda is reflected by relative institutional attention given to adaptation compared to mitigation. If we compare mitigation to adaptation, mitigation has a clear definition, baselines and targets. There is no adaptation baseline and little attention to how progress against adaptation should be measured. There are no targets for adaptation, and whereas mitigation has very clear funding regimes, adaptation is funded through many different funds (see figure 3.3), all of which receive voluntary rather than mandatory contributions from the Parties to the UNFCCC (Burton 2004). Adaptation is variously associated with other 'developing country issues' such as technology transfer and finance, resulting in a piecemeal approach to discussions and policy-making on adaptation under the Convention, and a failure to produce any firm definition or guidance on actually *doing* adaptation. As noted by Schipper (2006),

> The lack of specific definition of adaptation, even more confused by its association with other aspects of the UNFCCC, posed a significant constraint to furthering policy on adaptation (Schipper, 2006: 90).

A comprehensive formal proposal consisting of all issues on adaptation under the climate regime is missing (Ayers et al., 2010).

Some observers have also shown how confusion over what does and does not constitute adaptation has also resulted in confusion over the costs of adaptation funding, and how these costs should be met (Ayers, 2009). An 'impacts-based' approach to adaptation suggests that the

costs of adaptation will be the additional expenses incurred as a result of the impacts of climate change on development. This is the approach taken in a World Bank study, which equates the costs of adaptation to the costs of 'climate proofing' development investments in developing countries. The report suggests that such figures will be between US$ 10 billion and US$ 40 billion annually (World Bank, 2006). However, this figure has been criticized by the development community for not taking into account the costs of climate proofing existing supplies of natural and physical capital where no new investment is planned; the costs of financing new investments specifically to deal with climate change; or the costs to households and communities to fund their own adaptation needs (Action Aid, 2007; Oxfam, 2007).

More recent estimates by Oxfam that do acknowledge these factors put the costs of adaptation closer to US$ 50 billion annually. Yet even this Oxfam estimate has since been criticized as conservative, because part of the calculation is based on an extrapolation of the costs of some NAPA projects. As noted in the next section of this chapter and in chapter four, NAPAs have tended to present projectised costs of adaptation as 'additional' to development, underestimating the costs of more strategic resilience building (Fankhauser, 2009). Similarly, estimates from the UNFCCC for adapting infrastructure worldwide, suggesting figures of US$ 8–30 billion in 2030, have been criticized for basing its calculations solely on adapting existing infrastructure to future change. Instead, Sattherthwaite et al., (2007) suggest any evaluations of adaptation costs also need to take into account the large deficit in basic infrastructure in most urban centers developing countries (Sattherthwaite et al., 2007) – existing *vulnerability*, or the 'adaptation deficit' (Burton, 2004).

Estimates of the costs of adaptation therefore vary significantly, and attempting to separate out 'impacts' from more general vulnerability reduction have resulted in further confusion over how to calculate costs. However, there is at least one consensus in adaptation funding debates: the failure of funding streams for adaptation to come close to meeting any of these cost estimates (Action Aid, 2007; Ayers, 2009; Oxfam, 2007; Klein and Persson, 2008). For example, two of the "Marrakech Funds" for adaptation described above - the LDC Fund (LDCF) and the Special Climate Change Fund (SCCF), as well as the GEF Trust Fund (GEF SPA) - are based on development assistance-type voluntary pledges and bilateral contributions from donors. This type of contribution is unlikely ever to be able to generate the required levels of funding, especially given that contributions are meant to be additional to development assistance, when many high-income nations are failing to meet their 0.7 per cent aid commitments in the first place. As of May 2010, the total resources pledged to the LDCF, the SCCF and the SPA totalled US$ 419 million (climatefundsupdate.org). Further, donors are delaying on meeting their pledged commitments

because of an alleged lack of adequate and accountable mechanisms in developing countries for receiving and disbursing money. This means that the actual funds deposited amount to 329.67 million in total (ibid). Inadequate institutional attention to adaptation has translated into inadequate fiscal commitments for adaptation.

The Adaptation Fund, which sits under the Kyoto Protocol, has the potential to generate more significant sums, because it is funded by a 2% levy on Clean Development Mechanism (CDM) [16] transactions; the revenue generated from the CDM levy alone is projected to be between $160 million and $950 million. (Müller, 2007). There is also talk of applying the levy to international air travel, which itself has the potential to generate $4-10 billion annually (ibid.). However, these mechanisms do not meet the responsibility-based principles of adaptation funding; that adaptation funds should be additional 'compensation' from rich nations to poor nations, not a 'tax' on the CDM. Indeed, some have argued that the adaptation fund levy could potentially discourage 'pro—poor' CDM investments, because the levy increases the costs of CDM transactions (ibid; Ayers, 2009). As such, it is unlikely that using the Adaptation Fund to generate all funding for adaptation will be politically feasible.

Second, the impacts-based framing of adaptation has been adopted by the mechanisms for disbursing adaptation funds. This is well exemplified by the criteria on adaptation funding imposed by the Global Environment Facility (GEF), the financial mechanism of the UNFCCC (see box 3.4).

Box 3.4: The Global Environment Facility
Source: Adapted from GEF (no date) and www.gefweb.org

The GEF was established by donors 1991 following the Earth Summit, to provide a mechanism to fund projects and programs that protect the 'global environment'. The environmental problems of concern to the GEF are global and inter-connected in nature - biodiversity, climate change, international waters, ozone, land degradation, and persistent organic pollutants. The GEF is a designated financial mechanism to the international environmental conventions of these six focal areas, with the mandate to support the generation of 'global environmental benefits' under each. Global environmental benefits is defined as directly or indirectly contributing to mitigating climate change, conserving biodiversity, protecting international waters, preventing ozone depletion, eliminating persistent organic pollutants, or preventing land degradation.

The GEF manages three of the four funds for adaptation under the UNFCCC: the GEF Trust Fund Strategic Priority on Adaptation (SPA); the SCCF; and the LDCF (see figure 3.3). As the GEF was established to address global environmental issues, part of its mandate is to deliver 'global environmental benefits' (see box 3.4). The delivery of these benefits under the GEF is assured by

[16] The Clean Development Mechanism (CDM) is a carbon trading mechanism under the Kyoto Protocol that allows countries with GHG reduction targets to generate emissions reductions by investing in clean development in low- and middle-income countries.

the criteria of the GEF, to fund only the "incremental costs" of a project or programme. Incremental cost refers to the cost differential between a baseline action to address a national need and the additional cost of an action that generates "global benefits" (GEF guidelines, no date).

Lemos and Boyd (2009) point out that the criteria of generating 'global environmental benefits' and the calculation of 'incremental costs' are problematic for funding adaptation, which yields locally generated benefits (Lemos and Boyd, 2009). This has been recognised by the GEF, which has instead created the concept of "additional costs", defined as the costs of actions required to make development activities climate resilient in light of climate change: the difference between the baseline (development activities pursued in the absence of climate change) and the alternative adaptation scenario (Möhner and Klein, 2007:10). However, Burton and colleagues (2006) argue that,

> Guidance from the Parties [to the UNFCCC] is not explicit on the point…[although] the GEF's position is that the "global environmental benefits" test does not apply to these funds [the LDCF and SCCF]…there remains a widespread perception among potential recipients that it does. (Burton et al., 2006:14).

Thus, the legacy of climate change as a global environmental problem, with adaptation emerging from a mitigation agenda, is extremely powerful in shaping the governance of adaptation.

Further, replacing 'incremental costs' of 'global environmental benefits' with 'additional costs' of 'climate change' is not much better: it is difficult to clarify the additional cost element, because this raises the question which part of a project concerns adaptation (funded by the GEF) and which part is development (which is the recipient country's own responsibility). Lemos and Boyd (2009) suggest that this 'additionality' criteria creates three hurdles for developing countries in terms of being able to use adaptation funds effectively: First, vulnerable countries often lack the technical and administrative capabilities to respond to these additionality requirements, and so have to spend scarce financial, human and technical resources on doing so. Second, governments may be tempted to prioritize policies that meet the additionality requirement rather than policies that best promote the sustainability and well-being of vulnerable ecosystems and populations. Third, additionality requirements could obstruct synergies between adaptation and development at the policy level, especially in countries where structural inequality and a lack of resources shape vulnerability in the first place (Lemos and Boyd, 2009:97).

In addition, many countries cannot afford to meet the baseline development costs so the offer of funding for the additional cost is futile. For example, Ayers and Huq (2009b) cite the example of one of the projects identified by the NAPA of Tuvalu, which is a coastal infrastructure project to protect the shoreline from erosion, a problem regardless of climate change (and so an existing development need), but one exacerbated by climate change (so also an additional cost). The NAPA project team, even with the help of a UNDP consultant to assist, had extreme difficulties calculating the 'adaptation' component of the infrastructure needs. In any case, being a poor country, the 'baseline' infrastructure is not in place, and funding is not available to pay for it. The authors state:

> The offer to fund, as it were, the 'top section' of the infrastructure required to respond to 'additional' impacts of climate change, is absurd in light of the fact that co financing to pay for the lower section cannot be found. (Ayers and Huq, 2009:679).

Thus, the framing of adaptation as impacts-based carries implications for the potential of adaptation policy and finance under the UNFCCC to address social-vulnerability to climate change. Some critics have argued that, for adaptation policy to target vulnerability more successfully, the framing of 'risk' under the UNFCCC needs to be 'democratised' (Ayers et al., 2010; Lemos and Boyd, 2009). As discussed in chapter one, opportunities for democratising the risk on adaptation lie in creating spaces for the dominant impacts-based approach to adaptation to be contested by actors from a social-vulnerability perspective. This requires an inclusive approach to adaptation policy-making; but, what is the evidence for inclusive policy making in adaptation governance under the UNFCCC, and what is the influence of an impacts-based approach on facilitating meaningful inclusion?

3.4 Opportunities for democratising 'risk' under global climate change frameworks

This section will analyse the opportunities for the deliberative governance of adaptation, firstly, in the 'risk-assessment' arenas of the IPCC, where climate change risks are assessed and therefore defined (IPCC); and secondly, in 'policy arenas', where climate risks are translated into adaption policy. Drawing on discussions from Science and Technology Studies (see chapter one) this section will highlight the interrelationships between scientific risk assessments and policy arenas, and the ways in which discourses of risk are coproduced between them.

Inclusiveness in adaptation 'science'

Chapter one showed how the assessment of problems that have come to be defined as 'global' and 'scientific' tend to be based on the establishment of independent expert bodies to inform policy makers (Farrell et al., 2001; Funtowicz and Ravetz, 1990). Funtowicz and Ravetz (1990) suggested that high uncertainty, high risk problems warrant higher levels of public participation in the definition and assessments of risks, and under such circumstances risk assessments could be opened up to a broader range of non-scientific expertise. Thus, in principle risk assessments could be one avenue for increasing public participation in science and policy.

However, chapter one also suggested that "certainty" and "expertise" are not neutral terms, and the construction of both depends on how risks are framed, which in turn is highly politicised. This section will consider these suppositions in relation to the inclusiveness in the IPCC, the international body tasked with providing the UNFCCC and its Parties the latest science on climate change risk, focusing on three aspects: the way in which the IPCC defines risk and expertise; the explicit approach taken by the IPCC to inclusion; and the claims of political neutrality of science made by the IPCC.

First, in line with the initial objectives of the UNFCCC - the prevention of dangerous climate change - the original 'adaptation remit' of the IPCC was in relation to calculating tradeoffs between mitigation and adaptation: 'Adaptation for mitigation policy' (Burton et al., 2002). Accordingly, the IPCC Second Assessment Report (IPCC SAR) published in 1995 defines vulnerability as 'the degree to which a system will respond to change in climatic conditions'. The first guide for conducting assessments of climate change risk for adaptation was written under the authority of the IPCC in the early 1990's (Carter et al., 1994; Parry and Carter, 1998), and has come to shape the "standard approach" to risk assessments for adaptation (Burton et al., 2002). Burton et al., (2002) describe the 'standard' approach to adaptation laid out in the IPCC guidelines in seven steps:

1. Define problem (including study area and sectors to be examined);
2. Select method of problem assessment;
3. Test methods/conduct sensitivity analyses
4. Select and apply climate change scenarios;
5. Assess biophysical and socio-economic impacts;
6. Assess autonomous adjustments;
7. Evaluate adaptation strategies

The focus of these steps on the assessment of the impacts of biophysical change using technological approaches such as climate modelling, has helped shaped the international adaptation discourse as a problem of biophysical risk that can only be assessed through technological and 'expert' means. In order to follow these steps of risk-assessment, a high level of climate change science and access to climate change modelling is required. This excludes non-experts from access to debates around defining climate change risk. Indeed, as Demeritt (2001) notes, in engaging in debates around climate change impacts, not only the lay person, but also the politicians and even many climate scientists themselves "are forced to put their faith in technical expertise that they do not fully understand" (Demeritt, 2001:309). Thus, alternative 'knowledges' that may promote a more vulnerability-based perspective, are excluded from policy deliberation around climate change risk. Burton et al., argue:

> Because the standard approach has been developed for scientific purposes of understanding impacts it pays less attention to the policy context of adaptation or to the key actors or stakeholders involved. The focus of the analysis is a top-down effort to understand impacts, rather than to find ways of reducing vulnerability…in association with stakeholders including those at risk. (Burton et al., 2002:155).

Secondly, by promoting an impacts-based, science-based, approach to understanding adaptation, the IPCC have legitimised the explicit exclusion of non-technical approaches to defining and responding to climate change risk. For example, only scientifically peer-reviewed literature is included in IPCC Assessment Reports, the main assessments used by policy makers in assessing climate change risks. This automatically excludes many developing country scientists who face significantly greater challenges in getting their work through such channels (Huq, personal communication, June 2010). Such observations have led observers such as Mayer and Arndt (2009) to warn of the 'epistemological hegemony' of the IPCC; indeed, Bruno Latour, a critic of the epistemic communities approach (see chapter one), describes the IPCC as an 'epistemological monster' (Latour, cited in Dahan-Dalmedico, 2008).

Attempts are being made to open-up IPCC reports to reviews of more 'grey' and 'unpublished' literature. Further, efforts are underway by the authors of Working Group II ahead of the fifth assessment report to hold "writeshops" for developing country authors to try to 'upgrade' grey literature to publishable, citable material. However, this effort may only serve to reinforce the subordinate position of 'grey' literature in the eyes of the IPCCC. Further, the recent uproar over

the discovery of non-peer reviewed material related to inaccurate reporting on glacial melt[17] may to increase caution in allowing non-peer reviewed material.

Further, Farrell et al., (2001) suggest that even the participation of developing country scientists in the IPCC was seen initially as a source of potential disruption. The authors state:

> Of course, there are also reasons to limit participation…participation should be designed to achieve the objectives of the assessment (Farrell et al., 2001:319).

This statement is reflective of the attitude taken to participation in the IPCC; in line with Funtowicz and Ravetz (1990), participation should build consensus, and reduce uncertainty around policy problems, not increase it. Such an approach takes little account of how the framing of a problem as 'expert' and risks as 'technical' restricts inclusion, or that including knowledge in policy-making processes that contests these dominant paradigms could actually be of value to the policy-making process.

Finally, the IPCC was established to provide 'the science' on climate change and not to engage in 'the policy'. Much emphasis has been placed around enforcing this separation, for example, scientists involved in carrying out the IPCC Assessment Reports are disallowed from writing the IPCC's "Summary for Policy Makers", the most influential of the IPCCC outputs on policy formation. The use of the IPCC by the UNFCCC promotes the powerful notions that science is neutral, expert networks are benign and representative, and governments act rationally according to expert advice (Ayers and Huq, 2008). This apparent separation between 'the science' (IPCC) and 'the policy' (UNFCCC) overlooks the lessons from Science and Technology Studies (STS) related to how science and politics are mutually constructed.

For example, some authors have noted that the IPCC has influenced the coproduction of science and politics through its focus on the General Circulation Model (GCM) as a method for assessing atmospheric changes (Demerit, 2001; Forsyth, 2003). Similarly, the decisions of the IPCC around methods of climate change risk assessment have resulted in the domination of an 'impacts-based' approach to adaptation policy making, and the significant exclusion of alternative approaches. This promotion of the IPCC as an agency that is scientific, neutral, and independent, has had important epistemological implications for the causal statements and responses to climate change risk

[17] In 2009, the IPCC was exposed for making a false claim in its Fourth Assessment Report about the threat of Himalayan disappearance "by 2035". Following investigation of these claims, it was revealed that the IPCC had cited data from non-peer-reviewed material from a 2005 World Wildlife Fund (WWF) report. This controversy is explained in more detail in chapter five.

adopted under the UNFCCC. This is well illustrated by the following statement from Dr. Atiq Rahman, former IPCC author who has been active in the climate change negotiations both as a Bangladesh Country Delegate and as an NGO activist:

> In the early days of the IPCC and the negotiations, the environmental movement from the North was mostly to do with the chemicals of gasses. For us [representatives of Least Developed Countries], it was a survival issue. I remember when I first raised these issues of climate change affecting poverty, I was told not to bring these issues into the discussions because climate change was about molecules, it was about science. Poverty was seen as irrelevant. (Atiq Rahman, personal communication, February 2008).

Rahman's statement reflects the barriers presented by a "systemic" approach to global environmental problems (Turner et al., 1991) for local inclusion. As discussed in chapter one, globalising discourses subjugate alternative 'local' framings as 'inexpert' and irrelevant to the debate.[18] Thus, the establishment of the IPCC, and the resulting approach to assessing the risk of climate change, has reinforced the 'impacts-based' approach to adaptation and legitimised the need for 'experts' in framing adaptation. This has been to the exclusion of alternative approaches to adaptation, based on developing country perspectives and sub-national context-specific knowledge on the reality of climate change vulnerability on the ground.

Inclusiveness in adaptation policy

As laid out in chapter one, there are, in principle, various avenues under the UNFCCC for the inclusion of alternative, development-based perspectives on adaptation from vulnerable developing countries. This thesis will focus on one particular avenue, that of "National Adaptation Plans of Action" (NAPAs) under the Least Developed Countries Fund (LDCF), because the LDCF and NAPAs were specifically designed under the UNFCCC to give a direct avenue for the participation of vulnerable groups in adaptation policy making (LEG, 2002).

As noted, the LDCF, along with the other funds for adaptation, was established at COP 9 in Marrakech. A specific fund for LDCs was established because this group of countries were recognised as especially vulnerable due to their development status, and so adaptation in LDCs was taken as more urgent than in other countries (Desai, 2003). Correspondingly, an LDC Expert

[18] Which is ironic in this case as Dr Rahman pointed out that he has a PhD in chemistry!

Group (LEG) was established "to serve in an advisory capacity to the LDCs, for the preparation and strategy for implementation of National Adaptation Plans of Action (NAPA)" (Decision 29/CP.7).

The establishment of the LDCF was seen by many as a 'coup' on behalf of the LDCs, signifying a change in approach towards a more development-focused vision of adaptation, and an acknowledgement of the role vulnerable countries would play in defining the adaptation agenda (Huq, personal communication, May 2008). However, other interpretations suggest that the quick development of adaptation funds was a form of appeasement to vulnerable developing countries, who were voicing frustration at the lack of success in achieving binding commitments from developed countries for mitigation targets (Burton, personal communication, December 2008). Desai (2003) suggests that, for developing countries,

> The creation of … new funds and the promise of certain Annex I Parties [developed country parties] to contribute money to these funds, was in essence a quid pro quo for their acceptance of a watered down Kyoto Protocol. While developing countries wanted binding contributions to be made to these funds, it was only possible to agree that "predictable and adequate levels of funding shall be made available to Parties not included in Annex I." (Desai, 2003:298).

Nevertheless, the establishment of the LDCF marks a significant turning point in the recognition of the UNFCCC to include vulnerable groups in decision-making on adaptation. The intention behind the NAPAs is to serve as a direct channel of communication of information relating to the vulnerabilities and adaptation needs of the LDCs. The NAPA process is designed to be a country driven, bottom-up process to generate a list of priority activities for adaptation in LDCs. The process involves the assembly of a national multidisciplinary team, composed of lead stakeholder and agency representatives. Each NAPA, once developed, is exposed to public review and comment, endorsed by the relevant national government, and then published. NAPAs therefore represent a unique opportunity for democratic decision-making around adaptation.

However, the extent to which community participation is incorporated into the NAPA depends on both effective participation during the NAPA process in-country; and secondly, to this being fed up to the international forum. In relation to the evidence that NAPAs are adequately reflecting on-the-ground development issues in the design of adaptation plans the example of Tuvalu's NAPA above provides a case in point; it seems that the legacy of an 'impacts-based' approach remains strong in the NAPA guidelines, and that this is affecting the potential for the inclusion of non-expert, development-based perspectives. Chapters four and five of this thesis will further evaluate

the potential for NAPAs to be locally inclusive, through the country case studies of Bangladesh and Nepal.

As far as the next step of ensuring developing-country representation in the international forum of the UNFCCC, this depends on the inclusiveness of democratic processes under the Global Environment Facility (GEF)[19] which manages the LDCF (see figure 3.3 and box 3.4). Under article 11 of the UNFCCC, the GEF is required to have "...an equitable and balanced representation of all Parties within a transparent system of governance" (UNFCCC, 1992: Article 11); so, in principle, such a system should be equally inclusive of developed and developing country perspectives on adaptation, and the resulting decisions on adaptation funding should reflect the priorities of all engaged Parties.

However, many critics, particularly from the NGO community, have pointed out that the governance of the adaptation funds under the UNFCCC, especially those managed by the Global Environment Facility (GEF), are not inclusive (Action Aid, 2007; Müller, 2006). For example, decisions of the GEF Council are taken by consensus of all Parties to the convention to the UNFCCC, seemingly adhering to the principle of balanced representation of all Parties. However, if no consensus is available, then the decision falls to a vote. But, a vote cannot be passed unless there is a majority of both countries *and donations*. Given that developed countries are the largest donors to the GEF funds, this automatically disempowers developing nations from engaging in the decisions that affect them, because those countries that make the largest contributions carry the most weight (Streck, 2001). This essentially gives veto power to the group of the five largest donor countries (Ayers, 2009).

This obvious power imbalance has raised concerns, particularly from the developing countries, regarding the decision making procedures of the GEF, which have eroded its political acceptability; there is a lack of any 'feeling of ownership' from developing countries over the GEF in smaller, poorer, and politically weaker developing countries (Müller, 2006). Müller suggests that there exists a "democratic deficit" in the GEF, which inhibits the meaningful inclusion of developing countries in decision-making around adaptation.

Therefore, despite a move under the UNFCCC towards an association of adaptation with 'developing country issues', and a recognition of the role of development and poverty in driving

[19] It should be noted that the governance structure of the Adaptation Fund is much more promising; the Adaptation Fund is not managed by the GEF but has its own independent board with representation from the five UN regions as well as special seats for the LDCs and Small Island Developing States. The Adaptation Fund Board has only recently become operational.

vulnerability, an impacts-based approach continues to dominate adaptation science and policy under the Convention. An impacts-based framing of adaptation has had implications for both attention to the adaptation in general, and more specifically the potential for adaptation action under the UNFCCC to address vulnerability on the ground. Further, at the international level, few opportunities are created for democratising climate change risk in favour of a development-based approach. Thus, some critics of the UNFCCC have suggested that adaptation may be better managed outside the Convention (Ayers et al., 2010; Schipper, 2006), and that, given the close relationship between adaptation and development, development frameworks may be better placed to address vulnerability to climate change. The next section of this chapter will explore the potential for international development governance frameworks for addressing climate change vulnerability.

3.5 Adaptation under development frameworks[20]

This section will begin be reviewing the emergence of adaptation in development discourses; and consider the potential for development governance structures to manage adaptation independently of the UNFCCC.

The evolution of climate change adaptation in development discourse

The link between climate change and development was drawn in the development arena as early as 1987, when the Brundtland Report *Our Common Future* cited climate change as a major environmental challenge facing development (World Commission on Environment and Development, 1987). In 1992, the United Nations Conference on Environment and Development produced the Rio Declaration and Agenda 21, both of which made explicit connections between environment and development (UN, 1992). These themes were taken up by the research community, who began to apply theories of vulnerability to climate change adaptation. Development was seen as making an important contribution to climate change adaptation through strengthening entitlements and boosting the resilience of individuals and communities (see Cohen, 1998; Sen, 1999; Smit, 1993).

[20] Some of the material from this section has been adapted for inclusion in Ayers and Huq, 2009; and Ayers and Dodman, 2010.

However, the dominance of the mitigation agenda in the climate change discourse of the 1990s meant that development practitioners were initially slow to adopt climate change in practice. For example, in 2002 the International Institute for Environment and Development (IIED) began to organise "Development and Adaptation days" at the climate change negotiations. Saleemul Huq, who has been coordinating the days since their inception, states:

> Since the beginning the aim of the Development and Adaptation Days was to get the development community on board with adaptation, to make them realise it was an issue of poverty. Before then, it was mostly environmental NGOs that attended the negotiations. Development NGOs saw it as an environmental issue, not a poverty one (Huq, personal communication, April 2007).

This is reflected by the absence of any clear reference to climate change in the Millennium Development Goals (MDGs) drafted in 2001.

In 2002, a report released by 10 leading development funding agencies – *Poverty and Climate Change: reducing the vulnerability of the poor through adaptation* – stated that climate change was a threat to development efforts and poverty reduction, including the achievement of the Millennium Development Goals, and that pro-poor development was key to successful adaptation. The report reflects many of the themes emerging in the academic literature on vulnerability at the time (for example Huq *et al*., 2002; Kates, 2009; Smit *et al.,* 2000), including recommendations to support sustainable livelihoods, improve governance, and make institutions more accountable and participatory (Klein, 2008; Sperling, 2003).

Since 2002, development agencies have increasingly recognised the implications of climate change for development; and the potential for development to address vulnerability to climate change. For example, Levina (2007) highlights the potential for the Millennium Development Goals (MDGs) for reducing vulnerability: reducing poverty, providing general education and health services, improving living conditions in urban settlements, and providing access to financial markets and technologies will all improve the livelihoods of vulnerable individuals, households and communities, and therefore increase their ability to engage in adaptive action. An analysis of the categories of ODA activities reported by the OECD DAC countries demonstrated that more than 60% of all ODA could be relevant to building adaptive capacity and facilitating adaptation (Levina, 2007).

Furthermore, there are incentives for the development community to take up this role, because

climate change will compound the existing vulnerabilities of developing countries and threaten the achievement of the MDGs, for example combating hunger caused by droughts and floods; providing access to water and sanitation; and preventing and treating malaria. Climate change poses a threat to the sustainability of development investments; the World Bank estimates that up to 40% of development financed by overseas assistance and concessional loans is sensitive to climate risk (Burton et al., 2006).

Finally, failing to take adaptation into account in development practice can result in maladaptation, where actions or investments enhance rather than reduce vulnerability to the impacts of climate change. For example, investment in an irrigation scheme that does not take account of the possible changes in rainfall variations under climate-change scenarios may not be sustainable in the long term. On the contrary, irrigation may actually increase dependence on water and water-reliant practices (such as the persistent use of water-dependent crops) in the short term, when in fact ways of increasing the efficiency of water usage or changing cropping patterns may be a more useful way of spending limited resources to make development investments climate-resilient and contribute towards adaptation.

Given these synergies between adaptation and development, and the risks of maladaptation in development, supporting adaptation through development assistance makes sense (Dodman et al., 2009). Development assistance has the remit to address a wider range of vulnerabilities than those included in the narrow definition of adaptation considered by the UNFCCC, and so could complement Convention approaches by addressing the underlying causes of vulnerability, thus increasing the effectiveness of climate-specific adaptations. For these reasons, adaptation has been embraced not only by the climate change community, but also by the development-assistance community (Ayers and Dodman, 2010; Schipper, 2007; see also Sperling, 2003).

Responding to adaptation through development

Many development agencies have therefore sought to incorporate adaptation into their development portfolios. One approach being undertaken by many donors and intergovernmental development agencies is “mainstreaming’. Mainstreaming involves the integration of information, policies and measures to address climate change into ongoing development planning and decision-making. It is seen as making more sustainable, effective and efficient use of resources than designing and managing policies separately from ongoing activities (Klein et al., 2003). In

theory, mainstreaming can avoid the problem of trade-offs between development and adaptation and create 'no regrets' opportunities for achieving both (Klein, 2008).

Klein (2008) discusses two types of mainstreaming in development: First, a 'technology-based view of mainstreaming' is a consequence of an 'impacts-based' approach to adaptation; projections of climate change are considered in the decision-making of relevant government departments and agencies, so that technologies are chosen that are suitable for a future climate. This has also been referred to as 'climate-proofing' development and, in the context of development assistance, can involve the screening of development portfolios through a climate-change lens. Portfolio screening involves the systematic examination of an agency's set of policies, programmes or projects, with the aim of identifying how concerns about climate change can be combined with the agency's development priorities (Klein et al., 2007). Such screening helps in identifying both the existing development projects that are particularly threatened by climate change, and the opportunities for incorporating climate change more explicitly into future projects and programmes.

This type of mainstreaming falls foul of many of the criticisms of a UNFCCC approach to adaptation; namely, that the impacts of climate change are taken as separate to development. As Ayers and Dodman suggest (2010), this reflects 'adaptation 'plus' development', rather than 'adaptation *as* development'. The risk with this approach is that it produces a sense of a new set of 'conditionalities' being attached to development assistance; enforcing climate change priorities on development programmes where they did not exist as underlying development priorities. Further, this approach would decrease stakeholder engagement in the development of 'climate-proofed' priorities, because of the small pool of expertise required to calculate the potential climate change impacts on any development intervention. As such, some observers have cautioned that a 'climate-proofed' approach to mainstreaming could undo much progress made against the OECD DAC principles of development finance that include country ownership and public participation (Klein, 2008).

The second type of mainstreaming takes a 'development-based view of adaptation,' which ensures that, in addition to climate-proofing, development efforts are deliberately aimed at reducing vulnerability by including priorities that are essential for successful adaptation, such as ensuring water rights to groups exposed to water scarcity during a drought. This latter option takes a more holistic approach to adaptation, seeing responses not as stand-alone or discrete climate-specific options, but as also addressing the underlying drivers of vulnerability that expose people to climate-change impacts: 'Adaptation as development' (Ayers and Dodman, 2010).

However, despite the obvious potential for supporting vulnerability reduction to climate change through development, this is contentious at the international level. Firstly, not all adaptation is development; for example, adaptation interventions adopted by donors may not equate with the development priorities of recipient countries. Likewise, not all development reduces vulnerability to climate- change adaptation, particularly where investments do not take account of the long-term climate-change implications for the project area or sector, resulting in development interventions that are ultimately maladaptive.

Secondly, and significantly, supporting adaptation through development ignores the crux of the 'adaptation paradox'; that developed nations are responsible for climate change, and so assistance for adaptation should be additional to development assistance. As noted by Action Aid (2007), financing for adaptation is not owed to poor countries as 'aid' but, rather, as compensation from high-emission countries for those that are most vulnerable to the impacts (ActionAid, 2007). This distinction between development assistance and adaptation funding was supported by developing countries at the June 2008 meeting for the subsidiary bodies to the UNFCCC, where they called for the measurable, reportable and verifiable use of new and additional funding for climate change-specific activities (as opposed to more general resilience building) (Klein, 2008) in order to prevent industrialized countries from incorporating adaptation funding into development assistance. Many observers have noted the importance of this principle in maintaining the trust between developed and developing countries in the international negotiations (Boyd et al., 2009; Müller, 2006). As such, Boyd et al., (2009) note:

> The jury is still out on how official development assistance and adaptation funding can be brought together. (Boyd et al., 2009:662).

3.6 Conclusions

This chapter has examined the various interpretations of adaptation in both climate change and development discourses. It has suggested that there are two broad approaches to adaptation, which in turn depend on how 'vulnerability' to climate change is defined and assessed: First, an 'impacts-based' approach to adaptation, which takes climate change impacts as the starting point for vulnerability assessments, and gives rise to technological adaptation solutions that target the specific impacts of climate change: 'stand alone' adaptation, or 'adaptation *plus* development'. Second, a 'development-based' approach to adaptation, based on insights from the food security

and natural hazards literature, that takes a livelihoods-based approach to assessing vulnerability, and results in adaption interventions that target the underlying drivers of vulnerability: 'adaptation *as* development'. Table 3.1 below summarises these approaches and the implications for operationalising adaptation:

Table 3.1: Summary of approaches to adaptation

Definition of adaptation	Adaptation addresses the impacts of climate change	Adaptation reduces vulnerability to climate change and climate variability	Adaptation increases the capacity of people to adapt to climate change and other stresses
Assumptions about vulnerability	Vulnerability is a consequence of exposure to climate change hazards	Vulnerability is a function of exposure, sensitivity, and adaptive capacity	Vulnerability is directly dependent on adaptive capacity, which in turn is determined by factors related to development
Target population	Countries and communities most exposed to climate change impacts	The climate-vulnerable poor in countries and regions exposed to climate change impacts	The poorest and most marginalised people in developing countries
Approaches to adaptation	Specific adaptation interventions	Adaptation "plus" development: "Climate proofing", "climate-resilient development"	Adaptation "as" development: Development as usual
Main actors promoting the approach [21]	UNFCCC, some IPCC actors, some donor agencies	IPCC, some donor agencies	Development NGOs

It should be noted that no single approach is consistently promoted by any one set of actors. First, as described above and summarised below, interpretations of adaptation are changing rapidly. We have moved from adaptation not being a priority at all under the UNFCCC, to adaptation being placed on equal footing with mitigation and being associated with "developing country" interests within the UNFCCC.

Further, different sets of actors are not necessarily wedded to one particular approach. For example, we can say that a "development-based" discourse was more likely to be promoted by development actors such as NGOs and some donors. However, it is also true that actors change may change their approach depending on the context they are in. NGOs have been among the strongest opposition to the global requirement of demonstrating that adaptation is "additional" to development, highlighting that good adaptation starts with good development in the first place (see for example Action Aid 2007). At the same time, within international forums NGOs have lobbied on behalf of increasing funding for adaptation in international arenas, and in particular supporting the argument that adaptation funding should be additional to development (again, see Action Aid 2007). If this argument is followed through, adaptation itself is additional to

[21] Predominantly but not exclusively

development. The same actors are supporting *both* the "adaptation as development" and also the "adaptation plus" development agendas.

It is nevertheless important to consider the implications of these different perspectives on defining adaptation, for how adaptation is operationalised, and for the potential for adaptation planning to be 'locally inclusive.' Reviewing the evolution of adaptation under the UNFCCC, this chapter has shown that the initial remit of the UNFCCC – to mitigate greenhouse gasses in order to prevent the impacts of climate change – meant adaptation was initially conceived in relation to mitigation: the greater the potential for adapting to the impacts of climate change, the less the need for mitigation. This gave rise to a framing of adaptation under the UNFCCC as impacts-based. This has left a legacy on the way in which adaptation to climate 'risk' has been governed under UNFCCC frameworks. For example, in the way in which risks are assessed by the IPCCC, which takes climate change impacts as the starting point; and the separation out of 'baseline development needs' and 'additional adaptation needs' for assessing and meeting the costs of adaptation.

Opportunities for the reframing of climate change risk, through more inclusive and deliberative governance processes, are currently limited at the international level. The 'expert' nature of an impacts-based approach provides limited opportunities for vulnerability-based perspectives that may be classed as 'non-expert'. Further, the 'democratic deficit' that exists in many of the forums for the negotiation of adaptation funding guidelines presents barriers to the meaningful inclusion of developing country concerns.

The chapter then looked to the role of development institutions in addressing adaptation. It was shown that the development community has recognised the many synergies between development objectives, and, with adaptation emerging out of a development discourse, may be better placed to address the social-vulnerability concerns of an 'adaptation as development' approach. However, it was also highlighted that 'mainstreaming' adaptation into development does not necessarily lead to a more integrated, or 'development-first' approach to doing adaptation. Particularly in the case of 'climate-proofing', climate change impacts are assessed as separate and additional to development needs.

Further, the 'adaptation paradox' is based on the principle that adaptation funding should be additional to development assistance. Upholding this principle is important for maintaining trust between vulnerable developing countries and industrialised nations in the climate change negotiations. Thus, it is important that climate change adaptation is managed under the UNFCCC,

and not simply 'mainstreamed' into development. But, can adaptation policy frameworks under the UNFCCC address social-vulnerability?

It is suggested here that, despite the dominance of an impacts-based approach to adaptation under the UNFCCC, over time the context of adaptation has shifted and come to be associated with developing country issues. This has led to an increasingly development-orientated discourse on adaptation, that has become manifest in some of the principles of adaptation funding and policy, most notably around the LDC Fund, and the associated National Adaptation Plans of Action (NAPAs). NAPAs have therefore been touted as the most promising opportunity for the inclusion of developing country concerns on adaptation under the UNFCCC. The next two chapters of this thesis will explore the evidence that NAPAs have indeed achieved a more inclusive and development-based approach to adaptation.

Chapter 4: Analysing the inclusiveness of adaptation policy making under National Adaptation Plans of Action: A case study of Bangladesh[22]

> *"Planning should ensure that indigenous knowledge of the most vulnerable communities are given due recognition during NAPA preparation. All local experience and culturally specific knowledge within LDCs…is a critical resource"*
>
> (Huq and Khan, 2006:189)

4.1 Introduction

Chapters one and three have suggested that effective adaptation depends on understanding the local context of vulnerability, which requires deliberative and participatory approaches to adaptation policy-making. But, this thesis has questioned, where conflicting definitions of risk exist across scales, how can meaningful inclusiveness be achieved, and what sorts of institutions are needed? Chapter one discussed "deliberative governance" as one proposal for ensuring that all those affected by a decision are provided with the opportunity for participating meaningfully in the decision-making process. Chapter three suggested that under the United Nations Framework Convention on Climate Change (UNFCCC), the most promising opportunity for the participation of vulnerable groups in adaptation policy making is through National Adaptation Programme of Action (NAPAs) (Ayers, 2008; Polack, 2008).

The following two chapters critically assess these claims of inclusiveness under NAPAs in two sub-case studies of the NAPA process in Bangladesh and Nepal. Both studies collect and analyse evidence to address the questions: What is the evidence that the NAPA in each country achieved inclusive policy-making? And what were the circumstances that resulted in more or less inclusive policy-making processes? Assessing the case study data against these two case-study sub-questions questions will provide empirical evidence to answer the main research questions of this thesis around what kinds of institutional design enable local inclusiveness; and what circumstances facilitate or inhibit locally inclusive approaches under global climate change policy frameworks (see section 1.4).

This chapter presents and discusses the results of this data analysis from the Bangladesh sub-case study.

To address the question, "how inclusive was the NAPA process in Bangladesh"? It is necessary to consider what is being assessed; what makes participation deliberative, and what aspects of

[22] This chapter has been adapted for publication as Ayers, 2011. Resolving the Adaptation Paradox. *Global Environment Politics* 11(1).

inclusive institutional design should be evaluated? The first section of this chapter therefore reviews and expands debates from chapter one, that demonstrate the need to analyse not only the 'who' and the 'how' of participatory practice, but also the 'what': whether and how the content and context of deliberations influence the potential of deliberative practices to achieve inclusiveness. The second section of this chapter presents a brief analysis of the general NAPA preparation process and guidelines under the UNFCCC, highlighting the emphasis that is placed on 'inclusiveness' and 'indigenous knowledge' in NAPA design.

The third and main section of this chapter considers the extent to which the NAPA in Bangladesh achieves these inclusive aims, based on the fieldwork conducted in Bangladesh over a total period of nine months (see chapter two). This case study will be presented in two parts: First, in line with earlier discussions in this thesis around how the interactions between hazards, vulnerability, and environmental discourses can shape environmental policy making processes, this section analyses the data from key informant interviews and document analysis to understand these aspects of the Bangladesh NAPA context, and how these may have shaped climate change policy discourses in Bangladesh.

Second, this section presents the findings of a field study conducted in Noakhali, one of the sites of a proposed NAPA priority project. This field study used focus group discussions, key informant interviews, and a household survey (see chapter two) to better understand local perceptions of risk, drivers of vulnerability, and reactions to the NAPA project proposal. This section considers the results of this study against the NAPA 'outputs' in Bangladesh; the risks and adaptation priorities identified in the NAPA document.

Finally, this paper assesses the relationship between the NAPA outputs and the NAPA process, looking at the three elements of deliberative institutional design – 'who' was included, 'how' were they included, and 'what' was the content of deliberations. These findings are then discussed in relation to the implications for theory and policy.

4.2 Assessing deliberative inclusiveness: The who, how, and *what* of participation.

Aspects of inclusive institutional design: 'who', 'how', 'what'

Chapter one showed how a recognition of the need for 'inclusiveness' in development planning has resulted in the emergence "participation" in the last two decades as a key way to do

development (Chambers, 1983, 1997). However, chapter one also showed how participation has been criticised as presenting a "new tyranny" for development (Cooke and Kothari, 2001), and suggested that these criticisms coalesced around the 'who' and the 'how' of participation.

In terms of the 'who', such criticisms have shown how participatory activities especially around 'global' problems, can uncritically homogenise the 'local' (Cooke and Kothari, 2001; Cornwall, 2000; Williams, 2004). This can limit the ambition of participatory processes to stop at consulting 'the community' for 'its' view on a globally defined purpose. In terms of achieving 'local' inclusiveness in 'global' risks, such an approach overlooks the need for detailed consultations with different members of 'the local community' to understand who are the most vulnerable, why, and what their priorities would be in addressing risk. Further arguments that fall under the 'who' of participation centre on the "tyranny of the group": the group dynamics of participation often favour the most powerful (Cohen, 2007; Cornwall, 2000; Mendelberg and Karpowitz, 2007). The outcomes of any participatory exercise will therefore reflect the power dynamics between different actors, which influence what is said, by who, and who is listening.

In terms of the 'how' of participation, Cooke and Kothari (2001) suggest that there can be "tyranny of method", in which participatory methods can bind participants to structures of power that they are not able to question (Kothari, 2001). Other scholars have shown how participation techniques define who is included or excluded, and control the extent of inclusion. For example in relation to 'local' inclusion in 'global' problems, Cornwall (2000) suggests that perceiving the 'local' as an aggregate category results in "invited participation" techniques where 'community representatives' are invited to speak on behalf of their communities, with little attention paid to the extent to which these representatives can actually be said to *be* representative (Cornwall, 2000). Cornwall (2000) and others (Bassett and Zeuli, 2000; Kothari, 2001) suggest that those consulted are likely to be those with access to political assets, who as shown in chapter three are also likely to be among the least vulnerable of any group.

However, this thesis has suggested that a focus on the 'who' and the 'how' of participation does not pay adequate attention to how problem framings – the '*what'* of participation – can impact on the discursive dynamics of deliberation. Chapter one drew on debates from Science and Technology Studies (STS) that have shown how the construction of expertise and the politics of scale can influence deliberation around problems that have come to be framed as 'global' and 'expert', through the discursive exclusion of 'local' and 'lay' stakeholders. During participation, it is the 'experts' who define the problem and therefore what is a legitimate contribution to the solution; any alternative 'lay' approaches that reveal different problems or frame them in a

different way are taken as illegitimate in the 'expert' arena (Jasanoff, 2003). STS scholars suggest that as a result, the knowledge generated by consulting 'local' opinion on solutions to globally defined technical problems, is viewed at best as a form of "contributory expertise", and even then only taken into account when it fits the answer that the problem framing would inevitably give rise to (Jasanoff 2003:397)

Applying these debates to climate change, an 'impacts-based' approach to adaptation requires an understanding of the possibilities of current and future climate changes that are both intangible and very difficult to predict, resulting in an especially small pool of 'expertise' compared to other environmental problems. This starting point limits the selection of adaptation options to responses to predefined impacts, adding an instrumentalism to any participation process that is exacerbated by the 'expert' nature of the problem. An expert-driven, impacts-based perspective on adaptation actually makes inclusiveness problematic because it,

> Run[s] a high risk of encountering elements of local opposition, especially under conditions of scientific uncertainty and long-term risk. (Few et al., 2007:57).

On the other hand, discussions in chapter one suggested that a 'social-vulnerability' approach to adaptation opens up the debate to a much broader range of expertise that actually necessitates the inclusion of local stakeholders who can provide information on the causes of vulnerability. From a vulnerability perspective, it is precisely these "elements of local opposition" that would lead to a better understanding of how vulnerability is actually experienced and can be addressed. Many observers have therefore tried to draw attention to the fact that 'expert' or 'scientific' knowledge is also constructed and situated, and that a failure to acknowledge this will have detrimental consequences for enabling effective, deliberative policy making.

Chapter one therefore proposed that in assessing 'inclusiveness', analysis needs to look not only at the 'who' and the 'how' of participatory activities, but also at the 'what'; the way a problem is framed and the influence this has on the content and quality of deliberation. For 'inclusiveness' to be achieved, participation has to enable meaningful deliberation. This requires an analysis of not only how problem framings impact on the dynamics of participatory spaces; but also how and why such problem framings have emerged.

Assessing successful deliberation; deliberative process and outcomes

Assessing *deliberative* inclusiveness however, is not straightforward. As discussed in chapter one, there is much debate over precisely what constitutes 'meaningful deliberation'. Dryzek (2007) discusses several positions, for example, those who follow "Rawlsian"[23] approach suggest the content of any deliberative situation is based on "public reason", carried out by all citizens, for the good of all, through open procedures that are accessible to all. Gutman and Thompson (1996) advocate for the principle of 'reciprocity', so arguments are made in the terms that others with different perspectives would nevertheless accept and be able to reason with. A Habermasian perspective is based on the concept of "communicative rationality": that all discourses have a purpose or goal, and people affect that goal through rational argument (see chapter one). The validity of a claim to normative 'truth' depends upon a mutual understanding achieved by the individuals during the argument (thus ruling out coercion, deception, strategising and manipulation). Finally, Dryzek points to a more expansive view of deliberation that sees any kind of communication as valid provided that it is non-coercive, capable of inducing reflection, and of connecting the conversation to more general questions and principles (Dryzek, 2007:241).

There is, however, general agreement that deliberation "produces something rather than nothing") (ibid), so deliberation around a policy issue must produce an outcome in relation to that policy. Further, a pre-requisite for all of the perspectives outlined above is that everyone within the deliberative arena is equally capable of, and willing to, produce a rational argument; and equally capable of, and willing to be, 'reasonable' – i.e. open to changing their minds and preferences in light of reflection induced by the deliberative process (Dryzek, 2000). So for participation to be deliberative, participants must be reasoning, and that reasoning must have an impact on the exercise of power in a democratic way.

Thus, this discussion suggests that an assessment of the extent to which policy making can be said to be 'inclusive' (meaning deliberative, rather than just participatory) needs to consider the 'who', 'how', and 'what' of deliberative participatory *processes*; and then also whether the *outcomes* of deliberation had an impact on policy-making.

This approach is well exemplified by Fung (2007) in his assessment of deliberative governance in the creation of the 1990 Oregon Health Plan (Fung, 2007:175). Fung describes how during healthcare planning reforms, the Oregon Health Services Commission was required by the Health Care Act to undertake a participatory, community-based planning process. The choice of

[23] Stemming from John Rawls seminal work *A Theory of Justice* (1971), that discusses "justice as fairness" based on the principles of 'fairness for all'.

deliberative institutional design adopted by the Commission included a decentralised participatory advisory panel to solicit public input from various public assemblies.

Fung proposes that the institutional design features of selection (who participates?) and subject (what do people participate about?) skewed participation in the participatory assemblies towards a narrow band of professionals and citizens of high socio-economic status, because meetings were voluntary and little effort was extended towards recruiting from disadvantaged communities, so attendance was overwhelmingly from educated middle classes; and also, because the forum addressed healthcare, 70% of participants were healthcare professionals (Fung, 2007:175). However, Fung shows that the processes of deliberation – the 'how' of participation - were well structured; participants were actively engaged in discussions given the high stakes and high knowledge of the resulting audience on the subject matter; participants were given information materials and briefings to re-orientate them; and decisions were based on group consensus of the relative importance of various health-care values. Fung states that the rankings of health-care values from the deliberative forums were reflected in the resulting health-care policy decisions (Fung, 2007:176)

On the one hand, this institutional design was relatively successful, in that the deliberative outputs of the assemblies were reflected in the policy-making process; the outcomes deliberation had an impact. However, it is unclear from Fung's description whether the 'orientation' of participants presented any opportunities for participants to contest of reframe the problems under discussion, or whether this was a straightforward "expert teaches lay" approach. This thesis has argued that how participants reach a common platform for discussion is a significant factor in enabling meaningful deliberation. Further, the choice of 'who deliberates' and 'what is deliberated about' meant that there was little opportunity for non-healthcare experts and lower socio-economic groups to access the debate in the first place, which has significant implications for the democratic quality of the policy deliberation. These design choices are important when it comes to deliberating around climate change adaptation policy. It could be argued for example that it is the poorest and disenfranchised for whom public healthcare policy is most relevant, because they are the least likely to have access to private alternatives. Thus, it is important these groups are adequately represented in policy debates.

This case study of the Oregon healthcare plan supports the discussions above that that choices around 'who', 'how', and 'what' of deliberation have significant implications for the inclusion of vulnerable people in the decision-making; and also that both deliberative processes, and deliberative outcomes, need to be included in assessments of deliberative governance. This

chapter will therefore assess these elements of deliberative institutional design in the NAPA process in Bangladesh. This analysis will be used to address the question: What is the evidence that the NAPA process in Bangladesh was inclusive?

However, chapter one also showed how existing debates in deliberative politics do not pay adequate attention to the influence of external contexts and discourses in shaping deliberative processes. Taking an environmentally determinist perspective, the types of hazards and indicators of vulnerability are likely to be influential in shaping the adaptation priorities proposed in the NAPA. These will be factored in to this chapter, which will describe the key environmental characteristics of Bangladesh and the climate change impact projections for the country. However, chapter one also showed that such normative judgements on hazards and vulnerability can themselves be shaped and influenced by discursive contexts. For example, Maarten Hajer (1995) discussed how environmental "storylines" or "narratives" can dominate hegemonic discourses and influence the behaviour of actives within deliberation. Similarly, Peet and Watts (1996) describe "regional discursive formations" as strong themes that can dominate the discursive history of a region and influence policy making. This chapter will therefore also examine the environmental narratives that have dominated environmental policy making in Bangladesh, and if and how these may have influenced climate change discourses in the region.

Thus, the empirical section of this chapter (section 4.4) will begin with an analysis of the background and context to the NAPA preparation process to answer the question: "What were the circumstances that resulted in more or less inclusive policy-making processes?" Before using field study analysis to address the question: "What is the evidence that the NAPA process in Bangladesh was inclusive?" But first, this chapter will present the general NAPA preparation process, focusing on the guidance for achieving 'local' inclusiveness.

4.3 The NAPA Process

The NAPAs were born out of the seventh Conference of the Parties to the UNFCCC (COP 7), held in Marrakech in 2001. COP 7 saw the establishment of specific funds for assisting the Least Developed Countries in managing the impacts of climate change (the LDC Fund), and the first step of this assistance was the funding of National Adaptation Plans of Action (see chapter three section 3.4 for a full discussion on the establishment of the LDC Fund and NAPAs). Guidance for NAPA preparation was developed by the Least Developed Countries Expert Group (LEG) (see box 4.1).

Box 4.1: The Least Developed Countries Expert Group (LEG)
Source: Adapted from www.unfccc.int

The LEG was also established as part of the Marrakesh Accords, and is composed of 12 "experts", including five from African LDC Parties, two from Asian LDC Parties, two from small island LDC Parties, and three from Annex II Parties (OECD member countries). Both Bangladesh and Nepal are currently members. The objective of the LEG is to provide advice to LDCs on the preparation and implementation of national adaptation programmes of action. The LDC expert group meets twice a year.

The LEG defines the purpose of NAPAs as a vehicle for LDCs to communicate their most "urgent and immediate adaptation needs" to the UNFCCC for funding from the LDC Fund. "Urgent and immediate needs" are defined as those for which further delay in implementation would increase vulnerability or increase adaptation costs at a later stage (LEG, 2002:1). Guidelines for NAPA project preparation prepared by the LEG recommend four key steps for NAPA preparation. These include:

1. The synthesis of available information on the adverse effects of climate change and coping strategies, which needs to be collated and reviewed;
2. A participatory assessment of vulnerability to current climate variability and extreme events and of areas where risks would increase due to climate change;
3. The identification of key adaptation measures;
4. The identification of prioritization criteria for selecting NAPA activities for inclusion in the NAPA document and for submission to the LDC Fund.

Based on these steps, each country produces a NAPA document that lays out this list of priority project activities, which then need to then be developed into full project documents, and can then be submitted for funding under the LDC Fund, or to other funding sources.

The annotated NAPA guidelines explicitly recognise the underlying factors related to development that exacerbate vulnerability, and the need to address these to build resilience to climate change (LEG 2002: 1) and also seem to expand the definition of adaptation beyond that of the UNFCCC by including adaptation to climatic variability as well as climate change. The guidelines state:

> Strategies to cope with current climate variability and extremes exist at the community level. Hence one of the functions of the NAPA is to identify urgent action needed to expand the current coping range and enhance resilience in a way that would promote the capacity to adapt to current climate variability and extremes, and consequently to future climate change. *(*LEG 2002: 1).

There are several key principles on which NAPA preparation should be based: Preparation should be 'country driven'; NAPAs should be developed through participatory processes involving a variety of stakeholders across relevant government, civil society and private sectors; prominence given to community-level input as an important source of information; and they should be complementary to and build on existing development and environmental plans and programmes (LEG 2002:2). The NAPA guidelines emphasise the importance of participation of vulnerable communities in NAPA preparation, stating:

> The participation of men and women at the grassroots-level is essential for two reasons. First, they are able to provide information on current coping strategies that the NAPA seeks to enhance. Second, they will be affected the most by climatic impacts and hence will benefit the most from the actions prioritized in the NAPA…Early engagement of people at the grassroots level will be important in ensuring successful implementation of NAPA activities. (LEG, 2002: 2).

In terms of the NAPA guidelines, then, NAPAs go beyond the narrow definition of adaptation adopted by the UNFCCC, explicitly recognising the need to address the underlying factors related to development that exacerbate vulnerability to climate variability and climate change; and also stress the importance of including vulnerable communities in the adaptation decisions that affect them.

However, some critics have suggested that the approach taken for developing NAPAs is not necessarily compatible with a 'social-vulnerability' approach to adaptation (Schipper, 2007). For example, Schipper suggests that in taking a projectised approach to adaptation, adaptation is automatically taken as an objective or outcome, rather than a process. This contradicts a vulnerability-based perspective on adaptation, which involves a process of building adaptive capacity by creating the enabling conditions for adaptation to take place. Indeed, the notion of meeting 'urgent and immediate' needs reveals that adaptation is something that can be done in the short term, and not part of a longer term planning process. As noted by Schipper, from a vulnerability perspective,

> Adaptation to climate change is not as simple as designing projects, drawing up a list of possible adaptation measures and implementing these. It requires a solid development process that will ensure that the factors that create vulnerability are addressed. (Schipper, 2007:6).

Therefore while seemingly expanding the framing of adaptation under the UNFCCC, in practice the guidelines for NAPAs appear to be constrained by it. The next sections of this chapter present the findings from the sub-case study of the NAPA process in Bangladesh. This study will be presented in two parts: First, the background and context of the NAPA process will be reviewed; second, the findings from the field study conducted in Noakhali, one of the sites of a proposed NAPA priority project, will be presented and discussed.

4.4 Country case study part one: The context of the NAPA in Bangladesh

This section presents the data collected from key informant interviews and document analysis undertaken in Bangladesh between 2007-2009 (see chapter two), on the contexts of hazards, vulnerability, and environmental policy discourses, against which the Bangladesh NAPA was prepared. The section then gives a brief overview of the key features of the Bangladesh NAPA.

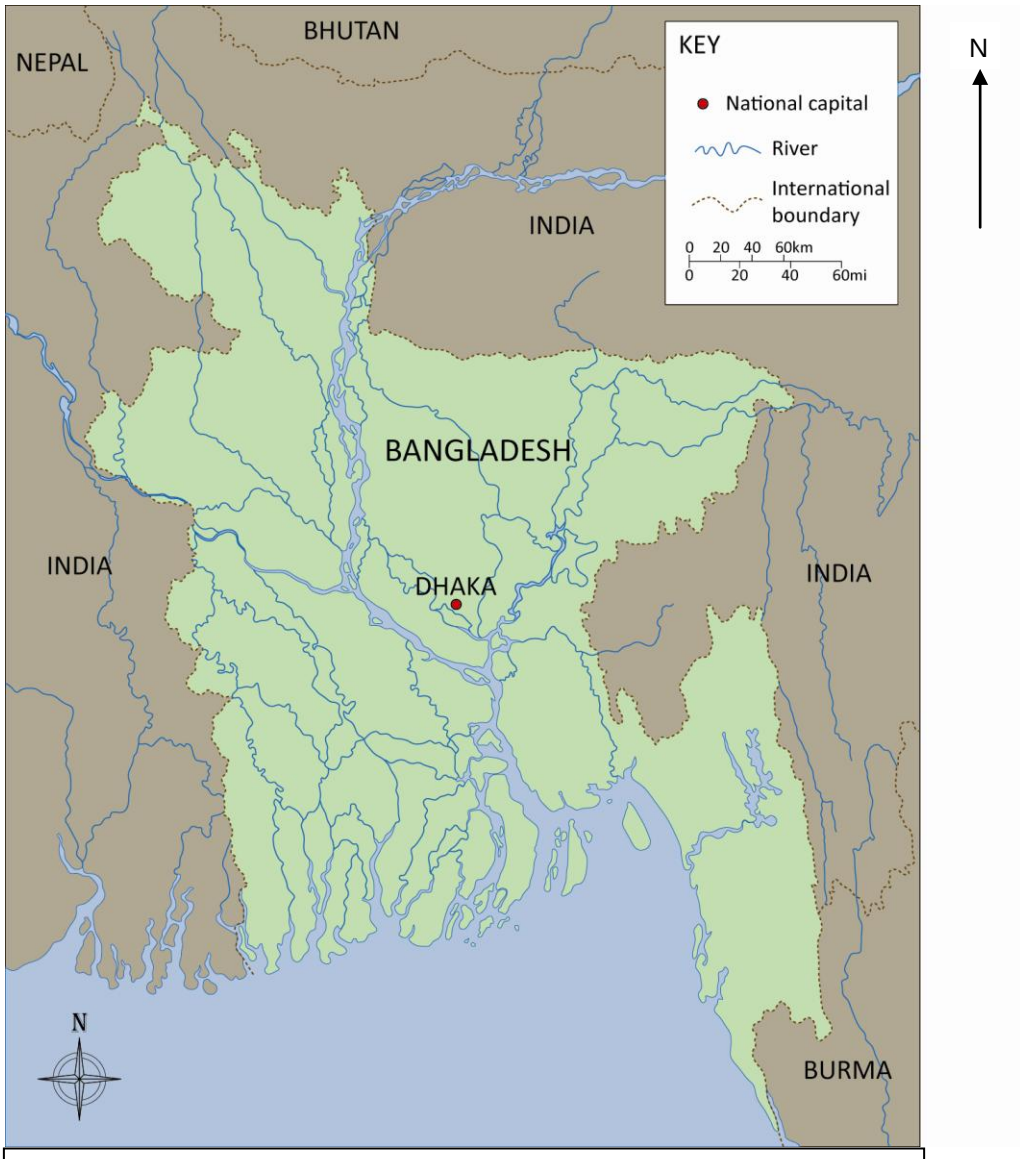
Hazard and vulnerability context

Bangladesh is frequently cited as one of the most vulnerable countries to climate change (Huq, 2001; Huq and Ayers, 2007; Rahman and Alam, 2003; UNDP, 2007). Drawing on Blakie et al.,'s (1994) model of vulnerability as outlined in chapter 3, which emphasises both social and biophysical elements of vulnerability, Bangladesh is vulnerable to climate change both because its geography makes it physically exposed to climatic hazards; but also because of the socio-economic factors that make people vulnerable to those hazards. Following on, not everyone in Bangladesh is equally vulnerable: some are more 'exposed' than others, some are more socially vulnerable, and social-vulnerability often drives physical exposure, which in turn can exacerbate social vulnerabilities.

In terms of geography, Bangladesh is a coastal country on the Bay of Bengal with a flat and low-lying topography, exposing it to major storm and cyclone events as well as coastal flooding. Most of Bangladesh is less than ten metres above sea level, with almost ten percent of the country below 1 metre. For example, between 1960 and 2002, Bangladesh experienced over 40 cyclones with up to half a million human causalities per event (Huq and Khan, 2006). In November 2007, Bangladesh was hit by the tropical cyclone Sidr, with a 100 mile long front covering the breadth of the country and with winds up to 240 km per hour. 30 districts were damaged, with the 11 districts closest to the coast damaged most severely. The infrastructure

of more than half a million homes was affected with nearly one million all or particularly destroyed.

Further, Bangladesh is one of the largest deltas in the world, formed by a dense network of the distributaries of the rivers Ganges, Brahmaputra, and the Meghna, and more than 230 major rivers (see map 1). 80 percent of the land is floodplain, and only in the extreme northwest do elevations exceed 30 metres above mean sea level. This topography makes the majority of Bangladesh (with the exception of the far west 'highlands') prone to flooding at least part of the year, with the floodplains of the north western, central, south central and north eastern regions subject to regular flooding (MOEF, 2005). The extent of flooding is exacerbated by the sediment loads brought by the three major Himalayan rivers, coupled with a negligible flow gradient, which increases congestion (Agrawala et al., 2003).



Map 4.1: Map of Bangladesh showing river network. *Source: Adapted from map provided by BCAS, Dhaka.*

In terms of climate, Bangladesh is characterised by high temperatures, heavy rainfall, high humidity, and fairly marked seasonal variations. Bangladesh experiences a heavy monsoonal rainfall from June to October, which amounts to two thirds of the annual rainfall, often resulting in severe flooding in urban areas. In the dry season, droughts are common, particularly when monsoonal rainfall patterns are disturbed; for example, between 1960 and 1991, a total of 19 droughts occurred in Bangladesh (Agrawala et al 2003). The Southwest and Northwest regions are particularly susceptible to drought.

Many of the projected impacts of climate change on Bangladesh are expected to exacerbate these existing environmental hazards. For example, the impacts of climate change are likely to include increased frequency and intensity of cyclones and extreme precipitation events; increased moisture stresses in the dry season; exacerbate flooding and cause salinity of freshwater supplies; and result in greater temperature extremes (see box 4.2).

Box 4.2 Climate change impacts in Bangladesh
Source: Huq and Ayers, 2008

Many of the projected impacts of climate change will reinforce the baseline environmental, socio-economic and demographic stresses already faced by Bangladesh. Climate change is likely to result in:

Increased intensity of cyclone winds and precipitation
Evidence presented in the IPCC suggests that projected increases in wind speed by the end of the century will contribute to enhanced storm surges and coastal flooding, and also project a 20 percent increase in intensity of associated precipitation that would contribute to flooding (IPCC, 2007). Cyclone winds are likely to increase in intensity because of the positive correlation with sea surface temperature. The IPCC FAR also note that climate change will be associated with greater precipitation extremes, which includes more intense monsoonal rainfall.

Increased moisture stress during dry periods
Climate change will exacerbate drought in Bangladesh both in terms of intensity and frequency linked to higher mean temperatures and potentially reduced dry season precipitation. Greater precipitation extremes associated with climate change also mean less rainfall in the dry season, which will increase water stress on those areas that already experience water shortages. This may be worse for those areas that depend on glacial melt water for their main dry-season water supply, as glaciers recede with rising temperatures.

Increased flooding
Precipitation extremes will result in increased rainwater flooding, both because of the increase in monsoon rains, and also increased incidences of flash floods associated with increased intensity of precipitation. Sea level rise will directly result in increased coastal flooding. Sea level rise in Bangladesh is higher than the mean average rate of global sea level rise over the past century, because of the effects of tectonic subsidence. (Rahman and Alam, 2003). Sea level rise is also associated with increased riverine flooding, because it causes more backing up of the Ganges-Brahmaputra-Meghna rivers along the delta (Argrawala et al., 2003). Higher temperatures may result in increased glacier melt, increasing runoff from the neighbouring Himalayas into the Ganges and Brahmaputra rivers.

Increased salinity

The availability of freshwater will be reduced by increased salinity intrusion into fresh water sources during the low flow conditions. In the coastal regions this is brought about by sea level rise resulting in saline water intrusion in the estuaries and into the groundwater. The effects are exacerbated by greater evaporation and evapotranspiration of freshwater as temperatures increase, coupled with a greater demand for fresh water in times of water stress.

Greater temperature extremes
Climate change is associated with hotter summers and colder winters. Temperatures in Bangladesh have increased about 1°C in May and 0.5 °C in November between 1985 and 1998, and further temperature increases are expected (Reid and Sims, 2007). However, although the overall climate is warming, temperature extremes are increasing, and winter temperatures as low as 5°C have been recorded in January 2007, reportedly the lowest in 38 years (ibid).

In terms of defining *vulnerability* to these hazards, many of the socio-economic characteristics of Bangladesh make it both vulnerable to environmental hazards associated with climate change, and limit its adaptive capacity. For example, chapters one and three both highlighted poverty as one of the most salient indicators of vulnerability (Ribot, 2010). Bangladesh remains defined as one of the "Least Developed Countries" because of its poverty indicators. These include a GDP per capita (PPP US$) of 1,241; a life expectancy at birth of 67.5 years; and an adult literacy rate of 53.5 percent (UNDP, 2009a). The Human Development Report ranks Bangladesh number 140 of 177 nations, with an HDI[24] value of 0.543 (UNDP, 2009). Further, Bangladesh's GDP is severely threatened by climatic hazards because of its dependency on climate sensitive resources. Bangladesh is predominantly agricultural, with two thirds of the population engaged in farming activities (although more than three quarters of Bangladesh's export earnings come from the garment industry) (Huq and Ayers, 2008).

Everyone in Bangladesh is not equally vulnerable to climate change. For example, in a review of studies on vulnerability to climate change in Bangladesh, Reid and Sims (2007) suggest that the urban poor have been highlighted as especially vulnerable to the impacts of climate change, because of the fragility of the infrastructure of slums and squatter settlements, and the lack of employment security in urban areas. In the rural areas, the authors suggest that those with insecure land tenure, particularly the lower Adivasi castes, are also particularly vulnerable. The authors also suggest that the inherent gender inequalities in various social, economic and political institutions make women more vulnerable than men. For example, land access is particularly problematic for women because it is often obtained on a limited usufruct basis through marriage, which can leave women landless on divorce, and denies them collateral (Reid and Sims, 2007).

[24] Human Development Index (HDI) looks beyond GDP t a broader definition of well-being. The HID provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy); being educated (measured by adult literacy and education enrolment); and having a decent standard of living (measured by purchasing power parity).

This gender aspect of vulnerability in Bangladesh was highlighted during many interviews with donor and NGO agencies in Bangladesh undertaken for this study (Action Aid, personal communication, February 2009; DfID, personal communication, February 2009; Practical Action, personal communication, February 2009). However, as noted in chapter one, caution is needed in identifying essentialist categories of vulnerability a priori to the vulnerability assessment, as this can overlooks the complex ways in which vulnerability is locally experienced and determined (see chapter one).

Environmental narratives and policy-making in Bangladesh

The environmental hazard and vulnerability context of Bangladesh has led to a strong environmental and development policy history centred on flood and cyclone management. Lewis (2009) describes how concerns about flood control rose up the international development agenda following disastrous floods of 1987 and 1988, which environmentalists had associated with increasing Himalayan deforestation upstream in the mountainous regions of Nepal. Lewis suggests this resulted in Bangladesh's long standing 'flood problem' suddenly becoming a donor priority and high profile international cause, in much the same way as we are seeing climate change moving up the donor agenda in Bangladesh now. Lewis discusses the resulting high profile Bangladesh Flood Action Plan (FAP), a large scale, multi-donor project formally approved following international discussions around the plight of Bangladesh's flooding problem at the 1989 G-7 summit. The primary pillar of the FAP was the construction of tall embankments alongside Bangladesh's three main rivers, at an estimated cost of $US5-10 billion. This mega-project was to be one the largest development projects ever undertaken (Lewis, 2009).

However, Lewis suggests that the FAP quickly became a controversial project. First, the plan was conducted in a 'top-down' manner, where the main content of the Plan was developed in London under World Bank guidance, raising important issues of accountability, ownership, and public participation. Second, the FAP's primary emphasis was on technical and engineering solutions, paying little heed to the 'soft' solutions that built on existing, often community-centred, means of flood management embedded in generations of learning from dealing (or not) with flooding problems. For example, little attention was paid to historical experiences from colonial times that demonstrated how the building of embankments could actually lead to the silting of rivers and *increase* flooding problems. Third, the project relied predominantly on donor-country expertise from foreign contexts such as lowland water management in the

Netherlands, "potentially out of step with Bangladesh's own distinctive ecology and society" (Lewis, 2009:6). Finally, Lewis argues that the project began to dominate the donor landscape, subordinating other equally pressing development priorities that may actually have been more conducive to reducing *vulnerability* to flooding. As a result of these controversies, by 1993 the FAP had lost momentum, and the Dhaka embankment and another built in Tangail were the only tangible results (Lewis, 2009).

Lewis proposes that many lessons can be drawn from this history of environmental policy-making in Bangladesh that are relevant for the climate change policy processes currently underway. First, Lewis draws our attention to the "crisis narratives" on environmental hazards that can perverse the logic of environmental policy-making. Such narratives around flooding are well exemplified by the communiqué from the G-7 summit in July 1989, which gave rise to the FAP:

> Bangladesh…is periodically devastated by catastrophic floods…[there is a] need for effective, coordinated action by the international community…to find solutions to this major problem which are technically, financially, and economically sound. (World Bank, 1989; cited Lewis, 2009:5).

The case of the FAP in Bangladesh demonstrates how environmental 'crisis' narratives can dominate environmental policy-making, subverting the importance of the historical and contextual factors that drive vulnerability, as well as the often localised and non-technical solutions to environmental problems that already exist. However, similar essentialised crisis narratives have begun to emerge around climate change in Bangladesh. Ayers and Huq (2009a) suggest that climate change has become the new environmental-crisis 'face' of Bangladesh, with a new climate discourse coming to dominate the development agenda. In much the same way as Lewis' description of flooding subsuming donor priorities in the 1980s and 1990s, since 2000 climate change adaptation has become the new holy grail of development in Bangladesh. Ayers and Huq state:

> Having previously been the 'face' of environmental fragility, Bangladesh is fast becoming the example…in climate change adaptation, used by many donors to showcase action and investment in adaptation. (Ayers and Huq, 2009a:760)

Much of the climate change narrative in Bangladesh focuses around coastal flooding and cyclone management, with far less attention in the international agenda – both politically and

in the media – being paid to, for example, the implications for drought in the Far West regions. This is likely because climate change is in many ways building on existing the environmental problem discourses of cyclones and flooding. For example, Lewis describes a 'climate refugee' narrative as a case in point, which describes the landlessness that will be caused by sea-level rise, potentially displacing millions people around the coastal belt of Bangladesh. This narrative has become a popular tag-line for highlighting the urgency with which Bangladesh needs to adapt to the impacts of climate change, exemplified by various newspaper articles with headlines such as "Bangladesh faces climate refugee nightmare" (Reuters news agency, April 14th 2008, cited Lewis, 2009).

It is true that sea-level rise and an increase in frequency and intensity of storms and cyclones associated with climate change, is likely to increase coastal land erosion and increase pressure on infrastructure and livelihoods of coastal residents. Nevertheless, the new 'climate refugee' narrative suggests that people relocating in light of environmental stresses is somehow a new phenomenon only associated with climate change, rather than a result of the inherent fragility of people's livelihoods in relation to a constantly changing landscape of eroding rivers and shore lands. As Lewis suggests:

> There is a danger that the crisis discourse of climate change is beginning to obscure other deep-rooted causes of insecurity, and the policy efforts to address these problems. (Lewis, 2009:7).

As such, Lewis cautions that climate change policy should build on the lessons learned from cases such as the FAP, and ensure that the emergence of 'crisis narratives' does not obscure the importance of the factors driving vulnerability to these crises.

Overview and key features of the Bangladesh NAPA

The Bangladesh NAPA was developed against this contextual backdrop. Bangladesh was one of the first countries to complete its NAPA in 2005. NAPA preparation was led by the Ministry of Environment and Forests under the Government of Bangladesh, with the United Nations Development Programme as the implementing agency. The final NAPA document was based on background papers prepared by 6 sectoral working groups, each coordinated by either a government or non-government lead agency. These were: i) Agriculture, Fisheries and Livestock; ii) Forestry, Biodiversity and Land-use coordinated; iii) Water, Coastal Zone, Natural Disaster and

Health; iv) Livelihood, Gender, Local Governance and Food Security; v) Industry and Infrastructure; and vi) Policies and Institutes. During the course of NAPA preparation, four sub-national and one national public consultation workshops were held, the outputs of which were incorporated into the final NAPA document.

The Bangladesh NAPA identified coastal communities in Bangladesh as particularly vulnerable to the impacts of climate change, including salinity intrusion and inundation of coastal lands as a result of sea level rise as well as exposure to more frequent extreme climatic events. Without adaptation, the NAPA suggests that low lying deltaic floodplains of Bangladesh are likely to experience a submergence of 17.5 percent of the country's land mass associated with climate-change induced sea-level rise in coastal regions by approximately 2030, which could result in the displacement of 6-10 million people by 2050, and 20 million by 2100 (MOEF, 2005).

The Bangladesh NAPA proposes 15 projects that would contribute towards meeting Bangladesh's 'urgent and immediate' adaptation needs (see box 4.3). One priority project has so far been submitted to the GEF for funding from Bangladesh, targets coastal communities, and is entitled, *"Community-Based Adaptation to Climate Change through Coastal Afforestation in Bangladesh".* The fact that only one project has gone forward for funding illustrates an ongoing frustration by LDCs who have completed NAPAs. Despite NAPAs highlighting "urgent and immediate" adaptation needs, global responses to these identified needs are far from "immediate". Indeed, many observers have remarked how there is not in fact enough funding in the LDC Fund to fund all NAPA priorities (Mace,2006). This supports the proposition put forward in chapter three that the LDC Fund was developed more to appease LDCs in the climate change negations, rather than a sincere attempt to ensure a 'bottom-up' and inclusive adaptation planning in the most vulnerable countries.

The objective of the Bangladesh NAPA priority project is to improve the resilience of coastal populations, settlements and ecosystems in areas exposed to coastal hazards. The proposed project is based on the priority intervention highlighted in the NAPA, namely the "reduction of climate change hazards through coastal afforestation with community participation" (MOEF, 2005:24). The core components of the project are presented in Box 4.4. The first component of the project focuses on a coastal afforestation programme through a community-led mangrove plantation programme (MOEF, 2008:2).

Box 4.3: The final list of NAPA priority projects
Source: MOEF, 2005

1. Reduction of climate change hazards through Coastal afforestation with community participation
2. Providing drinking water to coastal communities to combat enhanced salinity due to sea level rise
3. Capacity building for integrating Climate Change in planning. Designing of infrastructure, conflict management and land water zoning for water management institutions
4. Climate change and adaptation information dissemination to vulnerable community for emergency preparedness measures and awareness raising on enhanced climatic disasters
5. Construction of flood shelter, and information and assistance centre to cope with enhanced recurrent floods in major floodplains
6. Mainstreaming adaptation to climate change into policies and programmes in different sectors.
7. Inclusion of climate change issues in curricula, at secondary and tertiary educational institution
8. Enhancing resilience of urban infrastructure and industries to impacts of climate change
9. Development of eco-specific adaptive knowledge (including indigenous knowledge) on adaptation to climate variability to enhance adaptive capacity for future climate change
10. Promotion of research on drought, flood and saline tolerant varieties of crops to facilitate adaptation in future
11. Promoting adaptation to coastal crop agriculture to combat salinity
12. Adaptation to agricultural systems in areas prone to enhanced flash flooding – North East and Central region
13. Adaptation to fisheries in areas prone to enhanced flooding in North East and Central Region through adaptive and diversified fish culture practices
14. Promoting adaptation to coastal fisheries through culture of salt tolerant fish special in coastal areas of Bangladesh
15. Exploring options for insurance to cope with enhanced climatic disasters

Box 4.4: Core components of coastal afforestation project (*Source: Adapted from* MOEF 2008:ii)

1. The project "Community-Based Adaptation to Climate Change through Coastal Afforestation in Bangladesh Government" proposes a project to reduce the vulnerability of coastal communities to climate change-induced risks in 5 coastal districts (Barguna, Patuakhali, Bhola, Noakhali, and Chittagong) under 4 coastal forest divisions. The project is based on the following components:
2. Enhancing the resilience of coastal communities and protective ecosystems through community-led adaptation interventions, focusing on coastal afforestation and livelihood diversification;
3. Enhancing national, sub-national, and local capacities of government authorities and sectoral planners to understand climate risk dynamics in coastal areas and implement appropriate risk reduction measures;
4. Reviewing and revising coastal management practices and policies with a view on increasing community resilience to climate change impacts in coastal areas; and
5. Developing a functional system for the collection, distribution and internalization of climate-related knowledge.

The next sections of this chapter will assess the extent to which the Bangladesh NAPA reveals and communicates the reality of how risk is experienced at the local level; and whether the coastal afforestation project represents the most appropriate response measure for facilitating adaptation amongst the most vulnerable groups. These outcomes are then discussed in relation to the participatory processes used under the NAPA, under the three aspects of deliberative

institutional design identified by this thesis: The who? How? And what? Of participation and deliberation.

4.5 Country case study part 2: Outputs from the field study: Does the Bangladesh NAPA reflect the diversity of vulnerability experiences at the 'local' level?

Overview of field study

This section addresses the question: What is the evidence for inclusive adaptation policy-making in Bangladesh? By considering whether the NAPA project document[25] reveals the disaggregated ways in which risk experienced at the local level. This section presents and analyses the findings from a field study carried out in Noakhali, one of the sites for the first proposed project to be implemented from NAPA (see map 4.2 and box 4.5). The details of the methodology for this study are described in chapter two, but are briefly summarised here.

The purpose of the field study in Noakhali was to better understand the diversity in local perceptions of risk, causes of vulnerability, and reactions to the NAPA project proposal. Noakhali is a coastal district in the South-eastern part of Bangladesh. The coastal side of Noakhali is protected by a coastal embankment, although the land that has accreted beyond the embankment is increasingly being settled, largely by migrants from the nearby island Hatiya, who have lost their land due to erosion.

Fieldwork was undertaken to Noakhali, with research activities including key informant interviews with local stakeholders including government, NGOs and community-based organisations; household (HH) surveys of 50 households each in two Upazilas (sub-districts) of Noakhali; and transect walks which crossed and extended beyond the embankment. Four sets of focus group discussions were held: three with the main livelihood groups of the area as categorised by the District Commissioners Office (agricultural farmers (small landowners); agricultural/other day labourers (landless); and fishermen); and one female only group, as the other three groups were exclusively men (see photographs 4.1 and 4.2). The purpose of the fieldwork was to glean information around for example asset holdings and gender/occupation of respondents; perceptions of 'risk' (environmental and other risks); coping strategies; and opinions on the NAPA project proposal (see chapter 1 for full details of research methodology). Given the small sample size of respondents, it should be noted that these findings are intended to reflect the opinions of respondents only, which may or may not reflect patterns across the community. This section

[25] From here, the "NAPA" will refer to the NAPA coastal afforestation project document.

considers the results of this study against the NAPA 'outputs' in Bangladesh; the risks and adaptation priorities identified in the NAPA document.

Box 4.5: Contextual background of Noakhali District

Source: Matin, 2007. Risk Assessment and Evaluation of Probability of Extreme Hydrological Events and Recommendation on Subsequent Disaster Management for Noakhali Sadar and Subarno char thanas: Final Report. Unpublished report obtained from IUCN, Bangladesh.

Noakhali district itself has a population of approximately 2,500000, (the population of Noakhali Town 75,000) and is divided into six Upzilas and five municipalities. The Upzilas are Noakhali sadar, Begumganj, Chatkhil, Companiganj, Hatiya and Senbagh; the municipalities are Begumganj (Chawmuhani), Companiganj (Bashurhat), Noakhali Sadar, Chatkhil, and Kabirhat (Sadar). The coastal side of Noakhali is protected by a coastal embankment, although the land that has accreted beyond the embankment is increasingly being settled, largely by migrants from the nearby island Hatiya, who have lost their land due to erosion.

Key facts and figures for Noakhlai:

- The literacy rate among the town people is 60.7%.
- Main occupations:
  - Agriculture 30.27%
  - agricultural labour 16.99%
  - wage labourer 2.86%
  - commerce 12.23%
  - service19.39%
  - transport 2.46%
  - fishing 1.4%
- Land-use:
  - Total cultivable land 229385 ha,
  - fallow land 17136 ha.
- Land control:
  - 21% landless
  - 41% marginal
  - 21% small holding
  - 14% intermediate
- Main crops: Paddy, peanuts, pulses, chilly, sugarcane, potato
- Main fruits: Mango, jackfruit, papaya, coconut, banana, litchi, betel nut, palm
- Fisheries, dairies and poultries: Dairy 62, poultry 129, fishery 60, hatchery 32, artificial breeding centre 1, government breeding centre 1.
- Communication facilities: Roads: Metalled 804 km, semi-metalled 485 km, earthen road 2274 km; water ways 30 nautical miles, ferry ghat 1, railways 28 km, rail station 7.

Box 4.6 Other government, NGO and CBO activities in the district

Other government, NGO and community activity in Noakhali was investigated in order to better understand patterns of social organisation and mobilisation. This analysis was driven by the premise that the least vulnerable are likely to also be the least socially organised groups, and that building adaptive capacity should learn from existing patterns of social organisation and autonomous adaptive practices already being undertaken. An institutional mapping exercise was undertaken with a local IUCN office and local NGO, the Socio-economic Development Organisation (SDO), and supplementary information was gleaned from interviews with all local stakeholders.

In terms of government activities in the district, government is organised according to (in decreasing hierarchy): District, Upazila (sub-district), Union (village clusters), and village. Central government programmes in the area related to climate change included an Integrated Coastal Zone Management Programme (ICZMP), which covers the whole of the coastal belt. At the Upzila level local government officers including for land, agriculture, engineering and fisheries, are responsible for implementing central government decisions. For example, the Government Engineering and Development Officer (LEGD) implements district-wide structural programmes including construction and maintenance of roads, cyclone

shelters, and market places. District level officers work in partnership with donors and NGOs on implementation.

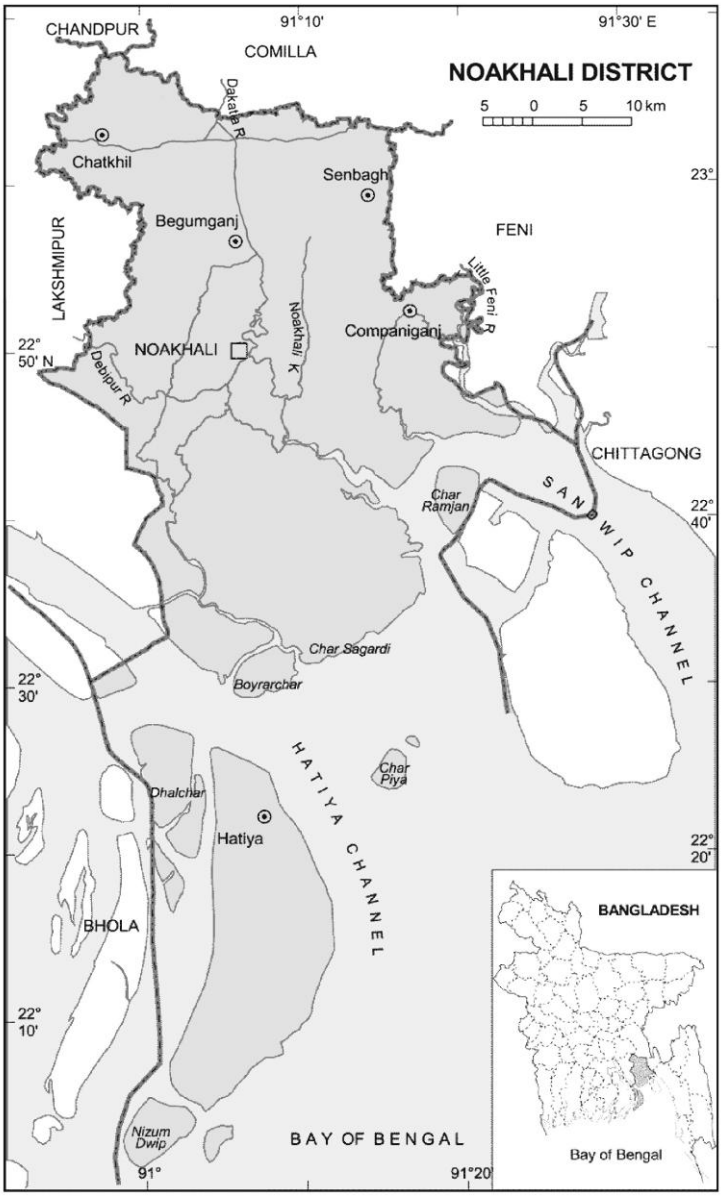
Local priorities are set by the Union Chairman, the local elected official who is directly accountable to the electorate. In the Noakhali Union of Char Clarke, the Union Chairman stated that the Union office worked directly with donors, but did not think that NGOs were relevant partners. The Chairman also described a disconnect between the Union level and central government.

Direct donor-funded activities in the area included the Danida[26] funded "Regional Fisheries and Livestock Development Component" (RFLDC) of the Agricultural Sector Programme Support in Bangladesh. This programme worked in partnership with Union level of government and other donor/government collaborations such as CDSP [get more details], as well as local community-based organisations, the strengthening of which was one of the objectives of the programme.

International NGOs active in the area included IUCN, Care, Oxfam, Action Aid and the Red Crescent. These worked through local NGO partners (for example, SDO is the implementing partner for IUCN, while Care and Oxfam fund the activities of Sagarika) and coordinated with local government, for example Red Crescent implements awareness raising programmes for storms and cyclone warnings in collaboration with the Union-level government. The majority of the national NGOs (such as Grameen and BRAC) and local NGOs provide micro-credit services. Many respondents were critical of the role of microcredit in building the capacity of the most vulnerable, because of the size of loans and the ability to pay back that would be required.

There was notably little government, NGO or donor funded work beyond the embankment. Evidence of social organisation here was also poor, with no community-based organisation or community 'hub'.

[26] There is a long history of Danish support to the Noakhali region dating back to the 1970s



Map 4.2: Noakhali District, Bangladesh. *Source: Author.*

Photograph 4.1: Focus group discussion with a group of women in Noakhali. November 2008.

Photograph 4.2: Focus group discussion with a group of farmers in Noakhali. November 2008.

Data analysis: Perceptions of risk and vulnerability from respondents in Noakhali

The first area of investigation was around local perceptions of risk, and how these compared to those identified in the NAPA project document. The NAPA project document highlights four key physical effects of climate change for the coastal belt of Bangladesh: increasing salinity trends in coastal freshwater resources, growing drainage congestion, dynamic changes in coastal morphology, and a decline in the functioning of protective ecosystems (MOEF, 2008:ii). In the target district of Noakhali, the specific problems of cyclones, tidal bores, river erosion and drainage congestion were prioritised.

HH survey data was used to get an overview of the types and extent of climate-related impacts that were felt to present a risk and prioritized by residents in Noakhali. Each impact mentioned by HH survey respondents was recorded, and the most popular impacts were grouped into three 'hazard categories' according to how they were discussed by respondents. Respondents tended to discuss storms, cyclones and tidal bores as one type of climatic hazard; salinity intrusion and waterlogging as a second; and river erosion as a third. Other hazards mentioned were either only mentioned once or twice or did not relate to climatic factors (for example, arsenic contamination in drinking water was also a concern for many people but could not be related to climatic conditions). These impacts were then ranked according to the number of times they were mentioned in the HH survey by different respondents:

1 = Mentioned by 46 /50 respondents
2 = mentioned by 40/50 respondents
3 = mentioned by 32/50 respondents

Table 4.1 presents the results from this analysis:

Table 4.1: Impacts and risks prioritised by HH survey respondents

Impact	Rank
Waterlogging and salinity intrusion	1
Storms and cyclones; tidal bores	2
River erosion	3

Table 4.1 shows that the impacts of greatest concern did overlap strongly with those identified by the NAPA document, with the addition of salinity intrusion, which the NAPA document does raise as a priority in neighboring regions.

However, further analysis of the HH survey data showed that the priorities given to impacts differed among respondents, and that these differences correlated closely with the asset base of respondents. Each time a hazard was mentioned, respondents were asked to rate it as 'high', 'medium', or 'low', in relation to the other hazards that they raised. "Asset base" was calculated through information contained in HH surveys relating to land ownership, livestock ownership, housing type, other relevant holdings. Asset base has been categorised as follows (the categories are relative to each other and are intended to reflect general patterns within the study group rather than be accurate indicators of wealth and poverty, which is beyond the remit of this study):

High: Land (over 5 acres)
Livestock (over 5 cattle/goats; over 10 ducks/chickens; other)
House owned; and has some of the following features: solid structure; over 3 rooms; separate toilet; separate cooking area
Other assets: Might include ponds; boats; savings (although this was a sensitive question)

Medium: Land (between 1-5 acres)
Livestock (2-4 cattle/goats; 5-10 ducks/chickens; other)
House owned; and has some of the following features: 2 rooms or over; fairly solid structure
Some other assets, as above

Low: Less than the above.

Other issues of access were also taken into account when categorising respondents. These included: Access to education (children in school, highest education grade of family member); access to healthcare; access to electricity/communications; microfinance (access to loans; ability to repay loans).

The data analysis took an average of "highs", "mediums", and "lows" of risk perceptions and compared them to the asset base of respondents. The results are presented in table 4.2:

Table 4.2: Impacts and risks prioritised by asset base

Impact	Perceived level of risk		
	High asset base	Medium asset base	Low asset base
Storms and cyclones; tidal bores	Low	Medium	High
Waterlogging and salinity intrusion	High	High	High
River erosion	Medium	Medium	High

Table 4.2 shows that the priority given to different risks differs according to asset base. It should be noted that the data presented in table 4.2 is intended to reflect *perceived* risks only for different groups. This is problematic for comparing risk perceptions across different groups. Therefore rather than ranking risks *across* groups, this analysis ranks risks *within* groups, relative to other risks. It is this ranking that is then compared across groups. So, for example, while we cannot say that lower income groups perceived storms as a greater risk than high income groups, we can say that for lower income groups, storms presented the greatest relative risk, while for high income groups storms were perceived as a low risk relative to other perceived risks.

Significantly, low asset groups rated all risks as "high risk", while higher asset groups felt themselves to be less 'at risk' in general, supporting the contention that poverty is a salient indicator of vulnerability. Further in depth discussions with some respondents revealed that one of the reasons for this was that higher asset groups resided on more expensive land that was protected by an embankment and had more secure housing structures; and has established systems in place for managing water-related hazards, including irrigation systems and rainwater collection for drinking water. Thus, higher asset groups were more resilient to climate-related hazards and had the resources to adapt; lower asset groups, did not (see photos 4.3-4.7).

In addition, high asset respondents felt that waterlogging and salinity intrusion presented a major risk. Further discussion revealed this was because the income of most high asset respondents came from privately owned farmland, so salinity and waterlogging presented a significant threat to their livelihoods.

The 'impacts' categories gleaned from HH surveys were used as the basis for more open and detailed focus group discussions (FGDs). During these discussions, groups were asked *why* they felt the climate change hazards presented a risk (see photos 4.1 and 4.2).

The results from these discussions have been combined with HH survey data and summarized in table 4.3, and show that the reasons given for why impacts presented risks differed between groups. For example, women raised salinity intrusion as a problem for health; where as farmers discussed it in relation to agricultural productivity of the land. Interestingly, women respondents perceived all climate change impacts as 'high risk' regardless of their asset base, and when questioned further said this was because each hazard either presented a risk to their families or the livelihoods on which their families depended. They were seen as deeply interconnected for family wellbeing.

During more detailed discussion in FGDs, all groups placed emphasis on the non-climatic factors that made people vulnerable, rather than the impact itself. Table 4.4 summarizes the range of comments made during HH surveys and FGDs related to why impacts presented a risk; the underlying vulnerabilities which underpinned the risks; and suggestions for adapting to the risks. For example, waterlogging was mentioned as a major problem in some areas, but was attributed to government-facilitated polder development projects that reduce water flows and encourage the siltation of waterways, rather than in climatic terms.

The NAPA disaggregates vulnerability geographically, citing different climatic hazards in different target districts. In terms of 'the most vulnerable', the NAPA document considers the relationship between livelihoods and adaptive capacity, and identifies key vulnerable groups as small-scale farmers and rural wage labourers. The vulnerability of wage labourers is discussed in terms of the secondary impacts of:

> Physical vulnerabilities, such as lack of cultivable land and climate stressors, [that] affect agriculture and therefore employment opportunities available to wage labourers. (MOEF, 2008:12).

During the FGD with wage labourers, respondents confirmed that they felt extremely exposed and vulnerable to climatic stressors, rating all climate-related risks as "high risk" (see table 4.3), but for different reasons: these groups were the poorest, and so resided on the cheapest or free land that was beyond the embankment. While these groups were therefore the most 'exposed' to climatic risks, the focus of discussions was on the lack of access to government goods and services, very little NGO attention, little social organization or potential for social mobilisation, high poverty rates, low literacy rates, and insecure land tenure. The lack of NGO and government activity outside the embankment was evident, and attributed by some NGO workers to the need for them to demonstrate results: the situation outside the embankment was seen as too difficult to tackle (see photos 4.3-4.7 and box 4.7).

Table 4.3: Impacts and risks prioritised by community subgroup

Impact	Agricultural farmers (small landowners)		Agricultural/other day labourers (landless)		Fishermen		Women	
	Type of risk	**Perceived level of risk**	**Type of risk**	**Perceived level of risk**	**Type of risk**	**Perceived level of risk**	**Type of risk**	**Perceived level of risk**
Storms and cyclones; tidal bores	Risk to agricultural productivity (destroys crops; erodes land; leaches soil); risk to income security	Medium	Risk to personal safety; risk to personal assets	High	Sometimes risk to income security as prevents ability to fish (although can also increase catch); high risk to personal safety	Medium	Risk to personal safety (women less likely to use cyclone shelters than men); risk to household assets (infrastructure and livestock); risk to food security (where storms destroy subsistence crops)	High
Waterlogging and salinity intrusion	Risk to agricultural productivity; risk to long term income generation	High	Risk to income generation as less work available	High	Risk to subsistence farming/alternative livelihood sources (most fishermen also seasonal farmers/day labourers)	Low	Risk to health when salinity infiltrates drinking water	High
River erosion	Risk to loss of land	Medium	Risk to homesteads	High	Risk to homesteads	Medium	Risk to homesteads and personal assets; risk to familial wellbeing as frequent moving uproots families	High

Table 4.4: Risks, vulnerability and adaptation options to climate change impacts as defined by respondents in Noakhali

Impact	Types of risk	Determinants of vulnerability	Adaptation options
Storms and cyclones; tidal bores	• Risk to agriculture and livestock (risk to income security; food security) • Risk to infrastructure • Risk to health and personal safety • Risk to fishers (safety and income security; although often results in increases in catch during turbulent weather)	• Proximity of cheap or free agricultural/homestead land is in most exposed locations • Few government or NGO services in most exposed locations • Lack of agricultural and household insurance • Poor access to food markets when subsistence crops fail • Lack of secure food storage • Poor quality infrastructure • Few savings to assist rebuilding/aid financial recovery • Lack of/quality of cyclone shelters • Access to healthcare (distance to healthcare services; poor quality of those that do exist; lack of affordability) • Financial pressure for fishers to go out in stormy weather, pressure to meet loan repayments • Lack of alternative non climate-sensitive livelihoods	• Accessible agricultural/household insurance schemes • Secure food storage • Improved roads to increase access to markets • Access to better microfinance/relief from loan repayments during times of stress • Reinforced housing infrastructure, access to better building materials • Reinforcement of embankment • Available/affordable land in less exposed areas • More and improved cyclone shelters so people can respond to early storm warnings • Provision for livestock in cyclone shelters • Increased access to better healthcare facilities • Sanitation infrastructure • Relief from microfinance repayments during times of stress
Waterlogging and salinity intrusion	• Risk to agriculture • Risk to health from saline drinking water	• Government-facilitated polder development projects encourage the siltation of waterways • Lack of adequate drainage and water management • Reliance on freshwater crops, lack of alternative incomes so no employment/income during periods of waterlogging • Poor quality drinking water systems • Distance to/accessibility of healthcare	• Saline resistant crops • Freshwater wells and ponds • Improved drainage systems • Improved access to better healthcare • Awareness raising about water management; better engagement with local government to voice concerns • Better microcredit systems • Access to alternative and seasonal livelihood options
River erosion	• Risk infrastructure • Risk to home security • Risk to subsistence farming	• Few assets and savings result in difficulty in relocating • Relocation on newly accreted 'char' lands which are exposed, vulnerable, few government/NGO services • Problematic informal land tenure systems in place that are open to corruption • Poor soil quality makes homestead farming difficult	• Reinforcing of charlands and homesteads to resist erosion • Savings/transferable assets • Secure land tenure systems

During the same FGD, river erosion was stated as a significant risk by those living on "Chars". Chars are new lands created by accretion that quickly become inhabited with some of the poorest and most marginalised people, despite the increased vulnerability to storms and cyclones here (Huq and Khan, 2006). Land tenure issues on the chars are problematic, with the land being officially government owned, but with informal local land tenure systems in place. The major cause of vulnerability on the char lands was cited as a result of the minimal services provided to newly formed chars and poor soil quality. The NAPA also discusses the problem of land tenure issues on the chars, but in quite a different 'risk' context: the impact of Char settlement patterns on the 'natural barriers' that mitigate the impacts of storms, rather than the relationship between settlement patterns and vulnerability to these impacts. The NAPA states:

> Local communities receiving the land [Char land from the Government] begin to build settlements, which lead to the destruction of coastal forest and exposure to cyclones and storm surges. (MOEF, 2008:12).

Therefore both the NAPA and the fieldwork findings revealed similar 'exposure' of the communities in Noakhali to similar climate change impacts. However there were two significant differences in the way climatic risks were discussed. First, findings from the field revealed much more nuanced disaggregation of vulnerability beyond geographic terms, which was influenced by livelihoods, asset base, and gender. Secondly, the NAPA frames the risks presented by the climate change impacts in terms of the physical implications of the impacts, such as wage labourers being exposed to the secondary impacts of climate events on agriculture. During focus group discussions, however, risks were framed in terms of factors that led to vulnerability in the first place; wage labourers were vulnerable because of their inability to access services and resources that would allow them to better cope with climate events, or that would enable them to relocate to less exposed areas.

Photograph 4.3: The embankment to protect the land and residents of Noakhali from flooding and storm surges.

Photographs 4.4 and 4.5: Shelters beyond the embankment, very close to the shoreline, exposed to extreme weather events and with few government or Ngo services

Photographs 4.6 and 4.7: Example of a home inside the embankment. This house has been supported by the NGO IUCN – it has been raised off the ground to protect from flooding, and has been reinforced with wooden plinths to protect from storm damage.

Adaptation priorities of respondents in Noakhali

In terms of adaptation options, the suggestions from both HH survey data and focus group discussions focused on interventions that would reduce vulnerability to climatic impacts, as well as interventions that would address impacts directly. Proposed adaptations included (see table 4.4): More and better cyclone shelters (prioritised by those living close to the coastline); crop insurance and better water management systems to manage waterlogged and salinated land (raised by farmers); improved housing; more schools and better access to healthcare (raised by women); improved roads; reinforcement of existing embankment, and a new embankment (highlighted by those living directly behind the fragile embankment); and lower interest microcredit; more government support; and seasonal labour options (raised by the landless labourers residing beyond the embankment, as well as fishermen).

Coastal afforestation was rarely raised independently as a priority adaptation option; however, when prompted, coastal afforestation was generally considered a good idea, which could provide employment during planting and, through management, would have some impact on reducing the severity of cyclones, storm surges, and saline water intrusion. However, the sustainability of benefits from coastal afforestation was questioned. First, it was argued by the local Government offices and confirmed during the FGD with wage labourers, that planting mangroves beyond the embankment would displace many of the people who lived there, thereby actually exacerbating the vulnerability of the most vulnerable groups.

Second, the experience of earlier government plantation schemes had shown that deforestation had followed. Several reasons were given, including a lack of local participation in forest management, few local benefits from the plantation, the need for land, and financial gain. It was suggested that any afforestation project must be accompanied by a livelihood diversification and resettlement programme for communities affected by the scheme. Finally, it was mentioned that afforestation would not make a significant difference to the risk of the embankment breaching, felt by those respondents residing behind it be one of the more significant threats related to climatic hazards.

The proposed NAPA project also documents many of these issues, reviewing past coastal afforestation projects and noting the reasons for their failure that echo those cited above. The NAPA addresses these issues by ensuring that:

> Coastal communities will be actively involved in mangrove afforestation, and the development of climate resilient livelihoods, which will improve the sustainability of ecosystems needed to protect against climate-change induced hazards. (MOEF, 2008:21).

Other supporting project components include creating fresh-water reservoirs for dry season agriculture, clustering villages in raised lands, creating community ponds for domestic and small-scale irrigation, harvesting rainwater, securing ground water provisions, intensifying brackish water aquaculture, and strengthening hazard early warning (MOEF, 2008:22).

However, the emphasis of the NAPA document is on protecting the physical barrier to reduce climate change impacts, stating that encouraging alternative livelihoods would reduce land clearing and other threats to protective buffer ecosystems (MOEF, 2008:22). Again this frames the climate risk in terms of climatic impacts, resulting in prioritization of adaptation options that provide a physical barrier to increased storms, cyclones, and saline water inundation from sea level rise. This contrasts to the community responses that prioritised the need for livelihood diversification as an adaptive end in itself that would enable some of the most vulnerable groups to better cope with these impacts, and also reduce pressure on ecosystem services.

The other supporting project components are similarly impacts focused. For example, when discussing the risks of storms and cyclones with fishermen, the proposal of more and improved hazard early warning systems was raised. However, the FGD with fishermen revealed that for some, provision of information was not the problem, as radios had already been provided to fishermen by a local Red Crescent programme to ensure storm warnings could be received. Rather, pressure to pay back micro-finance loans meant that fishermen were forced to go out to sea when conditions were bad regardless of storm warnings, because turbulent waters were more productive. One group of fisherman even described loan collectors confiscating radios to encourage fishermen to go out in bad weather, as this would increase the likelihood of timely loan repayments. The vulnerability of these fishermen was therefore caused by financial pressure to continue to fish regardless of the climatic hazards they faced. In this case, fishermen stated that a preferable adaptation option would be providing another, less risky, means of enabling them to pay back their debts.

The adaptation options identified by the NAPA are therefore based on a framing of risk that prioritizes physical exposure to climatic impacts. While many interviewees noted that these could be beneficial to the community in reducing exposure, the adaptation options prioritized by respondents that would reduce vulnerability were based on a different framing of risk that

focused on addressing the factors related to development that made people vulnerable to climatic impacts in the first place. Given that the NAPA claims to give precedence to "The participation of men and women at the grassroots-level", (LEG, 2002:2) why should this discrepancy exist? The next section explores the participatory processes used in NAPA preparation.

Participatory processes under the NAPA preparation in Bangladesh

This section presents data from key informant interviews with members of the NAPA preparation team and other engaged stakeholders, together with document analysis from key NAPA documents, to assess the participatory processes undertaken in the design of the Bangladesh NAPA. This information will be analysed in terms of 'who' was included in the NAPA preparation process; 'how' they were included; and 'what' the content of participatory processes focused on. A timeline of the key events in the NAPA preparation process is presented in Annex 4.

First, in relation to 'who' was included in the NAPA consultations, the key avenue for 'local' inclusion in the NAPA preparation process in Bangladesh was through "regional consultation workshops". 'Local people' are described as one of three groups of stakeholders (the other two being a high level steering committee of Government and non-governmental experts; and a multidisciplinary team of experts and sectoral working groups who had the responsibility of analysing vulnerability) (MOEF, 2005:43). Representatives of 'the local people' were drawn from the local government, local level non-government organisations, farmers, and women. These groups were defined by the NAPA preparation team, and no participants were invited from beyond the embankment, identified by this case study as one of the most vulnerable groups. The reason given was that the lack of social organisation of this group meant that accessing them for inclusion in such a workshop was logistically problematic.

The workshops therefore did consult with 'local' people, however only a small number were invited to participate, of which some were (non-elected) local government officials. Those selected for participation were done so based on availability and ease of attendance, so they were also likely to be among the most socially included. As respondents identified social inclusion as a key factor for resilience, the invitees cannot be said to be representative of the most vulnerable, or to serve their interests in such a forum. In addition, experience suggests that the presence of politically powerful local stakeholders may affects the dynamics of participation, either resulting in attempts to serve vested interests of the participation process, or inhibiting discussions on the role of effective local institutions in enabling adaptation (Bassett and Zeuli, 2000). This evidence

around the process of NAPA development supports the contention that 'globally' governed problems tend to aggregate 'the community', resulting in representative and invited participation techniques (Cornwall, 2000).

In terms of how workshops were structured, the workshops had firm objectives from the outset. One of the objectives of the regional level workshops was to identify existing problems related to variability, extremes and climate change; yet, the regional level workshops came late in the stage of NAPA preparation when the climatic risks had already been defined, with the key risks in the South-West region of Bangladesh noted as,

> Part of coastal area with salinity and freshwater availability problems. It is anticipated that salinity intrusion will increase and freshwater availability will decrease in these areas particularly in the dry season. (MOEF, 2005:43).

Interviews with members of the NAPA development team stated that the regional workshops involved the explanation of climate change risks to participants; and suggested adaptation options. When asked why the workshops did not present opportunities to discuss whether these risks were the same as those perceived by participants, one response from a lead NAPA team member was:

> There was no need. We had done the analysis and we had the information and we knew that these were the hazards… Everyone knows what the main problems are on the coast of Bangladesh. (NAPA Team member, personal communication, February 2009).

This approach gave limited opportunities for participants to internalise the new climate information provided and consider them in the context of adaptation priorities. Further, little space was given for participants to redefine which climate impacts they felt were important and why; or to disaggregate the risk that had been applied to the whole coastal region.

Thirdly, in terms of 'what' was deliberated, the objectives of the regional workshops included the identification or problems related to climate variability and climate change (MOEF, 2005). However, interviews with members of the NAPA preparation team revealed that by the time the regional workshops took place, the 'expert' stakeholders had already considered climate change risks and potential adaptation options. The regional consultation workshops were used primarily to verify existing information and opinion, and the participation of local stakeholders was mostly in the prioritisation process. Further, prioritisation of adaptation options took place through a

voting system of pre-identified adaptation options, however the experts who had been involved in the development of options also had a vote on these options, with one NAPA team interviewee noting that the number of experts present at regional workshops actually outnumbered representatives from 'the local community'. Framing vulnerability in climate change impacts terms exacerbated the instrumentalism of the process, by giving weight to 'expert' judgement.

Therefore, the NAPA document and resulting project document did reflect many of the climate change risks identified by respondents; however, by framing risk in climate change terms rather than vulnerability terms, the adaptation options developed in the NAPA did not correspond with those prioritised by the community.

4.6 Discussion: To what extent did adaptation policy-making in Bangladesh achieve meaningful deliberation?

This chapter has presented some evidence that the NAPA achieved inclusive policy making to some extent. Certainly, the intention to make the NAPA in Bangladesh 'locally' inclusive was there; and some participatory technologies were employed, specifically through regional consultation workshops. 'Local' people were engaged in discussions around adaptation priorities, and participated in the prioritisation of adaptation priorities. Thus, the participatory *process* was inclusive to the extent that it took place, and some 'local' people did participate.

Further, the evidence presented in this chapter suggests that, to some extent, the *outputs* of participatory efforts were recognised and taken up by policy makers. The NAPA project document did echo local understandings and priorities around climate change impacts.

However, this case study has also presented evidence in support of "tyranny of participation" debates, in relation to the "who" and the "how" of participation. For example, the process did create an aggregate category of "local", with not only all the sub-groups presented in this thesis falling under that category, but also different geographical scales, for example local *and* district government, as well as national and 'local' NGOs. All were considered as part of the same 'local', despite their likely very different perspectives and interests. Instead, this chapter has shown that within "the local community", what constitutes a risk, and why, is highly differentiated between different livelihoods groups, different asset holdings, and between genders.

Further, in terms of the 'how' of participation, the mechanisms used during consultations did serve to mask the power politics at play. This is well exemplified by the 'one-person-one-vote' system used to develop priority adaptation options. By giving consultants, politicians, and 'expert' stakeholders the same vote as lay residents, and with often as many or more external stakeholders present at the meetings as local ones, this system does not give any 'power' or say to local people in the adaptation options that will impact on them. The participatory exercise gives the impression that 'local' stakeholders have a say in the policies that will affect them, but this is not the case in real terms.

However, the evidence from this case study also suggests that the power dynamics within participatory spaces are more complex than 'tyranny of participation' debates assume. First, as noted, the data from interviews with NAPA team members, as well as the NAPA preparation guidelines and indeed the NAPA document itself, all point to a desire to *be* 'locally inclusive'. Rather, the evidence presented here suggests that exclusion came from the framing of adaptation as an issue of impacts, rather than social vulnerability – the 'what' of deliberation – that in turn influenced not only who was included, but also the mechanisms of participation, and the information that was recorded. Framing adaptation as an issue of 'impacts' placed it in the realm of a product of a 'global' problem, requiring scientific and technological expertise. Thus, 'local' knowledge was taken as 'other' (resulting in the homogenisation of 'local'); and not seen as relevant, or capable, of defining the problem.

'Local' engagement was therefore limited to discussion around adaptation options to this predefined problem. However, because of the technical framing of the problem as 'impacts-based', the approach to local engagement took an 'expert-teaches lay' framework; climate change experts described climate change impacts to stakeholders, and then asked for their opinions based on the information provided. As discussed in chapter one, this does not represent deliberation; No opportunities were given for participants to contest the knowledge presented, or to generate knowledge outside the boundaries of the information provided to them. Thus the barriers to inclusiveness were presented by the way in which the problem of climate change risk was perceived by policy makers.

What were the circumstances that resulted in more or less inclusive policy-making processes? In line with the above discussion, the circumstances of inclusive policy making are taken here to be the circumstances of how climate change adaptation came to be framed as a problem of impacts, and why this framing was so strong. This chapter has presented three contextual factors that have served to reinforce an impacts-based approach to climate change risk adopted under the

Bangladesh NAPA. First – the NAPA guidelines themselves. Bangladesh was one of the first countries to conduct the NAPA process, and so had little experience of adaptation planning elsewhere to draw from. Thus, the primary frame of reference was the international NAPA guidelines provided by the LEG under the UNFCCC.

As discussed in section 4.3, the NAPA guidelines suggest that NAPAs do not interpret adaptation as 'impacts-based', emphasising the need to build "resilience" to climatic variability rather than to climate change (LEG, 2002:1), as well as stressing the importance of "indigenous knowledge" around "existing coping strategies" (ibid). However, as section 4.3 goes on to suggest, the approach taken to NAPAs – developing adaptation 'projects' to submit for funding under the UNFCCCC – is inconsistent with the reading of the NAPA guidelines, because a projectised approach suggests that adaptation is something new and additional, rather than something that should be integrated into development. Further, as noted in chapter three, when project proposals from NAPA documents go forward for funding to the LDC Fund, they have to show that they specifically address climate change. Thus, an 'impacts-based' approach is implicit in NAPA preparation.

Second, this chapter has shown that Bangladesh as a long environmental policy history, centred on flood and cyclone management. The learnings from this case study suggest that this has had two consequences for reinforcing an 'impacts-based' approach to NAPA preparation. Firstly, the strong flood and cyclone hazards discourse of environmental policy making is consistent with the emerging discourse around climate change impacts. As exemplified in this case study, this has given rise to a strong sense of certainty around what climate change impacts are, and how they can be managed; consultants "knew" what the problem was, so what was the point in discussion? Secondly, and relatedly, the history of floods and hazards management in Bangladesh has left a legacy of a wide body of work and 'experts' on these issues that Bangladesh is drawing on in its management of climate change hazards. As shown in this case study, there is a strong sense of "we know how to do this", which reinforces the impacts-based discourse and makes it harder to contest.

4.7 Conclusions

The evidence presented in this chapter supports the contention that the way in which risks are framed has significant implications for "inclusive", deliberative governance. This chapter has also shown that in analysing deliberative dynamics, attention needs to be paid to the external

circumstances that can initiate or perpetuate definitions of risks, 'fixing' them in a way that may not necessarily seem rational within the deliberative sphere. For example, 'climate change' presents a new problem for Bangladesh, suggesting a high level of uncertainty and thus, in line with the arguments of Funtowicz and Ravetz, a greater likelihood of the 'risk' being opened up to wider consultation. However, consultations efforts around climate change risk were not deliberative or inclusive, because the 'risk' of climate change was considered certain, given that it echoed long entrenched hazards-based debates around national environmental management.

This risk discourse was supported by the NAPA guidelines that implicitly reflected the 'impacts-based' framing of climate change risk under the UNFCCC. Although the guidelines for NAPA development state the importance of "bottom-up, participatory approaches" in developing NAPAs (LEG, 2002:2) the focus on impacts resulted in a technical approach to identifying risks where the first step was dividing analysis into sectorally based working groups; then defining risks as climate change impacts by sector and geographically; and only then consulting the communities to verify this information.

Such circumstances present an even greater need for 'inclusive' institutional designs to focus on the mechanisms of deliberation. Yet, as Warren (2007) points out, the very need for deliberation comes from a need to resolve some sort of discursive tension or conflict, likely to be owing to power differentials, cultural divisions, or other incapacities. Thus, the very circumstances that give rise to a need for deliberation, are not, as it were, ideal *for* deliberation (Warren, 2007:276). This makes deliberation a vulnerable ideal from outset, susceptible to inherent unequal power, cultural and linguistic differences and inequalities (ibid). Further, like any form of political process, all types of deliberation are embedded within complex politics of incentives and normative frameworks that will inevitably impact on the deliberative process and deliberative outcomes. While the proposal put forward by Fung (2007) of "participatory democratic governance" is a promising theoretical design for incorporating citizen voices into the determination of policy agendas, is this proposal simply too ambitious? Is deliberation as a policy goal, too fragile? (Warren, 2007).

This case study has shown that deliberation as a policy ideal is difficult to achieve where there are competing discourses of risk, and where one discourse (in this case, an impacts-based discourse) is embedded with social, political, and historical authority. These discursive politics of the deliberative space skewed both the aims of deliberation, and the incentives to deliberate. However, rather than writing off meaningful policy deliberation as an unachievable ideal, more attention needs to be paid to designing deliberative spaces that take account of the potential dynamics of such discursive politics. This means that *deliberation*, rather than 'participation' needs

to be a *goal* in policy making, and incentives need to be structured for achieving deliberation both in policy processes, as well as in policy outcomes. The next chapter of this thesis will consider an alternative approach to NAPA development in Nepal, where greater attention was paid to the actual mechanisms of deliberation.

Chapter 5: Analysing the inclusiveness of adaptation policy making under National Adaptation Plans of Action (NAPAs): A case study of Nepal

> "*The [NAPA] guidelines are not intended to be prescriptive. Depending on country circumstances, some LDCs may wish to address more elements*."
>
> (LEG, 2002:3)

5.1 Introduction

This chapter presents an alternative approach to developing a National Adaptation Programme of Action (NAPA) taken by Nepal. The aim of this chapter is to compare the process of NAPA development in Nepal with that adopted by Bangladesh, and consider the impact of differences in approach, to the potential for achieving inclusive outcomes in adaptation policy making. This chapter therefore addresses the same question as the Bangladesh sub-case study: What is the evidence that the NAPA in Nepal achieved inclusive policy-making? However, given the different stages of NAPA development in both countries (Bangladesh completed its NAPA in 2005 and is at the stage of implementing NAPA projects; whilst Nepal has only just completed its draft NAPA), this chapter does not directly compare the same aspects of the NAPA as those in the Bangladesh study; this study will focus on NAPA processes, rather than outcomes (see chapters two and six for further discussion around the comparative and non-comparative elements of these two studies).

Chapter four focused on the impact of competing definitions of risk, for achieving 'deliberative democracy' in participatory spaces. It was shown that creating avenues for public participation in policy making around environmental risks, does not necessarily lead to increased democratic governance of those risks. Particular attention was paid to the ways in which competing definitions of risk across scales create barriers for meaningful inclusion: The 'global' discourse of adaptation as a problem of impacts, rather than vulnerability, dominated participatory processes. This impacts-based discourse was reinforced by the powerful image of Bangladesh as the 'face' of climate change impacts, often used as leverage for adaptation advocacy campaigns both international and nationally. These powerful discourses restricted the democratic potential of the participatory spaces created under the Bangladesh NAPA, affecting choices around who participated; how participatory exercises were structured; and the 'legitimate' content of participatory discussions. The conclusions of chapter four questioned whether, when discourses of risk conflict across scales, the task of 'deliberative democracy' in 'global' environmental governance is simply too ambitious; and if not, then what sort of institutional designs allow risks that have been framed as global, to be reassessed in locally meaningful terms?

In comparing the participatory processes and outcomes of the NAPA in Nepal to that of Bangladesh, this chapter focuses on the question of deliberative institutional design. To date, very little attention has been paid to institutional design in deliberative governance, with the majority of work on deliberative governance focusing on the attributes of 'deliberative democracy' ("why deliberation"?); or critiques of participatory processes that have not achieved deliberation ("why does deliberation fail"?) (Rosenberg, 2007; Smith, 2003). As noted in chapter four, such insights that set up deliberative ideals, and then show how they are *not* achieved, leads us to question whether deliberation as a policy goal is at best a theoretical ideal, too fragile to be achieved in practice (Warren, 2007). As Cohen (2007) rather pessimistically states:

> I do not think we have a strong case for the truth of the unhappy proposition [that deliberative democracy is unachievable]… but I wish we had a more compelling case for its rejection. (Cohen, 2007: 235).

This chapter proposes that the case for deliberative democracy lies in assessing the circumstances that are conducive to *more* deliberative processes. Such an assessment will inform questions of how to design institutions to facilitate deliberative governance, making progress towards the 'deliberative democracy' ideal, even if this ideal is difficult to achieve outright.

This chapter will therefore begin by expanding debates from chapters 1 and four about participatory and deliberative approaches to the governance of environmental problems; but will pay particular attention to the task of institutional design of deliberative processes.

The second and main section of this chapter critically examines the NAPA process in Nepal. This analysis is based on fieldwork conducted in Nepal over nine months (see chapter two), using participant observation and key informant interviews to understand the context and methods of NAPA preparation, and the circumstances that led to deliberative design choices. These findings from this sub-case study are presented in two parts:

First, to give understanding of the environmental policy-making context in which the NAPA was conducted, data is presented on the hazard and vulnerability context of Nepal, paying attention to the uncertainties around climate change data in the Himalayan region. This section also presents an analysis of recent and current dominant environment policy discourses, and the emergence of climate change as an addendum to these. The second part of the Nepal sub-case study will present evidence around the immediate circumstances of the NAPA inception, and the NAPA preparation framework and process, focusing in particular on the avenues created for 'local' inclusion. This

section also examines the "outputs" of participatory processes under the NAPA in relation to their influence on the final NAPA document.

Finally, this paper analyses the findings from the Nepal sub-case study in relation to the key aspects of deliberative institutional design identified by this thesis: 'who' was engaged; 'how' were they engaged; and 'what' was the content and context of deliberation? This analysis informs conclusions about the extent to which the Nepal NAPA achieved 'inclusiveness'.

5.2 Designing deliberative institutions

This thesis has highlighted the value of deliberative policy-making in bringing about inclusive, equitable, and, ultimately, appropriate and effective policy outcomes (Cohen, 2007; Dryzek, 2000, 2007; Rosenberg, 2007; Warren, 2007). Yet as discussed in chapter one, there has been little engagement from scholars of deliberative politics in "the messy task of institutional design" (Smith, 2001:73). Some scholars of deliberative governance have started to approach questions of institutional design. For example, in *Discursive Democracy*, Dryzek (1990) discusses a small number of different mechanisms for facilitating deliberation, including mediation, and regulatory negotiation, that are "located in, and help constitute, a public space within which citizens associate and confront the state" (Dryzek, 1990:43). However, Dryzek does not pay significant attention to the conditions in which these mechanisms operate, which, as shown in chapter four, are significant in influencing their design, execution, and outcomes.

Smith (2001) takes up the mantel of "mechanisms of transmission of public opinion" (Dryzek, 2000:162) and discusses three 'models' for facilitating deliberation: mediation; citizen forums; and citizen initiatives; and referendum. In analysing the three models, Smith assesses the extent to which equality of voice is achieved; democratic deliberation is defended against strategic action on the part of powerful interests; and there is sensitivity to the scope, scale and complexity of environmental issues. (Smith, 2001:77). Smith's approach is commendable in that he pays detailed attention to the tasks of fostering deliberative outcomes, to 'managing the dynamics of deliberative spaces'; but, Smith does not engage with the actual deliberative design choices, which include the 'what?', 'how'? And 'who?' of deliberation, decisions that chapter 3 has shown are significant in dictating deliberative outcomes.

Fung (2007) goes further in this regard and pays particular attention to the design choices of deliberative forums. Drawing on various case studies of what Fung describes as "minipublics",[27] the author considers the following aspects of institutional design (Fung, 2007:166):

- The 'vision' of the minipublic (for example to be an educative forum, or to achieve fully participatory democratic governance);
- Participant selection;
- The subject and scope of deliberation;
- The deliberative mode;
- The recurrence and iteration of deliberative processes;
- The 'stakes' of deliberation (the extent to which the issue is meaningful or contentious to stakeholders);
- The level of empowerment of the minipublic itself;
- How the minipublic is monitored.

Chapter four showed how these elements of institutional design are closely related. For example, in Bangladesh, the 'vision' of the participatory forum was to confirm climate change impacts and adaptation options with 'the local community'. This vision created a homogenous category of 'local', which meant participant selection was confined to representatives of 'the local' rather than attempting to include a wider cross-section of different sub-groups. The subject and scope of deliberation was focused on addressing specific climate change impacts, rather than being open to the redefining of climate change risks. This means the 'stakes' of deliberation were low, and the participants were not empowered to influence the policy-making decisions that would affect them.

Chapter four also showed that showed choices around 'who', 'how', and 'what' of deliberation had significant implications for the inclusion of vulnerable people in the decision-making around adaptation. This analysis highlighted the significance of climate change narratives in affecting these institutional design choices; that while the dynamics of the deliberative sphere are of course important and extremely influential on enabling or constraining deliberative outcomes, these dynamics are themselves driven by factors beyond the deliberative space: the *circumstances* that lead to different institutional design choices in the first place.

[27] Fung (2007) describes "minipublics" as "modest projects that attempt to create more perfect public spheres" that provide useful units of analysis for deliberation (Fung, 2007:166).

This chapter will therefore focus not only on the differences in institutional design of the deliberative processes adopted for NAPAs in Nepal compared to Bangladesh, but, more specifically, this chapter will pay attention to the politics of those design choices.

5.3 Country case study part one: The context of the NAPA in Nepal

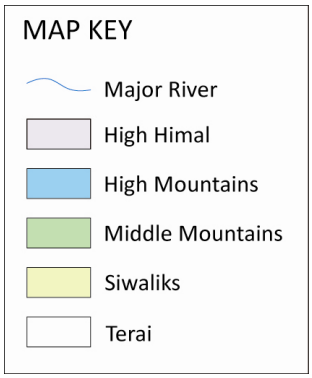
This section is based on nine months of participant observation of the NAPA development process in Nepal, from the Inception Workshop in May 2009 until the end of 'local stakeholder engagement' processes in January 2009, as well as key informant interviews, and document analysis. A follow-up trip was conducted in August 2010 when the draft NAPA was available, to review the extent to which the outputs from local stakeholder engagement were taken into account in the drafting of the NAPA document. This first part of the case study presents findings around the background and context of the NAPA preparation in Nepal. The second part of the case study presents details around the NAPA preparation process and outcomes.

Hazard and vulnerability context

Like Bangladesh, Nepal has been designated as a Least Developed Country under the UNFCCC and therefore one of the "most vulnerable" countries to climate change. This section will discuss this vulnerability first in terms of 'hazards' (the extent to which Nepal is exposed to climatic impacts); and also social vulnerability (the social-vulnerability factors that make climate change impacts matter), acknowledging the close relationship between these two aspects of vulnerability.

In terms of physiographic characteristics, Nepal is a land-locked, predominantly mountainous country situated in the central part of the Himalayas. The total area of the country is 147,181 km^2 and is divided into 5 physiographic regions: High Himalayas, Lesser Himalayas (High Mountains), Middle Mountains (the Mahabharat Range), Siwaliks (the Churia Range), and the Terai plains (see map 5.1)

Each of the physiographic regions have distinct altitude and climatic characteristics, which vary from sub-tropical at the elevation of 67 meters above sea level, to Alpine conditions at 8,848m at the peak of Mt. Everest, all within a span of less than 200km (see table 5.1).



Map 5.1: The five physiographic regions of Nepal.
Source: Author

Table 5.1: Climate characteristics in different ecological belts of Nepal *Source: WECS, 2005*

Physiographic	Ecological belt	Climate	Average Annual	Mean Annual
High Himal	*Mountain*	Arctic/Alpine	Snow/150mm-200mm	<3°C - 10°C
High Mountains				
Middle mountains	*Hill*	Cool/warm temperature	275mm-2300mm	10°C - 20°C
Siwalik Hills	*Terai*	Subtropical	1100mm – 3000mm	20°C - 25°C
Terai				

Nepal's climate is affected by two major features: the Himalaya mountain rage, and the South Asia Monsoon (ISET, 2009). Based on the temporal variation in the weather system (monsoon and westerly disturbance) the country's weather falls into four distinct seasons per year: pre-monsoon (March-May), monsoon (June-September), post-monsoon (October-November) and winter (December-February). The average rainfall of Nepal is around 1,530 mm per year, but with sharp spatial and temporal variations both north-south and east-west. The monsoon rain is most intense in the east and declines westwards; while winter rains are heavier in the North West and decline

south-eastwards (NCSA, 2008). The temperature in Nepal varies with altitude and season: in general, the temperature decreases from north to south with decreasing altitude. The winter season is coldest, with the highest temperatures during pre-monsoon.

Nepal has a long history of experiencing climatic hazards including floods, droughts, landslides, glacial-lake outburst floods (a phenomena that has come to be known as "GLOF"), "cloudburst" (an extreme form of rainfall often associated with landslides), and forest fires (NSDRM, 2008). The World Bank classifies Nepal as one of the global '*hot-spots'* for geophysical and climatic hazards (Arnold, 2006), with an inventory of disaster-related deaths carried out for the National Strategy for Disaster Risk Management in Nepal (NSDRM) reporting that floods and landslides alone are associated with 211 lives per year (NRSDM, 2008).

The varied geography of Nepal has led to the clustering of different types of natural disasters in different regions; forest fires constitute a particular hazard in the Tarai where the summer temperatures reach highs of 45 deg Celsius (NSDRM 2008). GLOFs and avalanches are more common in the high Himalayan regions. GLOFs occur when the moraine dam of a lake breaches, either because it is overtopped (caused by an increase in the volume of water in the lake itself) or when it is disturbed through tectonic activity. Several "dangerous lakes" have been mapped within the Nepali Himalayas, classified as 'at risk' of overtopping (NSDRM 2008) (although such classifications have proved contentious as will be discussed later in this chapter).

In terms of climate *change*, existing data on current and future climate change trends is based largely on observed changes, rather than predicted changes, because until very recently the Himalaya was considered a 'white-spot' for climate change information (ISET, 2009). The IPCC suggests that there is a much greater range of uncertainty for climate change projections in the Himalaya compared to other regions (Christensen et al., 2007). Lamadrid and MacClune (2010) propose three reasons for this relative death of climate change information in the Himalayas: firstly, the extreme topography of the area means that downscaling of climate models is required to capture local variations not expressed in the large-scale models. Second, local variation in precipitation throughout the year causes significant uncertainty, with the balance between glacial melt and precipitation so far unpredictable. Finally, the availability of high quality observational data sets to 'ground-truth' climate models is limited, especially at higher elevations, making the validation of climate projections difficult (Lamadrid and MacClune, 2010). The significance of this high level of uncertainty in climate projections for Nepal will be returned to later in this chapter.

Nevertheless, some observational data and more recent climate change modelling data does exist which suggests that the key climate change impacts on Nepal are likely to include (ISET, 2009):

- Significant warming, particularly at higher elevations, leading to reductions in snow and ice coverage of the mountainous regions;
- Increases in climatic variability and the frequency of extreme events, including floods and droughts; and
- An overall increase in regional precipitation during the wet season but a decrease in precipitation in the middle hills.

Box 5.1 presents the outputs of a recent set of climate change modelling data undertaken in 2009, which gives some idea of the range of climate change impacts expected on temperature and rainfall patterns in Nepal. In terms of the consequences of these impacts for Nepal, background studies carried out under the NAPA preparation process have categorised the impacts of climate change into five areas: water resources; agriculture and food security; forests and biodiversity; urban settlements and infrastructure; and health. These impacts are described in box 5.2.

The broad socio-economic characteristics of the Nepal mean that, nationally, adaptive capacity to be able to respond to these climate change impacts is low. Nepal is ranked 144 among a total of 147 poorest countries in the World by the 2008 Human Development Report (UNDP, 2009b). Nepal's Human Development Index value is 0.553, and GDP per capita is US$ 1,049. The population of Nepal in 2008 was estimated at 28.6 million (World Bank, 2009), with 85% of the population Nepal residing in rural areas and directly reliant on ecosystem services for all or part of their livelihood. The agriculture sector employs 82% of the labour force and is primarily a subsistence activity[28] (NAPA Case Study, 2003). This means that most people are in one way or another dependent on agricultural livelihoods as their main source of income, with few opportunities for livelihood diversification on less ecosystem-service reliant industries.

The low socio-economic status of Nepal coupled with a fragile governance system has resulted in poor quality infrastructure and a high level of unplanned settlement, so extreme weather events have a significant impact on both urban and rural communications, services, and settlement infrastructure. Not all people are equally vulnerable to the impacts of climate change in Nepal; vulnerability is associated with social, economic, and cultural characteristics. For example, the poorest people live in the weakest infrastructure and most vulnerable zones making them particularly susceptible to hazardous events. The National Strategy for Disaster Risk Management

[28] Agriculture contributes only 38 percent to GDP, compared to industry at 23 percent, and services at 39 percent (NAPA case study, 2003)

states that vulnerable groups are also exposed to damage post-disaster, when unplanned resettlement can further exacerbate environmental degradation and increase vulnerability (NSDRM 2008).

Further, a gender sensitivity analysis was carried out for climate change impacts in Nepal as part of the background study to the NAPA. The study reports that men and women will experience the impacts of climate change differently; and that women are likely to suffer more because of their relatively low social status compared to men in equal income groups, particularly within family units. For example, the report notes that during times of food stress, women are more likely to suffer than men because they tend to ensure that the rest of the family has eaten before they themselves will eat (MOE, 2010c).

Box 5.1: Climate change scenarios for Nepal
Source: ISET, 2009

Temperature:

- Mean annual temperature across Nepal is projected to increase by:
  - 0.5 – 2.0°C, with a multi-model mean of 1.4°C, by the 2030s
  - 1.7 - 4.1°C, with a multi-model mean of 2.8°C, by the 2060s
  - 3.0 - 6.3°C, with a multi-model mean of 4.7°C, by the 2090s.
- Increases in temperature are lower in the monsoon and post-monsoon season than in winter and pre-monsoon, by up to 1.6°C by the 2090s, partly due to projected increases in monsoon rainfall and cloudiness which will reduce incoming solar radiation and enhance cooling through evaporation.
- Projected temperature increases are lower in Eastern Nepal than Western and Central Nepal. This difference is projected to be 0.7°C by the 2090s.
- The frequency of "hot days"[1] in the premonsoon period are projected to increase by 15-55% by the 2060s; and 26-69% by the 2090s.
- The frequency of "hot nights"[1] are projected to increase most in the monsoon period 6-77% by the 2060s; and 29-93% by the 2090s.

Precipitation

- Mean annual precipitation is projected to both increase and decrease, with no clear trend:
  - -34 - +22% with a multi-model mean of +0% by the 2030s
  - -36 - +67% with a multi-model mean of +4% by the 2060s
  - -43 - +80% with a multi-model mean of +8% by the 2090s
- Monsoon rainfall projections vary widely but more models suggest an increase by 2100:
  - -14 - +40% with a multi-model mean of +2% by the 2030s
  - -40 - +143% with a multi-model mean of +7% by the 2060s
  - -52 - +135% with a multi-model mean of +16%by the 2090s
- Monsoon rainfall in Eastern and Central Nepal is projected to increase more than Western Nepal. In Western Nepal the model mean increase by the 2090s is only +6%
- The multi-model mean for winter precipitation projects +14% although many models show a decrease.
- Heavy rainfall is expected to increase slightly in the monsoon and post monsoon seasons; and decrease slightly in the winter and pre-monsoon seasons.

Box 5.2 Climate change impacts in Nepal
Source: Draft NAPA Nepal, MOE 2010d

Water and energy
Climate induced water stress has impacts on agricultural productivity, malnutrition, health and sanitation. Too much water can cause flooding and drainage congestion problems that will affect human settlements, infrastructure, inundate agricultural land and create problems for sanitation. Nepal's renewable energy sector is also heavily influenced by climate: changes in river flow will have direct implications for micro-hydro projects in the hill and mountain ecological zones; an increase in the number of cloudy days and changes in the form of precipitation (from snowfall to hailstones) has resulted in adverse impacts on solar power potential in the mountain ecological zone; and increases in the incidence of forest fires has adversely impacted already scarce fuel-wood sources.

Agriculture and food security
Cropping patterns depend on the timing of seasonal changes. Climate change in Nepal is affecting seasonal changes in different ways across different agro-ecological zones in Nepal. In the mid- hill and high-hill mountain regions, increasing temperatures are being associated with an expansion of agro-ecological belts into higher altitudes, increasing the growing season and growing potential of some cultivated species. Conversely, high hill animal herders have reported declines in fodder and forage production, and an increase in the prevalence of livestock parasites, that have been linked to increased temperatures. In the mid hills, decreasing soil moisture (due to changes in rainfall patterns and increases in temperature) have resulted in the early maturation of crops, crop failures, and general reduced agricultural productivity. Changes to irrigation potential of run-off streams, ponds and reservoirs have also been reported. In the Terai, the recharging of groundwater has always limited irrigation potential and climate change is predicted to exacerbate this.

Forest and biodiversity
Impacts on forestry and biodiversity include climate-induced shifts in agro-ecological zones, increases in dry spells and increases in the occurrence of pests and diseases. These changes (amongst other drivers) have been identified as leading to species and habitat loss. Observations at the local level suggest seasonal changes are resulting in early sprouting, flowering and fruiting of plants. In some cases, these changes are bringing benefits to communities, increasing the ecological range of cultivation for certain crops. In other cases, climatic changes are having a negative impact, for example herbs like *Bhase, Satu, panch aule, silajit, amala, ritha, timur, bel* are declining and shifting to higher altitude ranges and green grass has declined sharply in the Himalayan region (Mustang).

Urban settlements and infrastructure; and public health
In the context of urban settlements and infrastructure, most impacts are cross-thematic in nature and are largely related to climate induced disasters. The impacts are concentrated around urban water and energy resources as well as impacts on infrastructure and health and the challenge of rapid urban planning due to an influx of climate induced rural-urban migration. In terms of public health & climate induced disasters, climate change has implications for sanitation; disease vector patterns; and morbidity and mortality from extreme events.

Environmental narratives and policy making in Nepal.

As shown above, the implications of climate change for Nepal are varied and complex. In particular, the extreme topography of the Himalayas coupled with complex local weather patterns has made climate modelling for the region problematic and difficult to ground-truth (Lamadrid and MacClune, 2010). Nevertheless, several powerful narratives around climate change have emerged in the Himalayan region, mostly centred on the threats of glacial melt. Ives (2009) suggests that the climate change narratives in the Himalayas, and in Nepal in particular, are coalescing around

two issues: First, the claims that climate change will cause the disappearance of the Himalayan glaciers within decades, accompanied by catastrophic floods and to be followed by devastating water shortage particularly for countries downstream of the mountain ranges; and second, as glaciers melt, there will be a rapid expansion of glacial lakes and disastrous glacial lake outburst flooding (GLOF) events will occur.

These narratives run deeply not only through media reporting on climate in the Himalayas, but also through climate change work of academia, NGOs, donors, and government. For example, Ives quotes an article from *The Times* in 2003 reporting on a scientific conference in Birmingham (UK) which states that:

> Himalayan glaciers could vanish within 40 years…500 million people in countries like India could also be at risk of drought and starvation. (Times, July 2003, cited Ives, 2009:1).

The same article quotes Professor Syed Hasnain as stating that "the glaciers of the region could be gone by 2035*"* (ibid). Such statements are also echoed in the Intergovernmental Panel on Climate change (IPCC), taken as the benchmark for scientific information on climate change (see chapter 2). In its Fourth Assessment Report, the IPCC claims that:

> Glaciers in the Himalaya are receding faster than in any other part of the world and, if the present rate continues, the likelihood of them disappearing by the year 2035 and perhaps sooner is very high if the Earth keeps warming at the current rate. (Cruz et al., 2007:493).

Yet, Ives (2009) suggests that such statements are lacking in supporting data. Ives compares these statements with detailed analysis of existing hydrological and glaciological data for the Nepal Himalaya. In relation to claims that the melting of the Himalayan glaciers will have a significant impact on the streamflow of rivers in the Nepal basin and downstream, Ives concludes that the contribution of glaciers to river streamflows of the Himalayan basin is only 4% of the annual volumes, with the majority of streamflow in the rivers of the Nepal Himalaya coming from rainfall associated with the southwest summer monsoon.

Ives then goes on to examine the threat of GLOFs in the Himalaya. First, Ives suggests that the narrative is based on past catastrophic GLOF events that have caused loss of life and land. 15 GLOF events have been documented in Nepal, the most recent in 1985, when *Dig Tsho,* a lake in the headwaters of the Koshi River, breached after an avalanche slid into it, overtopping the dam. The event destroyed hydro-electricity projects, bridges, houses and farmlands worth four million US

dollars (ISET, 2009). While clearly a detrimental event to both human and energy security in Nepal, Ives suggests that media reports of the event provided figures of loss an order of magnitude too high. Ives suggests that the reporting of such events resulted in a large scale effort to identify other 'dangerous' lakes and reduce the risk of further GLOF events.

However, Ives (2009) and others (Alton Byers, personal communication 2010; ICIMOD, personal communication 2010) have suggested that the identification of other 'dangerous' glacial lakes has been based on inadequate and sometimes flawed scientific data. Another major information gap in the field is the lack of any "on the ground" data and information on the people and environments of the Himalayan region. The Mountain Institute (TMI) have noted that almost all data that exists for GLOF threats in the Himalayas has been collected through remote sensing technology, with many influential statements and correlations based on data deficient modelling results, and there has been very little 'ground-truthing' of this data or the statements made.

For example, The Mountain Institute recently launched a field expedition to the Everest region to assess the condition of 9 glacial lakes previously classified as "dangerous" by remote sensing technology. The expedition revealed that 7 of the lakes that were deemed "dangerous" by UN agencies were judged not to be; whilst one that had not been classified as so was judged to be "very dangerous;" and that a second lake, recently re-classified as "non-dangerous," was growing so rapidly that serious monitoring and mitigation planning was called for. TMI has suggested that only by systematically combining field and laboratory-based investigations, including the insights of local people, can the tools be acquired to enable the identification of real threats, non-threats, and feasible adaptation strategies for vulnerable communities (TMI, personal communication).

Ives proposes that the emergence of such a 'crisis' narrative around climate change in the Himalayas, revealed as based on insufficient data and yet having gained significant ground in both media and policy climate change rhetoric, mirrors the progression of another "catastrophe myth" in the Himalayas; "The theory of Himalayan Degradation" (Ives, 2009:13), which dominated environmental discourses in Nepal between 1960s and 1990s. This narrative predicted the total loss of Himalayan forest cover in Nepal by the year 2000 (World Bank, 1979) and consequential devastating floods across downstream countries in the Gangetic plain (Ives and Messerli, 1989). The conventional theory for deforestation in the Himalaya was population growth leading to forest destruction and the terracing of steep slopes by 'ignorant" Himalayan peasants, and an imminent "super-crisis" of deforestation would occur if environmental policy interventions were not staged (Ives, 2009; Ives and Messerli, 1989). However, in 1989, Ives and Messerli published a detailed historical study of deforestation in the region which showed that, contrary to reports of current

rapid deforestation, deforestation had actually occurred in the region two centuries earlier, and the practices of Himalayan farmers were doing much to conserve the land and control landslide events that were blamed on deforestation (Ives and Messerli, 1989). Their seminal study did much to reorientate environmental and development assessments in the Himalayan region.

Similarly, we are now seeing a backlash against the climate change "catastrophe myth" of the 'disappearing Himalayas'. For example, in November 2009, the Indian Environment Minister made controversial statements claiming there is no evidence that climate change is related to shrinking Himalayan glaciers, and that it is premature to suggest that the glaciers are shrinking at all (Guardian, November 9th, 2009). These statements were based on a report commissioned by the Indian Environment Ministry entitled "Himalayan Glaciers: A state of the art review of glacial studies, glacial retreat, and climate change" (Raina, 2009), which argues is that it is impossible to make generalised statements claiming that all glaciers are retreating; or that glacial retreat can be directly linked to climate change.

This report, coupled with a growing sense of uncertainty around the increasingly bold claims being made about the 'disappearing Himalayas', resulted in the questioning and then exposure as false the claims made in the IPCC Fourth Assessment Report above, about the threat of Himalayan disappearance "by 2035", which, as we approach the year in question, begin to look increasingly unrealistic. Following investigation of these claims, it was revealed that the IPCC had cited data from non-peer-reviewed material from a 2005 World Wildlife Fund (WWF) report. (Ironically these IPCC estimates were used by IPCC Chairman Pachauri to refute the earlier statements of the Indian Environment Minister in November 2009.)

Such revelations, particularly against the IPCC, have resulted in somewhat of a backlash against the "disappearing Himalayas" narrative that has underpinned climate change storylines in Nepal until very recently.

The circumstances of NAPA design and development in Nepal

The NAPA process in Nepal is being lead by the Ministry of Environment (MOE) in the Government of Nepal, with the United Nations Development Programme (UNDP) acting as the implementing agency. MOE took initial steps to access financial assistance from the UNFCCC Least Developed Country Fund (LDCF) for NAPA preparation in 2006, however the proposal for NAPA development was not agreed by the MOE and UNDP until November 2008; and NAPA preparation did not begin

until May 2009, when the "NAPA Inception Workshop" took place to initiate the NAPA preparation process.

The delays in the initiation of NAPA preparation have been attributed to various factors, including a highly political relationship between the Government and UNDP. One factor that contributed to this delay was the slow recruitment of international consultants to assist the MOE in the NAPA preparation process. A second, significant factor was a broader approach taken to NAPA development that extended beyond the requirements of the NAPA guidelines (see section 5.4).

Such setbacks have resulted in Nepal being one of the last countries to complete its NAPA, with the current completion date anticipated in August 2010. However, the delays in the commencement of the NAPA preparation process in Nepal have in many ways been to Nepal's advantage, enabling Nepal to learn from other NAPA experiences. By the time Nepal began the process of initiating its NAPA, several evaluations and critiques of other NAPAs had been conducted. Influential assessments on various aspects of the LDCF Fund and NAPA processes included: those carried out by UN agencies that had acted as implementing agencies for NAPAs elsewhere (UNDP 2009; UNEP, 2009); the LDC Expert Group (LEG, 2009); sections of the 2010 World Development Report (World Bank, 2009); a World Bank commissioned evaluation on the role of social institutions in UNFCCC adaptation supported processes (Agrawal, 2008); lobbying non-governmental agencies (CAN, 2008); and an independent evaluation of the LDCF Fund and its mechanisms commissioned by the Danish Ministry of Foreign Affairs, one of the donors to the LDCF (COWI/IIED, 2009). Further, many countries had begun to internally review their own NAPA experiences, and indeed both Bangladesh and Bhutan were asked to present on these at the Inception Workshop of the NAPA Nepal in May 2009.

These assessments gave rise to giving a number of criticisms of other NAPAs, and recommendations for future NAPA development (see box 5.3).

Box 5.3: Some lessons emerging from NAPA evaluations

Lessons emerged around:

- Inadequate mechanisms for comprehensive multistakeholder participation (CAN, 2008; COWI/IIED, 2009);
- A lack of attention to social vulnerability contexts, and locally differentiated vulnerability (CAN, 2008; Agrawal, 2008);
- A national capacity deficit to manage adaptation projects and investments (IIED/COWI, 2009; UNDP, 2009c; UNEP, 2009);
- Overemphasis on technological solutions (UNDP Bhutan, 2009);
- The need to take a more strategic (rather than projectised) approach to adaptation that is better aligned with other development and environmental investments (IIED/COWI, 2009).

There is evidence of transfer and uptake of these lessons at various stages of the NAPA design and implementation process. Specific sites of learning included, first, the meetings of the UNFCCC, in particular those of the LDC Group. The UNFCCC focal point to the UNFCCC is the Ministry of Environment, so the same members of Government directing and managing the NAPA process were also those who attended the UNFCCC meetings, receiving feedback – both in formal forums and informally – on the experiences of other LDCs NAPAs. Indeed, the Ministry of Environment personally invited NAPA team members from both Bangladesh and Bhutan to the NAPA Nepal inception workshop to share their experiences with a wider stakeholder group. During the presentation from Bangladesh, Mr. Reazuddin, former LDC chair who was Secretary of the Ministry of Environment when Bangladesh undertook its NAPA, stated that he was pleased to be able to share once again the experience of the NAPA process and challenges in Bangladesh, as he had shared with his "good friends" from the MOE Nepal on other occasions (authors notes, NAPA Inception Workshop, May 2009).

Second, the UNDP had been selected as an implementing agency in many other NAPA processes, and were aware of the challenges and pitfalls that had been faced in other countries. The initial NAPA project proposal was written with support from a regional UNDP representative from South Asia, who brought knowledge and experience from other NAPAs including Bangladesh. UNDP were also under pressure to respond to the recommendations from the various evaluations of the NAPA and LDCF processes, particularly the UNDP evaluation and the independent evaluation conducted by the COWI/IIED, both of which had raised issues about the need for the NAPA to be more country driven, the need to build greater national capacity on climate change, and the need for more efficient and effective mechanisms to be put in place to implement adaptation priorities identified by NAPAs (COWI/IIED, 2009; UNDP, 2009c).

Third, the main co-financier to the NAPA process in Nepal was DfID Nepal. At the time of NAPA inception, the Regional Environment and Water Advisor was based in Kathmandu and was leading on the process from DfID, and so again had knowledge of the NAPA processes in other South Asian countries. In addition, the (at the time recently appointed) national DfID Climate Change Adviser to Nepal had previously held a role as a "CLACC[29] Fellow", part of a network of international experts working on strengthening adaptation in the Least Developed Countries, and so who had a wealth of experience in advocacy around NAPAs elsewhere.

[29] "CLACC" refers to "Capacity Strengthening of Least Developed Countries for Adaptation To Climate Change. CLACC is network of fellows and international experts working on adaptation to climate change for least developed countries (www.clacc.net).

Fourth, the international consultants brought on board to assist the NAPA process were the same consultants who had worked on previous NAPA evaluations. First, for my part, I was involved in the COWI/IIED evaluation of the LDCF and its mechanisms, focusing particularly on the Bangladesh case study. I also of course brought with me my learning from my PhD research that had recently been undertaken in Bangladesh. Further, delays in the appointment of a formal Climate Change Specialist to the NAPA project resulted in IIED being recruited at the later stages of NAPA preparation on a draw-down basis to fulfil this role as and when required, again bringing with it significant learning from the evaluation process.

Thus, the result of the delay in Nepal initiating and completing its NAPA presented a number of opportunities for Nepal to incorporate lessons from the critiques of others NAPAs into its design and implementation. Such learning from other NAPAs has been incorporated into the NAPA preparation process in two ways; first, through a broader framework adopted for NAPA preparation that includes the establishment of parallel institutional mechanisms to facilitate knowledge management and multi-stakeholder engagement under the NAPA programme of work; and second, by the particular participatory approaches adopted for the preparation of the NAPA document itself.

5.4 Country case study part two: The NAPA Process in Nepal

The framework for NAPA preparation in Nepal

First, although Nepal was confined to the same LDCF guidelines adopted by all other LDCs, the Government of Nepal, in conjunction with UNDP and donor agencies, took a decision to develop an "expanded NAPA" process. This process embeds the preparation of the NAPA document within a much wider programme of work intended to support a more strategic and sustainable approach to NAPA development and implementation. Echoing many of the criticisms of the NAPA evaluations, the NAPA project proposal document states that a broader framework for the Napa is necessary because:

> An isolated approach to NAPA formulation…without consideration of how the NAPA process could strategically be used to create a sustainable support and knowledge infrastructure for climate-related activities in Nepal, would not warrant a swift and well-coordinated follow-

up to the identified priorities. (MOEST[30]/UNDP, 2008:3).

The intention behind expanding the NAPA is that the preparation of the NAPA document is not seen as an end in itself, to be all or partly funded from the LDCF, but instead acts as a catalyst for building broader institutional capacity, knowledge, and leveraging investment around long term adaptation planning. The goal of NAPA development in Nepal is therefore not simply the development of the NAPA document and adaptation project proposals, but instead, the NAPA proposal suggests a much broader remit:

> The project goal [of the expanded NAPA] **is to enable Nepal to respond strategically to the challenges and opportunities posed by climate change**. The starting point to identify these challenges and opportunities is the formulation of a National Adaptation Programme of Action (NAPA), which is the centrepiece of this project. In order to ensure that NAPA priorities can be effectively addressed, the project will **develop a strategic framework of action for climate change in Nepal, based on the identified immediate priorities for climate resilient and low carbon development, behind which stakeholders can align their response**. (MOEST/UNDP, 2008; original emphasis).

To achieve this goal, a three-component framework was designed for the "expanded NAPA": (MOEST/UNDP, 2008:4):

- Component 1: Preparation and dissemination of a NAPA document. In line with the guidelines of the LDCF, the NAPA document identifies and prioritises the urgent and immediate adaptation needs for Nepal.
- Component 2: Development and maintenance of a Climate Change Knowledge Management and Learning Platform for Nepal. This component is intended to act as a "clearing house" for climate change information and support services, and to facilitate the development of a "Climate Change Community of Practice in Nepal"
- Component 3: Development of a Multi-stakeholder Framework of Action for Climate Change in Nepal. This is intended to provide an institutional framework for climate-change related policy advice and coordination of climate change, development, and environmental finance and policy.

[30] MOEST refers to the "Ministry of Environment, Science and Technology". Over the course of NAPA preparation, this Ministry was divided into two; the Ministry of Environment (MOE); and the Ministry of Science and Technology (MST). MOE retained responsibility for NAPA preparation, and continuity was retained in the NAPA team and NAPA management.

The additional components of the NAPA – the Climate Change Knowledge Management and Learning Platform, and the Multi-stakeholder Framework for Action, were supported with cofinancing from DfID and Danida, so that while the budget for most NAPA preparation processes was limited to US$200,000 provided by the LDCF, in Nepal, the budget for the "expanded NAPA" was 1.325 million US$.

Components 2 and 3 were put in place to facilitate information exchange, learning, and wider stakeholder engagement in both the NAPA process and also longer term climate change planning processes in Nepal (MOE, 2010c). The proposed key features of components 2 and 3 are presented in boxes 5.4 and 5.5. The aim of component 2 is to maximize the value of the *process* of NAPA development, and ensure that the information gathered and lessons learned are captured, codified, and made available for related processes and future planning exercises. It should also facilitate stakeholder access to vulnerability and climate-related information (MOE, 2010c).

Component 3 aims to ensure that the programmes identified in the NAPA are implemented through coordinated multi-stakeholder action, and strategic donor financing (MOE, 2010c). The main feature of Component 3 has been the establishment of the Multi-stakeholder Climate Change Initiatives Coordination Committee, the key features of which are described in box 5.5.

Box 5.4: Key features of NAPA Component 2
Source: Adapted from MOE, 2010b; and MOE, 2010c

The Climate Change Knowledge Management Platform will have the following components:

1) Knowledge generation activities primarily to address the critical knowledge gaps in the NAPA process
2) A web-based portal on climate and development that will serve as a repository of carefully selected information on climate science, impacts, mitigation, and adaptation. The portal aims to enhance evidence-based policy making and adaptation planning and guide the design of climate change actions, programmes and projects by connecting: (i) policy and NGO communities with the latest developments in the research communities and (ii) various research communities.
3) A mailing list on climate and development topics will provide a channel through which information on NAPA developments, climate change-related activities, and climate resources will be exchanged and disseminated.
4) Publicly-accessible climate change information centers (national and regional) will be also set up. The centers will house books, publications, journals, and other materials on climate change, and be established in existing climate and development institutions;
5) Capacity building for knowledge intermediaries, primarily through media training to encourage greater outreach of vulnerability-related information

Box 5.5 Key features of component 3
Source: Adapted from MOE, 2010c

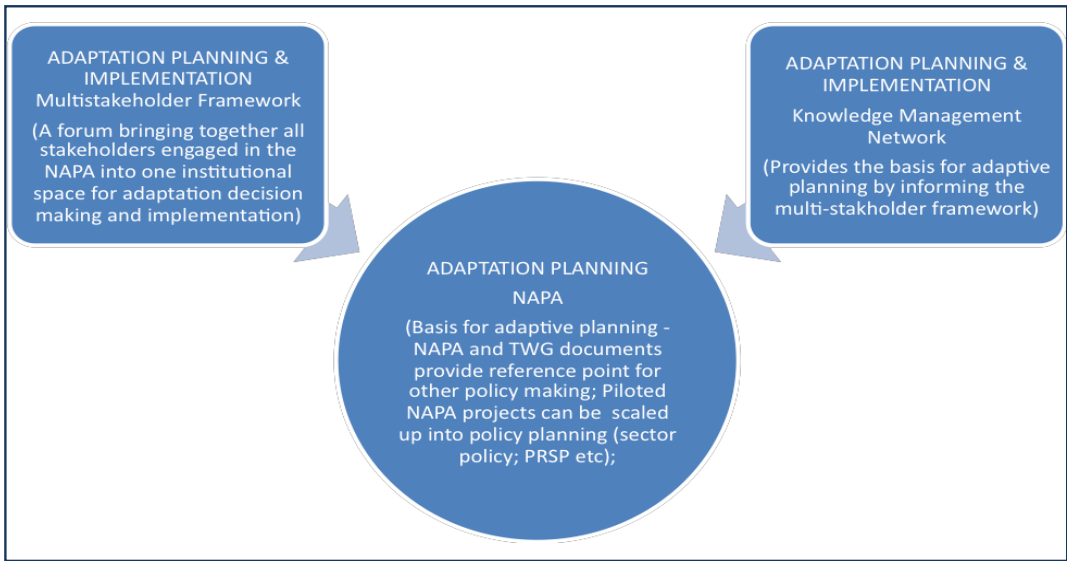
The Multi-stakeholder Climate Change Initiatives Coordination Committee established under Component 3 of the NAPA has the following functions:

1. Establish, maintain, and improve communication amongst institutions concerned with and working in the field of climate change;

2. Coordinate climate change response in Nepal to foster synergy and avoid duplication of efforts. The areas that have to be coordinated include policies, plans, strategies, financing, programmes and projects;
3. Provide inputs for developing a national consensus in international climate change negotiations;
4. Ensure strategic adaptation and mitigation financing by providing a venue where needs are identified, articulated, and taken into account in the formulation of adaptation financing strategies by development partners and by the Government of Nepal;
5. Strengthen multi-stakeholder collaboration in responding to climate change;
6. Facilitate to clarify any misunderstandings and/or confusion, if occurred, in any stages of the project cycle; and
7. Provide inputs and monitor and evaluate the implementation of priority adaptation actions as identified in the NAPA and other climate change initiatives.

The relationship between the three NAPA components is envisaged as follows: The process of developing the NAPA document (component 1) should provide the catalyst for the development of a multi-stakeholder framework for NAPA implementation, which is backed-up by dedicated knowledge management and learning support. In turn, the mobilization of multi-stakeholder support through components 2 and 3 should facilitate swift and coordinated implementation of

Figure 5.1: The expanded NAPA framework
Source: MOE, 2010a.



the adaptation priorities identified in component 1 (MOE, 20010a) (see figure 5.1).
In this way, the "expanded NAPA" framework was designed with the intention of creating:

> A forum for more inclusive adaptive management, by providing a space for stakeholders at different levels (government; donors; and local-level government and community-based organisations) to interact, ensuring participatory decision-making; bottom-up and top-down accountability and transparency; and a flexible mechanism to review actions and investments. (MOE, 2010a).

In principle, then, this framework creates opportunities for multi-stakeholder deliberation; contains mechanisms for facilitating deliberation; and creates avenues for the outcomes of stakeholder participation to be built into policy making. But, first, that participation must take place in the NAPA process. The next section will consider the extent to which these aims have been realised in the operationalisation of the "expanded NAPA" framework.

Operationalising participation and stakeholder engagement in the NAPA process

The NAPA Nepal project proposal document states that:

> A key strategy of [NAPA preparation]…will be to ensure comprehensive stakeholder input in all stages of the implementation process, involving national and local level government institutions, non-governmental organisations (NGOs), civil society groups, academia, international organisations and donor agencies. (MOEST/UNDP, 2008:5).

The project proposal lays out four "levels" of action for achieving stakeholder participation: project management; professional services; consultations; and review, monitoring, and evaluation. This section will review the participatory processes first in relation to project management and services; and second in relation to consultation processes (monitoring and evaluation of the NAPA process has not yet taken place and so will not be discussed here).

In relation to project management, the NAPA development is the primary responsibility of a "NAPA Project Team", housed in, and led by, the Ministry of Environment but with national and international consultants provided technical guidance and support. The NAPA guidelines suggest that a multi-disciplinary team is established under the guidance of the central NAPA Team, to undertake many of the tasks required in the development of the NAPA. During the NAPA Inception Workshop, it was decided that the multi-disciplinary team would be made up of six, government-led, multi-stakeholder Thematic Working Groups (TWGs) (MOE, 2010):

1. Agriculture and Food Security (Chair: Ministry of Agriculture)
2. Forests and Biodiversity (Chair: Ministry of Forests and Soil Conservation)
3. Water and Energy (Chair: Ministry of Energy)
4. Climate Induced Disasters (Chair: Ministry of Home Affairs)
5. Public Health (Chair: Ministry of Public Health)

6.Human Settlements and infrastructure (Chair: Department of Urban Development and Building Construction)

Each group had 10-15 members drawn from government agencies, civil society, academia, and special interest groups, and was facilitated by a national consultant who supported the Chair to coordinate the group. The TWGs were seen to present the most direct opportunity for multi-stakeholder engagement in the NAPA process, because it was the responsibility of the TWGs to undertake the information gathering (including vulnerability analysis), synthesis, analysis and prioritization of adaptation options relevant to their respective themes, the outputs of which directly informed the NAPA. The NAPA in Nepal has been noted as "unique" in having each of the TWGs as Government lead, with a Government-selected facilitator, with all other members of the TWGs playing relatively equal roles (MOE, 2010d). For example as shown in chapter four, similar 'sectoral working groups' were set up in Bangladesh but were in some cases led by non-governmental expert agencies or consultants, reducing Government ownership over the outputs of the groups.

In terms of professional services, the project proposal document lays out provisions for two permanent international consultants to be assigned to the NAPA (a "Climate Change Specialist" to support Component 1; and a "Climate Change Network Facilitator" to support Component 2) (MOEST/UNDP, 2008). However, as noted above, there were significant delays in the hiring of international consultants. A Climate Change Network Facilitator was not formally hired until September 2009 (although interim arrangements were in place from May 2009); and a Climate Change Specialist until December 2009, the latter of which left the project in March 2010 at which point IIED was provided with a draw-down contract to support the process. My own role, as Climate Change Consultant, to some extent back-stopped these two positions, however I did not have the remit nor the authority to provide the same extent of inputs, or to influence the project in the same way.

The delays in the hiring of international consultants has been a source of contention between the Ministry of Environment and the UNDP, with a recent review report suggesting that such delays should have been anticipated by UNDP (Prasai, 2010:10). However, the project made significant progress without these international consultants, placing a much greater burden on the existing members of the NAPA team and the TWGs.

In many ways, the additional responsibility given to the NAPA team and TWGs meant that additional national capacity was built and utilised; and there was a much greater degree of

Government 'buy-in' to the NAPA process across Ministries than may have otherwise been the case if international consultants had played a greater role. The existing expertise from the TWGs that related to the familiar issues of thematic vulnerability (for example, water stress, or forest management) had to be given greater precedent over 'climate change' knowledge, which was lacking; many of the TWG members had not considered the impacts of climate change on their sectors before.

A second avenue for "professional services" was provided through a "technical advisory group", which was made up of a group of national and international consultants with climate change expertise, and expertise related to each theme. The services of the technical advisory group were available on a draw-down basis as and when inputs were required into the NAPA process. However, the use of the technical advisory group in some cases caused tensions with the existing TWG members. During interviews with TWG members, they expressed concerns that their (voluntary) services and expertise were undermined by the paid services of the other 'experts' who in many cases were peers of TWG members. Thus, the inputs of the technical advisory group were limited and only used to meet specific requirements at particular stages of the NAPA process, which tended to be for the quality assurance of NAPA reporting, rather than influencing the content of NAPA documents.

In relation to consultation mechanisms, the NAPA guidelines require that NAPA teams conduct a

> Participatory assessment of vulnerability to current climate variability and extreme weather events, and assess where climate change is causing increases in associated risks. (LEG, 2002: 4).

The guidelines also state that the engagement of "local communities" at the "grassroots" is "essential" for the successful development of a NAPA and the implementation of NAPA activities (LEG, 2002:2). Beyond these broad requirements, the NAPA guidelines remain non-prescriptive about how to achieve these aims, and as such very different approaches to ensuring local participation have been adopted across the LDCs. As was shown in Chapter four, in Bangladesh 'local' participation was achieved through regional consultations workshops, however these proved limited in their capacity to achieve meaningful deliberation between local people and policy makers around climate change risk.

In Nepal, discussion around how to conduct vulnerability assessments were initiated at the Inception Workshop in May 2009. Following presentations from Bangladesh, Bhutan, and UNDP

on the experiences of NAPAs elsewhere, participants discussed several lessons from other NAPAs around mechanisms for participation. Box 5.6 describes some of the statements made by participants in relation to participation and deliberation in the NAPA process, as summarised by the NAPA Inception Workshop Report. Photograph 5.1 Shows the NAPA Inception Workshop "breakout session" in which these statements were made.

Box 5.6: Summarised statements from NAPA Inception Workshop participants in relation to participation and deliberation for the NAPA. *Source: MOEST, 2009:26-27*

- Institutions responsible for policy making have to be linked to the local level
- There is a need for national [adaptation] policies to be grounded in reality and practice
- Policy processes in Nepal tend to be top-down, therefore there needs to be a link between frameworks from the top to the bottom – the voice of civil society and communities should be incorporated in policy making processes. This is difficult to achieve, and shows a need to make policy makers aware of grass-roots realities
- "NAPA without LAPA [Local Adaptation plans of Action] means nothing"
- How can local level voices and learning be brought up into policy making processes?

Photograph 5.1: Participants at the NAPA Inception Workshop 'brainstorming' options for achieving local inclusion in the NAPA process. May 2009.

The statements presented in box 5.6 show an understanding from workshop participants about the need to make adaptation policy making inclusive; but also the challenges in achieving this when most policy-making processes in Nepal are "top-down". In light of these challenges, various options for participatory processes for the NAPA were discussed. It was noted that given the

highly variable geographic, economic and cultural conditions of Nepal, regional consultation workshops would not be enough to reflect the complex and highly varied climate conditions and vulnerabilities (author's notes, NAPA Inception Workshop, May 2009; MOEST, 2009).

Drawing on the presentations from the workshop, participants were keen that the NAPA in Nepal conducted "bottom-up" vulnerability assessments, stressing the vast experience amongst Nepali NGOs of participatory development particularly around vulnerability management but also disaster risk reduction that could be drawn upon (ibid). At the same time, it was noted that the NAPA process was a Government process and it was important that Government officials were involved in conducting vulnerability assessments. Yet, many NGOs and special interest groups stated that Government-led processes could be "Kathmandu-centric"; that the most vulnerable regions would be those hardest to reach outside Kathmandu, those that many Government services cannot reach (authors notes, NAPA Inception Workshop, May 2009).

Following the NAPA Inception workshop, it was decided that one proposal that could meet the requirements laid out by participants (box 5.6) was "Transect Appraisal Exercises". This proposal involved TWG members (notably including Government officials) travelling from the high-hills to the Terai in the Far-West, West, and Eastern regions of Nepal, visiting communities along the way. The proposal was understood as a "macro-level" vulnerability assessment, to be complemented by literature reviews of local-level vulnerability assessments undertaken by non-governmental NGOs and research institutes; and to be further reinforced at a later date by more detailed assessments in specific pilot areas identified as 'highly vulnerable' during the transect exercises. The transect appraisal exercises would also serve to sensitise Government members of the TWGs about the cross-sectoral nature of vulnerability on the ground in the rural areas of Nepal, and could therefore help TWGs to conceptualise adaptation options that responded to vulnerability rather than sector-specific climate change impacts (NAPA team member, personal communication, June 2009).

In order to avoid the pitfalls of other NAPA vulnerability assessments, which had not created adequate space for vulnerable people to express their own risk and adaptation priorities (see chapter four), all TWG members attended an "Induction Workshop" in October 2009, with sessions on understanding vulnerability, vulnerability assessment methods, and the implications of climate change impacts for Nepal. Again the workshop presented on lessons from other NAPAs, this time focusing on the methods of vulnerability assessment, and emphasised the importance of a social-vulnerability based approach. In particular, while a set of recently generated climate change scenarios for Nepal was presented, the limits of the scenarios for understanding 'on-the-

ground' vulnerability was stressed (authors notes, NAPA TWG Induction Workshop October 2009; MOE, 2009).

Following discussions at the TWG Induction workshop in addition to the advice provided by the technical advisory group, it was agreed that a "Shared Learning Dialogue" approach would be taken by transect groups (MOE, 2010). This approach was proposed by members of the technical advisory group, who had been piloting the concept as a framework for climate change vulnerability assessments in Nepal for some time (Moench and Dixit, 2007). A "Shared Learning Dialogue" is based on the principles of good deliberation; forums are created for the exchange of information between 'experts' of climate change impacts, and vulnerable people who are necessarily 'experts' on the factors that drive their own vulnerability. The aim is to develop mutually meaningful adaptation solutions that can address social vulnerability in light of climate change impacts (Moench and Dixit, 2007). The capacities required to implement a Shared Learning Dialogue include the facilitator's ability and capacity to learn and understand from participants, being careful to ensure that their own perspectives do not dominate the dialogue or its interpretation (Moench and Dixit, 2007). These requirements strongly echo those of deliberative governance; that all participants should be open to learning from all others, and revising their preferences in light of reasoned discussion (Chambers, 2003; Cohen, 2007) (see box 5.7).

Box 5.7: The importance of a flexible approach to data collection

I accompanied and observed part of the transect appraisal exercise that took place in the Western (Gandak) region. In the planning of the transect appraisal exercises, various options were proposed for data collection. One option strongly advocated for by the TWG facilitator to the Water and Energy group, was the use of a pre-planned questionnaire to gather information against water resources (see box xx).

However, the participants in the Gandak region transect decided that the use of a questionnaire with predefined questions about resource availability was not in line with the principles of a "shared learning dialogue" approach, in which all stakeholders should enter into dialogue with an open mind and without preconceived expectations. As a result, the Gandak transect participants decided not to use the questionnaire but instead adopted a more informal approach to information collection. This included a strong emphasis on unstructured interviews and small focus group discussions that were not guided by a focus on changing climatic trends.

The result was a great deal of data generated around factors driving vulnerability in the Gandak region that were not related to climate change impacts. This information turned out to be extremely relevant for informing approaches to climate adaptation through informing vulnerability reduction. The following example documented in the Gandak Transect Report documents this well:

Bad Decision Making Example (Culvert Bridge)
Source: Gandak Region Transect Report (Unpublished report prepared by Usha Gautam, Climate Induced Disasters TWG Facilitator).

"We had asked the Maoists to destroy this bridge but they did not. If they had then at least our khets would not be water logged/inundated", said the local resident of ward number 6 of Madan Pokhara.

The bridge he was referring to is a culvert in the Tinau river and is located in the main catchments area of the Palpa district. During the rainy seasons it brings with it both water and residues from above. When there is heavy rainfall in the hills of Palpa district there is flood in the Tinau river, the water inundates the paddy khets thus affecting agricultural production. In addition there is sedimentation on the sides of the river and the culvert is designed using the him pipes in such a way that these do not facilitate the flow of the water. Furthermore the culvert is very low so flooding also affects the mobility of the vehicles. (There is an old wooden bridge near which is higher therefore, people can move). This case exemplifies how some technical interventions are not designed and are not flexible enough to respond to local conditions and needs. The particular technology used for culvert construction in this case has increased the occurrence of disasters.

The above anecdote illustrates well the importance of acknowledging the political economy factors that contribute to vulnerability at the local scale. It shows that the people from Palpa are not only vulnerable because it rains. The rains caused flooding because of the existence of a bridge that blocks water flow in the rainy season. This bridge exists because powerful Maoist political actors in the vicinity ignored the requests of vulnerable people to consider removing or relocating the bridge. This reflects a situation of political exclusion and vested interests that do not serve the needs of those most vulnerable to climate and other risks.

This demonstrates the importance of open and "shared learning" dialogue in assessing risks and vulnerability related to climate change. A predefined questionnaire about climate change trends and impacts alone is unlikely to capture the interrelated and context specific factors that drive vulnerability to those impacts. A more deliberative platform that encourages the mutual exchange of information allows for information to emerge around the factors important to vulnerable people in shaping how they perceive climate risks, and why those risks matter.

With these guidelines in mind, the NAPA team and TWGs took up the proposal of transect appraisals, based on the principles of shared-learning dialogue, and in November 2009 over 60 Government and non-government TWG members travelled in three, mixed-theme teams from North to South over the major river basins in Nepal as part of the NAPA vulnerability assessment process. Using a shared-learning dialogue framework, the methods adopted across the transects varied, but included observations; focus group discussions; structured and unstructured interviews with individuals and local institutions; and district level workshops (see map 5.2; and photographs 5.2 and 5.3). The information documented related to an overview of perceptions from the communities visited related to climatic changes; impacts; and existing coping strategies for climate-related hazards; and to consider how the NAPA could support realistic adaptation options on the ground (MOE, 2010a).

In addition to transect appraisal exercises, the NAPA team carried out several multi-stakeholder consultation workshops arranged in Kathmandu with representatives of "special interest groups"

(MOE, 2010a). These included youth groups; foresters groups; indigenous women's groups; and disaster risk networks. Over 250 people have been engaged in these consultations. Regional level consultations were also undertaken, also being undertaken to ensure inputs from vulnerable regions beyond Kathmandu Valley (see map 5.2).

MAP KEY

- Major River
- City
- Consultation Sites
- Transect Route 1
- Transect Route 2
- Transect Route 3

Map 5.2: Map of Nepal showing "transect appraisal exercise" routes. *Source: Adapted from map provided by NAPA Team, September 2009.*

In addition, "reference groups" were initiated around each thematic working group. Membership of reference groups was open and voluntary, and members were invited to comment on key outputs of the TWGs (for example, thematic working group reports) and in some cases were invited to attend the regular meetings of the TWGs.

These consultative mechanisms were complemented by an outreach programme supported under Component 2 of the NAPA. This included media training on climate change, and regular interviews with national and local media about climate change planning in Nepal including NAPA progress.

Component 2 also included a moderated email list to which NAPA updates were regularly released. The expectation was that such outreach would encourage more effective and informed consultations.

The outputs of the consultations, transect appraisal exercises and literature reviews were incorporated into thematic working group reports, so that each "theme" had a reference document that described impacts, vulnerability, and potential adaptation options that could be incorporated into sectoral planning, or be taken up by other adaptation planning processes. These outputs were summarised into a "Thematic Working Group Synthesis Report" which was made publicly available on the NAPA website and disseminated for review to interested stakeholders via the mechanisms created under Component 2. This report also formed the basis for the final NAPA document.

Finally, the recurrent emphasis on participatory processes and a social-vulnerability approach is evident in the prioritisation process adopted for adaptation options to be included in the NAPA document. Describing the prioritisation process adopted in Nepal, the draft NAPA states:

> Reviews of other NAPA processes show that the prioritisation stage is often rushed. Multi-criteria analysis has most often been used. In the case of Nepal the prioritisation process was carefully undertaken and was made as consultative as possible. (MOE, 2010c:29).

The Nepal NAPA prioritisation criteria are presented in table 5.2. An analysis of these criteria reveals the following innovative approaches:

- These criteria are based on the same criteria used by TWGs through the NAPA process to identify adaptation options, which were systematised and aggregated by the NAPA team.
- The early calls from the Inception Workshop for the need for 'locally' appropriate adaptation options (author's notes, NAPA Inception Workshop, May 2009) is reflected in the prioritisation criteria selected.
- A comparison of the Nepal NAPA prioritisation criteria versus those in other NAPAs, show that the Nepal NAPA is unique in actively including deliberative qualities (inclusiveness, local ownership, 'local' involvement in project design) as key criteria for prioritisation.
- Prioritisation criteria do include "the potential to reduce the adverse impacts on climate change", but the "qualifiers" for these criteria are not based to climate-exposure indicators, but rather include "potential to help plan for climate change", and "potential

to reduce climate vulnerabilities", both of which relate to building adaptive capacity more generally.

- Finally, livelihoods-based criteria are given equal weighting.

Table 5.2: Aggregated prioritization criteria and qualifiers for NAPA projects
Source: MOE, 2010c

Criteria	***Qualifiers***					
Potential to reduce adverse impact of CC	*Potential to reduce direct exposure to CC*	*Potential to help plan for climate change*	*Potential to secure/enhance ecosystem services*	*Potential to reduce climate vulnerabilities*	*Potential to reduce immediate impacts of CC*	
Potential to support local livelihood	*Potential to create income generation avenues*	*Potential to generate local employment*	*Potential to ensure equity in access*	*Potential to secure livelihood assets*	*Potential to develop alternative livelihoods*	*Potential to address urgent adaptation needs*
Synergy with national priorities	*Synergy with multilateral environmental agreements*	*Synergy with national development plans*	*Synergy with sector development plans*	*In line with institutional capacity to implement priorities*	*Potential to co-finance*	
People's participation	*Involvement in design and implementation*	*Local ownership*	*Social and cultural acceptance*	*Local capacity building*	*Inclusiveness (Gender; indigenous & Dalit communities)*	
Cross-sectoral benefits	*Multi-sectoral involvement*	*Ease of governance*	*Co-benefits (i.e. mitigation)*	*Multi-partnership in implementation*	*Geo-graphical and ecological coverage*	
Cost-effectiveness	*Input output ratio*	*Multiplier effects of investment*	*Potential to mobilize local resources*	*Sustainability (expansion potential)*	*Potential to generate additional resources*	
Ease of implementation	*Potential to use of local knowledge and technology*	*Potential to enhance local/national skills and develop appropriate technology*	*Local/national ownership (i.e. country driven and community led)*	*Coherence with local urgent and immediate needs*	*Address existing or potential resource conflicts*	

Proposed adaptation options under each theme were prioritised for inclusion in the NAPA document, using the criteria presented in table 5.2 above. The NAPA document states that these criteria were developed based on insights from reviews of other NAPAs.

Photograph 5.2: Under Secretary, Ministry of Environment (far left) discussing perceptions of climate change with apple farmer (centre) in Mustang region during transect exercise 2.

Photograph 5.3. Informal and small-scale discussion as part of village level consultation en-route of transect exercise 2, in the Mustang region. The four people closest to the camera are part of the transect team. The rest (including speaker) are participants from the local village.

An assessment of NAPA outcomes

This section assesses the extent to which the outputs of the deliberative mechanisms under NAPA described above were reflected in policy-making decisions. The key 'output' of the NAPA process to date, is the draft NAPA document, which lays out the "most urgent and immediate" adaptation priorities for Nepal. The draft NAPA was completed in June 2010. This section considers whether the draft NAPA reflects the outputs of the deliberative processes conducted under the NAPA process (as summarised in the Thematic Working Group Synthesis Report, MOE 2010a); and if the emphasis of the NAPA process on social-vulnerability aspects of climate risk are also reflected in the final NAPA document. Three elements of the Nepal NAPA will be explored: the identified adaptation needs; the identified existing adaptation practices; and the proposed adaptation priorities. It should be noted that the document is a draft, and the development of project proposals from the NAPA could change significantly from the plans outlined in the NAPA itself.

First, this study evaluates the relative emphasis given to 'impacts' focused versus 'social-vulnerability' focused adaptation needs and existing adaptation options presented in the draft NAPA document. This evaluation is based on discourse analysis carried out on the relevant sections of the draft NAPA document, which involved 'coding' the adaptation needs and adaptation options as either "impacts-based" or "social vulnerability based" according to the relative emphasis placed on each. This emphasis was assessed by looking at the relative space given to 'impacts-based' versus 'social vulnerability' factors in the descriptions of adaptation needs and adaptation options; and the order in which these needs and options are discussed (assuming greater emphasis given to needs/options discussed first, less to those discussed second, and so on). The rankings indicate the following:

I= Impacts-focused
V= Vulnerability-focused

0. No mention
1. Mentioned but least emphasised
2. Both mentioned and equally emphasised
3. Primary emphasis

Table 5.3: Emphasis placed by different thematic working groups on impacts-based versus social-vulnerability-based factors in defining adaptation needs and existing practices

Thematic Working Group	**Water Resources and Energy**		**Climate Induced Disasters**		**Urban Settlements and Infrastructure**		**Public Health**		**Agriculture and Food Security**		**Forests and Biodiversity**	
Criteria	I	V	I	V	I	V	I	V	I	V	I	V
Row 1: Identification of Adaptation Needs	3	1	3	1	2	2	3	1	3	0	3	1
Row 2: Identification of past/current adaptation practices	1	3	1	3	1	3	1	3	2	2	1	3

Table 5.3 above shows that slightly greater emphasis is placed on impacts-based approaches in the identification of adaptation needs and existing adaptation practices: 'impacts-focused' options score a total of 24, versus 23 for 'vulnerability-focused'. In relation specifically to the identification of adaptation needs (table 5.3, row 1), adaptation needs are discussed with reference to the potential climate change impacts for each theme, based on reviews of impacts-studies and general perceptions of anticipated climate change impacts. This is the case for all working groups with the exception of Urban Settlements and Infrastructure. For example the climate induced-disasters group begins by referring to the most recent set of climate predictions carried out for Nepal:

> The recent ISET (2009) report postulates that the current frequency of hydro-meteorological extreme events such as droughts storms, floods/inundation, landslides/debris flow, soil erosion and avalanches will increase due to projected climate change effects. (MOE, 2010c:31).

Similarly, the Urban Settlements group begins: "*Climate impacts on urban settlement in Nepal include*…" and then details some of the direct impacts of climate change such as an increase in hazardous events impacting infrastructure and the resulting household asset bases.

However, a closer analysis of the text shows that secondary emphasis is given to 'social-vulnerability' factors in all groups except agriculture and food security, and these indicators are given equal emphasis by the Urban Settlements and Infrastructure Group. For example, the Urban Settlements group outlines the

> Social, institutional political and economic factors, which may facilitate or impede progress towards adapting to the climate changes. (MOE, 2010c:31).

The social-vulnerability needs identified include,

> The urban poor populations are more likely to live on marginal land that is prone to risks of flooding, storms, and landslides…the poorest residents lack social safety nets and …remain vulnerable. (ibid).

Some TWGs explicitly noted the limits to climate change impacts data in determining adaptation needs, for example the Forests and Biodiversity group stating:

> There are no adequate data to project direct climate change impacts on forests and biodiversity in Nepal (Ibid:32).

This group does then go on to detail 'likely' impacts, such as an increase in forest fires, and shifting flora boundaries, and these statements can be clearly traced back to the outputs of the perceptions of changing environmental trends recorded during the transect appraisal exercises (see MOE, 2010a).

In terms of the information used to assess adaptation needs, explicit reference was made to the outputs of the transect appraisal exercises in three groups (climate induced disasters; agriculture and food security; and forests and biodiversity). For example, the climate-induced disasters group describe,

> Factors that exacerbate vulnerability to climate-related hazards identified by the TWG (thematic working group) through local level dialogues. (MOE 2010c:30).

Similarly, the agriculture and food security group state that,

> High hill animal herders reported declines in fodder and storage production. (ibid:32).

The statements made by the urban settlements group and also the public health group also mirror the outputs of the summarised findings of the transect appraisal exercises. The water resources group does not make any reference to the outputs of the fieldwork, but instead relies on hydrological data to draw its summary conclusions in relation to adaptation needs.

Second, in relation to the specific assessment of past and current practices for adaptation (as opposed to current adaptation needs), table 5.3 shows that greater emphasis is placed on development-based or social-vulnerability focused options (a score of 17, versus a score of 7 for impacts-focused options). For example, the urban settlements and infrastructure group are explicit in the reliance of existing adaptive practices on socio-economic and political conditions:

> The possibilities of urban…entities having the basis for good climate change adaptation depends heavily on government provision of the legislative, financial and institutional basis to allow them to do so. (MOE 2010c:33).

Some of the measures evaluated are very specific to addressing the impacts of past and current environmental hazards. For example, the Water and Energy group cite access to irrigation and water and sanitation systems as important in times of water stress. But, the same group also discuss the social and political factors affecting this access; for water-related systems to be made functional, appropriate legal frameworks also need to be functional (MOE 2010c:33).

All groups either directly refer to, or echo, the transect appraisal exercise findings in their descriptions of existing adaptation practices. For example, the public health group describe,

> The encountered communities' [the communities encountered during transects] health related concerns…also noted [during fieldwork] was the strong presence of traditional and indigenous health care institutions and practices. (MOE 2010c:34).

This emphasis on development-based options in evaluating existing adaptation practices is perhaps not surprising; *existing* adaptation practices are less likely to target climate change or be limited to targeting hazards in isolation of their vulnerability context; as noted in chapters one and three, measures that address the hazards-only aspects of risk, are unlikely to be successful or sustainable.

Third, table 5.4 presents the results of a similar discourse analysis applied to the identification of adaptation options in the NAPA document. This time, the *primary goals* of each proposed option were coded according to whether they were primarily "impacts-based" of "social vulnerability" based. These categories reflected whether the aims of adaptation options presented were to target the impacts of climate-related hazards; or to address more general development goals that

would reduce social-vulnerability to those hazards. The values in table 5.4 reflect the number of projects that fall into each category according to this analysis.

Table 5.4: The number of 'impacts-based' versus 'development-based' projects prioritised by each TWG

Thematic working Group	Impacts-based	Development-based
Water Resources and Energy	3 (one with development-based aspects)	0
Climate-induced disasters	2	2
Urban Settlements and Infrastructure	2 (with development-based aspects)	1
Public Health	2	1
Agriculture and Food Security	1 (with development-based aspects)	3
Forests and Biodiversity	1	3
Total	9	10

Table 5.4 shows a relatively equal balance of projects that primarily target climate change vulnerability, versus those more targeted at specific climate change impacts. For example, the first priority project identified by the Climate Induced disasters group is "Rehabilitation of vulnerable communities", which focuses on the inability of people displaced by hazards to rebuild their lives "due to lack of resources and access". The project focuses on assisting people in rebuilding their livelihoods "to reduce the detrimental impacts of climate induced disasters" (MOE, 2010c:36). The same group also proposes a project largely targeted at impacts (as third priority), a "Flood Management" project.

The Urban Settlements and Infrastructure group present as a first priority an impacts-based option, "Construction of Water Retaining Structures" to address the potential impact of climate change on water resources in Kathmandu valley; similarly, the third priority project is the construction of a dam to prevent the drying up of a major lake. However, the second priority project of the urban settlements group is "Enforcement of building codes in municipal areas". This project recognises that climate change will exacerbate an underlying development need, and adapting to that need does not require a new intervention, but addressing the political setbacks that have caused vulnerability in the first place.

The above analysis is based on initial project proposals only and presents a crude overview of the main focus of projects and the analysis of adaptation needs. Nevertheless, three broad conclusions can be drawn: first, that the identification of adaptation needs is based largely on climate change impacts. Interestingly, none of the climate change impacts identified by the NAPA fit in with the "climate change crisis narrative" described by Ives and others as outlined in section 5.3 of this chapter. Second, the assessment of existing adaptation options reveals many

development-based options that do not target specific climate change hazards. Third, the resulting adaptation priorities identified by the Nepal NAPA is a fairly equal blend of options that target both climate change impacts and also social-vulnerability to these impacts.

In the identification of adaptation needs and existing practices, outputs from the transect appraisal exercises directly are both directly referenced and also echoed in many of the findings, which formed the basis for the development of adaptation priority projects.

5.5 Discussion: To what extent did adaptation policy-making in Nepal achieve meaningful deliberation?

This chapter has examined the process and outcomes of the NAPA in Nepal, paying particular attention to the opportunities created for deliberation, and the circumstances that led to these opportunities. Based on these insights, what is the evidence for inclusive adaptation policy-making in Nepal? This section will address this question in relation to the three aspects of deliberative institutional design introduced in chapters 1 and 4, namely: who is included? How are they included? And, what do people deliberate about? Before considering the circumstances of these institutional design choices.

Chapter four suggested that the regional consultations conducted as the main participatory mechanism under the NAPA in Bangladesh were not representative of ordinary, vulnerable men and women on the ground. Such 'invited' participation forums resulted in the attendance of well-connected community representatives who could not adequately represent the diverse reflections of disaggregated vulnerability realities within their communities.

In Nepal, the limits of regional consultation mechanisms in revealing the diversity of vulnerabilities both geographically and socially were explicitly recognised in NAPA planning meetings (for example the NAPA Inception Workshop, see MOEST 2009). The result was that in addition to regional and 'special interest group' consultation workshops, the Transect Appraisal Exercises provided an opportunity to meet the needs highlighted by Basset and Zeuli in enabling meaningful deliberation; that is, direct dialogue between policy-makers, and,

> Ordinary men and women living in rural areas about what they considered to be the most important environmental issues. (Basset and Zeuli, 2000:74).

Of course, many of the methods adopted as part of the Transect Appraisal Exercises such as village or district consultations workshops, were open to the same sorts of participant selection bias on behalf of the local NGO organisers. However, such workshops were on a much smaller scale and were more informal than the regional consultation workshops; in most cases everyone in the village was invited to attend. Further, these workshops were complemented by village 'transect walks' in which members of the public encountered along the way were interviewed in an impromptu way, overcoming the biases of 'invited participation' techniques discussed in chapter four.

Another opportunity for wider stakeholder participation is provided by Component 2 of the NAPA, the climate-change knowledge management platform. In principle, anyone can register with the platform and contribute to debates around the NAPA either online or through the regional climate change knowledge management centres. However, such forums are likely to be dominated by NGOs and those who have access to the internet; the 'most vulnerable are unlikely to have access to such resources, although their situations may (or may not) be represented by engaged NGOs and community-based organisations.

Second, in terms of how people were included, chapter four showed how in Bangladesh participatory exercises took the form of 'experts' explaining climate change impacts and adaptation needs to 'community' participants; and participants then being given the opportunity to confirm this information. No space was provided for redefining problems or solutions. In Nepal, the transect appraisal exercises tool a "Shared Learning Dialogue" approach. Meetings and discussions began with explanations of the NAPA process and its purpose, but then TWG members and session facilitators were encouraged to listen to perceptions about climatic stresses including changes; reasons for vulnerability, including social and contextual reasons; and coping and adaptation strategies to existing environmental stresses.

It is difficult to assess whether at all stages of the transects, TWGs were effective in adopting a shared learning approach. However, the transect reports for all three transects do show a heavy emphasis of meetings and discussion on social-vulnerability (rather than climate change information), and this is reflected to some extent in the outputs of the fieldwork that make it into the NAPA itself.

Following on, the content of participatory exercises - "what was deliberated?" - adopted a more flexible definition of climate change risk that allowed for the meaningful inclusion of social-vulnerability indicators. This is evident from the very beginning of the NAPA process, with

discussions during the Inception Workshop focusing on the limits to climate change information in Nepal, and the need for the NAPA to be informed by locally generated, vulnerability-based perspectives (author's notes, NAPA Inception Workshop, May 2009; see also box 5.6).

In terms of deliberative outcomes, the analysis of the final NAPA document presented above shows that the influence of deliberation is greatest in the identification of existing coping strategies; but is more limited in terms of defining adaptation needs and adaptation priorities. In addition, space has been created through the Climate Change Knowledge Management Platform component of the NAPA for a wide range of stakeholders to continue to engage in the NAPA process, including its review and evaluation. However, as noted, engagement through component 2 of the NAPA is likely to be limited to those with the resources to engage, for example those with internet access or with access to the regional climate change centres, who are not likely to be among the 'most vulnerable' sectors of the population.

Overall, while 'perfect deliberation' was not achieved in the NAPA in Nepal, and an 'impacts-based' discourse remains evident in the final NAPA document, the approach taken to the NAPA in Nepal can be said to be *more* deliberative than the NAPA process in Bangladesh. A greater emphasis was placed on the need for participation of vulnerable groups; and for that participation to be meaningful, which meant giving room to social-vulnerability based perspectives on climate change risk. This is evident from the time and attention to participatory processes during the NAPA process; and the evidence for the inclusion of (some of) the outcomes of this deliberation on the NAPA itself. But, what were the circumstances that resulted in a 'more inclusive' approach? This chapter suggests three factors that facilitated a more deliberative and open approach to adaptation policy making in Nepal.

First, the history of environmental policy making in Nepal, and the de-legitimisation of an 'impacts-based' approach to climate change risk. The lessons from the debunking of the "catastrophe myth" of "the theory of Himalayan degradation" (Ives, 2009) were echoed in the discrediting of the "disappearing Himalayas" discourse. Following the exposure of the IPCC for citing wrong information related to glacial melt in the Himalayas, climate change practitioners in the Himalayan region must be cautious at making climate change impacts claims that cannot be supported by rigorous scientific evidence. In the Himalayas, currently a 'white-spot' for climate change information, such evidence does not exist.

That is not to say that there is no demand for climate change information. Interviews with the NAPA project manager, who also has to prepare reports on NAPA progress to the LEG, suggested that the lack of climate change data in the NAPA could result in,

> Poor credibility for the Nepal NAPA, and after all the work that has gone into making this one of the best, it [a lack of supporting climate data] could really let us down. (Interview with Batu Uprety, NAPA Project Manager, September 2009).

Indeed, as part of the NAPA process, studies on climate change impacts were commissioned in Nepal, although the results of these studies were too late to inform vulnerability assessments and adaptation priorities. As such, the NAPA had to be prepared based on the data that was available: that related to social vulnerability. A social-vulnerability-based approach to managing adaptation therefore better suits Nepal's policy needs and information resources; and a vulnerability-based approach is more open to deliberative insights from vulnerable communities, which in turn reinforce the vulnerability-based perspective on adaptation.

Second, and in relation to the point above, this study suggests that the availability of climate change expertise in general, and available to the NAPA project in particular was a key factor. As noted above, there is a general shortage of *climate change* information and expertise for the Himalayan region; but that is not to say it does not exist at all. In fact, many of the leading agencies for climate change modelling in South Asia have offices in Kathmandu (for example, ISET and ICIMOD currently have the most up-to-date downscaled regional circulation models for the region, and both agencies are based in Kathmandu).

Yet, few climate change experts were used by the NAPA project. One reason was the delays in the hiring of a 'climate-change specialist' for the project, an international consulting position who in many other NAPAs took the lead in the NAPA process, despite claims of NAPAs being 'country-driven.' A second reason was the internal politics of the NAPA team and the TWGs. TWGs were made up of government representatives and NGO representatives whose expertise lay in development and vulnerability relating to their sector, but not relating to climate change. The TWGs had the mandate to lead the NAPA process, and often rejected the need for additional, external technical expertise offered by the technical advisory group. One interview with the facilitator hired to support the Water and Energy TWG revealed that the environmental policy making history of Nepal played a role in the mistrust of external expertise, stating:

> We have the knowledge, why do we also need more experts? And climate change experts? Nobody knows what is going on in climate change, and you just have to look at what happened before [with reference to poor advice on deforestation, see section 5.3] to see how consultants can drive things in the wrong direction. (Interview with Dr Toran, TWG Facilitator for Water and Energy Group, September 2009).

The result was an emphasis on existing climatic stresses, and an emphasis on knowledge of vulnerability and development, rather than projected climate change impacts.

Thirdly, and perhaps most significantly, was the timing of the Nepal NAPA, which enabled it to learn from the evaluations of previous NAPA processes. These evaluations repeatedly highlighted the need for a country-driven, participatory approach, and the importance of a vulnerability-based perspective. Opportunities for learning were both intentional, or example invitations to NAPA teams of Bangladesh and Nepal to share lessons from their experiences at the NAPA Inception Workshop; and also circumstantial, for example the opportunities created in the forums of the UNFCCC for the LDCs to interact; the role of regional agency representatives of the UNDP and DfID in shaping the NAPA framework; and the use of consultants who had previously worked on NAPA evaluation, in advising the Nepal NAPA team.

Finally, there were significant politics within the NAPA preparation process itself that shaped outcomes in terms of how risk assessments were approached and how the results were interpreted. For example, the politics around the use of "professional services", both in relation to the use of international consultants, and also a national "expert group" (see section 5.4), resulted in a lower uptake of climate change expertise in the Nepal NAPA preparation than in Bangladesh. In addition, the actors within the Thematic Working Groups themselves significantly shaped discourses and action around climate change risk assessment that heavily influenced the outputs of the TWG exercises. For example, the NAPA was prepared through 6 TWGs. However, initially the Government and donor stakeholders suggested that this should be five groups, with "Human Settlements" being merged with "Public Health". This was based on the assumption that many climate-related vulnerabilities in cities would be related to health and sanitation. This was an attempt to move away from infrastructure-only adaptation solutions, towards more vulnerability-based measures that acknowledged the interrelationships between technology, infrastructure and social vulnerability.

However, soon after beginning work the Human Settlements and Health Groups divided. The Human Settlements Group felt that a focus on health-related issues was too narrow, whilst the

Health TWG expressed concern that health issues should be explored in rural settings as well as urban ones. This lead to some concern on behalf of the NAPA Team that the Human Settlements group would become too impacts-focused, and look only to infrastructure and technology-based solutions.

On the contrary, the Human Settlements group were very sensitive to this concern, and so actively sought to ensure that they gave primacy to social vulnerability indicators in their vulnerability assessments. The result was that the Human Settlements Group was the only TWG that did *not* place an initial emphasis on impacts-based approaches in the identification of adaptation needs (see table 5.4). Conversely, the Public Health TWG that we may have expected to take a more "social vulnerability" approach, placed a heavy emphasis on climate change impacts in the identification of adaptation needs (see table 5.4). The reason given by the TWG Health facilitator was that changes to patterns in health and diseases are notoriously difficult to 'root cause' to changes in climate. The Health TWG therefore felt there was a need to emphasise the climate-related aspects of their findings in order to avoid common criticisms of 'repackaging' health concerns as climate change concerns (interview with Health TWG Facilitator, October 2009).

The Water and Energy Group perhaps placed the strongest emphasis on climate-related factors in the identification of adaptation needs (see table 5.4) and proposed the greatest number of "impacts-based" to "development-based" adaptation projects (see table 5.5). One reason for this was the natural-sciences background of the Water and Energy TWG facilitator that was associated with a strong preference for technical risk analysis and questionnaire-based methods for vulnerability assessment, over and above more deliberative Shared Learning Dialogue approaches (see box 5.7). One consequence of this is that the Water and Energy TWG highlight Glacial Lake Outburst Floods (GLOFs) as key climate change hazards, despite the fact that this risk did not emerge from local consultation exercises. Instead, the origin of the GLOF as a water and energy priority in the NAPA preparation exercise stems from the initial literature review conducted by each TWG and then summarised in thematic work group summary reports, and not on the collection of new data around social vulnerability from the transect appraisal exercises or other local consultations (see Ayers, 2011b).

5.6 Conclusions

This chapter has shown that the choice of institutional design for the NAPA process in Nepal, specifically the three-component framework of the 'expanded NAPA', and the use of Transect Appraisal Exercises, led to a *more* deliberative approach to adaptation policy making, compared to

the same process in Bangladesh. The 'success' of deliberation is judged on both the democratic quality of the deliberative tasks, and the influence of deliberative outcomes.

It is suggested here that the shared learning dialogue approach adopted for the transect appraisal exercises resulted in more democratic deliberative outcomes, because more people were able to be included in the consultation exercises; participation biases were reduced due to the more numerous and smaller-scale, informal consultation meetings and 'chance encounter' approach of interviewing local people encountered during transect walks, which also reduced the influence of politicised dynamics of the deliberative spaces.

The transect appraisal exercises also increased the influence of deliberative outcomes on policy, because policy makers came down to the 'grassroots' and were exposed to the reality of vulnerability on the ground, rather than receiving feedback from consultants conducting vulnerability exercises, or from 'local' representatives at regional-scale meetings. The influence of the outputs of deliberation is evident in the draft NAAP document.

Deliberation was not perfect; no deliberative space can be completely free of internal dynamics, and it is likely that the local consultations during the transect appraisal exercises suffered some degree of manipulation or bias. However, the circumstances of the NAPA in Nepal, specifically, the availability of climate change expertise, and the timing of the NAPA process that enabled it to learn from preceding NAPAs, resulted in a more deliberative approach. Significantly, these circumstances were intertwined with a more flexible and vulnerability-based approach to defining climate change risk in Nepal, which enabled the outputs of local deliberation to be meaningful to the climate change policy making process.

The next chapter of this thesis will compare and discuss the findings from the Nepal and Bangladesh case studies, and assess whether this 'more deliberative' approach is simply a product of a greater use of participatory technologies in Nepal; or whether the circumstances of NAPA design facilitated more meaningful deliberation within participatory forums.

Chapter 6: Discussion

6.1 Introduction

This thesis has argued that for adaptation policy to address vulnerability, vulnerable people need to be included in the decision-making processes that affect them. But, this thesis has also proposed that achieving inclusive adaptation policy is problematic because of conflicting definitions of climate change risk across scales, which present barriers to meaningful policy deliberation. This thesis has explored these hypotheses through the questions:

1. What is the evidence that conflicting definitions of risk across scales inhibit inclusive adaptation policy making?; and
2. Under what circumstances is local inclusiveness achieved under international climate change policy frameworks?

In relation to the first question, this thesis has found evidence in support of the argument that a paradox *is* created by adaptation: In formal climate change governance arenas, climate change is perceived as a global, impacts-based risk; yet as highlighted by the evidence from the field study conducted in Bangladesh, vulnerability to climate change impacts is driven by a range of social and environmental factors that may or may not be climate-related. This evidence supports the hypothesis that the adaptation paradox creates a mismatch between the impacts-based risk assessments undertaken by the expert bodies of the formal climate change governing frameworks, and the experiences of vulnerable people on the ground.

Chapters four and five considered whether these conflicting perceptions of risk have had an impact on the potential for climate change risk assessments - and the adaptation policies that they inform - to be inclusive. These chapters looked in detail at the case study of the National Adaptation Programmes of Action (NAPAs), the main avenues for the inclusion of vulnerable people in adaptation policy decision making under the United Nations Framework Convention on Climate Change (UNFCCC). Drawing on two sub-cases of Bangladesh and Nepal, these chapters addressed the questions:

1. What is the evidence that NAPAs are inclusive?
2. What are the circumstances that either inhibit or encourage inclusive decision-making in NAPAs?

This chapter will discuss the findings from these cases in relation to these two questions. First, this chapter will compare the participatory processes undertaken as part of the NAPA process in Bangladesh and Nepal, and consider the evidence that each NAPA did – or did not – achieve meaningful policy deliberation. This analysis will draw on the three aspects of inclusive institutional design: Who was included in policy deliberations; how were deliberative processes structured; and what was deliberated about. Second, the outcomes of policy deliberation will be discussed, particularly the extent to which deliberative outcomes influenced the final NAPA document in each country. Third, the chapter will consider the circumstances that resulted in more- or less-successful adaptation policy deliberation. This section will focus on the factors that influenced deliberative institutional design choices, and the relationship between these circumstances and the dominant discourses of climate change risk. Finally, this chapter will consider the lessons learned from these cases in relation to the task of institutional design.

It should be noted that this discussion is not a straightforward comparison of the same aspects of the NAPA in each country, but an examination of different aspects of NAPA preparation in two different country settings. This is because of the different circumstances of data collection in each country; in Bangladesh, the NAPA preparation process was already complete, so the focus of the Bangladesh sub-case was on a comparison of adaptation priorities identified in the completed NAPA project document, with those identified through fieldwork with the NAPA target community. Data around the details of the NAPA preparation process itself, and the circumstances under which it took place, were gleaned from key informant interviews with actors engaged in the process. Factors that influenced design choices around the NAPA were inferred from these interviews.

In Nepal, a much more detailed data set around the NAPA preparation *process* was obtained because the investigation follows the NAPA preparation from the beginning. The circumstances of NAPA preparation were directly observed and so can be discussed in much more detail. However, it was not possible to carry out a similar comparison of between identified NAPA priorities and those identified through independent field study, because the NAPA process was not completed at the time of fieldwork completion. Therefore while some aspects of NAPA preparation in each country can be compared, for example the different participatory technologies employed, the different types of data sets used for each country place limits on the conclusions that can be drawn from these comparisons. Further, other aspects cannot be compared, for example the NAPA project proposal outcomes, because this data is not yet available in Nepal. This discussion acknowledges these constraints to making a straightforward comparison, but suggests that a

discussion of comparable elements of each study raises many interesting findings that inform the hypothesis and conclusions of this thesis.

6.2 Assessing inclusive policy making

Before discussing the sub-cases in detail, it is useful to review what is meant by "inclusiveness", and hence how "successful inclusiveness" can be assessed. This thesis has understood inclusiveness in adaptation policy to mean both a participatory approach to policy making – i.e. policy makers actively encourage the participation of vulnerable groups in the policy-making process; but also that this participation is *deliberative* – the participatory process enables stakeholders across scales to deliberate common objectives and practices for developing policy.

As described in previous chapters, deliberation describes "reasoned debate", and deliberative policy-making means making collective decisions in light of reasons emerging from deliberation (Cohen, 2007:222). Deliberative policy-making therefore goes beyond participation, ensuring that the participating stakeholders are able to engage equally in reasoned arguments around the policy debate. The goal is "deliberative democracy", when all those affected by a decision are provided with the opportunity for participating meaningfully in the decision-making (Dryzek, 2006:27). For participation to be deliberative, all participants must be able to engage in reasoned, rational debate, and do so on equal terms in an unconstrained way.

Many scholars have proposed various pre-requisites for achieving deliberative democracy (Cohen, 2007; Dryzek, 2000, 2006; Smith, 2001; Rosenberg, 2007), giving rise to a range of suggestions for indicators of successful deliberation. These indicators coalesce around three themes: First, "equality of voice" (Rosenberg, 2007:13; Smith, 2001); are all participating stakeholders able to engage in and contribute equally to the debate? Second, "equality of reason"; are all participants amenable to changing their minds and their preferences as a result of the reflection induced by deliberation (Dryzek, 2000:31)? This implies that the actors deliberating are both impartial and act rationally according to the outcomes of deliberation. Third, are the outcomes of deliberation reflected in decision-making processes? If the deliberative process does not result in policy outcomes, then the policy process cannot be said to be inclusive. Thus, in analysing the extent to which a process can be said to be deliberative (and therefore truly inclusive), it is necessary to look at whether and how participants are reasoning with each other (the deliberative dynamics of the participatory process); and whether that reasoning has any impact on the resulting policy decisions (deliberative outcomes).

Drawing on these insights, this section will first examine the evidence that the participatory *processes* undertaken as part of the NAPAs in both Bangladesh and in Nepal can be said to be inclusive (equality of voice, and equality of reason); and then consider the extent to which the *outcomes* of deliberation were taken into account in decision-making around the identified adaptation priorities (outcomes of deliberation). This section will pay particular attention to the dynamics of the participatory processes on enabling or constraining deliberative processes and outcomes.

6.3 Assessing the evidence that the participatory processes undertaken under NAPAs achieved inclusiveness.

This section assesses the extent to which the different approaches to participation adopted under the NAPAs in Bangladesh and Nepal, and asks: What is the evidence that each NAPA process was inclusive? This section will compare the key elements of deliberative institutional design as analysed in chapters four and five, namely: Who is included in the deliberative process? How are they included? And what is content of deliberation? These aspects of deliberative institutional design will be considered in relation to the pre-requisites for achieving inclusive processes described above: equality of voice, and equality of reason.

Who is included?

This question refers to which individuals were included in the participatory process undertaken for the NAPAs, and why. In Bangladesh, the stakeholders invited to participate in the NAPA preparation process were drawn from three groups. The first constituted a high-level project steering committee, drawn from "noteworthy government agencies", the key agencies that would need to be engaged in adaptation planning. Also on the Project Steering Committee were non-government and international research institutes, to provide 'expert guidance' to the high level steering process. The second group of stakeholders constituted six multi-disciplinary sectoral working groups with the responsibilities of carrying out the functional tasks of NAPA preparation including vulnerability analysis and the identification of adaptation priorities. These groups were intended to reflect the most appropriate 'experts' relevant to the particular sectoral theme drawn from government, civil society and academia, as well as climate change experts. The engagement of these actors in NAPA preparation was intended to ensure that capacity in adaptation planning

could be built across sectors to try and ensure both ownership over the NAPA preparation process, and also longer term mainstreaming for adaptation into planning processes.

The third group of stakeholders engaged in NAPA preparation, were "local level stakeholders". This group was drawn from the "local and regional (divisional towns) level including people from the local government, local level non-government organizations, farmers and women" (MOEF, 2005:43). This group was engaged late in the NAPA planning stage in four regional multi-stakeholder workshops, and the purpose their engagement was to contribute to the identification of regional climate change vulnerabilities, existing adaptation strategies, and adaptation planning priorities.

Therefore in terms of *who* was included, vulnerable groups were included to some extent in the NAPA preparation process. However, this group was only engaged late in the NAPA planning process after regional climate change risks had already tentatively been identified. Attendance records for these workshops were not available, however as discussed in chapter four, interviews with NAPA team members suggested that the number of "experts" (i.e. sectoral working group members and associated experts) outnumbered representatives from 'the local community' at these workshops. So while vulnerable people can be said to have been included in the NAPA process, their representation was small compared with the inclusion of 'expert' consultants and government officials.

Further, in terms of who counted as 'local', this third group of "local level stakeholders" included district and regional level government representatives, as well as representative NGOs. While these individuals are 'local' in relation to the Dhaka-based sectoral working group members, steering committee members, and national and international consultants, they represent a very different social group to the "vulnerable farmers and women" with whom they were grouped. Where vulnerability is closely related to access to financial, social and political assets, district and regional level government representatives (some of whom were not elected) are unlikely to have the same experiences of vulnerability as low caste women and small-scale farmers.

Finally, in terms of the selection process for the included "farmers and women", this took place through local NGOs responsible for organising the workshops. Interviews with NAPA team members suggest that efforts were made to invite 'the poor and vulnerable'; however as already noted, issues of access meant that one of the groups chapter four identified as 'the most vulnerable' – for example those residing outside the embankment in Noakhali – are not accessible to local community-based and NGO agencies; indeed this is one of the many factors that

compounds their vulnerability. Therefore in terms of 'who' was included in the NAPA process in Bangladesh, some 'local' people were included but relatively few compared to climate change experts, consultants, and policy makers. Further, the group defined as 'local' was not necessarily reflective of the most vulnerable groups most in need of adaptation support.

In Nepal, a similar 'tiered' approach was taken to including different groups of stakeholders at different levels. An overarching steering committee was set up led by the Ministry of Environment but with representatives from NGOs and academia. The second 'level' of engagement took place through six "thematic working groups," similar to Bangladesh's sectoral working groups, made up of stakeholders from government, non government, private sector and academia. Again, these groups had the responsibility for carrying out the NAPA vulnerability assessments. However, one difference between the sectoral working groups in Bangladesh and the thematic working groups in Nepal, is that in Nepal the groups were led by the relevant Government agency, rather than by the relevant 'expert' agency as was sometimes the case in Bangladesh. This point will be returned to later.

As with Bangladesh, the third 'level' of stakeholder engagement was with "local communities"; and, like Bangladesh, regional consultation workshops were organised to which representatives of 'local people' were invited. However, these workshops were one component of a wider consultation strategy. This meant that there was less emphasis on these workshops, with fewer 'experts' or NAPA team members attending. Indeed, the first regional consultation workshop in Lahan had over 100 participants from 7 districts, but was attended by only one centrally based NAPA team member. As with Bangladesh, the 'local' people who participated in this workshop were comprised of many district level government officials and NGO members as well as representatives of farmers and indigenous groups. This latter group was selected and invited by local NGOs to attend. Thus, it is again unlikely that the regional consultation workshop was able to reach 'the most vulnerable' to solicit their inputs. Yet, the more informal nature of the workshop and 'lower key' approach meant that it attracted fewer high-level officials and 'experts', with a greater proportion of local residents.

Further, Nepal's participation strategy included the transect appraisal exercises described in detail in chapter five. These involved the thematic working group members travelling across different watersheds and holding local stakeholder meetings at the village level en-route. These meetings were small-scale – of around 30-50 village residents participating in each – and were organised by local community based organisations. Again, the issue of who could be accessed by the CBOs to attend these meetings is of note; the meetings were organised at short notice and so it is unlikely

that many efforts could be made to reach those who were 'difficult to access'. Further, the small-scale nature of these meetings meant that the ratio of thematic working group members to local residents was high.

However, the more numerous meetings in a larger number of locations meant that more people were reached than in the regional consultation exercises in Bangladesh. The transect appraisal exercises involved greater outreach to more locations than the four regional consultation workshops undertaken in Bangladesh. Further, one of the methods adopted was random and informal interviewing by thematic working members of people encountered en-route. This reduced the 'selection bias' for participation in meetings to those with social or geographic access to the relevant CBOs.

Thus, in terms of 'who' was included, both Bangladesh and Nepal took steps to include 'local vulnerable people' in the NAPA process. Overall, the approach taken by Nepal achieved greater outreach than in Bangladesh, and the ratio of local residents to local government or agency officials was also greater in Nepal. However, both countries faced challenges of being able to include 'the most vulnerable', because this group is also the most socially excluded and therefore by definition the most difficult to include.

Significantly, these findings also raise the question: What is meant by "local inclusiveness"? For example, in Bangladesh the 'local' stakeholder group also included regional and district level representatives, who are likely to have very different experiences of vulnerability compared to the famers and women who were also invited to participate. Further, the farmers and women selected were taken as representatives of groups within which there is likely to be extremely disaggregated vulnerability contexts. This is based on an essentialist assumption that "farmers" and "women" were among the most vulnerable. However, both categories obscure diverse differences in the vulnerabilities; indeed it is likely that those "farmers and women" who were invited to participate are least likely to be present the most vulnerable, because their very engagement with the process suggests a high degree of social and political engagement. In Nepal 'local' included a more diverse cross-section of different vulnerable groups, but the participatory process still suffered problems of representation.

These different interpretations of 'local' means that in answering the question of *who* is included, it is not enough to claim inclusion of 'local people'. Both the Bangladesh and Nepal NAPA processes can be said to have achieved 'local' participation, yet these two processes have resulted in very different outcomes in terms of who was considered local, and therefore who was included.

To achieve meaningful 'local' inclusiveness in adaptation policy making, then, it is therefore necessary to question normative judgements about who is 'local' and why they have been included.

These findings support the growing number of case studies from the social sciences that have shown how the ways in which 'global' risk assessments that claim to be locally inclusive, in fact do not adequately represent the diversity of local perceptions of risk. For example, the cases discussed in chapter one of National Environmental Action Plans (Basset and Zeuli, 2000); and flood management in Boscastle (Jennings, 2009) (see alsoStirling, 2005; Tiffen et al., 1994; Wynne, 1996). This evidence therefore supports the proposal laid out in chapter one of this thesis, that there is a tendency for 'globally' governed problems to set 'local' against 'global', both as homogenous, binary categories in a scalar governance system. This issue of disaggregating 'local' is particularly pertinent in relation to climate change adaptation, because vulnerability contexts at the 'local' level are so diverse.

But these findings also show how the labelling of people as 'local' or 'global' carry more complex implications for agency than the above examples from the social sciences suggest. This study has shown that those labelled as 'local' *were* included in the process, even if this inclusion was constrained by the very act of being labelled as local. This moves beyond the suggestion that knowledge framed as local is necessarily disempowering (Agrawal, 1995). Being 'local' resulted in inclusion, while the most vulnerable – whose social exclusion meant that they had no access to the consultation processes at all – had no opportunities for inclusion. It is therefore important to look at who is labelled as local and how they are able to use the platform that this labelling provides.

The issue of "who" is included is particularly important for adaptation policies that aim – or indeed claim - to reach and meet the needs of the most vulnerable at the 'local' level. For example, Wynne (1996) showed how globalising risk assessments not only resulted in inappropriate policies for addressing poorly defined risks, but also in 'local' people losing respect for and trust in the policy making process. Where vulnerability is closely linked with issues of political access and engagement, such consequences can result in further disenfranchising of 'local' people from the political processes that should be supporting them. Therefore in designing deliberative institutions for climate change adaptation, it is important to take into account the scalar politics of 'local inclusiveness' and the impact these have on deliberative outcomes.

How were people included?

This question refers to how deliberations were structured. As discussed above, in Bangladesh the format of deliberation was through regional consultation workshops. The objectives of these regional workshops included (MOEF, 2005:43):

a) Identification of existing problems related to variability, extremes and climate change and rank them if possible;
b) Identification of existing coping mechanisms and measures;
c) Suggestion for improvement of existing measures; and
d) Identification of new measures and idea to address anticipated future change in intensity and extent of present problems.

Yet, the format of the workshop did not provide the space to fulfil all these objectives. For example, the workshops followed a presentation and feedback template, in which NAPA consultants and climate change experts first presented the purpose of the NAPA to participants, and then presentations were given that described the regionally relevant climate change risks. In the Northwest region drought was described as a recurrent phenomenon anticipated to increase under changing climate conditions, while in the South-west and south east regions salinity intrusion was reported as a key risk to freshwater availability set to increase under climate change with change precipitation patterns and sea level rise.

Participants were invited to feedback on these problems, but were not provided with opportunities to provide new and different interpretations of climate change risks; their role was primarily one of verification. Similarly some potential adaptation options were presented and participants were invited to feedback on these, but there was little in the way of active participant inclusion in the development of existing or new adaptation options.

Participants were most actively engaged in the prioritisation process of adaptation options, which took place via a voting system. However, this voting system was based on one vote per person present at the workshop, which included the workshop organisers, NAPA team and consultants. Therefore the influence of 'local stakeholders' on the choice of adaptation priorities was considerably diluted, with one NAPA team member interviewed suggesting that in one case the number of 'experts' actually outnumbered the local participants.

In Nepal, deliberations were structured very differently. First, the regional consultation workshops occurred early on the NAPA processes, parallel to climate change information and literature

reviews being undertaken to assess climate change impacts on different areas and sectors. This meant that the regional workshops did not take place in light of climate change impacts information about the workshop regions. The regional workshops were also much more informal, the purpose of them being less well defined but primarily to inform the community about the purpose of the NAPA planning process and to get feedback on local environmental stresses and any perceived changes to environmental risks (personal communication, Gyanendra Karki, NAPA team member and Lahan regional workshop facilitator, November 2009).

Second, the transect appraisal exercises used a variety of methods to solicit information, including focus groups discussions, key informant interviews, informal interviews, and observations. Discussions took a 'shared learning dialogue' approach. Meetings and discussions began with explanations of the NAPA process and its purpose and then facilitators were encouraged to listen to perceptions about climate stresses; factors contributing to vulnerability; and coping and adaptation strategies.

It is difficult to ascertain whether all transect appraisal exercise teams were successful in undertaking a shared learning dialogue approach. However, the *aims* of the shared learning dialogue approach are commendable. The more 'open' and less structured discussions, with greater opportunities created for participant dialogue, should in principle create opportunities for more meaningful deliberation than formal presentation-feedback structures. Therefore the steps taken in Nepal towards achieving the shared learning dialogue goals are a step towards *more* inclusive deliberation around climate change adaptation.

These two different approaches to integrating scientific and lay perspectives around climate change risks reflect debates from social sciences around social learning. "Social Learning" describes a purposeful activity of linking knowledge (learning) to action (doing), where the knowledge of reality and practice mutually influence each other (Angeles, 2004). This process can involve "change" agents who bring specialised expertise to facilitate the learning process. In principle, these change agents and their clients change in an iterative process of co-leaning and action (ibid).

However, as these cases show, 'change agents' can do shared learning in very different ways. In Bangladesh, an 'expert teaches lay' approach was adopted, in which the experts sought to bring everyone 'up to speed' on what climate change risks were, so that everyone could then engage in a debate around how these risks could be addressed. However, such an approach is not inclusive in the sense of being deliberative: This did not provide an opportunity for redefining the risks in

light of reasoned, equal debated between 'expert' and 'lay' participants.

In Nepal, the 'shared learning dialogue' approach was an attempt at a more deliberative way of doing learning, with the 'agents of change' – the NAPA TWGs – aiming at an open dialogue with 'local' people to define risks as well as explore solutions to them. Such an approach was more conducive to mutual, 'co-learning', evidenced by the fact that many of the findings from the fieldwork around vulnerability experiences are reflected in the TWG reports and the drat NAPA document.

Finally, the scale at which participatory processes are convened may also have an impact on deliberative dynamics. Dore and Lebel (2010) suggest that the scale of consultative processes can have a significant impact on both who is invited to participate, and also the content of deliberations. Drawing on insights from water governance in the Mekong regions, the authors show how the scale (by which they mean 'governance level') of consultations resulting in the privileging or subordination of actors and issues perceived as related to that scale. For example, water-related exchanges between watershed management groups negotiated about allocation practices and the causes of waters shortages, whilst national-level committees engaged in debates around sectoral or basin-wide management.

Such observations are supported by the evidence from this thesis, and are significant in light of the previous discussions about what it means to debate 'global' issues at the 'local scale'. In Bangladesh, the 'local' consultation workshops were conducted at the regional scale, whilst in Nepal, the transect appraisal exercises involved taking national policy makers down to the community level. The regional-level workshops were attended by a greater percentage of local government officials, and the emphasis was on finding commonly agreed solutions at the regional scale. During the transect appraisal exercises, policy-makers were in the minority and forced to confront the diversity of everyday vulnerabilities faced by different members of different communities between *and within* regions. The dynamics of the deliberative processes were inevitably effected by the different administrative levels at which they took place, yet both sets of consultations were taken to be 'local' consultations, yielding 'local' outputs.

What was deliberated about?

The evidence from these sub-cases also support the argument that the content of deliberations is important in influencing who has access to discussions, and whose contributions are considered valid. The choice of subject to be deliberated, and the way in which it is framed, determines what

participants are able to contribute and whether their contributions will be taken up (Fung, 2007). In both Bangladesh and Nepal, while the purpose of the consultation processes was to include stakeholders in decision-making around vulnerability and adaptation needs, the approach taken to framing deliberations was very different.

In Bangladesh, as stated, climatic risks for each region had already been defined by the time the consultation meetings took place. The project document describes four key climate change impact risks for the coastal belt of Bangladesh of increasing freshwater salinity, drainage congestion, changes in coastal morphology, and threatened functions of ecosystems (MOEF, 2008). These risks were "explained" to respondents with little opportunity to challenge these predefined threats. But how were these risks initially defined?

The NAPA document shows that the initial conceptualisation of climate change risks was based on a wealth of data available in Bangladesh around environmental hazards and also specific climate change studies. As described in chapter four, Bangladesh has a strong environmental and development policy history centred around flood and cyclone management, and this knowledge base was drawn up on in defining climate change impacts. For example, the NAPA document states:

> Much of the future vulnerability due to climate change…will enhance the already well known [risks]…of floods, droughts, and cyclones. (MOEF, 2005:11).

The presentation-feedback structure of deliberations and the preconceived notions of climate change risks, meant the content of deliberations did not focus on redefining "well-known" climate hazards, but instead on verifying adaptation options to respond to these pre-defined risks.

An impacts-based approach to defining climate change risks, meant significant emphasis was placed on 'expert' climate hazard and climate change information over inputs related to social-vulnerabilities. For example, the NAPA contains an impressive list of climate-hazard and climate change studies undertaken in Bangladesh that were used as the basis of the climate change impact assessment. This literature review process is in line with the guidelines of the LDC Expert Group for preparing NAPAs, which suggest to "synthesise available information on adverse effects of climate change" (LEG, 2002:5).

This emphasis on climate hazard and climate change data in defining climate risks limited the extent to which vulnerable community stakeholders could engage with and participate in debates

around adaptation priorities. The focus of the workshops on climate change impacts set boundaries around desired workshop outputs, and what was, and was not, considered a 'legitimate' contribution to these outputs, and by whom.

In Nepal, the content of deliberations around adaptation and vulnerability were much broader. Given the low level of climate change information available for the areas in which the appraisal exercises took place, coupled with a 'shared learning dialogue' approach that encouraged facilitators to be open to unspecified inputs from participants, a much wider range of issues related to social vulnerability and well as climate-related impacts were discussed. As such, a more flexible definition of climate change risk emerged during the consultations, which enabled a higher-level of engagement from different types of 'experts' – those who had expertise around vulnerability as well as climate, for example local community-based developed agencies, local government officials, and most importantly vulnerable people themselves. The shared learning dialogue approach meant that less emphasis was placed on concepts unfamiliar to participants, and a greater emphasis was placed on relating climate trends to local experiences, and discussions around why this mattered. The result was a greater degree of meaningful deliberation between policy-makers and vulnerable people about what climate risks meant at the 'local' level and how they could be addressed.

Relating this discussion back to the key question of this section – what is the evidence that NAPA *processes* achieved inclusiveness – the above findings can be considered in the context of the first two indicators for 'successful deliberation' laid out at the start of this chapter: equality of voice; and equality of reason. Regarding the first indicator, equality of voice depends on all participating stakeholders engaging equally in, and contributing equally to, the debate. The above analysis shows that the ways in which the participatory processes were structured under NAPAs, and the ways in which climate change 'risk' was framed, had a significant impact on the potential for equality of engagement and contribution to the NAPA design process. Nepal can be said to have achieved greater 'equality of voice' for two reasons; first, more vulnerable people were engaged in the consultation process and the structure of the transect appraisal exercise meant that the politicised selection bias for who was included was smaller than in Bangladesh. Second, the broader framing of climate change risk meant debates around vulnerability and adaptation were accessible to a wider number of participants. However, 'perfect deliberation' was not achieved in either process.

In terms of 'equality of reason', this refers to whether all stakeholders were amenable to changing their minds and their preferences as a result of the deliberative process. This indicator relates

closely to the content of deliberation – to what extent were debates flexible enough to enable meaningful deliberation? The very rigid and 'instrumental' approach to climate change risk adopted by the Bangladesh NAPA consultation process meant that there was little room for the re-negotiation of perceptions around climate change risk. The more flexible definition of climate change risk under the Nepal NAPA process, coupled with the 'shared learning dialogue' approach, meant that greater opportunities were created for 'reasoned debate' between policy-makers and vulnerable groups engaged in the consultation processes. A summary of these findings is presented in box 6.1, below.

Table 6.1: Summary of findings around "Who", "How", and "What" of inclusive processes in Bangladesh and Nepal NAPAs

	Bangladesh NAPA process	**Nepal NAPA process**
Who was included in 'local' consultations?	▪ "Local" interpreted as both regional and community ▪ Local and regional government stakeholders ▪ Local NGOs ▪ "Farmers and women" identified by NGOs ▪ High proportion of NAPA team and 'expert consultants', in some cases outnumbering 'the local' stakeholders	Regional consultation meetings included: ▪ Local government ▪ Local NGOs ▪ Residents from surrounding area identified by NGOs ▪ Only one NAPA team member, no other climate change 'experts' Transect appraisal exercises included: ▪ Village level residents identified by NGOs, balanced representation of me and women ▪ Interviews with randomly selected people encountered during transect walks
How were they included?	▪ National consultation workshops ▪ Regional consultation workshops	▪ National consultation workshops ▪ National level workshops for 'special interest groups' ▪ Regional consultation workshops ▪ Transect appraisal exercises
What was deliberated about?	▪ Climate change impacts verified through 'expert teaches lay' approach ▪ Consultations focused on verification of climate change impacts and adaptation options; and prioritisation of options	▪ Climate risks identified through "shared learning dialogue" approach

6.4 Assessing the evidence that the participatory outcomes undertaken under NAPAs achieved inclusiveness.

The final indicator of 'inclusiveness' is whether the resulting policy documents actually reflect the outcomes of the deliberative processes. In Bangladesh, the climate risks identified by the NAPA project document did overlap with those prioritised by respondents during the fieldwork undertaken for this study. As noted above, the project document lays out the four key climate change impact risks for the coastal belt of Bangladesh of increasing freshwater salinity, drainage congestion, changes in coastal morphology, and threatened functions of ecosystems (MOEF, 2008). When the fieldwork respondents of Noakhali were asked specifically about climate-related risks, similar issues were raised (see section 4.5). This indicates that the outcomes of deliberation are reflected to some extent in the policy-documents. Indeed, explicit reference is made to the regional consultation workshops in the identification of climate change risks:

> Recent studies and the regional stakeholder consultation workshops have revealed that the erratic nature of rainfall and temperature has indeed increased (MOEF, 2005:8).

However, the priority given to these risks, and the reasons why they were of concern to respondents differed between the NAPA project document and the community respondents. In particular, community responses on risk priorities and reasons for risks were disaggregated by according to asset base, occupation, gender, and location (see tables 4.2 and 4.3). Part of this difference may be explained by the deliberative process outlined above. But, given that the same climate risks raised by communities are reflected by the NAPA document, do these subtle differences in risk priorities and reasons behind risk actually matter?

The reasons behind why people feel 'at risk' are important in identifying the best way to help them adapt to that risk. In Bangladesh, the adaptation priority identified by the NAPA was a coastal afforestation project. This option was generally regarded by respondents as a good idea in terms of reducing the physical impact of storms and cyclones on the region and also for producing ecosystem services. However, respondents suggested other adaptation options would contribute more to helping them reduce their vulnerability to climate change risks (see table 4.4). Because the approach to 'local' consultation did not give room for people to reframe risks in terms of vulnerability, and therefore to articulate alternative adaptation options, the NAPA could not take these options up.

Another barrier for the potential of deliberative outputs to influence the final NAPA document came during the prioritisation process of adaptation options. As noted above, the NAPA consultations were used largely to verify adaptation options, and to some extent 'rank' them. However, significantly this did not include the actual process of prioritisation to determine which adaptation options made it into the final NAPA document, and in which order. Regarding the prioritisation process of the adaptation options, the NAPA document states that the prioritisation process took place during a national consultation workshop, using multi-criteria analysis based on the following criteria (MOEF, 2005:23):

i. Impact of climate change on the lives and livelihoods of the communities;
ii. Poverty reduction and sustainable income generation of communities;
iii. Enhancement of adaptive capacity in terms of skills and capabilities at community & national levels;
iv. Gender equality (as a cross-cutting criteria);
v. Enhancement of environmental sustainability;
vi. Complementary and synergy with national and sectoral plans and programs & other MEAs;
vii. Cost effectiveness.

The criteria used were not fixed but tailored to each individual case, and the final NAPA document states:

> Community-led decision-making, stakeholder preference, expert judgment, national goal and strategy etc. have been taken into consideration (MOEF, 2005:23).

Seemingly, then, the inputs from community level consultations were taken into consideration in the prioritisation process of the NAPA projects. However, interviews with two NAPA team members revealed that, in fact, the prioritisation was very rushed and in the end came down to "expert judgement" on what the most appropriate options would be. The reason given was that there was significant time pressure from the implementing agency to submit the NAPA according to external deadlines, and further stakeholder consultations would have resulted in significant further delays to the process (interviews with NAPA team members, February 2009). Therefore in Bangladesh while the outputs for deliberative processes were to some extent reflected in the descriptions of climate change risks, there were significant barriers between deliberative outcomes and policy influence at the stage of prioritising adaptation options.

To what extent did the outcomes of deliberative processes influence decision-making around risk and adaptation priorities in the NAPA in Nepal? It is not possible to consider both whether

deliberative outputs were taken into account in the NAPA document and also project documents as was done in Bangladesh, so this section will compare the extent to which the outputs from the 'local consultation' processes influenced the draft NAPA document.

First, explicit reference is made in the NAPA document to the outputs of the transect appraisal exercises for three of the six thematic working areas in relation to the identification of vulnerabilities, suggesting that the fieldwork undertaken as part of the NAPA consultation process did directly influence the NAPA document. Further, in the identification of existing adaptation practices, all thematic areas either directly refer to, or echo, the transect appraisal exercise findings. However, in the identification of adaptation needs, the data from Nepal revealed a small emphasis on 'impacts-based' information such as climate and environmental hazard data, versus the outputs of the consultation exercises.

Second, in relation to the identification of past adaptation practices, there is a clear emphasis on the outputs of the transect appraisal exercises and other consultations. This is not surprising given the topic; although other sources of data were also used such as sector policy documents and secondary data.

Third, in terms of proposed adaptation options, there is some evidence that the outputs of consultations were taken into account, with the identified adaptation options showing a relatively equal balance of projects that target the social-vulnerability factors identified during transects and other consultations, versus those that target climate impacts as identified by 'expert' judgement.

In terms of the prioritisation of those adaptation options, particular attention was paid in Nepal to making the prioritisation process "as consultative as possible" (MOE, 2010c:29). Again, multi-criteria analysis was used, but the criteria developed (as laid out in table 5.1) were drawn directly from the same criteria used by the thematic working groups to identify adaptation options, including during the fieldwork and group consultations. The criteria were aggregated and systematised, so in this sense they directly reflect the outputs of the deliberative processes. Further, the criteria themselves emphasise inclusiveness, with indicators against "people's participation" and "potential to support local livelihoods" (see table 5.1). Indicators include "involvement in project design and implementation", "local ownership", "social and cultural acceptance", "local capacity building", and "social inclusion" (disaggregated according to gender and caste) (see table 5.1). It is impossible to say at this stage whether these criteria for 'inclusiveness' will actually be applied to the design of adaptation projects. However, they indicate

that it is more likely that the resulting adaptation projects will better reflect deliberative outcomes than those in Bangladesh, where such criteria did not exist.

The final NAPA document in Nepal was not a complete reflection of the outputs of the consultation exercises. However, there is evidence that the outcomes of deliberative processes were taken into account in decision making around defining vulnerabilities and designing adaptation options. Therefore on the basis of the evidence presented in these sub-cases, this thesis concludes that the NAPA process in Nepal was *more* inclusive than that in Bangladesh.

6.5 What factors contributed to a "more inclusive" approach to adaptation policy making?

This chapter has suggested that the NAPA in Nepal achieved a greater degree of inclusiveness than that in Bangladesh, in terms of three aspects of deliberative institutional design: who was included; how they were included; and the content of deliberations. But, given that both Bangladesh and Nepal were guided by the same set of NAPA guidelines produced by the LDC Expert Group under the UNFCCC, how and why did these differences in approach occur? From this preceding discussion above, the most direct answer to this question is that the NAPA in Nepal employed a wider range of participatory technologies, and was therefore able to reach a greater number of people, and a more diverse set of voices.

However, this thesis has also generated evidence around the circumstances of deliberative institutional design, which shows that the choices of participatory technologies are themselves driven by assumptions about climate change risk, that influence how participatory processes are structured and why. This thesis has demonstrated that one significant factor in influencing the approaches taken to 'being inclusive', was the way in which 'risk' has been framed: the way in which climate change risk was framed during deliberations had an impact on who was invited to consultations; how consultations were managed; and how the outputs of consultations were used. A second, related factor, is the approach taken to scale; specifically, the way in which 'local' was interpreted in relation to other social and administrative scales.

But what factors influenced the different approaches to the framing of climate change risks in Nepal and Bangladesh? Taking an environmentally determinist angle, this could be a function of the different types of climate-related hazards in Bangladesh and Nepal; Bangladesh is a low-lying coastal country that is exposed to storms, cyclones and prone to flooding. These are 'high risk' and

'sudden onset' hazards that occur at intermittent intervals. Nepal is a land-locked mountainous country in the Himalayas. Key climate change hazards include the impacts of melting glaciers such as "Glacial Lake Outburst Floods" (GLOFs) (high risk, low frequency) and also changes to water systems (slow onset); and other 'slow onset' risks of changes to agricultural systems. In line with the arguments of Funtowicz and Ravetz (1990), 'science' draws in around high risk, low certainty problems in order to bring about a degree of certainty. The hazards in Bangladesh could be interpreted as 'higher risk' hazards than those in Nepal, resulting in attempts to reduce risk by increasing certainty by applying expert judgement.

However, this thesis has shown that 'risks' are not defined by hazards, but are also constructed. This thesis has investigated some of the factors that influence certain constructions of risk over others, and how this in turn influences approaches to participation and deliberation in risk assessment. This analysis has given rise to three factors that have influenced the construction of climate change risks in Bangladesh and Nepal: histories of environmental policy making that have influenced environmental risk narratives in each country; the availability and legitimacy of climate hazard and climate change information and expertise; and finally, the timing of NAPA processes which enabled lesson-learning to occur between Nepal and Bangladesh, specifically encouraging Nepal to focus explicitly on vulnerability and participatory processes. A summary of these findings is presented in box 6.2.

It is acknowledged that a range of, particularly political, but also cultural, historical and economic factors influence the way in which different countries approach the design of the same policy processes, and public engagement in these processes. For example, both Bangladesh and Nepal have extremely fragile political systems with implications for political trust and engagement. At the time of the NAPA process in Bangladesh, a coalition government that was facing strong allegations of corruption was governing the country. 2004 to 2006 was also a period of heightened insecurity, with terrorist bombings and assassinations disrupting the political process (Eicher et al., 2010). Interviews with the NAPA preparation team revealed that the preparation process was sometimes held up by violent public demonstrations and strikes against the Government (personal communication, Mr. Reazuddin, former Secretary of the Ministry of Environment: September 2007). During the field study period for this investigation, an interim, non-elected military-backed "caretaker" government was in power following an attempt at a general election in 2006 that had failed on allegations of corruption.

In Nepal, NAPA preparation began in the context of recent relative political stability. Following over a decade of violent Maoist insurgency, peace talks began in 2006 between the Government

and Maoist rebels that culminated in a Comprehensive Peace Agreement in November 2006. However, disagreements over the more recent formation of a Constituent Assembly in 2008 has seen Maoist protests forcing strikes and sometimes violence throughout Nepal but often centred on the Government in Kathmandu. Further, Maoist unrest in the rural areas combined with the presence of over three dozen armed groups operating in the Terai region, have resulted in violent conflict and political unrest in much of the Terai and also some parts of the Far West (FCO, 2010). These conflicts constrain development efforts in these regions, and also mean that policy participation tends to exclude these areas, as it did in the NAPA.

This study acknowledges that such historical and political factors can both constrain participatory policy-making efforts, and also carry implications for public trust in the political process itself, and thus the willingness of people to engage and feel that their engagement is meaningful. In light of these contexts, this study focuses in particular in the NAPA processes in each country, and the factors that emerged from this research as key influences on the framing of climate change risk and adaptation governance.

Different histories of environmental policy making

This thesis has proposed that one factor that can significantly influence the way in which environmental policy problems are framed (and hence impacts on the deliberative process), is the presence of existing dominant environmental narratives. For example, chapter one describes the example of National Environmental Action Plans (NEAPs) in the Cote d'Ivoire, where the problem framing of desertification by external 'environmental experts' stemmed primarily from powerful "regional discursive formations" (Peet and Watts, 2000:69), rather than on reliable, ground-truthed data. Such narratives were taken as "received wisdom" (Forsyth, 2008) and resulted in overlooking other valid types of data that contradicted these discourses.

Some scholars of discursive and deliberative politics suggest that where powerful narratives – or 'storylines' (Hajer, 1995) - exist, it can be difficult to overcome them. For example, Maarten Hajer (1995) suggests that as storylines are accepted and propagated, they gain a ritual character and give a certain permanence to the debate (Hajer, 1995:63). Indeed, some interpretations of a Foucauldian perspective is even more pessimistic, and suggest it is difficult to work outside the dominant paradigm because alternative paradigms are seen as illegitimate, and a kind of 'if you can't beat them, join them' mentality develops which propagates dominant approaches until they become hegemonic. As such, Byrant (2002) notes that,

> The Foucauldian scholar has become…a prophet of entrapment who indices by indicating that there is no way out of our subjection (Byrant, 2002:271).

However, this interpretation of Foucault's work is pessimistic, and indeed Foucault himself suggested that the "insurrection of subjugated knowledges" *is* possible (Foucault, 1976). The sub-cases presented in this thesis have explored this possibility, by examining the role of dominant environmental narratives in influencing how climate change risk has been governed. Has climate change been subjected to, and become part of, existing "hegemonic environmental discourses"? Is there any evidence that existing environmental discourses had an impact on the potential for climate change risk to be deliberated?

There is evidence from the sub-cases that historical environmental narratives did to some extent serve to reinforce technical and impacts-based discourses around climate risk. Chapter four describes how the long history of environmental hazards in Bangladesh has resulted in a strong "crisis narrative" (Lewis, 2009) around the climate-related hazards of floods and cyclones. In the past such narratives have been shown to have contributed to subversion of the contextual factors that drive vulnerability, as well as local and non-technical vulnerability reduction strategies, in favour of large scale and technical solutions that target the specific climate hazards (Lewis, 2009). Chapter four proposed that the 'crisis' narrative of floods and cyclones seems to have been transferred to climate change, suggesting that having been the 'face' of flooding catastrophes, Bangladesh is fast becoming the pin-up for climate change impacts. Indeed, far more donor, media and policy attention has been paid to the exacerbating influence of climate change on flooding and cyclone hazards than to other hazards such as slow-onset drought.

Chapter five showed how Nepal's environmental policy making history had also been influenced by a powerful "catastrophe myth", which Ives (2009) terms "the theory of Himalayan Degradation" (Ives, 2009:13). This narrative centred on rapid and uncontrollable deforestation by indigenous groups, purported to result in devastating flooding downstream. The result was large-scale investment in protecting forests against deforestation by local farmers. However, Ives suggests that there was a significant backlash against this narrative when it was shown that farmers in fact did more to manage forests than to destroy them. Consequently, Nepal now receives significant donor investment in "community-forestry management".

In relation to climate change, the "catastrophe myth" for the Himalayan region including Nepal has not been directly related to forestry, but as centred on melting glaciers, especially Glacial Lake Outburst Floods (GLOFs). During the NAPA process, there was significant attention from outside

agencies, in particularly the United Nations Development Programme (UNDP) who were acting as the implementing agency, to reflect 'the GLOF issue' in the NAPA. For example, Bhutan was invited to the NAPA Inception Workshop to present on the GLOF project that arose out of their own NAPA process.

Yet, only two of the thematic working groups included GLOF projects in their list of adaptation priorities, and even then these projects were not considered high priority. Indeed, UNDP expressed surprise and disappointment at a NAPA follow-up meeting conducted after the release of the NAPA draft that there was not more attention to GLOFs. The response from the NAPA team was that GLOFs had not emerged as a priority from the consultative processes on which the NAPAs were based, and the only reason they were included at all was based on the knowledge of the importance of the issue by thematic working group members (notes from NAPA Project Executive Board meeting taken provided by NAPA Team Climate Change Consultant, August 13th 2010).

Therefore the 'catastrophe myth' of melting glaciers in Nepal did influence the NAPA outcomes to some extent, but the discourse did not dominate the debate around climate risks and vulnerability. The evidence from this thesis suggests that one reason why the 'catastrophe' discourse on climate change in Nepal seems to have been less influential than in Bangladesh, may be that as shown in chapter five this narrative was significantly undermined at the same time as the Nepal NAPA was being prepared. The results of GLOF 'ground truthing' studies had shown many GLOFs labelled as 'dangerous' were in fact not; and the evidence of glacial melt used in the IPCC reports had shown to be incorrect. India had been very vocal in contesting the 'myth of Himalayan melt', and this had been widely reported in the public press in Nepal. Thus, the evidence-base for the GLOF narrative was significantly undermined.

Thus, in Bangladesh the environmental crisis narrative gained momentum with the climate change agenda; but in Nepal, the historical 'environmental crisis' narrative (around deforestation) was quite different to that promoted as the dominant climate change discourse for the region; and the latter was undermined at the same time as the development of the NAPA. Hence, rather than view authoritative discourses as inherent and therefore impenetrable, it is important to question why and how discourses become authoritative knowledge in the first place; and the circumstances under which individuals exercise their own agency to challenge or operate outside dominant paradigms. In Nepal, these circumstances included awareness within Government and donor agencies related to the de-legitimisation of an environmental crisis narrative, resulting in the exercising of a degree of caution in the taking up of another; as well as some of the circumstances discussed below.

The availability and use of climate change 'expertise'

Chapter one raised the issue of 'expertise' in relation to enabling meaningful deliberation around policy problems; specifically, the way in which problems that have been framed as 'scientific', 'technical', or 'expert' in nature immediately limit the potential for 'local' inclusiveness, where 'local' knowledge is seen as 'inexpert'. Scholars from the fields of Science and technology Studies have repeatedly demonstrated how 'local' or 'indigenous' knowledges are excluded from 'global' and 'expert' debates. This thesis has shown that an 'impacts-based' approach to defining climate change risk has been framed as a 'global', 'technical' issue requiring 'expert' inputs; while a 'social-vulnerability approach to climate risk is open to a different kind of expertise; from vulnerable people to provide information on the factors that make them vulnerable. Almost by definition, the most vulnerable are unlikely to have access to the kinds of technical information required for them to be able to meaningfully contribute to impacts-based debates; therefore an impacts-based approach to defining adaptation is less likely to be 'inclusive' of vulnerable people.

But, how and why are issues framed as 'expert'? The evidence from this thesis shows that one of the factors contributing to a predominantly 'impacts-based' discourse around climate change adaption in Bangladesh was the availability and use of climate change information and expertise. First, as discussed above, Bangladesh has a long history of environmental policy making targeting similar climate-related hazards as those identified by the NAPA. Further, and perhaps because of this existing community of practice around managing climate-related hazards, Bangladesh has a relatively long history of engagement in climate change studies and adaptation interventions compared to other LDCs (Ayers and Huq, 2009a). As a result, there are a large number of organisations and agencies with knowledge, tools and capacity to assess climate related impacts.

In addition, as stated above, Bangladesh has also long been the 'face of climate vulnerability' to the international community. This, coupled with its long history of engagement in international climate change fora, has made Bangladesh the focus of many international studies on climate change impacts. Therefore the climate change data and expertise available for and in Bangladesh at the time of NAPA inception was considerable.

This is reflected both in the NAPA document and in the NAPA process. First, as noted, many of the sectoral working groups were led by national climate change consultants with particular expertise around climate change impacts, and also significant exposure to the UNFCCC processes, frameworks, and expectations. Second, a considerable amount of climate-related data was

available before the NAPA regional stakeholder consultation workshops took place. The NAPA document states:

> Over the last decade a number of studies have been carried out on impacts, vulnerability and adaptation assessment for Bangladesh to climate change and sea level rise. (MOEF, 2005:7).

The NAPA document also presents the outputs from global and regional circulation models, and states:

> The National Adaptation Programme of Action for Bangladesh has complied future impacts, vulnerability and adaptation based on existing model outputs. (MOEF, 2005:9).

This level of climate change information was, especially at the time when Bangladesh completed its NAPA, rather unprecedented, and enabled the NAPA team to evaluate climate change risks from an impacts-based perspective from the outset.

In Nepal, the level and availability of climate change expertise and information was significantly lower. Indeed, there was much competition between development agencies investing in adaptation over "only a handful" of national climate change consultants (Asian Development Bank representative, personal communication October 2009). This lack of obvious national agencies or individuals with expertise in specifically climate change gave more weight to the proposal for each thematic working group to be government-led by the relevant government sector. Each Government lead official obviously had considerable knowledge and experience related to their sectors, but very little experience, if any, at handling climate change data.

Second, few international climate change experts were used by the project, despite provisions in the LEG NAPA guidelines for the inclusion of international consultants to help guide the NAPA process. This was a result of delays in hiring in particular a "climate change specialist", so that the NAPA process began with the support of junior level consultants and was led by MOE Government officials (rather than driven by external consultants, as had been the case in many other NAPAs).

Third, there was very little availability of climate change impacts data. Chapter five describes how the Himalayan region is considered a 'white spot' for accurate climate change modelling information, an assertion confirmed by the controversies over existing climate predictions for the region noted above. At the time of NAPA inception, only one rigorous climate change data study

had been conducted for the whole of Nepal, and the conclusions of that study were that there was insufficient certainty in the outputs of the climate change models to focus adaptation action on anticipated climate changes (ISET NCVST, 2009).

Therefore, the information presented in chapter five shows that there was little choice but for Nepal to adopt a vulnerability-first approach to defining climate change risk; the information and expertise around development and social vulnerability were there, whist expertise related to climate change impacts were not. That is not to say that there was no demand for climate change information by the NAPA teams and their respective ministries. Throughout the process, many of the thematic working groups sought guidance in how to differentiate what they were developing from standard developing projects, not wanting to be accused of 'repackaging development'. In particular, the climate change focal point from the Ministry of Environment felt pressure (perceived or otherwise) from the LEG to present climate change data in the NAPA (Batu Uprety, LEG representative and NAPA Project Manager, personal communication, November 2009).

The result of this demand for climate change information was that one of the proposals from the working and energy group to generate climate risk maps for Nepal was taken up and developed during the NAPA preparation process. Maps were produced that used existing climate-related hazards (such as flooding, water stress, landslides, GLOF threats and temperature extremes) as proxy indicators for climate change impacts. However, these maps are still under finalisation at the time of writing, and the NAPA has already reached the draft stage. Therefore it is too late for the climate hazard information to have much influence on the more 'vulnerability-based' approach taken in Nepal in developing its NAPA.

Further, discussions at the NAPA follow-up meeting over how to incorporate these maps confirmed that the maps will not influence the overall NAPA outcomes or priority adaptation projects (notes from NAPA Project Executive Board meeting taken provided by NAPA Team Climate Change Consultant, August 13th 2010). The creation of the maps nevertheless show the perceived pressure felt by the NAPA team to conform to an 'impacts-based' approach to addressing climate risks promoted by the UNFCCC process.

The timing of the NAPA process in Bangladesh and Nepal

Finally, the evidence generated by the sub-case studies suggest that the factor that contributed significantly to the differences in deliberative institutional design adopted in the two countries, was the opportunity for lesson-drawing created by the time lag between the two processes.

Bangladesh was one of the first countries to complete its NAPA in 2005, and as such had only the LEG Guidelines as guidance on the process. Nepal is one of the last countries to complete its NAPA. In the interim period, a series of evaluations and critical writings on the NAPA process and its associated mechanisms had been carried out. Two issues were repeatedly raised in these evaluations and also in more general informal criticisms of the NAPA in NGO forums: First, that NAPAs should be country-driven yet in many countries had been led by expert consultants; and second, that the participatory mechanisms conducted under NAPAs were insufficiently inclusive (Agrawal, 2008; CAN, 2008; COWI/IIED, 2009; see chapter five box 5.3).

The recommendations from these evaluations were taken on board in the design and implementation of the NAPA preparation process in Nepal both explicitly and implicitly. Explicitly, the NAPA document and supporting preparation reports make references to these criticisms, and the way in which the design of the Nepal NAPA has been adjusted accordingly. Implicitly, these criticisms put pressure on the implementing agency of the UNDP to 'do things differently'; on the donors who had allocated significant co-financing to the NAPA in Nepal to show value for money in terms of showing how this additional funding could improve the highly criticised NAPA process; and on the Government of Nepal, who needed to report to the LEG Group at various meetings of the UNFCCC and show how they were using the delays in the NAPA process to their advantage.

But, how influential was 'lesson learning' in defining the approach taken to NAPA development, versus other factors? The impact of "lesson-drawing" on public policy is debated (James and Lodge, 2003; Rose, 1993). Lesson drawing has been defined in political science as "a cause-and-effect description of a set of actions that a government can consider in light of experience elsewhere" (Rose, 1993:27). Proponents of lesson-drawing suggest that learning from experiences elsewhere in time or place provides an invaluable tool for creating better-informed policy (Rose, 1993). Some critics of a lesson-drawing approach question how different it is from simply "rational policy-making", where decisions are based on searching for the means to pursue goals in a systemic and comprehensive manner, and where reviewing policy in light of past experience is necessarily part of that process (James and Lodge, 2003:181).

This thesis suggests that the case-study of lesson-drawing in Nepal *does* differ from rational policy-making, precisely because the lessons that are taken up are not necessarily done so on a 'rational' basis. As shown in previous sections, many factors contributed to the decisions of Nepal to focus on a country-driven and inclusive approach. It is true that the lessons were there to be learnt, however the avenues created for lesson-learning, and the factors that led to decisions-makers

taking up these lessons, were both complex and political. When lessons present themselves, choices are made about whether, why and how to draw on them; as Rose notes,

> Lesson drawing cannot be politically neutral, because politics is about conflicting values and goals. A lesson is always a means to a political end. (Rose, 1993:22).

For example, as discussed in chapter five, direct avenues for lesson-drawing were created between Bangladesh and Nepal when Nepal invited Bangladesh to present their NAPA experience at the Nepal NAPA inception workshop. However, there were many conditions that led to this invitation; to the acceptance of the invitation; and to the choice to acknowledge and take on board what was presented.

First, from the point of view of the Government, Bangladesh was a previous Chair of the Least Developed Countries Expert Group (LEG), and had a reputation among countries Party to the UNFCCC, as well as donors and intergovernmental agencies, as a 'leader in the field' on climate change adaptation for reasons discussed earlier in this chapter (around the long history of climate change policy making in Bangladesh). Thus the decision to invite Bangladesh may be taken as a rational decision to learn from the country with the most experience. However, added to this was the fact that Nepal, in lagging behind the other LDCs on its NAPA submission, was lacking in credibility in within the LDC Group, and yet had ambitions to take up the future Chair position.[31] The invitation to Bangladesh therefore both served to strengthen the allegiance between the two countries, but also to demonstrate to a 'high ranking' member of the LDC Group that action on the NAPA was taking place and that efforts were being made to turn the delays to an advantage; to learn the lessons from others.

Second, from the implementing agency, UNDP in particular had faced considerable criticism both from evaluation processes of other NAPAs, and also for their role in delaying the process of the Nepal NAPA (Prasai, 2010). Therefore by emphasising the uptake of lessons from other NAPAs, UNDP was both demonstrating that it was responding to the various evaluation recommendations, but that the delays in the Nepal NAPA process were in many ways justified because they presented an opportunity to learn from others. Statements to this effect were made by UNDP at the Inception Workshop and have been repeated ever since (MOEST, 2009).

[31] At the time of writing – August 2010 – Nepal is currently making its case to take up the next Chair position of the LDC Group.

Third, as shown in chapter five, there was significant cofinancing from donors in the NAPA process in Nepal. Donors were therefore under pressure not to be seen to be investing a process that had been repeatedly criticised. Therefore to justify this cofinancing it was important to show how this funding was being used to make the NAPA in Nepal 'innovative' and 'to succeed where others had failed'.

Therefore, the evidence from the sub-case of the Nepal NAPA shows that the timing of the NAPA did present opportunities for lesson-learning, and the one of the strongest lessons taken from other NAPAs was the need for Nepal to demonstrate that they were being participatory and inclusive. This contributed to the Nepal NAPA team actively emphasising 'inclusiveness' in the NAPA process. However, the uptake of this lesson was not only 'rational'. It was borne from a need by all key stakeholders involved in the NAPA design process to demonstrate that Nepal was taking an innovative approach and that the delays in the NAPA process could be justified on account of the need to ensure that the NAPA in Nepal would have appropriate consultative mechanisms to make it truly inclusive.

In thinking about the role of lesson-learning in facilitating a more deliberative process in Nepal, then, it is important to consider the hidden politics of how lesson are applied and learnt, and with whose input. As noted by Rose:

> A lesson is viewed as desirable only if it is consistent with the values and goals of those evaluating it. (Rose, 1993:45).

Importantly, the trends identified in table 6.2 are a result of highly politicised decision-making process and are not only structural. For example, the use of climate change "expertise" in Nepal was not only because there was less knowledge available. This was also because of the politics of engaging the "experts" who were available to contribute to the process (see section 5.4). The capacity to "learn" in Nepal was not simply a result of timing. Spaces for learning also had to be created. These spaces were carved out both by the MOE, Government of Nepal, who were under pressure from the LDC Group to show that they could make use of the delayed NAPA process; and also multilateral and donor stakeholders who had to justify the 'added value' created by the process of co financing which had contributed to delays in the NAPA. This suggests that agency (rather than only structures) is significant in shaping discourse and policy trajectories.

Table 6.2: Summary of findings of the factors that influenced approaches to 'doing inclusiveness' in each NAPA process

	Bangladesh	Nepal
Histories of environmental policy making	▪ Long history of environmental policy making around climate-related hazards ▪ Strong "environmental crisis" around cyclones and flooding matched mapped well on to national climate change narrative	▪ History of environmental policy making focused on forest and landslide management ▪ Discredited "environmental crisis" narrative around deforestation did not match emerging "glacial melt" narrative around climate change ▪ "Glacial melt" narrative undermined by the IPCC being exposed for a lack of credible data on the issue
Availability and use of 'expertise'	▪ Strong base of knowledge around climate-related hazards. Large number of climate change studies already carried out. ▪ High number of 'climate change experts' both nationally and internationally recognised ▪ Many of the NAPA sectoral working groups 'expert led'. Several international and national climate change consultants supporting the process.	▪ Nepal a "white spot" for climate change information ▪ Some Nepali glacier studies discredited (see above) ▪ Shortage of national 'climate change experts'. ▪ Decision to have thematic working groups 'government led'. ▪ Shortage of international climate change experts available to support the NAPA process
Timing of NAPA processes	▪ Bangladesh one of the first countries to complete its NAPA. No previous experience to draw on. ▪ Relatively little learning internationally on how to 'do' adaptation. International guidance offered through NAPA guidelines. ▪ International debates on adaptation still leaning towards projectised, impacts-based approaches.	▪ Nepal one of the last to complete its NAPA, able to draw lessons from others including Bangladesh especially around the need for improved mechanisms of 'local' stakeholder engagement. ▪ Third assessment report published, international debate on adaptation moving towards programmatic approaches, greater recognition of social-vulnerability as key factor in determining climate risk.

6.6 What do these findings mean for deliberative institutional design?

This analysis of the evidence generated by the sub-case study analysis supports the conclusion that, while neither Bangladesh nor Nepal achieved successful deliberation in terms of 'equality of voice', 'equality of reason' and 'equality of outcomes,' the NAPA process in Nepal was *more*

inclusive than that in Bangladesh. There are likely to be many reasons for this, but the key factors emerging form this analysis include the different histories of environmental policy-making narratives in Bangladesh and Nepal; the differences in the availability of climate change information and expertise relative to those on vulnerability; and the timing of the two NAPA processes, that enabled Nepal to learn from criticisms around inclusiveness of past NAPAs. This analysis suggests that these factors influenced the way in which climate change risks were framed in each country, and the relative emphasis placed on inclusiveness in each NAPA process.

These findings support a conclusion that a 'more inclusive' institutional design for governing adaptation requires greater attention to a disaggregated 'local'; conducting 'locally inclusive' consultations at a scale that provides access to the relevant stakeholders and a forum in which they are able to contribute freely; and facilitating the deliberations in such a way as to ensure debates around risk are open to vulnerability perspectives (for example, through a shared learning dialogue approach).

Taking these elements forward, what sort of institutions meet these requirements?

Community-based adaptation[32]

Chapter one discussed community-based approaches, especially around community-based natural resource management (CBNRM), as one alternative institutional design that could allow for a greater degree of 'local inclusiveness'. Translated to adaptation, there is a growing proposal for "Community-based Adaptation" (CBA). Rather than starting at the national level and attempting to draw on 'local' insights to inform national policy on adaptation, CBA starts at the local level in vulnerable communities to identify, assist, and implement community-based development activities that strengthen the capacity of local people to adapt. Ayers and Forsyth (2009) suggest that CBA has the following characteristics:

- CBA operates at the 'local level' (taken here to mean administrative level, for example neighborhood, settlement or village) in communities that have been defined as vulnerable to the impacts of climate change;
- CBA practitioners work with "the local community" to identify and implement community-based development activities that strengthen the capacity of local people to adapt;
- CBA generated adaptation strategies through active participatory processes involving local stakeholders. Participation techniques such as Participatory Rural Appraisal commonly used in community-based development initiatives are often harnessed for CBA.

[32] Some of the concepts in this section have been expanded in Ayers and Forsyth, 2009

- CBA attempts to build on existing cultural norms and addresses local development concerns that underlie vulnerability.

Many proponents of a CBA approach note that this kind of institutional design enables the local deliberations that can identify disaggregated development needs and cultural preferences that determine effective adaptation (Ayers and Forsyth, 2009; Jones and Rahman, 2007). But does CBA meet the needs of the governance of climate change adaptation?

This thesis has shown that the governance of adaptation presents a paradox, based on the dual requirements of being part of a 'global' climate change problem, managed and financed through international administrative frameworks; and yet needing to respond to disaggregated local vulnerability contexts, where the factors driving vulnerability are often detached from impacts of a global climate change risk. This means adaptation has to be managed coherently across scales. Does CBA meet this requirement?

First, as noted in chapter one, simply organizing participatory exercises at the level of 'the community' does not necessarily translate to an approach that reveals the disaggregated nature of vulnerability *within* communities. Going back to the earlier discussion around 'who is local', chapter one showed that not all 'community-based' participatory methodologies necessarily disaggregate 'local', or result in more deliberative outcomes. In relation to CBA, some critics have pointed out that when CBA is defined as an approach to adaptation alongside wider scale adaptation planning, the result is a 'one-project, one community' approach that actually encourages an 'aggregated community' discourse (Comments from the third CBA Workshop, Dhaka, 2009). Williams (2004) suggests that such a "naïve" approach to scalar dimensions can generate exclusion. The author states:

> Those who don't fit easily into demarcated and territorial "communities" can all too easily fall foul of visions of development" (Williams, 2004:561).

This statement is supported by the analysis presented in this thesis, that showed how being framed as 'local' was both empowering in that it resulted in inclusion in participatory activities, but also disempowering in that the 'local' if often seen as subordinate compared to 'global' perspectives.

Second, there has been much criticism of community-based approaches in terms of spatial and temporal limitations (Ribot, 2002), a particular problem for managing 'global' environmental risks

where there is a need to connect to higher level governance structures. As noted by Dodman and Mitlin (2010), while there has been much work on developing participatory tools and methods for enabling community-based development at the project level, relatively little attention has been paid to building up the links with political structures above the level of the settlement.

This is problematic for addressing the governance of adaptation in particular, for two reasons. First, chapter three presented evidence that showed how adaptive capacity can be defined in terms of access not only to financial and material resources, but also, and significantly, social and political resources. Therefore while community-based projectised approaches may assist in building people's ability to adapt autonomously, it is necessary to engage with the wider governance contexts that can both drive and also address vulnerability in order to make planned adaptation interventions effective, and to ensure people can adapt autonomously in the longer term. These observations are supported by Boyd et al., (2009) who argue that "stand-alone" projects cannot result in long term, sustainable adaptation, and that adaptation needs to be better integrated into broader planning frameworks across national, sectoral and local level.

Second, debates around how to channel financial resources for adaptation have centred on country access and government ownership. While the recently active Adaptation Fund under the UNFCCC currently has a "direct access' windows for non-government organisations, the majority of financial resources flowing for adaptation will be through existing national government systems, in line with the Paris Principles of Aid Effectiveness.[33] Therefore, as stated by Dodman and Mitlin (2010):

> While a scale focus at the local is important to pro-poor political strategies, such strategies…are not credible unless they recognise that there is also a need to deal with institutionalised power relations above the level of the settlement (Dodman and Mitlin, 2011: 15).

Applied to adaptation, many observers have argued that 'scaling up' of CBA initiatives to influence climate policy is problematic because little attention is being paid to the wider policy making context of adaptation (Ayers and Dodman, 2010; Dodman and Mitlin, 2011). While CBA is proving useful in exploring the ground-reality of vulnerability, few attempts are being made to link these cases with the actual policy frameworks through which wider scale adaptation planning and delivery will operate.

[33] These include enhanced national ownership; alignment with developing country planning priorities; and mutual accountability between donors and national governments on managing financial flows (OECD, 2005).

On the one hand, the Bangladesh case suggests (and other NAPAs confirm) that the 'top-down', impacts-based approach to adaptation planning encouraged under the UNFCCC results in a sectoral approach to defining and implementing adaptation support; on the other hand, CBA is working at the ground level to identify the myriad of factors on which vulnerability depends, that are unlikely to fit neatly into sector- or impact-based policies. The tension between the global and local approaches to defining and addressing climate change vulnerability have resulted in surprisingly little discussion on if, and how, CBA-type approaches can actually be incorporated into adaptation policy making.

Local Adaptation Plans of Action

What is needed, then, is a policy framework that enables local, autonomous adaptation via community level institutions, but also links to formal state institutions such as through local government. Yet, as Agrawal notes, to date there is a lack of "middle-range theories" to bridge the gap between community-based and national level adaptation planning (Agrawal, 2008). Agrawal suggests that the 'missing link' is an analysis of local institutions that operate between these levels of adaptation planning, proposing that local institutions determine adaptive capacity at the local level in three ways (Agrawal, 2008:3):

i. They structure impacts and vulnerability
ii. They mediate between individual and collective responses to climate impacts and so shape outcomes of adaptation
iii. They act as the means of delivery of external resources to facilitate adaptation, and thus govern access to such resources.

The mediating role of local institutions between resource users and resource deliverers suggest they have a crucial role to play in facilitating deliberation between national adaptation planners, and local beneficiaries of adaptation interventions. Agrawal (2008) suggests greater attention is needed to, firstly, institutional access, related to who has access to which institutions at the local level that could enable, support, and develop autonomous adaptation strategies. Secondly, institutional articulation; attention to the linkages between local institutions and each other, and also higher level governance structures that enable autonomous adaptation strategies to be part of wider scale adaptation planning. However, in a recent review of NAPA projects, Agrawal (2008) shows that NAPAs

> Have attended only in a limited fashion to the role of local institutions in designing, supporting, and implementing adaptation" (Agrawal, 2008:3).

Similarly, CBA practitioners have to date tended not to engage with institutional governance structures above the settlement level, if at all (Dodman and Mitlin, 2011).

But how can these barriers to institutional engagement in adaptation be overcome? In Nepal, an innovative approach to adaptation planning is currently being developed that attempts to do just this: Local Adaptation Plans of Action, or "LAPAs". The LAPA concept emerged from the Nepal NAPA Inception Workshop, (see box 5.6), in response to a perceived 'top-down' framework for NAPA development. This concept has since been picked up by DfID as an idea for how a LAPA could bridge the gap between local and national adaptation planning scales, intended to produce locally specific adaptation plans that redress the gaps between autonomous and planned adaptations.

LAPA development begins with a detailed assessment of institutional options, access, and articulation as the starting point for a risk and adaptive capacity assessment, rather than beginning with climate change impacts information. The latter analysis of articulation is then used to consider how LAPAs both feed into national level adaptation planning; and also how national adaptation plans can be delivered through LAPAs. The outputs of a LAPA are still under discussion, but the LAPA is envisaged as both a 'local' level adaptation plan (which could be community level, settlement, district), *and* a means of analysing institutional linkages across scales to ensure that gaps between 'local' and national adaptation planning, finance and delivery can be bridged (interview with DfID Nepal Climate Change Adviser, August 2010).

While the LAPA concept is still in the design phase, a key promising feature is the flexible approach taken to scale. 'Local' is not predefined as either community, household, district and so on; rather, local institutions are taken as the whichever formal or informal institutions are important in enabling vulnerable people to gain access to the assets they require to help them build their adaptive capacity.

This suggests that enabling 'deliberative' adaptation governance across scales requires not only a flexible approach to defining climate change risk; but also to understanding the linkages between how risks are conceived, and the politics of scale; it means democratising what we mean by scale itself.

Chapter 7: Conclusions
Can global climate change adaptation policy be locally inclusive?

7.1 Introduction

This thesis aimed to address the question: In light of the "adaptation paradox", where climate change presents a 'global' risk, but vulnerability is 'locally' experienced, can global climate change policy achieve local inclusiveness? Based on insights from themes in social science around participation, expertise and deliberation, this thesis proposed the hypothesis that the adaptation paradox presents new challenges for inclusiveness: a globalised discourse on adaptation restricts discussion of risk to 'global' and technical expertise, and is not open to localised vulnerability-based knowledge about how risks are experienced. This hypothesis is based on two assumptions; first, that perceptions of climate change risk differ across scales; and secondly, that this matters for achieving inclusiveness in adaptation governance.

This study has tested this hypothesis and these assumptions by collecting and analysing a new set of data on perceptions of climate change risk, and opportunities for inclusiveness, at the international, national, and community scales. First, this study carried out key informant interviews with actors engaged in the international sphere of the climate change negotiations, and within the Intergovernmental Panel on Climate change (IPCC); and conducted a detailed analysis of published and grey literature around adaptation policy making. The evidence from this part of the study is presented in chapter three, and shows that there are two broad approaches to adaptation, which in turn depend on how climate change risk and vulnerability are defined and assessed. First, an 'impacts-based' approach to adaptation, which takes climate change impacts as the starting point for vulnerability assessments, and gives rise to technological adaptation solutions that target the specific impacts of climate change. Second, a 'social-vulnerability' approach that takes a livelihoods or assets-based framework for assessing vulnerability, and results in adaptation interventions that target the underlying drivers of vulnerability that are highly differentiated at the local level.

Chapter three showed that the original remit of the UNFCCC – to mitigate greenhouse gas emissions – promoted a globalised, "systemic" climate change discourse that penetrates adaptation policy frameworks. The result is a framing of adaptation under the UNFCCC that is impacts-based and 'additional' to development. This has also influenced the way in which risks are assessed for policy making under the IPCC. Chapter three presented evidence that the 'expert'

nature of an impacts-based approach provides limited opportunities for lay, vulnerability-based perspectives in the defining of climate risks.

Chapter three also explored opportunities for governing climate change outside the UNFCCC, through international development frameworks. However, chapter three concluded that taking adaptation out of the UNFCCC divorces it from the global climate change agenda. On the one hand this could remove discursive barriers to more localised approaches in the governance of adaptation. On the other hand, maintaining a systemic approach to climate risk – that climate change impacts are additional to existing development needs – has helped developing countries to lobby for funding for adaptation that is additional to development funding. This is the crux of the adaptation paradox; it is important that climate change is taken as part of the global, systemic climate change problem to uphold principles of equity under the UNFCCC and garner funding for adaptation. But at the same time ways need to be found for localised climate change discourses to contest this if adaptation under the UNFCCC is to address local vulnerability.

This thesis has therefore analysed opportunities for inclusive policy making within the UNFCCC, focusing on the main existing avenue for the inclusion of 'local' vulnerable people in adaptation policy-making: National Adaptation Programmes of Action (NAPAs). Two sub-cases of the NAPA process in Bangladesh and Nepal were analysed. The empirical findings from the two sub-cases are discussed in chapter six and so are only briefly summarised here. The sub-cases did reveal some evidence that NAPAs achieved inclusiveness; both processes were participatory in intent and took steps to engage 'local' actors. But in both cases the NAPA process was dominated by an impacts-based paradigm that was not conducive to the inclusion of alternative discourses of vulnerability. Chapter five proposed that based on the evidence put forward in this study, the NAPA process in Nepal was 'more inclusive' than that in Bangladesh. This was both a consequence of the greater range of participatory technologies employed in Nepal, but also of the circumstances that resulted in these institutional design choices, such as histories of environmental policy making, the availability of scientific expertise, and the opportunities created for lesson learning.

This chapter brings these findings back to the central question of this thesis, and demonstrates the contribution of this thesis to social science theory and environmental policy more generally. This chapter will discuss the implications of these findings for wider theories of inclusiveness, focusing on the three main theoretical concepts that form the backbone of this study: (i) Participation, drawing from development studies; (ii) the politics of expertise and scale, drawing from Science and Technology Studies (STS); and (iii) Deliberation, drawing from political science. Second, this chapter will discuss the practical implications of this research for inclusive environmental policy in

general, and climate change policy in particular. Finally, this chapter will directly address the central question of this thesis – can adaptation policy under the UNFCCC be inclusive? But also question the underlying assumption of this thesis - that inclusiveness is actually a valuable ideal in environmental policy-making, and why.

7.2 Contributions to theory

Participation in the governance of 'global' environmental risk

Chapter one of this thesis analysed the literature around inclusiveness in policy making for 'global' environmental problems. This analysis showed how the risk assessments that inform such policy decisions are often based on globalised, universalist statements of environmental problems, giving rise to policy solutions that do not meet the needs of vulnerable people (Basset and Zeuli, 2000; Jennings, 2009; Tiffen et al., 1994;Wynne, 1994). Such cases resulted in calls for environmental risk assessments to better reflect the realities of how risks are experienced on the ground; to be 'locally inclusive' (ibid).

These calls have been taken up by the international development community, and since the 1970s there has been a growing trend towards more participatory approaches to doing development (Blackburn and Holland, 1998; Castells, 1983; Chambers, 1983, 1997; Korten, 1989;). Yet, chapter one showed that participatory practice has faced a great deal of criticism over the last decade, much of which has focused on "participation as the new tyranny" (Cooke and Kothari, 2001). Such criticisms have centred on the way in which participation has been used as a new form of political control, and has served to 'depoliticise' development practice by obscuring local power differences; uncritically homogenising 'the community'; and using a language of emancipation to mask other means of regaining political control over development (ibid; see chapter one).

The findings from this thesis, and in particular the case study of Bangladesh that focused on the success of participatory outcomes, supports these criticisms to some extent. For example, the regional consultation meetings in Bangladesh classed both local government representatives and also representatives of farmers group as both "local", despite the power differential between the two groups (supporting claims that participation can homogenise "community"). Further, the voting system used to prioritise adaptation options was on a one-person-one-vote basis. Given the often greater presence of government officials and climate change expert consultants relative to community representatives at the meetings, such a system diluted the influence of 'local'

stakeholders on the decision making process despite the appearance of giving them equal say (supporting the claims that participatory activities can mask power politics of participatory processes).

However, the evidence from this thesis also shows that the power politics of participatory spaces are perhaps more complex than the 'tyranny of participation' debates suggest. Participatory spaces do present opportunities for the subjugation of 'the local'; but the evidence presented by this thesis suggests that the extent to which and the ways in which this happens, and the reasons why, are strongly influenced by the discursive context of the policy problem at hand. How the policy problem is framed influences the choice of participatory technologies; the scale at which they are undertaken; and the responsiveness of decision-makers to the outcomes of deliberation. In both the Nepal and Bangladesh case studies there is no evidence that the 'inclusive intentions' of policy makers were anything but genuine. Rather, this thesis found evidence that the difference in the inclusiveness of outcomes of the two NAPA processes was more closely associated with how the problem of climate change risk was perceived by policy makers, and the contextual factors that resulted in these definitions of risk.

For example, in Bangladesh, climate change risk was perceived as exacerbating existing environmental hazards for which there were long established risk discourses. In Noakhali, exposure to storms and cyclones were already familiar environmental stresses; policy-makers 'knew' that these were the key environmental hazards before participatory exercises around adaptation priorities took place. Thus, in line with the framework proposed by Funtowicz and Ravetz (1990), 'certainty' around the policy problem was already perceived as 'high', and the need for the inclusion of diverse ideas around defining the policy problem was low. Policy makers did not intentionally subjugate local knowledge around defining climate change risks; it was simply not seen as relevant. In Nepal, there was less certainty around climate change risk, because the hazards presented by climate change were less familiar. Thus, policy makers were more open to wider stakeholder engagement in the defining of both risk and solution.

However, moving beyond the framework proposed by Funtowicz and Ravetz, this thesis has also shown that "certainty" around a policy problem is also not a neutral term, but is itself constructed based on assumptions about climate change risk. For example, the degree of certainty around climate change risks in Nepal and Bangladesh was partly a consequence of the different histories of environmental policy-making in each country. This thesis also suggested that other significant factors included the availability of expertise in each country and the timings of the NAPA process, as well as more normative political explanations.

Therefore the findings from this thesis support 'tyranny of participation' debates in that simply doing participation does not automatically generate meaningful stakeholder inclusion in policy problems, and greater attention is needed to the politics of participatory spaces (Cooke and Kothari, 2001; Cornwall, 2000). However, this thesis has also shown that these politics are in turn a consequences of assumptions about climate change risk that influences how participatory processes are structured and why. Thus, attempts at inclusiveness in 'global' environmental problems need to be critical of how such framings impact on the dynamics of participatory spaces; but also how and why such problem framings have arisen in the first place. This thesis has paid particular attention to the construction of expertise and the politics of scale in influencing these assumptions.

The politics of scale and expertise

This thesis has drawn on insights from science and technology studies (STS) to argue that current approaches to participation and inclusiveness do not pay adequate attention to the politics of scale and expertise in the construction of risk. Yet to date such debates have largely been confined to the examination of scientific and technological 'risks' in northern and largely industrial settings (Leach et al., 2005). As noted by Leach et al., there is a "striking correspondence" between STS debates around the inclusion of 'lay' knowledge in the governance of scientific and technical problems; and insights from development studies around the participation of 'indigenous' knowledges in policy making; but only very recently have the overlaps between these debates been pursued (Leach et al., 2005:4). This thesis has sought to contribute to the trend towards integrating these two disciplines, by applying STS debates to adaptation policy in a developing country context.

Chapter one showed how these debates have argued that the framing of problems as 'global' and 'expert' is a politicised process that carries significant implications for the inclusion of 'local' and 'lay' knowledge.

This challenges the "epistemic communities" approach that suggests that the conversion of more people to a scientific or normative judgement is a progressive means of developing authoritative expertise around policy-relevant knowledge (Haas, 1992; see chapter one). Yet, insights from STS have shown that 'expertise' can be defined in various ways, and in certain contexts 'lay' knowledge may be more informative for developing context-specific solutions to 'global'

environmental problems than the officially sanctioned expertise promoted by epistemic communities (Wynne, 1996). Thus, it is important to understand how and why problems come to be framed as 'global' and 'expert'. As stated by Martello and Jassanoff,

> The construction of both the local and the global crucially depends on the production of knowledge and its interaction with power. (Martello and Jassanoff, 2004:5).

The evidence generated by this thesis supports these contentions. For example, chapter three showed how the UNFCCC adopts a 'systemic' approach to climate change risk that focuses on climate change as a global problem caused by greenhouse gasses. Adaptation has emerged from this globalised and technical perspective as a response to the specific impacts of climate change. Chapter three showed how this 'expert' and 'global' framing of climate change risk created barriers for the participation of alternative perspectives in risk assessments conducted by the IPCC.

Similarly, this thesis has found evidence in support of the argument that these scalar politics of environmental governance matter for inclusiveness in environmental risk assessments. First, the framing of climate change risks as global impacts on 'what' was deliberated. In Bangladesh, a hazards-based risk assessment stemming from global climate change governance frameworks was reinforced by the national environmental risk narratives of floods and cyclones. However, these national narratives were themselves a legacy of decades of international development funding, and this narrative has been internationally propagated (Ayers and Huq, 2009a) and so were also 'global' in a sense. The result was a fairly rigid existing discourse on climate risk that was difficult to contest. In Nepal, the global 'environmental crisis' narrative was one of rapid deforestation, and so did not serve to reinforce the climate change risk narrative that had developed around melting glaciers; and in any case both narratives had been significantly undermined. This thesis has suggested that these circumstances left more space for a new climate change vulnerability discourse to be developed in Nepal than in Bangladesh.

Second, the way in which 'local' was defined and operationalised in the participatory processes differed across countries, with implications for the scale at which activities took place, 'who' was considered local and therefore included, and the kinds of technologies that were employed. Third, this thesis has shown that the labelling of information as 'global' or 'local' is closely intertwined with the perception of that knowledge as 'expert' or 'lay', and the value attributed to that knowledge. This is particularly evident from the findings presented in chapter three that show the way in which 'local' knowledge has been branded as 'inexpert' and thus explicitly excluded from

the IPCC process.

These insights support the contention that scalar discourses are not absolute and independent but also socially constructed and mutually reinforcing; and that this construction of scales has implications for 'expertise', 'certainty', and therefore for inclusiveness.

Such observations have led critics such as Farrell et al., (2001) to suggest that greater attention needs to be paid to supporting the capacities of different stakeholders to participate in 'expert' and 'global' arenas (Farrell et al., 2001). Similar perspectives have led to an emphasis on a particular approach to "social learning" in sustainability science as a way of facilitating learning and therefore inclusion around 'global' policy problems (see for example Social Learning Group, 2001). As discussed in chapter six, "social learning" links knowledge to action, often through an iterative process of 'co-learning' between 'agents of change' and 'client groups' (Angeles, 2004).

In their two-volume work on *Learning to Manage Global Environmental Risks,* the members of the Social Learning Group suggest that where participation is the policy goal, social learning can improve the engagement of a wider range of stakeholders to come to a common understanding around a policy problem (Social Learning Group, 2001; see also Clark, 2003; Kasemir et al., 2003). This approach to social learning is based on normative assumptions of 'expert' and 'lay' knowledge: The goal is to enable 'lay' participants to engage in 'the expertise', rather than opening up spaces for the expertise to be contested. The evidence presented in chapter four shows how a similar approach was adopted under the Bangladesh NAPA: the framing of vulnerability as 'hazards-based' and therefore technical resulted in the design of consultation exercises that were dominated by experts formally recognised by the international risk assessment process. While local people were consulted, this consultation took the approach of 'informing people with the science,' rather than offering people the opportunity to contest whether or not 'the science' is actually the most appropriate way to approach vulnerability reduction.

However, the analysis of this approach presented here suggests that this type of 'social learning' is not the same as meaningful "inclusiveness". This thesis has understood "inclusiveness" to mean the democratisation of climate change risk for enabling different kinds of knowledges to be represented in the assessment of that risk. Yet, chapter four presents evidence that shows that although this consultation process resulted in apparent consensus (or 'certainty') around climate change risk, opportunities were not created for those risks to be contested. The result was that the outcomes of process did not necessarily meet the needs of those who were most vulnerable to climate-related hazards and other stresses.

Conversely, in Nepal the NAPA process moved away from essentialist categories of 'expert' and 'lay', and adopted a "shared learning dialogue" approach to determining risk, in which vulnerable people were provided with the opportunity to contribute to the defining of climate change risks from a social-vulnerability-based perspective. This approach is in line with an alternative perspective on social learning that sees learning – even that facilitated by external agents – as an iterative process of the coproduction of knowledge. This approach requires explicit recognition of the politics of expertise, the value of lay knowledges, and the influences of power politics on the dynamics of learning.

Indeed, Pelling et al., (2008) and Pelling and High (2005) suggest that, if the power politics of learning processes are taken into account, "learning itself is considered a kind of adaptive behaviour" (Pelling et al., 2008:870). For example, Pelling and High acknowledge "the influence of social institutions in sanctioning and legitimising the use of power between individuals" (Pelling and High, 2005:3) but suggest that, where this is explicitly acknowledged, such institutions can provide a platform for actors to influence discourses. Providing the opportunity for actors to do so is in itself a kind of adaptive capacity-building; chapter three pointed out that social assets are key to building resilience, and facilitating social learning provides actors with opportunities for strengthening social ties, improving access to social and political resources, and a platform for using them.

Thus, the findings from this thesis show that the politics of expertise and scale do matter for achieving inclusiveness in problems that have come to be framed as 'global'. The kind of social learning discussed above and evidenced by the Nepal NAPA process of 'shared learning dialogue', shows that achieving inclusiveness in the context of 'global' and 'expert' problems requires more than simply 'teaching' a certain form of expertise; it requires creating opportunities for concepts of scale and expertise to be contested, and for alternative approaches to risk to be coproduced. This thesis has proposed that achieving inclusiveness in global environmental risks requires more than participatory intentions; participation needs to be deliberative.

Inclusive deliberative governance

This thesis has proposed that opportunities for democratising risk lie in creating spaces for those risks to be deliberated. But chapter one also showed that there are different perspectives on how deliberation is understood, and how it should be done. There is general agreement that

deliberation as an ideal refers rational, reasoned debate around a policy problem, which can result in consensual decisions that are perceived by all involved as legitimate, rational, and just (Rosenberg, 2007). However, the dynamics of deliberation, and the potential for 'reasoned discussion', are debated.

A Habermasian perspective suggests that deliberation occurs through a process of "communicative rationality", where instrumentally rational agents take the optimal course of action to achieve their desired ends (Habermas, 1984). Actors with different positions on a policy problem come together to debate that problem in a neutral setting that emphasises equality between participants. Consensus around a policy problem is reached based on "the force of the better argument" (Cohen, 2007). But this perspective assumes that there exists a normatively 'better argument'. In line with the discussion above, such assumptions have resulted in an 'expert teaches lay' approach to social learning; 'expertise' is a given, and thus to achieve deliberation, people need to be empowered with expert knowledge in order to be able to engage with the a reasoned debate around the policy problem. Thus, the influence of a Habermasian approach to deliberation on current environmental politics overlooks the complexities of what *is* authoritative knowledge and expertise, and the specific history and politics of environment norms considered to be fact.

Yet, evidence from this thesis supports an alternative approach to deliberation, which argues that the essentialist categories of 'expert' and 'lay', and 'right' and wrong', are not normative but themselves politically constructed both before deliberation takes place and within the deliberative space itself. This is supported by the evidence from Bangladesh and Nepal that shows how the potential for risks to be redefined was dependent on the extent to which perceptions of 'risk' and 'expertise' were already fixed. This evidence is more in line with how some scholars have interpreted a Foucauldian perspective on deliberation: that all discourses are situated; hence consensus reached through deliberation is often the result of diverse social and political influences rather than rational 'argumentative interplay.' From this perspective, deliberative inclusiveness means more than creating spaces for informed participation; opportunities need to be created for people to redefine the risks that are being debated.

But what do these insights mean for theories of deliberative institutional design? As discussed in chapter one, the 'cornerstone' of deliberative institutions is what Habermas describes as the "perfect public sphere" (Habermas, 1989): an arena within which policy norms can be discussed, new norms can be generated, and anyone can contribute to the validation of these norms through contributing to an open discourse. The prerequisites of the perfect public sphere to enable

reasoned debate are equality, freedom, openness and inclusiveness. Yet, Habermas' vision of the public sphere does not take into account the power dynamics within the public sphere that influence these conditions. As the analysis of the deliberative processes of Bangladesh and Nepal have shown, these dynamics are important in shaping deliberative outcomes.

Other scholars from the field of political science have discussed deliberative institutions in light of such internal dynamics. For example, Smith (2001) discusses the need for deliberative processes to be carefully facilitated to foster meaningful deliberation in light of the power politics within deliberative spaces. But this thesis goes beyond these suggestions and shows how the internal dynamics of the deliberative sphere are also affected by the design of deliberative institutions and the participatory technologies employed.

For example, the analysis presented in this study shows that assumptions about risk, expertise and scale influenced the internal deliberative dynamic: "What" was deliberated, and thus whose knowledge was seen as legitimate, and the extent to which dominant discourses of risk could be contested. But this analysis also showed that assumptions about risk, expertise and scale were implicit in the choices of participatory technologies employed, about the scale at which participation took place, who was invited to participate, and how deliberations were structured. In turn, the assumptions that led to these design choices were influenced by the political and historical circumstances of NAPA design in each country, as well as being grounded in the guidelines of the UNFCCC, which has its own embedded approaches to risk and expertise. Thus the evidence presented in this thesis suggests that the analysis of deliberation requires attention not just to the internal dynamics of participatory spaces, but also to the circumstances that lead to institutional design choices.

7.3 Contributions to policy and practice

The evidence presented in this thesis supports the argument that for climate change policy to achieve inclusiveness, more attention needs to be paid to the discursive dynamics that shape deliberative institutional design and participatory outcomes. The analysis from the NAPA case studies above shows that NAPAs did succeed in engaging 'local' actors in the adaptation policy making process. However, in Bangladesh inadequate attention was paid to creating opportunities for vulnerable communities to contest the dominant framing of climate risk, or contribute meaningfully in the identification of the underlying factors that drive vulnerability on the ground.

The policy consequences of adopting an impacts-based approach to adaptation are, firstly, opportunities for targeting the key drivers of vulnerability could be missed. For example in the case of Bangladesh, livelihood diversification was discussed as an adaptation option; but only in terms of ensuring the long term viability of the coastal mangroves. This perspective may exclude discussions around alternative livelihoods not linked to forest sustainability, but which may actually be more effective at reducing vulnerability. Second, resources for adaptation may not be put to the most effective use, for example in Bangladesh fishermen will be provided with improved information on weather conditions, when many stated that lack of information on climate conditions is not the problem given they cannot act on storm warnings because of financial pressure to fish the seas regardless. Thirdly, and perhaps most importantly, this approach actually risks implementing adaptation options that exacerbate the vulnerability of the most vulnerable groups, for example if the coastal afforestation scheme displaces those residing beyond the embankment in Noakhali.

Given these conclusions, perhaps NAPAs are not the most appropriate avenues for enabling meaningful 'local' participation in the governance of 'global' risks? Perhaps, given that adaptation is at some point always locally specific, all adaptation should be locally managed through community-based adaptation initiatives that fit more easily under development or disaster risk reduction frameworks? However, as discussed in chapters one and six, simply decentralizing environmental management does not necessarily overcome the power politics of local inclusion; in fact, localizing environmental management can reinforce homogenous perceptions of 'the local' and further detach localized vulnerability perceptions from the political structures that can enable longer term adaptive management, and that will channel adaptation resources.

What about shifting climate change adaptation outside the Framework Convention altogether? Some observers have suggested that the dominance of an impacts-based approach to defining risk under the UNFCCC may make alternative avenues such as development or disaster risk reduction frameworks more appropriate (Ayers et al., 2010; Huq and Ayers, 2009). For example, chapter three describes the ways in which development practitioners are increasingly "mainstreaming" climate change into their work both by 'climate proofing' their portfolios and also by directly funding activities that are intended to build resilience to climate change. Do development frameworks offer better opportunities for 'democratise climate risk' and enable local inclusion?

In considering this question, it is interesting to review one example of a shift towards development funding for adaptation: the World Bank managed Pilot Programme for Climate Resilience (PPCR) (see box 7.1).

Box 7.1: Managing adaptation through development? The case of the PPCR
Source: Adapted from Ayers, 2009

The PPCR is one of the World Bank Climate Investment Funds (CIFs). CIFs are multi-donor funds managed by the World Bank to provide grants and concessional loans to assist developing countries in transitioning to a low carbon development pathway and "climate resilient" economy.
The PPCR has a target size of $1 billion USD and is intended to fund adaptation activities in developing countries. However, the development of the PPCR was highly controversial. First, it was originally entitled the "adaptation fund", seen as a move by the World Bank to compete with the Adaptation Fund already established under the UNFCCC. Further, some of the funding under the PPCR will be made available through loans, not grants, and these loans are counted as development assistance contributions. This goes against the principle that support for adaptation should be additional to development assistance because climate change presents and additional burden to development needs. The World Bank has justified this decision by reinterpreting the concept of "new and additional", stating that funds "...are new and additional to existing levels of ODA" but that "...it is expected that most donors will include contributions to the CIFs in their ODA reporting."

In principle, funds such as the PPCR should provide a more 'open' discourse of climate change risk that moves away from an "impacts-based" approach. Indeed, the name of the fund focuses on "climate *resilience*" and seems an explicit attempt to open up adaptation support to a broader range of activities that focus on resilience rather than just climate change impacts. Such suppositions have led observers such as Ayers and Huq (2009b) to optimistically suggest that the arrival of the PPCR signified a real opportunity for development assistance to address underlying factors of vulnerability that are overlooked by a Convention-based approach. The authors state:

> [The establishment of the PPCR] does point to progress in understanding the role of ODA as contributing to broader adaptive capacity – or 'climate-resilient development' – rather than specific and additional climate-change adaptation…new development funds relevant to climate-change adaptation should be used to fund what the UNFCCC cannot; namely, broader resilience building, necessary for 'additional' adaptation to be successful. (Ayers and Huq, 2009b:682).

But has this opportunity materialized, and has it resulted in new avenues for a more inclusive approach to defining climate change risk beyond the UNFCCC? Unfortunately, early indications suggest not. For example, Nepal is one of the PPCR pilot countries. Interviews with the Ministry of Environment focal point for the PPCR, who is also the focal point for the NAPA, revealed that the PPCR is not making the same attempts at local or even national inclusion that the NAPA process did. This is well exemplified by the following quote from the joint-secretary of the Ministry of Environment, who is also the Project Director for both the NAPA and the PPCR processes:

> The NAPA process in Nepal was country driven. Every TWG [NAPA thematic working group]

> was Government led. We have undertaken our vulnerability assessments, and we have identified adaptation priorities…though bottom-up processes. The PPCR should build on this. But the Banks are taking over…they see this as an opportunity to climate-proof their own projects. (Personal communication, Purushottam Ghimere, August 2009).

A full analysis of the political economy of the PPCR process is beyond the remit of this thesis. However, such remarks show that simply re-branding adaptation funding as 'climate resilient development' does not automatically result in a more inclusive approach, and that the current opportunities presented by development assistance for adaptation may not open up adaptation discourses to local inclusion. Further, as shown in Box 7.1, the establishment of the PPCR was controversial because financial contributions are partly sourced from development assistance. This goes against the principle that adaptation funding should be 'additional' to development funding (see box 7.1). As suggested, this is the crux of the adaptation paradox: adaptation support needs to be provided under the global climate change framework to support the principle that climate impacts are an additional burden for developing countries on top of existing development needs; and that adaption funding should be additional to development assistance. But, this principle also serves to reinforce a discourse around climate change risk that is global, systemic, and not compatible with more 'local' experiences of vulnerability.

So, can local inclusiveness be achieved in the context of global climate change policy? The evidence from this thesis suggests *more inclusive* processes for adaptation policy making under the UNFCCC exist, but these depend on opportunities for democratising what we mean by risk, by expertise, and by 'global' and 'local'. Currently, NAPAs do present the best, if an imperfect, opportunity for representing the needs of vulnerable people in adaptation policy making. Although 'perfect deliberation' was not achieved in either case, the approach taken by Nepal was 'more inclusive' and thus can be learned from in terms of informing deliberative institutional design. In particular, Nepal undertook a wide range of participatory technologies; but it is argued here that these design choices were facilitated and enabled by a more open approach to climate change risk that did not focus on predetermined impacts. In turn, this approach to risk was a consequence of assumptions about scale and expertise that were not as fixed as in Bangladesh.

How can these insights be applied to the task of deliberative institutional design? Chapter six of this thesis suggested that one promising institutional design that *is* attempting to take a flexible approach to risk, scale, and expertise, is "Local Adaptation Plans of Action" (LAPAs) currently under design in Nepal. Interestingly, LAPA development begins not with an assessment of climate change risk, but with a detailed assessment of the institutions important for enabling local

resilience. Thus, a flexible approach to 'risk' is adopted. Secondly, this institutional analysis is based on a flexible approach to scale; 'local' institutions are taken as whichever formal or informal institutions are important in enabling vulnerable people to gain access to the assets they require to help them build their adaptive capacity. The output of a LAPA is envisaged as both a 'local' level adaptation plan (which could be community level, settlement, district), *and* a means of analysing institutional linkages across scales to ensure that gaps between 'local' and national adaptation planning, finance and delivery can be bridged. In terms of expertise, the LAPAs have adopted the same 'shared learning dialogue' approach to assessing local institutions for resilience adopted under the NAPA.

The LAPA programme of work is in its early stages of design; however, it presents promising signs that a more flexible approach to risk, expertise, and scale can be applied to the governance of climate change; but it remains to be seen whether the LAPA is successful in establishing the required institutional linkages to inform national adaptation policy making.

Finally, it is important to justify one important assumption on which this thesis is based; that local inclusiveness is actually important in the governance of problems that have come to be seen as global. This thesis has accepted the normative assumption that 'deliberation is a good thing' for democratic policy making (Warren, 2007). As Warren (2007) states,

> As an ideal within today's societies, it is virtually impossible to be 'against deliberation.' (Warren, 2007:274).

But why should adaptation policy-making be democratic? Leaving aside the value of democracy in general, this thesis has reviewed insights from social science that shown how globally uniform approaches to managing environmental risks have overlooked the diverse ways in which risk can be experienced, and the factors that make people vulnerable (Bassett and Zeuli, 2000; Wynne, 1994; 1996). This has resulted in inappropriate policies that do not meet the needs of vulnerable people on the ground, often exacerbating a lack of trust between policy makers and the stakeholders whom they are trying to engage (ibid). Building on these insights, this thesis has shown how accepting problems uncritically as 'global' means that important information on how problems can be effectively managed may be missed; and worse, investments could be made that actually increase the vulnerability of the most vulnerable.

This thesis has proposed that facilitating "inclusiveness" in the assessment of 'global' risks is one way of democratising Universalist assumptions of risk, and enabling more contextual information

to be included in policy making that can better tailor environmental management to local needs. Enabling meaningful deliberation in policy-making processes allows learning to take place between scales and between different types of expertise, that will ultimately lead to better informed and more appropriate policy making. Clearly not everyone can be included in environmental policy making; but the point of inclusiveness is not to represent everyone. It is to provide spaces to question whether globalised approaches to managing risk actually meet the needs of people vulnerable to those risks; or whether alternative more flexible approaches are needed that can reflect the diverse ways in which risks are experienced on the ground.

Further, this thesis has suggested that inclusive processes themselves can be a kind of adaptive capacity. This argument is in line with the more recent shift towards a 'rights-based' approach to doing development more generally. This argues that while assets and entitlements are important (Sen, 1999), we need to see how far people have the rights to access these assets and entitlements, and how their allocation is mediated by political processes (Keen, 2008). Facilitating inclusion can help people gain access to social and political assets, articulate their needs, and address more directly the causes of powerlessness that undermine adaptive capacity in the first place. Thus, enabling access to deliberation is a way of building resilience. This means that encouraging "inclusiveness" in the governance of adaptation can itself address vulnerability and poverty, as long as it is done in a way that empowers people, rather than imposing either predefined notions of risk; or predefined notions of environmental governance.

7.4 Research Limitations and further research directions

This research has explored the deliberative potential of the NAPA processes in Bangladesh and Nepal. It has shown that in these two countries the NAPA did not succeed in achieving meaningful deliberation, although this study concluded that the NAPA process in Nepal was more deliberative than in Bangladesh. Based on this study, this thesis has suggested that perhaps NAPAs are not the most appropriate avenue for including local people in the adaptation decision-making processes that affect them. However, this conclusion about NAPAs in general cannot be drawn off the basis of two case studies alone, so the limited selection of case studies is one key limitation of this work.

However, criticisms do exist around the participatory technologies employed in more NAPA cases (see for example CAN, 2008, and COWI/IIED, 2009). Therefore this thesis builds on the evidence of these other studies, and provides more detailed case study analysis of why participatory processes under NAPAs might be constrained. Nevertheless, expanding this analysis to more case studies would strengthen the conclusions of this thesis.

Another key area that should be taken forward from this thesis is the analysis of alternative deliberative institutional designs. This thesis has proposed two promising alternatives: Community-based adaptation, and Local Adaptation Plans of Action (LAPA). Both of these options are in their infancy, and as they develop attention should be paid to whether or not they meet this potential. One area investigation will be whether or not CBA and LAPAs enable locally identified adaptation priorities to be "scaled up" to national planning processes, and what kinds of institutional designs would allow this to happen. This means not only accepting a plural institutional arrangement at the local level, but also mapping how institutions articulate across scales (Argrawal, 2008).

Thus, this thesis recommends that a key area of further study is to examine both the types of institutions that can support local level adaptation planning, but also and more interestingly the interfaces between institutions across scales that create spaces for adaptation to deliberated across these scales, as a key element of deliberative institutional design. Given that the NAPA process in Nepal is currently a process in transition, with LAPAs being developed to inform the implementation of NAPAs, it would be particularly interesting to examine the relationship between LAPAs, NAPAs, and other climate change planning processes in Nepal as the process develops.

Annex 1: Key informant interviews: International stakeholders

Name	Affiliation	Date/location of interview	Notes[34]
Agrawal, Arun	Professor, School of Natural Resources & Environment, University of Michigan.	February 2010, University of Illinois, Champaign-Urbana	IPCC Lead Author
Agrawala, Shardul	OECD Environment Directorate, Paris	January 2009, Washington D.C.	IPCC Coordinating Lead Author
Alam, Mozaharul	United Nations Environment Programme	February 2007, Dhaka; May 2008, Bellagio	IPCC Lead Author; former senior researcher for Bangladesh Centre for Advanced Studies (BCAS)
Berger, Rachel	Practical Action	December 2007, Bali	Co-Chair of Climate Action Network (CAN) Adaptation Group
Biot, Yvan	UK Department for International Development (DfID)	February 2007, Dhaka; December 2007, Bali	UK Member of the Adaptation Fund Board, UNFCCC .
Brooks, Nick	Independent consultant, affiliated with the Tyndall Centre	January 2009, Washington D.C.	Contributing author to IPCC Fourth Assessment Report
Burton, Ian	Scientist Emeritus, Meteorological Service of Canada	Numerous	IPCC Lead Author IIED Visiting Fellow
Byers, Alton	The Mountain Institute	January 2010; Email and phone	Interviewed in relation to the IPCC glacial melt controversy – see chapter five
Cannon, Terry	Research Fellow, Institute for Development Studies	Numerous	Formerly IIED Visiting Fellow
Chambwera, Muyeye	Researcher, IIED, London	Numerous	IPCC Coordinating Lead Author
Chandani, Achala	Researcher, IIED	Numerous	Previously Sri Lankan Delegation to the UNFCCC; IPCC Lead Author
Dodman, David	Senior Researcher, IIED, London	Numerous	IPCC Lead Author
Ebi, Kris	IPCC Working Group II Technical Support unit	December 2007, Bali; June/July 2010 (email).	
Huq, Saleemul	Senior Fellow, IIED, London	Numerous	IPCC Coordinating Lead Author
Jones, Roger	Victoria University, Australia	February 2007, Dhaka	IPCC Coordinating Lead Author
Kaur, Nanki	Researcher, IIED	Numerous	Previously TERI (Delhi).
Klein, Richard	Climate change specialist, Stockholm Environment Institute (SEI)	December 2006, London; December 2007, Bali.	IPCC Coordinating Lead Author

[34] Unless otherwise stated all IPCC affiliations refer to roles in the forthcoming Fifth Assessment Report

Noble, Ian	Climate Change Team, World Bank	October 2008, Bangkok	IPCC Coordinating Lead Author
Rahman, Atiq	Executive Director, Bangladesh Centre for Advanced Studies (BCAS)	Numerous	IPCC Lead Author Convenor of CAN South Asia
Ribot, Jesse	Associate Professor of Geography and Affiliate, Beckman Institute, University of Illinois	February 2010, University of Illinois, Champaign-Urbana	
Schipper, Lisa	Research Fellow, SEI	February 2007, Dhaka; December 2007, Bali.	IPCC Lead Author
Shresta, Arun	Climate Change Specialist, ICIMOD	December 2009; Kathmandu	Interviewed in relation to the IPCC glacial melt controversy – see chapter five
Smit, Barry	Canada Research Chair in Global Environmental Change. University of Guelph, Canada.	December 2007, Bali.	IPCC Lead Author
Solomon, Ilana	Action Aid USA	August 2007 (phone and email); December 2007 (Bali)	International climate finance specialist and active member of Climate Action Network (CAN).
Tanner, Thomas	Research Fellow, Vulnerability and Poverty Reduction, Institute for Development Studies (IDS)	January 2008, IDS, Sussex,	IPCC Fourth Assessment Report Reviewer; previous DfID Bangladesh consultant
Vashist, Sanjay	CAN South Asia	December 2007, Bali	Co-Chair of Climate Action Network (CAN) Adaptation Group
Vaughan, Kit	WWF	December 2007, Bali; February 2008, London	Active member of CAN Adaptation Group

Annex 2: Key informant interviews: Bangladesh

Name	Affiliation	Date/location of interview[35]	Notes[36]
Ahmed, Ahsan Uddin	Practical Action adviser	October 2007; February 2009	Contributor to the NAPA. NGO/Academic.
Alam, Mozaharul	United Nations Environment Programme	February 2007 May 2008, Bellagio	IPCC Lead Author; former senior researcher for Bangladesh Centre for Advanced Studies (BCAS). Academic.
Asaduzzaman, Dr.	Bangladesh Institute for Development Studies	October 2007	NAPA Team member. Academic.
Bhuiyan, Musharraf Hossain	Economic Relations Dept., Ministry of Finance, Secretary.	February 2009	GEF focal point. Government.
Chowdery, Rabindranath Roy	Ministry of Environment and Forests, Joint Secretary	February 2009	Government
Chowdhury, Quamrul Islam	Forum of Environment Journalists of Bangladesh	October 2007; February 2009	NAPA Team member; NGO/Government partnership.
Ernst, Ralf	Climate Change Technical Advisor, Climate Change Cell	October 2007	Consultant
Eusuf, Dr	Senior Fellow, BCAS	October 2007	Academic.
Haque , Nasimul	Information and Communication Expert, Climate Change Cell	October, 2007	Climate Change Cell is a donor-funded Cell that sits within MOEF. Government/donor.
Haque, Shamsul	Ministry of Industries	November 2007	Government
Hassan, Abu Wali Raghib	Ministry of Agriculture	October 2008	Government
Hossain, Ijaz	Professor of Chemical Engineering, Bangladesh University of Engineering and Technology	December 2007 (Bali); April 2008	Often acts as climate change adviser to the Government of Nepal. Academic/consultant.
Huq, Saleemul	Senior Fellow, IIED, London	Numerous	IPCC Coordinating Lead Author; NAPA Team member. Academic/consultant.
Islam, Aminul	Sustainable Development Advisor, UNDP Bangladesh	April 2008, February 2009	Part of UNDP NAPA Implementing Agency Team.
Islam, Faisal	DfID Bangladesh	October 2007; April 2008; February 2009	Donor.
Islam, Nilufa	Principal Scientific Officer,(Environment, Forestry & Fishery), WARPO	April 2008; February 2009	NAPA Team member. Government/NGO partnership.
Khan, Mizan	Chairman, Department	December, 2007 (Bali)	Often acts as climate

[35] Unless otherwise stated, all interviews took place in Dhaka
[36] Unless otherwise stated all IPCC affiliations refer to roles in the forthcoming Fifth Assessment Report

	of Environmental Science and Management, North South University		change adviser to the Government of Nepal; NAPA Team member. Academic.
Mejbahuddin, Mohammad	Economic Relations Dept., Ministry of Finance, Additional Secretary	April 2008	Government
Mukta, Ziaul Haq	Oxfam GB	April 2008	NGO.
Nishat, Ainun.	Country Representative, IUCN Bangladesh	October 2007; February 2009	NAPA Team Member. NGO.
Rahman, Atiq	Executive Director, Bangladesh Centre for Advanced Studies (BCAS)	Numerous	IPCC Lead Author Convenor of CAN South Asia NAPA Team member; Academic.
Rahman, Iqbal	Director of Operations, Bangladesh Environmental Management Project	October 2007	NGO/Consultant.
Rahman, Mezbanur	Comprehensive Disaster Management programme (CDMP)	October 2008	CDMP was established in 2003 with donor funding to assist the Government in integrating climate change into disaster risk reduction efforts. It oversees the Climate Change Cell in the MOEF. Donor/Government.
Rahman, Moklesur	Centre for Natural Resource Studies (CNRS)	October 2007; April 2008; February 2009	Adviser to Government on Bangladesh Climate Change Strategy and Action Plan, prepared following the NAPA. Academic.
Reazuddin, Mohammad	Ex-Director (Technical), Department of Environment, ex-Head of Delegation to UNFCCC	December 2007 (Bali); April 2008; May 2009 (Kathmandu)	Technical Director of MOE during NAPA preparation; visited Nepal to present on lessons of the Bangladesh NAPA at Nepal NAPA Inception Workshop (see chapter 5). Government.
Rector, Ian	Chief Technical Advisor, Comprehensive Disaster Management Programme (CDMP)	October 2007; April 2008	CDMP was established in 2003 with donor funding to assist the Government in integrating climate change into disaster risk reduction efforts. It oversees the Climate Change Cell in the MOEF. Donor/Government.

Satendra, Mr	Livelihoods Adaptation to Climate Change (LACC – II) project	October 2008	Government.
Sharif, Moinul Islam	United Nations Environment Programme (UNEP)	October 2007; April 2008	Multilateral.
Uddin, Abu Kamal	Climate Change Cell, MOEF/ UNDP	October 2007; February 2009	Climate Change Cell is a donor-funded Cell that sits within MOEF. Donor/Government.
Uddin, Nasir	Ministry of Environment and Forests, Deputy Secretary	October 2008; February 2009	Government

Annex 3: Key informant interviews: Nepal

Name	Affiliation	Date/location of interview[37]	Notes[38] including details on stakeholder type[39]
Aryal, Pravin R.	Under Secretary (Technical) Ministry of Energy	September 2009	Coordinator of Water and Energy TWG. Government.
Bhatta, Padam Raj	Joint Secretary of Ministry of Health and Population (Population Division)	August 2009	Coordinator of Public Health TWG. Government.
Bhattarai, Sushil	Nepal Foresters Association	October 2009	NGO/network
Chaulagain, Narayan P.	AEPC	May, 2009	Government/Private partnership.
Dahal, Hari.	Joint Secretary and Chief of Gender and Environment Division, Ministry of Agriculture	October 2009.	Coordinator of TWG on Agriculture and Food Security. Government.
Dahal, Ngamindra	Climate change consultant	June, 2009	Consultant.
Devkota, Salil	Consultant	September 2009; August, 2010	Facilitator to Urban TWG. Consultant.
Dixit, Ajaya	ISET Nepal	May 2009; September 2009	Academic
Gautam, Usha	Consultant	September 2009; August 2010	Facilitator to TWG Climate Induced Disasters. Academic/consultant.
Ghimere, Purushottam	MoE	May 2009; August 2009; December 2009; August 2010.	NAPA Project Director. Government.
Gorkhaly, G.P.	Joint Secretary of Department of Urban Development, Building and Construction	August 2009	Coordinator of Urban TWG. Government.
Gurung, Gehendra	Practical Action, Nepal	May 2009; December 2009	NAPA TWG member. NGO.
Kaphle, Gobinda P.	Joint Secretary of Ministry of Soil and Forest Conservation	August 2009	Coordinator of Forests and Biodiversity TWG. Government.
Karki, Gyanendra	MoE/UNDP	May 2009; December 2009; August 2010.	NAPA Technical Officer. Government.
Khadka, Manahari	National Planning Commission	May 2009	Government

[37] Unless otherwise stated, all interviews took place in Kathmandu. Formal 'PhD' interviews were held at three key points in the NAPA preparation process with 'core' NAPA stakeholders: NAPA team, UNDP and donors); the beginning (May, 2009); at the end of my placement (December 2009); and follow-up interviews after draft NAPA completion (August 2010).

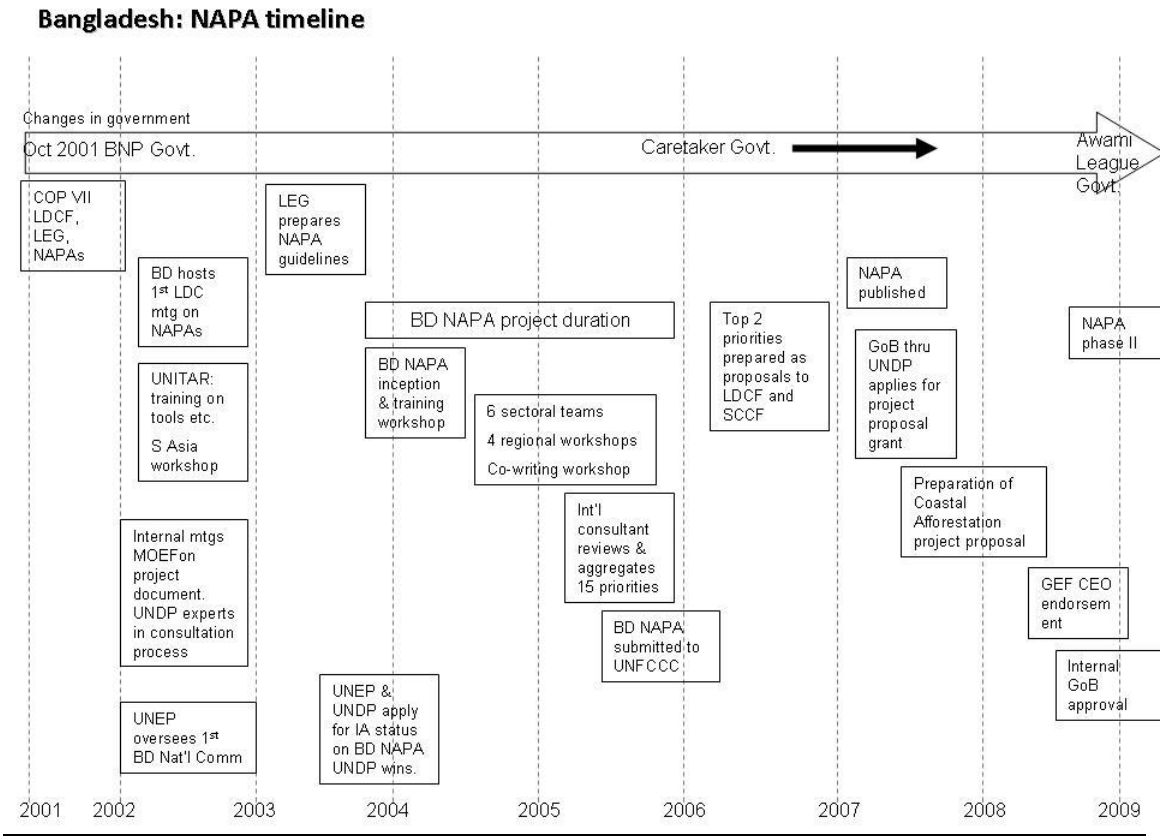
[38] Unless otherwise stated all IPCC affiliations refer to roles in the forthcoming Fifth Assessment Report

[39] Stakeholder type includes academic, NGO, Government, consultant, other.

Khadka, Manoj K.	REDP Nepal	May 2009	NGO.
Khanal, Dilraj	Federation of Community Forestry Users – Nepal	August 2009	NGO Federation
Koirala, Sankar	Joint Secretary, Ministry of Home Affairs	October 2009	Coordinator of TWG on Climate Induced Disasters. Government.
Lamichhane, Anupa	UNDP Project Officer, Energy and Disaster Management unit	May 2009; December 2009; August 2010.	UNDP Project Officer assigned to NAPA. Implementing agency.
Moench, Marcus	ISET International	May 2009; September 2009	Academic
Paudyal, Shiva Sharma	Senior Programme Officer, Embassy of Denmark	May 2009; November 2009.	Donor.
Pokhrel, Anil	Asian Development Bank (ADB)	May 2009; December 2009	Academic/Consultant (consultant on PPCR programme Nepal, see chapters three and five)
Regmi, Bimal	Climate Change Adviser, DfID Nepal	May 2009; December 2009; August 2010.	Donor.
Rijal, Deepak.	Consultant	September 2009; August 2010	Facilitator to TWG on Agriculture and Food Security. Consultant/Academic.
Shakya, Clare	Senior Regional Environment and Water Adviser, South Asia Policy Team	May 2009; November 2009.	Donor.
Sharma, Bishu Nath	Ministry of Local Development	October 2009	Government.
Sharma, Toran	Consultant	September 2009; August, 2010	Facilitator to TWG on Water and Energy. Consultant/Academic.
Shresta, Arun	Climate Change Specialist, ICIMOD	December 2009; Kathmandu	Academic.
Shresta, Moon	WWF	October 2009	NAPA TWG member. NGO.
Shrestha, Kumud	Consultant	September 2009; August 2010	Facilitator to TWG on Forests and Biodiversity. Consultant.
Shrestha, Parvati	Consultant	September 2009; August 2010	Facilitator to TWG on Health. Consultant.
Singh, Prabin Man	Oxfam, GB	May 2009; December 2009	NGO.
Singh, Vijaya	UNDP Assistant Representative, Energy and Disaster Management unit	May 2009; September 2009; December 2009; August 2010.	Senior UNDP representative assigned to NAPA. Implementing agency.
Uprety, Batu	MoE	May 2009; December 2009; August 2010.	NAPA Project Manager. Government.
Wright, Paul	United Mission Nepal	June, 2009	NGO

Annex 4: The timeline of NAPA preparation in Bangladesh

Source: Ayers, 2009: Bangladesh country report and annexes. In COWI/IIED (2009)



Annex 5: Sample Household Survey

char clark

Household Survey

1. Basic information:

1.1 Name of Respondent: Rubel

1.2 Age: 15 1.3 Male/Female: ✓ 1.3 Marital status: unmarried

1.5 Main occupation: Student 1.6 Seasonal occupation(s): No seasonal occupation

1.7 Level of education: S.S.C

1.8 Asset Information:

Land (acres) and land use	Livestock	Pond areas	Savings	Others e.g. boat
15½ acre, [illegible]	হাঁস, মুরগী - 30 Total, গরু - 6	×	Something Father's savings	Business

Duck, Hen – Total 30
Cow – 3

✓1.9 How long have you lived here? (If not whole life, what was your reason for coming here?) From 15 year's ago. He is migrated cause of river's erosion

1.10 What access do you have to basic services? Are you satisfied with these? (healthcare, education, communication services)

Far [illegible] Not bad

No college, healthcare service is not good. hospital is so far. communication services are more or less good.

✓1.11 Would you like your children to work in your occupation? Explain

No, better position.

2. Perceptions of general risks

What are the main risks you and your family face today? In terms of: Dieseas of livestock, insects of paddy, Depends on Not enough

2.2 Livelihood and income [illegible Bengali text]

2.3 Health ([illegible Bengali text]) Respiratory problem & Hospital is so far

2.4 Education for your family No college, communication

2.5 Maintaining your homestead and assets A lots of problem. Main problem is cyclon and flood.

✓2.6 Do you feel that the local government is responsive to your needs?

No suport from Local govt or NGO

3. Perceptions of environmental risk

3.1 What are the greatest environmental problems you face?

(ঘূর্নিঝড়) cyclone

3.2 Are these problems the same or different to when you were young?

আগের চেয়ে বেশি ঘূর্নিঝড় Cyclone is increasing from the previous session

3.3 If different, how do you explain this change? (If the same, what is the cause of the environmental problems you face?)

[[illegible Bengali text]] They are suffering cyclon. But doesn't know how to overcome from this problem

3.4 Are you doing anything differently to cope with or take advantage of the changes you describe above? If so, what?

No. Depends on Govt
Thinks that Big project

3.5 Are any of the following problems for you (if not already mentioned)?

Hazard	Impact (why a problem)	Change in problem were young?	Explanation of change
Cyclones and storms	[illegible Bengali text] Water logging in the field	আগে কম ছিল Now it is high	They does'nt know
Salinity intrusion	[illegible Bengali text] Damage of crops	[illegible Bengali text] Now it is high	"
Waterlogging/flooding	[illegible Bengali text]	Same.	"
River erosion	Lost their land, water logging	Yes	
Arsenic	No idea	Same	

Δ They cannot cultivate any other crops next time

3.6 What government and NGO services and facilities are in place to help you cope with these problems (e.g. early warning systems, cyclone shelters, embankments, homestead-strengthening, water management systems etc)? Red cresent

No more, Govt. [illegible]

warning system is Red cresent. No more cyclone shelter. Govt/NGO Jointly can help about embankments. In case of homestead-strengthening, they needs high boundary. Water system

3.7 Are these adequate? If not, why not?

No. Because of they alert by Red cresent Society, No more (Enough) cyclone shelters, for embankments they depends on Govt, for homestead-strengthening they need high bounda[ry] and they have no idea about water management systems. So, these are not ade[quate]

3.8 What do you need to better help you cope with these problems?

Financial support to better help them cope with these problems. Another better [...] is may be micro finance against low interest rate, and so on.

4. Questions about climate change

4.1 What do you understand by the term 'climate change? [Details of reactions]

Yes. increasing rainfall, seasonal fluctuation, natural calamities

4.2 [If yes to 4 1] Where did you learn abou climate change?

Practical experience. They said that they learn about climate change from their practical experience. But actully

4.2 If you better understood the long term trends of the climatic changes you face, could you prepare better?

They have no better idea.

4.3 How far in advance do you plan for the future? What future plans do you have for (please include timescales):

- Your livelihood

ব্যবসাই থাকবে. Wish to business or better sob.

- Your homestead and assets

If they can get the help from NGO. then they will be able to ~~built their~~ save their assets.

- Your children and family

ছেলেমেয়ে সবাই পড়াশোনা করবে।
Children will be educated.

4.4 Have you been part of any other consultations or NGO projects in the last year?

Yes. Took loan 5000 TK. for fisheries.

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