Climate Change and Fragile States: Rethinking Adaptation

Edited by Mohamed Hamza and Cosmin Corendea

SOURCE

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Acknowledgements

Professor Mohamed Hamza shaped the programme for the 2011 Summer Academy, and the other MRF Chairs on Social Vulnerability – Professor Susan Cutter and Professor Michelle Leighton – helped participants to accomplish one of the main outcomes of the Academy: establishing guiding principles for international institutions for climate change adaptation in fragile states. We thank Mr. Mathan Ratinam (Parsons New School of Design), Ms. Janani Vivekananda and Mr. Richard Reeve (International Alert) for their special contributing roles during the Academy.

We are deeply obliged to Dr. Koko Warner and Dr. Tamer Affifi for taking the lead in planning the Summer Academy, as well as all our colleagues at UNU-EHS, especially Ms. Humaira Daniel and Mr. Maximilian Jedemann whose tremendous efforts and commitments made the organizational preparations for the Academy possible. We would also like to thank all MRF Chairs for their critiques of the individual papers.

We appreciate the collaboration of the Munich Re Foundation in preparing and executing the Summer Academy. Our thanks go to Mr. Christian Barthelt, who strongly supported organizational and logistical arrangements for the Academy.

The partnership with the Munich Re Foundation makes the MRF Chair on Social Vulnerability and the annual Summer Academy possible. For the sixth time, the Foundation’s generous funding of the Summer Academy created the forum where these and other contributions on social vulnerability were discussed and debated. We are grateful to Mr. Thomas Loster, Chairman of the Munich Re Foundation, for his vision and leadership in bringing together young scientists and experienced scholars and practitioners to expand the frontier of applied science.
Climate Change and Fragile States: Rethinking Adaptation

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Mohamed Hamza and Cosmin Coredea

Outcomes of the 6th UNU-EHS Summer Academy of the Munich Re Foundation Chair on Social Vulnerability

18 – 22 July 2011, Hohenkammer, Germany
Foreword

The Intergovernmental Panel on Climate Change (IPCC) report of 2007 stated that developing countries are particularly vulnerable to the socio-economic impacts of climate change, as they are often dependent on agriculture, and suffer from high population growth and weak infrastructure. At the same time, about 1.6 billion people in the developing world have no access to modern energy supply, and over three quarters of the global energy infrastructure needed by 2030, most of which will be needed in emerging economies, have yet to be built.

It is widely recognized that the effects of climate change will affect world’s fragile and least-developed countries most, although contributing least to their cause. The particular challenges in fragile states and the risks associated with project development are vast and should not be downplayed. However, there are distinctive improvements happening in these states as well, for example in the areas of environmental management and energy. Below the media radar, there are new approaches already grasping, which have worked surprisingly well considering the difficult contexts. There is an opportunity to build on small-scale successes that could be replicated regionally and internationally. The conflicts over limited resources, political obstacles or economic stagnation that generally characterize the notion of fragile state might be mitigated by market-based innovations which could offer a way to head off the “worst-case scenarios” with impacts rippling all over the world.

The 2011 Summer Academy “Climate Change and Fragile States: Rethinking Adaptation” aimed to establish guiding principles for international institutions for climate change adaptation in fragile states, focusing on exploring the institutional action in fragile states as well as international/institutional aid architecture. This SOURCE illustrates the outcomes of the 2011 Summer Academy by presenting selected papers from PhD students who attended the Academy. Coming from diverse backgrounds with different academic perspectives, the authors cover various aspects of fragile states in the framework of climate change adaptation. By using concrete and relevant case studies, these papers identify obstacles to building resilience and explore different strategies and conditions/solutions to overcome them, both climate and conflict-related.

It is a privilege for UNU-EHS, together with the Munich Re Foundation, to support young scientists in their endeavor to create and explore options for effective solutions and furthermore to develop proposals for institutional policymaking in regards to climate adaptation strategies in fragile states.

Professor Jakob Rhyner
Director, UNU-EHS
Foreword

Climate change is real, and its effects are particularly severe for the populations of poor countries. This is even truer for the populations of fragile states that often find it even more difficult to adapt to environmental change. Major obstacles mostly include ethnic tensions, corruption and violence. In 2011, the Summer Academy organized in conjunction with the United Nations University Institute for Environment and Human Security (UNU-EHS) investigated ways to improve our handling of the problems of fragile states.

There is no standard international definition of the term “fragile states”. Generally speaking, countries are considered fragile where the powers cannot or will not ensure security and the rule of law, provide basic social care or perform other fundamental executive tasks. The arbitrary and unpredictable exercise of political power can easily give rise to a regional security risk that may have global repercussions. In fragile states, there is an accumulation of stress factors that may well interact: instability, a lack of adaptability within the population, poverty and social inequality. The problems are frequently made worse by ethnic tensions and ongoing conflicts. If the problems are then further aggravated by unfavourable climatic conditions – extreme weather events or gradual environmental changes – society can soon be overwhelmed.

The Summer Academy chaired by Professor Mohamed Hamza investigated strategies and short-term options designed to explain adaptation measures to the populations of fragile states. In all, 20 highly specialized young scientists from 15 countries – including a number of PhD students – applied their interdisciplinary expertise to the task. Working round the clock, they came up with solutions to the various aspects of the “climate change and fragile states” issue.

Clearly, climate change and its impacts cannot be avoided. People will be forced to adapt to changes in their environmental conditions. If civil society is not included in the solution-finding processes, such peace and stability as there is in politically weak or fragile states will be at stake. Consequently, devoting more attention to and engaging with fragile states must also be in the interests of the international community.

You are invited to read the best papers by Summer Academy participants on the subject of climate research and fragile states. I wish you a stimulating read.

Thomas Loster
Chairman, MRF
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Introduction

1. Beyond fragility

Fragility encompasses a number of partially overlapping but distinct notions and labels: vulnerability to humanitarian crises (including slow and rapid onset disasters resulting from natural hazards), underdevelopment, political instability, lack of security, lack of legitimacy and authority, lack of political commitment of a government to perform its duties, lack of capacity to deliver basic services, and in some cases but not necessarily a condition, conflict and post-conflict environments (Faria, 2011). In summary, fragility, whether on a national or subnational scale, can be defined by three dimensions: authority, service and legitimacy failure.

There is no internationally agreed definition and the concept has been criticized on various grounds:

- As a vague list of characteristics and consequences (Woodward, 2004);
- As a reductionist term based on a notion of a single valid state model that fails to acknowledge history, cultural issues or different trajectories of state formation;
- As failing to acknowledge the differences between social and political organization, which differ from the Western/Weberian model of state;
- As focusing only on what is missing or lacking rather than what actually exists (Faria, 2011);
- As simply providing a pretext for intervention and aid selectivity between “good and bad governance and policies” (Woodward, 2004);
- As focusing too much on the nation-state (e.g., Somalia, Iraq, Afghanistan and Burma), ignoring more significant subnational or regional and low-intensity instability and conflict (e.g., in Uganda, Kenya, DRC and Ethiopia).

However, the term has become mainstream terminology, where debate and criticism had a positive aspect in highlighting areas of opportunity for international engagement in the state building development agenda, including (Faria, 2011):

1. Prevention of recurring conflict and further fragility with long-term commitment beyond the crisis response phase, which gets most attention and resources;
2. Engaging in difficult environments requires a good understanding of the political economy, local dynamics of power, institutions, actors, and processes and the need to base external support and intervention on local contexts;
3. Coherent and coordinated action is needed on the part of all external actors. In other words, the linkages between climate change, poverty, economic and political governance, security and conflict all need to be addressed through mutually supportive policies and approaches;
4. The role of non-state actors in state building is crucial and is now directing the questions at state-centred approaches in difficult environments.

2. Climate and security

A direct link between climate change and conflict, or indeed state fragility, that appears in the media and some political discourses has no substantiated empirical evidence. Even when presented in an analytical way, much of the literature is speculative and based on either anecdotal evidence or possible future scenarios that are difficult to prove or test. Direct causal links largely originated from the “securitization” of climate change impact – e.g., the popular and common belief that climate change will lead to “water wars”.

Post-Cold War era’s new political landscape demanded a broader and a wider approach to the term security. A 1994 report by the United Nations Development Programme (UNDP) articulated the term “human security”, shifting the emphasis towards a focus on securing individual people. This created the space to incorporate non-traditional threats, such as environmental degradation (slow-onset disasters), extreme events (rapid-onset disasters), and health and human rights, into the security agenda, alongside longstanding issues of defence and state interests (Schoch, 2011; Woodward, 2004).
Further reports from the European Union, the United States, the United Kingdom and Germany aimed at mobilizing more policy attention to climate change, emphasized such security linkages. An April 2007 United Nations Security Council session was entirely devoted to climate change, peace and security. In March 2008, the EU High Representative for the Common Foreign and Security Policy presented a short climate change and security paper in which climate change was labelled: “a threat multiplier which exacerbates existing trends, tensions and instability” that could “overburden states and regions which are already fragile and conflict prone,” posing “political and security risks that directly affect European interests” (Dabelko, 2008). And so, climate change encompassing environmental, health and even human rights issues was securitized.

Against this heavy security agenda there is evidence to suggest that resource scarcity, with appropriate mediation and resource management mechanisms, can be key to conflict resolution and even conflict prevention. The Nile Basin Initiative is one example, albeit not without its problems and challenges. Another example is the Israeli – Jordanian initiative dubbed “Picnic Table Talks” where in times of active conflict water managers acted as the mediators across lines of a highly volatile environment. Technical exchanges became a bridge of building trust and personal connections that eventually lead to a larger peace treaty between the two countries in 1994 (Dabelko, 2008). The United Nations Environment Programme’s Post-Conflict and Disaster Management Branch (PCDMB) is undertaking what it calls “environmental diplomacy”.

Framing climate change on “threats” rather than opportunities and adaptive capacity, while engaging only a limited pool of security specialists, runs the risk of missing crucial issues such as disaster or conflict mitigation, development, poverty reduction, economic growth, equity, justice and resilience – none of which figure in the priorities of the security agenda (Schoch, 2011).

3. Climate change impact on fragile states

The impacts of climate change and environmental degradation cannot be seen in isolation of nor outside the context of state – society relationships. It is, for example, naive to attribute the conflict in Darfur to mere environmental factors. We can discern five major social effects of climate change that mediate the physical impact and affect adaptive capacity. It is precisely these effects and factors that need attention and commitment if we are to work on the root causes rather than the symptoms.

- First, economic problems, reduced state income, health and mortality, along with recurring disasters, may hinder the state’s ability to provide basic goods and services, further reducing the state’s political legitimacy and inviting opposition and challengers (Homer-Dixon, 1999). In stable and viable democracies, challenge and opposition take the form of coming up with solutions and alternatives in a peaceful manner. In less than stable conditions, assistance and intervention will need to take that into account.

- Second, increasing resource competition between groups, and when ethnic, national or religious fault lines are aligned with such competition whether domestically or across borders, could intensify social cleavages, heighten ethnic identity and increase the risk of radicalization and conflict (Kahl, 2006). As noted earlier, resource scarcity or competition can also be a catalyst to conflict prevention and resolution with the right tools and mechanisms.

- Third, increasing unemployment, loss of livelihoods and economic activities would reduce state income and its ability to provide services (Homer-Dixon, 1999; Ohlsson, 2003). A focus on sustainable livelihoods will be key in this context.

- Fourth, efforts to address the effects of climate change and deteriorating environment through, for example, large-scale adaptation and mitigation measures (dams, or forced population displacement), austerity measures and cutting expenditure on basic services because of investment in climate adaptation, could also inadvertently stimulate tension (Buhaug et. al., 2008). Top-down vs. bottom-up adaptation or state directed vs. autonomous adaptation are major issues that will need to be carefully addressed in difficult environments.
And finally, where environmental degradation could have an impact on population movement (Reuveny, 2007; Warner et al. 2009), monitoring, early warning and supporting sustainable eco-system services and addressing resilience rather than simply migration issues will be key and will require proactive action.

In fragile states, the political and economic elite are often organized in such a way to give themselves privileged access and control over resources and opportunities. Climate change impacts could compel elite groups to further tighten their grip on resources and/or manipulate climate change funding to their own benefit (patronage and clientelism where contracts provide both licit and illicit money-making opportunities) (Tanner and Allouche, 2011). Marginalization of poor communities, lack of voice, inability to and failure of autonomous adaptation may lead to increased pressure on livelihoods and human security in the face of increasing wealth accumulation among the elite at a time of visible economic and environmental crises.

At the same time, top-down climate change responses may alienate vulnerable communities themselves. Top-down planning often fails to grasp microlevel vulnerabilities and the intricacies of community relations and tensions. It may also be perceived as an external imposition especially when there is a history and legacy of government heavy-handed intervention. The real danger is when different strands of policy start undermining each other and when policies and strategies for development, peace building and climate change are disconnected or divergent (Smith and Vivekananda, 2007).

4. The Academy

In 2011, the Academy brought together 20 PhD researchers from 15 countries with international scholars to consider issues of climate change impact and adaptation in fragile and failed states. The findings were derived from a series of simulation exercises, design workshops, role-play, seminars and focused group discussions. The sessions were convened with experts from International Alert and the Parsons New School. The sessions explored a variety of issues starting with unpacking fragility, conflict and working towards an understanding of what peace and conflict-sensitive adaptation mean.

The overall guiding structure of the Academy was shaped around four questions and unpacked into purpose statements and guidance points as presented in Table 1.

<table>
<thead>
<tr>
<th>Question</th>
<th>Purpose</th>
<th>Guidance</th>
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<tbody>
<tr>
<td>1. What are the obstacles to fostering resilience? a. Social contract b. State society relationship c. Weak governance d. Marginalization e. Weak access to resources</td>
<td>Understanding the context – Case study context analysis.</td>
<td>• Mapping dimensions of vulnerability. • Knowledge gaps and priorities for research. • Problems with context specific data in fragile states. • Fragmented research and policy processes.</td>
</tr>
<tr>
<td>2. What would be a strategy for resilience?</td>
<td>Applying conflict sensitive principles.</td>
<td>• Integrating climate adaptation into peace building processes.</td>
</tr>
<tr>
<td>3. What would be the conditions for implementing CCA?</td>
<td>Determining conditions both in country and in international institutions.</td>
<td>• Necessary institutional innovations to promote appropriate interventions.</td>
</tr>
<tr>
<td>4. How could interventions be peace positive?</td>
<td>Double-headed solution: resilience to climate impact/resilience to conflict.</td>
<td>• Conflict sensitivity integrated into existing and planned adaptation processes.</td>
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Table 1. The Academy purpose statements and guidance points. Source: UNU-EHS
The goal of the Summer Academy was to establish guiding principles for adaptation in fragile states. The aim was not so much to establish linkages between impact and fragility, but a forward-looking approach to “what can be done” given the complexity of fragile situations. Five critical issues were used to guide the thinking and debate on adaptation in fragile states:

- Fragility is associated with constant flux and there is little agreement on its definition and the complexity of contributing factors, let alone what should be done;
- Fragility means that the state cannot or will not shoulder responsibility to protect lives and livelihoods;
- Fragile states cannot apply most of the conventional development tools used or demanded by the international community;
- Fragile situations challenge the distinction between “normality” and “exceptionality” which so far guided state-building and organization of society;
- Climate change adaptation (CCA) plans set very ambitious targets and checklists for what governments “must do”, with little relevance to what fragile states “can do”.

This overview distils the thinking and outputs from the Summer Academy and is further reflected in the selected papers that follow.

5. Challenges of climate change adaptation in fragile states

Exploring conditions of fragility and unpacking the climate-development-security nexus begins to point at the challenges of work and delivering development in difficult environments. Climate change impact and development processes are interlinked. Climate change can have an impact on development schemes and plans, while different development approaches can have positive as well as negative impacts on states and communities in the context of a changing climate. This complexity is more manifest when adaptation is viewed as a socio-ecological process of change or adjustment to new or changing conditions and circumstances.

Why fragile states function differently and why they have challenges absorbing aid and assistance effectively are key questions when it comes to addressing resilience building and CCA. If donors are to address the challenges of state building, in the context of added complexity of climate change impact, there is a strong need to develop a sophisticated political economy approach that takes into account complex political processes, patterns of state society relations and sources of legitimacy in every country and context. One size fits all blue prints proved to be doing more harm than good. This section explores eight areas of challenges related to external assistance in fragile states, and four internal areas relevant to state – society relations.

(a) External assistance

(i) Ownership is a vague term with little agreement on what it actually means or entails and when we can ascertain that true ownership has taken place let alone how we achieve it. Whitfield (2009) differentiates between “ownership as commitment” to policies regardless of who shapes them or how such policies are chosen; and “ownership as control” over the process of formulating and choosing policies. The way climate funding is structured through its various mechanisms (GEF, SCC, LDC and KPA) and the way donors and governments negotiate climate funding, and how modalities are worked out will determine the degree of ownership. State ownership of the agenda, policies and outcomes of climate adaptation is a core issue in current climate finance and no more so than in fragile contexts.

(ii) Strategic dilemmas usually manifest in the difficulty of donors trying to juggle and reconcile their government’s strategic objectives, be they geopolitical, trade, or low carbon development and emissions reduction (e.g., biofuels) with state-building and development objectives of the recipient country. When these objectives clash or become diametrically opposing the likelihood of aid doing harm becomes higher. Understanding these dilemmas is crucial to assessing aid effectiveness in any country.

(iii) Political processes are the mechanisms through which state – society relations are mediated. Without an in-depth understanding of the political economy, the balance of power and local politics, international aid and climate finance could very easily produce extremely undesirable...
outcomes, depending on whose agenda it promotes and which group it empowers.

(iv) Governance models: Conventional guidelines for good governance may be unrealistic in the case of fragile states. The UK Department for International Development’s (DFID) “Drivers of Change” and Sweden’s “Power Analysis”, for example, recognize that objectives and strategies of good governance need to be adjusted to what may be possible at different times and what prevailing drivers of change exist in a given context (Christopolos and Hilhorst, 2009). Incentives that motivate states, leaders and citizens to buy into reform and change need to highly feature in governance models (Cammack, 2007).

(v) Aid allocation and climate finance: The way aid is delivered in general can have a profound effect on state functioning and state building. The global climate finance architecture is structured in a way to interface with mainly state structures. Finance for adaptation through the public sector will depend on the end of pipeline and aid effectiveness, closely related to fragility and the capacity of the state institutions to act, and in particular their legitimacy to represent the most vulnerable population. The role of the private sector or non-state actors needs to feature in aid modalities and climate finance mechanisms where states have a low capacity to deliver.

(vi) Harmonization of funding: The uncoordinated approach and lack of harmonization in aid flows has led over time to increased demands over recipient countries through a multiplicity of duplicitious reporting and procurement mechanisms and practices, which adds another burden on already over-stretched and low capacity state structure. CCA finance may simply add yet another layer of complexity and more trade-offs to negotiate into settings not conducive to cooperation in the first place with proliferation of funds and modalities of delivery leading to further fragmentation.

(vii) Predictability of funding: While most countries have been receiving aid for several decades, the allocation and transfer cycle is still a yearly one for most donors. Aid-flows into fragile states have been twice as volatile as to other low-income countries. Unpredictability is also damaging in fragile states where results take longer to materialize. The sectoralization of aid, working in silos, having to identify what is additional and over and above existing work specific for climate adaptation exacerbates coordination and coherence problems and adds complexity to funding predictability.

(viii) On-budget vs. off-budget support: There is an agreement among several sources (Ghani et al., 2005; Nixon, 2007; OECD, 2010) that the use of off-budget resources especially by international actors could be particularly damaging to state building efforts. Three major arguments are frequently used in support of channelling assistance through Core Budget: (a) it is hard to account for funds spent outside the Core Budget; (b) it is difficult to match money with the priorities of the government, both across and within sectors when money is spent off-budget; and (c) channelling more money increases the government’s capacity to handle more funds (Nixon, 2007).

(b) Internal factors

(i) State society relations and state legitimacy: When donors equate civil society with NGOs (which most donors support as non-state actors), they show very little understanding that the associational sphere between the state, family and the private sector emerges in tandem with the state and economic development, and its consolidation needs to be at the heart of state building (OECD, 2010).

State legitimacy, on the other hand, is the acceptance in society that the organizations that make up the state have the right to rule. Sources of legitimacy vary from one context to another and change over time. Donors have not always paid enough attention to how social groups define legitimacy and almost exclusively focus on security, especially in difficult environments, while paying less attention to other sources of legitimacy.

(ii) State vs. non-state actors: Aid systems have a tendency to work “around” rather than “with” the very same state structure they are supposed to support, to the extent of creating a parallel bureaucracy. When both bureaucracies are funded from the same source but rules of remuneration are different the state structures are undermined in various ways. Aid flows to Project Implementation Units (PIU), which also create nodes of power outside the state (Ghani et al., 2005). State capacity needs to be defined differently, according to Woodward (2004). Capacity needs to be...
defined in terms of the state's ability to adjust and manage transition, not as specific characteristics or institutions. Strengthening state–society relations is one form of capacity in which such relations become supportive of the task – i.e. the “embeddedness” of the state in society.

(iii) Response to external shocks: One of the defining characteristics of fragility and difficult environments is the state’s inability to manage external shocks. With potential increases in the magnitude and frequency of natural hazards linked to climate change putting greater stress on already weak institutions, one of the most serious consequences will be the state’s ability to recover after a disaster, and its ability to manage changing risks in agro-ecological and hydrological resources in the long-term.

(iv) Research on policy and institutions is relevant to states in general. Fragile states specific research is still a new and emerging area. Reviewing the literature that deals with what donors need to do to respond better in difficult environments points to the holy grail of principles that transition from emergency assistance to sustainable development requires a shift from working “around” the state to working “with” the state. There is, however, still a long way to go before realizing how this translates into practice and specific action.

6. Conflict and “context” sensitive adaptation

Conflict sensitive adaptation, according to Smith and Vivekananda (2007), is an approach based on peace building. It engages community energies in a social process to work out how to adapt to climate change and how to handle conflicts as they arise in order to avert the risk of conflict turning violent. The approach brings together the science of climate change and local knowledge, capitalizing on communities’ autonomous adaptation while providing more information and resources to strengthen and develop resilience. The proposed approach has five policy objectives to address climate change in fragile states. The five policy objectives form a coherent agenda as follows:

1. Adaptation to climate change needs to be conflict sensitive where all interventions must respond to people’s needs in an inclusive and consultative way, taking account of power structures and social order. Bridging top-down and state-led priorities to satisfy national development interests with bottom-up and autonomous adaptation to address community resilience is key.

2. Peace building needs to be climate proof where this is reflected in post-conflict and post-disaster reconstruction, taking account of long-term viability of sector priorities and climate impact on the overall guiding development agenda.

3. Mitigation and shifting to low-carbon economies must also be conflict sensitive and supportive of development and peace. Developed countries’ agenda for low emissions that fuelled the rapid move to biofuels exacerbated the food crisis and threatened to drive millions off their land, where there is already instability.

4. Support is required for poor countries’ social capacity to understand and manage climate and conflict risks.

5. A greater effort is needed to understand and plan for, and cope peacefully with climate and disaster-related migration. Research so far shows that the majority of movement is internal and domestic within national borders. This still requires support and adequate policies.

Incorporating a conflict-sensitive approach when planning and implementing CCA actions is thus imperative in order to promote increased socio-economic development, food security, equity and better resource governance as well as to promote peace and stability. This requires increased knowledge and understanding of the linkages between climate change, development, state building and peace building in order to capitalize on shared goals and avoid pitting conflicting goals against each other. This also requires changes in behaviour, systems and practice of institutions charged with managing and delivering aid in order to strengthen their role in supporting peace, development and prosperity in difficult environments.

The following is a guiding agenda for change:

• Donors need to be aware of where their own strategic objectives might conflict with state building objectives and where state building objectives might contradict each other.
The Organisation for Economic Co-operation and Development (OECD) (2010) calls this “dilemma analysis”.

- They also need to align their strategies with a realistic long-term agenda for state building – with a changing climate and associated uncertainties of adaptation. Long-term commitment as opposed to yearly planning and funds allocation is key. What is of equal importance is the focus on long-term fiscal sustainability and the interaction between much needed short-term measures to produce tangible results while not undermining the state's apparatus long-term capacity and viability (Nixon, 2007).

- Donors also need to work towards an appropriate and aligned balance between off- and on-budget resources for public goods and service provision (Nixon, 2007).

- With regard to long-term goals and objectives, the way donors work “with” the state needs to emphasize building and transfer of human capacity and increased accountability of state institutions (Nixon, 2007).

- The coordination problem between donors that leads to excessive volatility of aid and some states being over-funded while others are left to be labelled “donor orphans” needs to be addressed. This is mirrored in climate funding (climate darlings: small island states and low lying deltas; climate orphans: Sub-Saharan Africa).

- The absorptive capacity is one of the contributing factors to volatility as well as donors’ likelihood to work “around” the state. This is another issue that needs urgent attention and commitment from donors to address and work through appropriate measures of strengthening capacity and matching aid to increasing state capacity to handle funds especially in climate adaptation.

- Structural vulnerability and political instability are important in aid’s ability to address growth and poverty reduction in a changing climate. The variables that can make aid more or less effective in generating growth and reducing poverty is equally an under-researched area that still requires further work and attention.

Internal change within donor organizations and in aid practices is also required as much as planned change in fragile states. Ghani et al. (2005) call for an entire reorientation of the current international system towards a model based on state-donor(s) partnership where the common goal is co-production of sovereignty. Dan Smith, in an interview, echoed several times the need to change the whole incentive system and culture within donor organizations and state institutions. A coherent development vision, which both state and donors sign up and commit to, will not come about through short-term planning or mere pledges. Whitfield (2009) asserted that ownership “as control” will not come about while donors try to change economies and governance wholesale through aid either.

Flexibility, innovation, risk taking and contextualization at the local level, supporting community-based adaptation (CBA), and combining top-down and bottom-up adaptation planning all need to feature a lot more in the way aid is given instead of applying universal blue prints, recipes and prescriptions of the same modalities, programmes and projects. Understanding the political environment in each country, being sensitive to power bases and power balance, and shaping priorities and strategies jointly with national governments not only strengthens the state’s negotiating position, it also produces far more appropriate results.

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Climate Change in Fragile States: Adaptation as Reinforcement of the Fabric of the State

Katherine Houghton

Abstract

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) and subsequent documents such as the recent Cancun Agreements on Long-term Cooperative Action adopted under its auspices, are explicitly targeted to states – the predominant actor in the international system. As both a consequence and a prerequisite, adaptation to climate change must be understood as a function of the state and seen as part of the spectrum of rights and obligations binding on states under international law. Vulnerability to the adverse effects of climate change, the underlying condition which adaptation seeks to address by fostering resilience, is introduced as a concept in the UNFCCC with the phrase “particularly vulnerable developing country Parties”.

This establishes that vulnerability is directly linked to development and is a condition which manifests in the fabric of the state, that is, in the elements of the state under international law: defined territory, permanent population and effective government. Climate change poses profound challenges in fragile states where deficits in these areas are already particularly acute. Adaptation processes undertaken to foster resilience must therefore address these different facets of the fragile state by: enhancing the implementation of international environmental protection and natural resources management obligations to reduce environmental hazards and resource conflicts (territory); increasing the observance and full realization of human rights to reduce vulnerability and address displacement (population); and, strengthening state institutions and accountability to both the population and international aid donors to ensure the efficacy of cooperative climate action (government). Without effective action to strengthen the state and thereby enable adaptation, climate-induced adverse effects and extreme events may lead to the further destabilization of already fragile states. Strategies to strengthen civil society and informal institutions in the short term must be combined with long-term strategies to stabilize and develop the formal institutions of the state, in particular at the local level, in order to enable adaptation in fragile contexts.

Keywords: fragile states, vulnerability, resilience, adaptation, environmental protection, human rights, local governance, Pakistan

A. Introduction

Adaptation to climate change – defined as “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) – represents an unprecedented challenge for the international system. Climate change is already disproportionately affecting developing countries where specific vulnerabilities and structural issues within the state limit the state’s ability to implement adaptation measures. These countries are also facing a multitude of other challenges at the same time including intractable poverty, underdevelopment and environmental degradation such that they are poorly equipped to cope with or adapt to climate change in addition. In extreme cases known as “fragile states”, these issues are compounded by armed conflict and institutional failure which further destabilize the substance of the state and hinder its capacity to fulfill basic functions towards its population as well as its international obligations. Although the UNFCCC (1992) and its related agreements including the recent Cancun Agreements on Long-term Cooperative Action (UNFCCC COP 16, 2011) have formulated a number of facilitative processes and binding obligations for states to undertake adaptation measures, the reality is that adaptation is most urgently needed where it is most difficult to implement.

It has often been said that adaptation to climate change is, above all, a governance issue, dependent on and firmly anchored in the social and institutional processes of the state. In exploring the substance and function of the state in response to climate change, this paper proposes that the three elements of the state (territory, population and government) provide an analytical structure to better identify pathways for adaptation within the state and, at the same time, identify areas of weakness within the state which pose limitations in the state’s capacity to implement adaptation measures. To this end, the
paper will attempt to map the relationship between development, vulnerability, state fragility and resilience as these terms traverse various policy fields and ultimately converge within the concept of adaptation to climate change, beginning with the origins of adaptation in the UNFCCC and the determination that adaptation is a function of the state. It then discusses the categorization of states in the UNFCCC with particular attention paid to the concept of vulnerability as manifested in the three elements of the state. Fragility is then discussed as an institutional dimension of vulnerability, using authority, service and legitimacy failures as expressions of state fragility (Stewart and Brown, 2010, p. 6) and examining their consequences in the context of climate change. The paper also provides a case study of adaptation in Pakistan and the 2010 Indus Valley floods which reflects on the overlaps between underdevelopment, vulnerability and fragility in practice and discusses internal and external obstacles in the realization of adaptation, including extreme deficits in local governance. The case study identifies examples of adaptation action along the disaster development continuum, including disaster risk reduction (DRR), which have the potential to foster resilience and positively influence aspects of state fragility. Finally, the paper concludes with a general discussion of what fragile states can realistically do to adapt to climate change and suggests where international assistance should be targeted to support this process.

B. Adaptation as a function of the state

Adaptation was first mentioned in Article 3 (3) of the UNFCCC where it is stated that “[t]he Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. …To achieve this, such policies and measures should cover adaptation”. By transforming the verb “should” to the imperative form “shall”, Article 4 (1)(b) of the UNFCCC subsequently elevates this general principle into a binding commitment for all parties to the treaty:

> All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall: … (b) Formulate, implement, publish and regularly update … measures to facilitate adequate adaptation to climate change.

This obligation is further expanded in Article 10 (b) of the Kyoto Protocol (UNFCCC KP, 1997) where it is provided that:

> All Parties …shall … (b) Formulate, implement, publish and regularly update national … programmes containing …measures to facilitate adequate adaptation to climate change. …(ii) …[developing country] Parties shall seek to include in their national communications …information on programmes which contain measures that the Party believes contribute to addressing climate change and its adverse impacts.

All parties to the UNFCCC and the Kyoto Protocol, with the exception of the European Union, are states. Despite the increasing relevance of international organizations, NGOs and individuals, states remain the predominant actor in the international system and carry primary responsibility under international law for fulfilling obligations toward their populations and the international community as a whole contained in international agreements. “At present, the State is still the principal creator, subject, and enforcer of international law, and as such the essential unit on which the stability of the international order rests” (Kreijen, 2003, p. 5). In this light, the concept of adaptation and the implementation of measures to facilitate adequate adaptation must be placed within the spectrum of rights and obligations binding on states under international law and be understood as concrete functions to be performed by the state.

C. The constituent elements of the state

However, before examining adaptation in more detail and where the issue of state fragility enters into this context, it is important to first examine the constituent elements of states in general. Notably, international law does not provide a definition of a state, yet assumes the existence of states as a foundation and prerequisite for the international system (Crawford, 1979, p. 31; UNGA, 1949). Theorists of the state generally agree that states possess the following characteristics: a defined territory, a permanent population and a government. The three elements, both
individually and as a whole, represent the locations of international obligations and provide the mechanisms for the domestic operation of the social contract. The state, as the sum of these elements, is the location of sovereignty, which is expressed internally through institutions and externally as international legal personality in international relations with sovereign and equal partners (Shaw, 2008, p. 487).

“By sovereignty, we understand the whole body of rights and attributes which a State possesses in its territory to the exclusion of all other States...Sovereignty confers rights upon States and imposes obligations on them” (ICJ, 1949, p. 43).

This emphasis on the dual nature of rights and obligations is seen to move discussion of the state “in the direction of implementation, towards the question of who has to do what if these rights are to be realized” (Nickel, 1993, p. 85). Given a defined territory and permanent population, the institutions and governance processes represented by government are a central factor in states’ fulfillment of international obligations, and enable the overarching process of development (Twomey, 2007, p. 50). In many states, however, these constituent elements exist formally but have been eroded in various ways which impede the state’s performance of its basic functions. This condition, manifesting in territorial conflicts, degraded environments, impoverished and displaced populations, and non-accountable governments, has been described as a “sovereignty gap” and represents the conundrum surrounding many international obligations:

“...the disjunction between the de jure assumption that all states are “sovereign” regardless of their performance in practice – and the de facto reality that many are malfunctioning or collapsed states, incapable of providing their citizens with even the most basic services, and where the reciprocal set of rights and obligations are not a reality” (Ghani and Lockhart, 2008, p. 21).

Recognizing that adaptation is an obligation to be performed by states, it is critical that areas of weakness within the fabric of the state are identified and addressed, as these represent the primary limitations in the state’s capacity to implement adaptation measures.

D. The categorization of states in the UNFCCC according to development and vulnerability

Although the principle of sovereign equality set out in Article 2 (1) of the Charter of the United Nations (UN Charter, 1945) underlines that all states bear equal rights and responsibilities in the international system, the UNFCCC qualifies this by introducing the concept of “common but differentiated responsibilities” and a complex classification of states with different sets of responsibilities, rights and eligibilities in regard to climate change. These classifications define the overarching framework within which adaptation must take place and identify the pathways through which states can cooperate and provide and receive external assistance.

The UNFCCC recognizes Annex I, Non-Annex I, Annex II and LDCs, as well as a unique category of its own invention termed “countries particularly vulnerable to the adverse effects of climate change”. Annex I parties are those countries which belonged to the OECD in 1992, as well as the members of the economies-in-transition group (European countries of the former Soviet bloc), while Annex II merely excludes this group. These parties represent the primary donor states. Non-Annex I parties are all other parties to the Convention, referred to collectively as “developing country parties”. LDC status, a United Nations-wide classification, is determined based on a state’s inclusion on the United Nation’s list of LDCs maintained by the United Nations Conference on Trade and Development and is reviewed by the United Nations Economic and Social Council’s Committee for Development Policy. Inclusion on the list of LDCs is decided with the consent of the country according to three criteria: low gross national income, weak human assets (according to a composite Human Assets Index which considers malnutrition, child mortality, school enrollment and adult literacy) and economic vulnerability (according to an Economic Vulnerability Index created in 2003), and requires that the country’s population does not exceed 75 million (UNCTAD, 2009, p. iii). The Economic Vulnerability Index uses a variety of indicators including natural shocks (agricultural instability and disaster-induced displacement), trade shocks (export instability), exposure to shocks (share of agriculture, forestry and fisheries in GDP and concentration of merchandise exports), economic...
smallness and economic remoteness to identify exogenous structural factors, rather than policy factors that are outside the control of the individual country and disadvantage that country in its economic development (Guillaumont, 2008, pp. 2-4). Designation as an LDC entitles that country to prepare and implement a National Adaptation Programme of Action (NAPA) with support from the LDC Fund and LDC Expert Group.

The UNFCCC’s introduction of a category of states “particularly vulnerable to the adverse effects of climate change” in the treaty chapeau and Article 4 (4) parallel to the LDCs indicates that the treaty recognizes that economic development is not the only factor influencing a state’s capacity to fulfill its international obligations in regard to climate change. Although many of the indicators used in the Economic Vulnerability Index are interconnected with climate-relevant sectors, vulnerability is not synonymous with underdevelopment or poverty, although these can be contributing and intensifying factors. Article 3 (4) of the UNFCCC recognizes this distinction by stating that “economic development is essential for adopting measures to address climate change” including measures to facilitate adaptation. Instead, vulnerability reflects the substance of the state as a whole, as reflected in its constituent elements. Vulnerability, as a category, is not restricted to developing countries but provides that the Annex II parties shall “assist [particularly vulnerable developing country parties] in meeting costs of adaptation”.

E. Vulnerability and the three elements of the state

Vulnerability to climate change can be defined as “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes” (IPCC, 2007). Understanding that “[v]ulnerability depends critically on context, and the factors that make a system vulnerable to a hazard will depend on the nature of the system and the type of hazard in question” (Brooks et al., 2004, pp. 152-153), any attempt to capture what makes a state, as opposed to another entity, vulnerable to climate change requires a comprehensive examination of the system of the state and its constituent elements. Although centred in state systems, development indicators capture the characteristics of populations and institutions well, but can be justifiedly criticized for failing to adequately include environmental factors (Bell and Morse, 2008). Exclusively ecological indicators, on the other hand, are crucial for identifying patterns and impacts of climate change but are, by nature, focused on species, ecosystems, and regions which do not necessarily respect human-made boundaries. Like natural systems, human systems must also be understood at different scales beginning at the level of the individual and working up through increasingly large collective units which together form the sum of the state.

“Within countries, vulnerability is geographically and socially differentiated, and processes that mediate the outcomes of hazard events operate at the local scale. Ultimately, it is people not countries that are vulnerable. National-level indicators must therefore be complemented by locally contextual indicators to yield a full picture of vulnerability” (Brooks et al., 2004, p. 162).

1. Vulnerability and the state’s territory

The UNFCCC’s central objective, as provided in Article 2, is the protection of the climate system in a manner which protects ecosystems, the territorial foundations of the state, and ensures that food production and economic development can proceed sustainably. “Particular vulnerability” to climate change, introduced in the chapeau of the UNFCCC and used again in Article 4 (8), refers to specific natural processes and geographical features of a state’s territory which physically expose it to the adverse effects of climate change. These include, but are not restricted to, low-lying islands and coastal areas, arid areas, areas prone to floods, drought and desertification, forested areas, areas with fragile, including mountainous, ecosystems and areas prone to natural disasters. Reinforcing this concept, environmental features of vulnerability are also used in the UNFCCC’s sister treaty, the 1992 Convention on Biological Diversity (CBD) (UNCBD, 1992), also adopted at the 1992 Earth Summit in Rio, and the 1994 Convention to Combat Desertification (CCD) (UNC-CD, 1994) which are interpreted together due to the interconnected subject matter of ecosystems, drought and desertification in all three treaties. In the CBD, the term “environmentally vulnerable”
appears in Article 20 (7) concerning financial resources where it is provided that:

“Consideration shall also be given to the special situation of developing countries, including those that are most environmentally vulnerable, such as those with arid and semi-arid zones, coastal and mountainous areas.”

Here, as in the UNFCCC, "most environmentally vulnerable" describes a group of country parties not restricted to developing countries but with a special provision of additional financial resources for those developing countries classified as such.

Article 1 (d) of the CCD clearly applies the term vulnerability to both socio-economic and environmental issues when it provides that:

“mitigating the effects of drought” means activities related to the prediction of drought and intended to reduce the vulnerability of society and natural systems to drought as it relates to combating desertification.”

Here, the “vulnerability of…natural systems” can be interpreted in a compatible manner to “environmental vulnerability” under the CBD and “particular vulnerability” under the UNFCCC as referring to physical conditions conducive to adverse effects of climate change. Use of the term “vulnerability of society and natural systems”, however, emphasizes the interconnectedness of natural and human systems – much like the interconnectedness of the three elements of the state – underlining that hazards are not just phenomena caused by human activity but also have the capacity to cause harm to communities exposed to them. “Vulnerability of society” picks up on the indicators used for determination of LDC status including “weak human assets”, signaling a departure from purely state-oriented terminology and suggesting a move toward understanding the state through the disaggregation of another of its constituent elements, its population. This enables a connection to a further body of international law applicable to individuals and groups at a governance level lower than the state: human rights law.

2. Vulnerability and the state’s population and government

The terms “vulnerable” and “vulnerability” are used in human rights law independently of the context of climate change, particularly in relation to economic, social and cultural rights contained in the 1966 International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966) and the 1948 Universal Declaration of Human Rights (UDHR, 1948). Respect for, protection of and fulfillment of these rights for their populations, which may take place progressively, is a virtually universal binding obligation for all states either through their accession to the ICESCR or as customary international law. These rights not only address economic issues such as individual livelihoods and access to economic systems, they also address, inter alia, the right to an adequate standard of living (including food, shelter, water and sanitation) contained in Article 11 (1) of the ICESCR and the right to health, contained in Article 12, which are located at the interface between human and natural systems. These rights, subject to progressive realization, represent critical areas for development policy, for example, toward the realization of the Millennium Development Goals as a poverty reduction strategy, as well as sectors in which adaptation measures in response to climate change must take place. At the same time, these rights also correspond to the essential basic services to be provided by states – health, education, water and sanitation – which will be discussed in more detail later in the context of fragility (OECD, 2008, pp. 5 – 7).

States party to the ICESCR are required under Articles 16 and 17 to submit national reports to the Committee on Economic, Social and Cultural Rights on their realization of specific rights. According to the Revised General Guidelines for the Form and Content of Reports (UNCESCR, 1991), the specific condition of vulnerability is to be examined in relation to a number of rights, also including Article 6 (employment), Article 9 (social security) and Article 13 (education). The reporting requirements for Article 11 – Right to an Adequate Standard of Living – an example particularly relevant to climate change, provide a non-exclusive definition of “especially vulnerable or disadvantaged group” in relation to the right to adequate food including: “landless peasants, marginalized peasants, rural workers, rural unemployed, ur-
ban unemployed, urban poor, migrant workers, indigenous peoples, children, elderly people, other especially affected groups" (UNECOSOC, 1991, para. 2 (b)(ii)). In relation to the right to housing contained in Article 11, "vulnerable and disadvantaged groups within society" are indicated to include the homeless, those without access to basic services (water, waste disposal, sanitation, electricity, etc.), those living in "overcrowded, damp, structurally unsafe housing or other conditions which affect health" and "illegal settlements or housing", among others (UNECOSOC, 1991, para. 3 (b) (i-vii); UNCESCR, 1991). In regard to the right to health contained in Article 12, "vulnerable and disadvantaged groups" are defined according to indicators concerning, inter alia, infant mortality, life expectancy, access to water, sanitation and medical services, as well as geographic distribution (urban and rural areas) and "worse-off areas" inhabited by groups whose "health situation is significantly worse than that of the majority of the population" (UNECOSOC, 1991, paras. 4–5).

The term "vulnerable or disadvantaged group" provides a bridge between economic, social and cultural rights which can be understood in relation to vulnerability and civil and political rights which are better understood in terms of social advantage or disadvantage. Civil and political rights engage a different discourse concerning the political determinants of human rights by addressing equality and non-discrimination in individuals' access to and participation in institutions and decision-making structures irrespective of their "race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status" as contained in Article 2 (1) of the International Covenant on Civil and Political Rights (ICCPR, 1966). However, the principles of universality, inalienability, interdependence and interrelatedness of all human rights underlie that ICCPR and ICESCR rights do not exist in isolation, but instead depend on and reinforce each other in their collective realization (UNGA, 1993).

F. Fragility: the shift from law to policy

This institutional dimension of vulnerability – arguably captured in the term “fragility” – is one of the most pressing issues in international cooperation and one of the most profound obstacles to states in the realization of their international obligations toward their populations and the international community. The lack of international legal definitions of what “healthy” state institutions might be as these domains are entirely the prerogative of that state.
topic, but instead demonstrates that these issues fall very clearly in the highly contested arena of international policy rather than law. The use of the terms “developing”, “vulnerable” and “fragile” to describe states begins what might be described as a “slippery slope” in terms of legal nomenclature. It necessitates a continuing shift away from established normative criteria and toward more subjective “good governance” issues, on which there is little consensus or normative guidance.

It is difficult to pinpoint exactly what a fragile state is, as fragility manifests in very different ways depending on context. In order to help narrow down which states fall into the focus of this paper, Table 1 compares indices on state fragility, development, local governance and climate vulnerability and highlights states which show notable weaknesses in these areas in order to suggest general patterns where fragility might begin to be located. From these examples, it can be observed that state fragility is associated with armed conflict to a degree and that stabilizing post-conflict states (e.g., Cambodia and Mozambique) logically fare better than destabilizing or “pre-crisis” states (e.g., Pakistan and Zimbabwe) in most categories. A comparison of the OECD’s unofficial list with the list of LDCs and the UNDP Human Development Index also illustrates that conflict, fragility and state weakness tend to correlate with low development levels and weak local governance processes. Underlining the premise of this paper is the correlation of the “extreme risk” of adverse effects of climate change with fragility: 10 of the 20 countries at extreme risk in the 2011 Maplecroft Climate Change Vulnerability Index are considered fragile by the OECD, and 8 are listed as “failed” or “critically weak” on the Brookings Index. Although these indices are incomplete and subjective, their high degree of overlap indicates critical issues within the state that must be taken sufficiently into account when examining the overall process of adaptation.

As stated in Principle 1 of the OECD’s Principles for Good International Engagement in Fragile States & Situations, the key to addressing fragility is to “take context as the starting point… and avoid blue-print approaches” (OECD, 2007). Due to the nature of the states concerned, measures to address state fragility and good governance are very often elements of bilateral and multilateral development assistance and state building endeavours. As a consequence, fragility is a highly politicized construct and is often interpreted differently by the various actors involved. Some working definitions of fragility, such as that of the United States Agency for International Development’s (USAID) Fragile States Strategy, presuppose a surrounding environment of armed conflict. Here USAID defines fragile states as being “unable or unwilling to adequately assure the provision of security and basic services to significant portions of their populations and where the legitimacy of the government is in question”, which it further divides into the subgroups of “vulnerable states” and “crisis states” where violent conflict is “a reality or a great risk” (USAID, 2005). Although recognizing that fragility is certainly amplified by conflict, other organizations such as DFID (2005) and OECD take a more development-oriented view of fragility, understanding it as a structural issue within the state, internalized in its institutions and system of government. The OECD’s working definition, for example, places the institutions and functions of the state at the centre of its analysis:

“States are fragile when state structures lack political will and/or capacity to provide the basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations” (OECD, 2007).

From these approaches, it is clear that no single definition could encompass every manifestation of fragility and that fragile states might be considered fragile for very different reasons. What is important in regard to fragility is not the definition itself, but instead an understanding of how fragility manifests within a state and what the consequences are should those conditions persist.

“Fragility thus arises from substantial disequilibrium in state–society relations. It has multiple underlying causes, both chronic and acute, and it can produce multiple consequences, most worryingly vulnerability to internal conflict, inability to cope with humanitarian disaster and high risk of state collapse. There are extreme events or shocks that might produce fragility in even apparently resilient states; our greater concern is with chronic fragility, which renders states less resilient to shocks” (Jones and Chandran, 2008, p. 16).
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Table 1. A comparison of state fragility, economic and social development, local governance and climate change vulnerability indices Sources: 1 UNCTAD (2009), 2 Non-official list compiled from the OECD-DAC report “Ensuring Fragile States are not Left Behind” (2009), 3 Brookings Institute Index of State Weakness in the Developing World (Rice and Patrick, 2008), 4 UNDP Human Development Index (2010), 5 Views from the Frontline Survey (Global Network DR, 2011), 6 Maplecroft Climate Change Vulnerability Index (2011). Note: Data is provided selectively in each category in order to suggest general patterns. The complete list of lowest ranking countries is provided for each index with rankings in parentheses where available. Complete information is provided for countries facing extreme risk of adverse effects caused by climate change in the 2011 index (marked in green) even when this is not in the lowest range of the individual index. "--" indicates that the country is not listed on the specific index, while "?" indicates that no information is available.
Interestingly, this explanation of the causes and consequences of fragility uses terminology also frequently seen in relation to adaptation – extreme events, shocks, coping capacity and resilience – which suggests that the same institutions and social processes are involved.

1. Three dimensions of fragility: authority failure, service failure and legitimacy failure

Three dimensions of fragility have been identified which further specify ways in which fragility manifests within a state. These are “authority failure” (where the state “lacks the authority to protect its citizens from violence of various kinds”), “service failure” (where the state “fails to ensure that all citizens have access to basic services”) and “legitimacy failure” (where the state “lacks legitimacy, enjoys limited support among the people, and is typically not democratic”) (Stewart and Brown, 2010, p. 6)\(^{12}\). These dimensions of fragility loosely correspond with the three elements of the state – territory, population and government – and provide a link back to the theoretical discussion of state functions in relation to climate change. Although authority, service and legitimacy failures are highly interconnected in reality like the three elements of the state themselves, some contexts are described below to illustrate the different features of failure in fragile states and how fragility is compounded by the adverse effects of climate change. Knowing that extreme hydrometeorological events such as cyclones, floods and drought are high probability adverse effects of climate change in many fragile states and will continue to increase in frequency and intensity, adaptation measures must squarely address these compounding issues in order to be effective. The UNFCCC specifically identifies “significant deleterious effects…on natural and managed ecosystems or…human health and welfare” as adverse effects of climate change in Article 1 (1) which underlines that these basic functions of the state are essential components of adaptation.

Beginning with authority failure, it can be argued that safeguarding the security and human rights of the population within state territory extends beyond “violence” in the classical sense of *Gewaltmonopol* and includes extreme environmental events associated with climate change such as cyclones, floods and droughts. As an example of lack of capacity combining both armed conflict and adverse effects of climate change, several areas of Pakistan critically affected in the 2010 floods were located in the Federally Administered Tribal Areas – areas which are not under the de facto control of the Pakistani government and experience a considerable amount of violence due to the Islamist insurgency in the area and the Pakistani government’s extensive military counter-insurgency operations. At the time of the floods, the Pakistani government did not have the authority to enter or assist in this region, which raised fears that Islamist organizations would increase their support bases in affected areas by providing flood assistance where the government could not (Ahmed, 2010; Gall, 2010a and b). As a very controversial example of lack of will to exercise authority or provide services on its territory, there was considerable discussion in 2008 whether the concept of responsibility to protect should be extended to Myanmar after the government failed to provide an initial humanitarian response after Cyclone Nargis and refused international assistance (Benton, 2011, p. 419; Ford, 2010, p. 227; Serrano 2011, p. 103). Although the formulation of the responsibility to protect endorsed at the 2005 United Nations World Summit was restricted to genocide, war crimes, ethnic cleansing and crimes against humanity (UNGA, 2005, paras. 138 – 140), Myanmar’s lack of will to protect its citizens and failure to enable access to basic services in an overarching context of legitimacy failure was argued by some to be so egregious as to warrant international intervention.

Similar calls of responsibility to protect were also raised against Zimbabwe in regard to the 2008 – 2009 cholera outbreak caused by service failures in healthcare and years of neglect in the maintenance of water and sanitation infrastructure (Beyrer and Donaghue, 2009). Outbreaks of cholera as well as other infectious diseases such as malaria, dengue and rift valley fever are frequently seen in virtually every fragile state and are long known to be exacerbated by the high temperatures and heavy rainfall associated with climate variability and change (Costello et al., 2009, p. 1702; WHO, 1998, pp. 149 – 151). Excessive mortality, as seen in Zimbabwe, is attributable to a country’s failure to deliver core state functions rather than the disease itself. The 2010 cholera outbreak in Haiti, a disease not originally endemic to the country but introduced during international relief operations following the
earthquake, has been perpetuated due to the
country’s ongoing lack of capacity as well as gen-
eral service failures in health and infrastructure
already present prior to the earthquake (Andrews

Food insecurity, another central issue in
climate change identified in Article 2 of the
UNFCCC, prevalent in fragile contexts, can also
be argued to fall into the category of service
failure to a certain degree. State institutions are
the appropriate actors to ensure the production-, labour-, trade- and transfer-based components of
food security by managing land use, agricultural
production, food distribution and markets, as well
as promoting alternative livelihoods strategies for
their populations to the extent of their capacities
(CCAFS 2011, p. 15). Fragility often manifests
as severe institutional deficits in all these areas
(Alinovi et al., 2007; Fennell, 2009). Some coun-
tries, such as Ethiopia, have fledgling institutions and externally supported land management and
poverty reduction projects, but continue to lack
sufficient capacity due to the environmental scale
of the problem and their lack of financial and
technical resources13. In other countries, such as
Zimbabwe, the government has used previously
functioning institutions to actively mismanage
agricultural and land sectors to produce food in-
security for political opponents (Human Rights
Watch, 2003). As a further compounding issue,
acute food insecurity is a frequent cause of in-
ternal displacement, while chronic food insecurity
in rural areas, often attributable to droughts, soil
erosion and land degradation, often accelerates
urbanization. Cities are often unable to absorb
ever-growing populations, which leads to new
patterns of food insecurity due to deficits in in-
frastructure and basic service provision (FAO,
2008, p. 5).

The final category, legitimacy failure, is per-
haps more difficult to define than the other types
of failure as it has a very strong subjective com-
ponent and can be located both in the regime
and in the state itself. Legitimacy has at its core
the concept of the social contract: “a dynamic
agreement between state and society on their
mutual roles and responsibilities” (Jones and
Chandran, 2008, p. 17). Although democratic
elections are often used as a proxy indicator for
legitimacy, individual perceptions and expecta-
tions of the state are equally important but more
difficult to characterize or grasp in relation to a
specific regime’s actual performance. It further
complicates matters that “a central feature of
fragile states is precisely that formal state institu-
tions co-exist with other institutions (most often
called “informal”), resulting in competing and
overlapping forms of rule that often draw upon
different sources of legitimacy” (NORAD, 2009,
p. 8). Legitimacy failures are easier to identify in
authoritarian situations such as Myanmar, for
example, where the ruling junta proceeded to
hold a constitutional referendum just days after
Cyclone Nargis and where the resulting civilian
government continues to be dominated by the
military (BBC News, 2008; Guardian, 2011). The
term “semi-authoritarianism” has been used to
describe finer shades of grey in legitimacy failure
(Ottaway, 2003, p. 4), such as in Pakistan where
democratic elections have been formally held but
the government continues to be partially authori-
tarian. Revealing in the case of Pakistan is the
country’s complete absence of elected local-level
government (Dawn, 2011; Thomas, 2011), which
will be discussed in more detail in the case study
below.

G. Resilience as a point of convergence between
adaptation and state building

As described above, vulnerability and fragility
have many common features which converge at
the intersection of law and policy. Interestingly,
their positive counterparts can be found in the
same word: resilience. From the standpoint of
state building, “[r]esilience derives from a com-
bination of capacity and resources, effective in-
stitutions and legitimacy, all of which are under-
pinned by political processes that mediate state
–s ociety relations and expectations” (Jones and
Chandran, 2008, p. 18). The term “resilience”
is now being increasingly accepted in climate
and policy circles as a normative description of
the condition of a state or ecosystem in which
(or even an individual in whom) underlying envi-
ronmental, social and institutional vulnerabilities
have been addressed, and is capable of remain-
ing stable despite periodic stresses and shocks. As
the IPCC has stated: “Resilience is the flip side
of vulnerability – a resilient system or population
is not sensitive to climate variability and change
and has the capacity to adapt” (IPCC, 2001).
Resilience can also be identified as a critical outcome of both adaptation and state building processes in response to fragility. The remarkable flexibility of the vocabulary used in systems theory – for example “populations”, “state variables” and “state functions” – has virtually predestined resilience to become the conceptual framework not only for socio-ecological systems in the context of adaptation to climate change but also for describing the characteristics and behaviour of state systems and the social contract between a state and its population – a context where environmental issues are not sufficiently addressed. What is remarkable here is that the spectrum of activities and conditions associated with resilience positively influence both adaptation to climate change and state fragility. A particularly interesting area of interaction between adaptation and state building can be found in DRR, which takes a bottom-up approach to building institutions to prevent, adapt and respond to environmental hazards – including climate change.

1. Resilience from a governance standpoint

When used in the context of the state, resilience is the result of legitimate social, institutional and political processes (both formal and informal) through which the population informs and enables the state to address its needs in a continuously changing, often challenging, context (Jones and Chandran, 2008, pp. 18 – 19). This “dynamic” social contract, capable of withstanding shocks and responsive to newly emerging needs through context-appropriate services, provides a meter for determining the degree of resilience a particular state possesses. A state’s resilience is influenced by a number of factors including individual and institutional capacities, the existence of effective mechanisms for participation and checks and balances, as well as the resources available within the system to ensure stability. Expressed succinctly in terms of the three elements of the state, “[r]esilient states exhibit the capacity and legitimacy of governing a population and its territory” (OECD, 2011, p. 21).

Pathways to foster resilience can therefore be identified in the vulnerabilities of that particular element of the state and channelled through appropriate institutions and state building processes where the state and the population can negotiate appropriate strategies and consolidate functions. Population-specific vulnerabilities (e.g., deficits in education, health and livelihoods) call for input from the state in the form of schools, infrastructure and economic planning in line with its international human rights obligations, while government-specific vulnerabilities (e.g., lack of institutions, corruption and lack of accountability) call for input from the population in the form of civil society organization to create institutions, call for elections, draw up and amend constitutions and demand transparency. In practice, international development cooperation typically engages directly with states to improve basic service provision and with local NGOs to raise awareness and improve the effectiveness of civil society initiatives to strengthen and monitor the functioning of the state.

Because these types of activities very clearly fall within the internal affairs of states, references to resilience in this context are not found in international treaties. Often the nature of the activities themselves is so highly localized that a focus on international- and national-level governance would not even capture the relationships and interactions in question. The term “resilience” does emerge, however, in a recent non-binding international political agreement on DRR – the Hyogo Framework for Action (HFA) – which considers as one of its strategic goals the “development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards” (UNISDR, 2005). Resilience is defined in this context as:

“The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions” (UNISDR, 2009, p. 24).

The HFA further identifies its first priority for action to “ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation”. The way the term resilience is used in this context underlines the centrality of institutions in the functioning of the state, and reflects the philosophy of decentralization used in state building activities where
“...[T]he general consensus is that a bottom-up process is more efficient, more enduring and more likely to strengthen the social contract. The theory, appropriately, is that the delivery of public goods should become more effective as supply gets closer to the source of demand” (Jones and Chandran, 2008, p. 37).

2. Resilience from an environmental standpoint

In contrast to the context of state building where it is a relatively new concept, resilience has assumed a central role in climate change discourse and is taking on an increasingly normative function. The term did not originate here, however, but was borrowed from the fields of ecology and engineering where it has been used for decades to describe the behaviour of systems of various types (Holling, 1996, p. 33). A seminal example from the ecology literature states that:

“It is useful to distinguish two kinds of behavior. One can be termed stability, which represents the ability of a system to return to an equilibrium state after a temporary disturbance; the more readily it returns and the less it fluctuates, the more stable it would be. But there is another property, termed resilience, that is a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables” (Holling 1973, p. 14).

In regard to climate change, the term “resilience” was first used in UNFCCC documents in relation to the types of system shocks captured in the Economic Vulnerability Index used to determine LDC status (see above). In the Nairobi Work Programme (UNFCCC COP 11, 2006a) undertaken in 2005, “resilience” is used in Article 3 (b) (v) in regard to “Adaptation planning, measures and actions … Promoting understanding and the development and dissemination of measures, methodologies and tools including for economic diversification aimed at increasing economic resilience and reducing reliance on vulnerable economic sectors”. Resilience is repeated in Article 1 (c)(iv) of the Bali Action Plan (UNFCCC COP 13, 2008) where “Economic diversification to build resilience” is identified as a form of enhanced adaptation action.

In addition to shocks of an economic nature, however, the Nairobi Work Programme also uses resilience in the broader context of “adverse effects of climate change” in its further guidance for the operation of the LDCs Fund (UNFCCC COP 11, 2006b). The following principles for its operation were stated in Article 1:

(a) A country-driven approach, supporting the implementation of urgent and immediate activities identified in national adaptation programmes of action, as a way of enhancing adaptive capacity;

(b) Supporting the implementation of activities identified in national adaptation programmes of action...in order to promote the integration of adaptation measures in national development and poverty reduction strategies, plans or policies, with a view to increasing resilience to the adverse effects of climate change.

Part II of the 2010 Cancun Agreements (UNFCCC COP 16, 2011) concerning enhanced action on adaptation, also referred to as the Cancun Adaptation Framework, uses resilience in paragraph 11 where it is stated that:

“…adaptation is a challenge faced by all Parties, and that enhanced action and international cooperation on adaptation is urgently required to enable and support the implementation of adaptation actions aimed at reducing vulnerability and building resilience in developing country Parties, taking into account the urgent and immediate needs of those developing countries that are particularly vulnerable.”

Article 14 of the Cancun Adaptation Framework elaborates on the types of activities to be understood as “enhanced action on adaptation” which can all be understood as fostering resilience. Although Conference of Parties’ (COP) decisions are not considered legally binding and the use of the phrase “Invites all Parties” indicates that “enhanced adaptation action” is not intended as a binding obligation, “measures to facilitate adequate adaptation” continue to be binding obligations on all states’ parties under the UNFCCC. The Cancun Adaptation Framework can therefore be understood at a minimum to be a strong political commitment to the achievement of the objectives of the treaty. It has been stated, however, that COP decisions “...do contain terms
that make conduct mandatory, and make access to certain benefits contingent upon compliance with some of these mandatory terms. Yet, they do not appear to be binding in a formal sense” (Brunnée, 2002, p. 32, footnote 4). Irrespective of its binding or non-binding nature, a point often moot in the context of international law concerning the environment, Article 14 can certainly be read as an authoritative statement and catalogue of good practice on what “adequate” might mean in the context of adaptation action in order to guide states in their selection of measures to implement their obligations.

The term resilience appears specifically in two passages in Article 14 where it is placed in the context of the three facets of vulnerability discussed above:

(c) Strengthening institutional capacities and enabling environments for adaptation, including for climate-resilient development and vulnerability reduction;

(d) Building resilience of socio-economic and ecological systems, including through economic diversification and sustainable management of natural resources.

Resilience also spans further adaptation activities including DRR and measures to address climate-related displacement:

(e) Enhancing climate change related disaster risk reduction strategies, taking into consideration the Hyogo Framework for Action, where appropriate, early warning systems, risk assessment and management, and sharing and transfer mechanisms such as insurance, at the local, national, subregional and regional levels, as appropriate;

(f) Measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels.

The reference to DRR and the HFA is of particular utility to adaptation through its emphasis on bottom-up, participatory processes and its local focus – as close as possible to where adverse impacts are felt – rather than adaptation’s national focus, which is necessitated by its origins in an international treaty addressed to states. DRR is also relevant in the context of state fragility as it places specific emphasis on resilient institutions in its implementation. Like adaptation, DRR is focused on reducing the adverse impacts of natural hazards through prevention and reduction of vulnerabilities (UNISDR, 2008). The key difference between the two concepts is that adaptation is a binding obligation of international law focused on one specific hazard – climate change and its secondary impacts – while DRR is a non-binding policy framework encompassing all natural hazards irrespective of their origins and framed in the overarching process of development. Although natural disasters are mentioned in the UNFCCC and Kyoto Protocol, they are not further conceptualized there. DRR addresses this lacuna through its inherent connection to further stages in the disaster cycle (preparedness, response and recovery), which is highly relevant in extremely vulnerable countries. As the case study below shows, the adverse effects of climate change and large-scale displacement are already occurring with such frequency and intensity that DRR and adaptation can be understood as mutually reinforcing actions.

H. Case study: Adaptation, disaster risk reduction and local governance in Pakistan

As a fragile developing country prone to natural disasters, Pakistan represents an extremely complex field for adaptation to climate change. This short case study will reflect on several internal and external obstacles to realizing adaptation in Pakistan, including a highly degraded natural environment, a high degree of population growth and displacement, a precarious security situation, and a lack of transparent, effective and accountable institutional decision-making, particularly at the local level. Pakistan has reached a development level of medium in the UNDP Human Development Index (UNDP, 2010) despite these profound challenges, but this growth has been at the expense of the integrity of the natural environment through, for example, deforestation and the drainage of wetlands for agriculture and human settlement, and has consequently increased the exposure of the population to hazards. In this light, this study seeks to identify some adaptation strategies to address known vulnerabilities that have the potential to build resilience to climate change as well as strengthen the social contract.
between citizens and the state and thereby positively influence aspects of state fragility.

1. Background information

Pakistan is environmentally diverse, with a landscape including virtually all geographical attributes of special concern mentioned in Article 4 (8) of the Framework Convention: low-lying coastal areas, arid and semi-arid areas, forested areas, areas liable to drought and desertification, areas prone to natural disasters and areas with fragile, including mountain, ecosystems. According to a variety of different analyses including most recently the 2011 Climate Change Vulnerability Index, Pakistan is at “extreme risk” of adverse impacts due to climate change on account of its high poverty levels, population densities and heavy reliance on flood- and drought-prone agricultural lands (Maplecroft, 2011). Compounding this, Pakistan faces a number of existential security threats due to its proximity to Afghanistan, and its ongoing conflict with India over Kashmir and Islamist movements inside and outside the country. In August 2010, Pakistan experienced flooding of an unprecedented scale in the Indus Valley that affected as many as 18 million people – an estimated 10 per cent of the population – of whom millions continue to be internally displaced (UNSG, 2011). This population is likely to urbanize at least in part (UNHCR, 2011), which will add to the already high number of people living in informal settlements in situations of abject poverty, often in highly hazard-prone areas such as floodplains, and likely without safe housing or appropriate services. Already hosting more refugees than any other country in the world, Pakistan also continues to have an extremely high level of internal displacement due to the 2005 Kashmir earthquake. Adding to this are large, unreported numbers of forced evictions and “slum clearings” surrounding large-scale infrastructure development projects such as dams and expressways (Younus, 2010) – the type of situation that the UNFCCC sought to hinder through Article 1 (4)(f) where states commit themselves to

“employ appropriate methods...with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change.”

Pakistan’s progress toward meeting the Millennium Development Goals is lagging in most categories and has worsened since 2006 in regard to extreme poverty and hunger (Planning Commission, 2010, p. 14). For the sake of example, it is estimated that more than 50 per cent of the urban population lives in informal settlements (katchi abadis) without safe housing, water or sanitation (Hassan and Polak, 2004) – a number which is expected to increase significantly due to threatened agriculture-based livelihoods and climate-induced displacement in rural areas.

2. The state of knowledge on adaptation in Pakistan

Despite the urgency of adaptation, governance and institutional mechanisms for defining and implementing adaptation measures are comparatively weak. Pakistan’s 2011 Draft National Climate Change Policy (NCCP), currently undergoing parliamentary approval, has the overarching goal “to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate-resilient development” (Ministry of the Environment, 2011, p. 2). The policy reflects a solid understanding of potential climate change impacts and contains a standard catalogue of mitigation and adaptation measures for the relevant ecosystems and sectors, but contains little information on specific areas of vulnerability in Pakistan. The policy also identifies an extensive range of natural resources management strategies, governance reforms, capacity-building, technologies and research agendas as central priorities for achieving these ends, but does not examine these approaches in deeper context or reflect on whether its ambitious goals are realizable or appropriate under current conditions and without extensive external financing. Although the document can be commended in two areas where it presents extremely urgent and realistic policy measures which directly reflect current conditions in the country – disaster preparedness (item 5.7) and town planning (item 6.4) – its blueprint nature reflects the underlying state of climate change governance in Pakistan. In the words of a Pakistani environmental NGO, there is a “serious disconnect between the framed environmental policies and the actual development processes and programmes running in Pakistan”,
“little evidence of translating the general concern [about the environment and climate change] into concrete and relevant actions”, and a “general lack of coordination and integration among public sector actors”. (LEAD Pakistan, 2008, p. 8)

As a consequence of experiencing frequent natural disasters, climate change in Pakistan is understood through a disaster-development lens and adaptation is more likely to be discussed in the very specific context of post-disaster reconstruction rather than as part of more preventative development and environmental protection measures. As stated in the NCCP, “Pakistan is already experiencing climate change impacts that are too visible to ignore” (Ministry of the Environment, 2011, p. 18) – a fact that is underlined by a prominent reference to the implementation of Pakistan’s National Disaster Risk Management Framework (NDRMF) in the document. In particular regard to adaptation, the NCCP acknowledges the urgency of “implementing appropriate measures to ensure water, food and energy security for the country as well as to minimize the impact of natural disasters on human life, health and property” (Ministry of the Environment, 2011, p. 3). Perhaps the most realistic understanding of adaptation in this context is as a critical strategy for ensuring that sustainable development is possible in an already disaster-prone environment. In the aftermath of the floods, it was said that “Pakistan urgently needs not just a reconstruction and recovery plan, but a strategy to build a new future” (UN News Service, 2010). The NCCP and NDRMF both recognize the importance of DRR and the improvement of infrastructure and basic services – arguably the most urgent and realistic approaches to adaptation that Pakistan can take in this context.

3. Critical gaps in adaptation thinking and obstacles in implementation

There are, however, major obstacles beyond the obvious security situation which hinder the implementation of adaptation measures in Pakistan (Oxley, 2010). Pakistan has a critical structural weakness in the state which seriously interferes with its capacity to adapt: its lack of elected local government and its consequent lack of legitimacy and accountability to the population at the local level. Local government is perhaps one of the most controversial issues in Pakistan and has a very inconsistent history. Prior to 2002, local government was not formally recognized in the Constitution of the Islamic Republic of Pakistan (1973, as amended) and was instead an extension of provincial government where certain responsibilities and functions were delegated. Some provinces had elected local governments (zilas, tehsils, towns and union councils) prior to this time, however these had been dissolved by the time of the 1999 military coup and Proclamation of Emergency. Following Musharraf’s devolution plan “Local Government Plan 2000”, Article 140A was inserted into the Constitution in 2002 by executive order which provided that “Each Province shall, by law, establish a local government system and devolve political, administrative and financial responsibility and authority to the elected representatives of the local governments” (Gazette of Pakistan, 2002). Although civilian rule has since been restored in the country, local elections still have not taken place.

HFA Priority 1 recognizes the importance of decentralizing DRR responsibilities to local-level institutions and ensuring broad community participation in these processes. Although Pakistan’s National Climate Policy recognizes that institution-building is necessary for adaptation and acknowledges the vulnerability of communities, it notably fails to address the need for legitimate subnational, particularly local, institutions to implement these policies and only vaguely references the institutional environment in which it is to be implemented at all. In the 2011 Views from the Frontline study of local risk governance capacities and the implementation of the HFA, Pakistan ranked last in the data sets (Global Network of Civil Society Organisations for Disaster Reduction, 2011) – even below Somalia, the failed state par excellence. This lack of legitimate, elected local government directly correlates to a lack of accountable local-level institutions – a dangerous combination in a fragile context considering that “[i]nstitutions at this level are the frontline of disaster risk reduction and response. For many departments this is the lowest level of administration where they interface directly with communities” (National Disaster Management Authority, 2007, p. 39). This disparity has inevitably led to service failures in meeting the basic needs of the population both in the immediate aftermath of the floods and in general which, in turn, fuels instability and fragility rather than fosters resilience.
4. Local governance and basic services as a catalyst for social and institutional change

Whether understood from the top-down as the implementing institution for national climate policies or from the bottom-up as the population’s most direct point of contact with the state, local government is a central and indispensable actor in adaptation as it is already mandated to provide infrastructure and basic services to the population through which adaptation measures can be implemented (UNCDF et al., 2010, p. 15). Significant overlaps exist between adaptation and local development as well as measures to foster resilience:

“If [local governments] are to adapt to [climate change] and benefit from its opportunities, a good deal of the required actions will consist of doing what they are already mandated to do (but often do not), with perhaps greater urgency and with a little more forethought. …In practice, this means that better performing [local governments] are already adapting to [climate change] by simply providing effective basic services such as drainage, solid waste disposal, water and sanitation, undertaking land use planning, and factoring disaster risk management into their operations – all of which enhance [climate change] resilience and contribute to local development” (UNCDF et al., 2010, p. 16).

In a fragile context like Pakistan, improving the delivery of basic services at the local level can be seen as a low-risk approach to local governance reform (Kyed and Engberg-Pedersen, 2008, p. 1 – 4). At the same time and much more pivotally, basic services are also an essential contribution to poverty and vulnerability reduction and double as a “no regrets” adaptation measure with the potential to address the urgent needs and improve the daily lives of an extremely large number of people, including some of the most marginalized and disenfranchised members of the population. Reflecting back on various features of fragility and vulnerability, improved service delivery can strengthen collective action at the community level which, in turn, gradually transforms local governance processes and creates institutions which can mediate a social contract. Even in the absence of formal elections as an indicator of legitimacy, increased opportunities for participation in such processes and the overall improvement in human rights conditions can improve the population’s perceptions of state legitimacy (NORAD, 2009, pp. 16, 20). This then opens a pathway to state building at higher levels which can create the essential foundations for effective DRR and adaptation at national and international levels.

I. Conclusion

Adaptation is an extremely complex process that must take place within the fabric of the state: its institutions, population and territory. Where these constituent elements of the state are weakened – as seen in fragile states – pathways for adaptation are closed and the state is unable to perform basic functions for its population, let alone fulfill its international obligations. When confronted with climate change, fragile states often lack the capacity and institutions necessary for even the most basic response, causing their populations and territories to be exposed to potentially catastrophic harm. Although fragility is not expressly mentioned in the UNFCCC, the contexts in which the term can be applied are without a doubt extremely vulnerable to the adverse effects of climate change for a number of reasons and must therefore be implicitly understood as some of the most urgent locations for adaptation action.

When asked the question what fragile states can do to adapt to climate change, there are few clear answers where to begin. This paper has sought to demonstrate that underdevelopment, fragility and vulnerability to climate change are deeply interrelated issues, for which common strategies must be identified that recognize the interconnections between environmental change and social change. In order to address these underlying issues, adaptation strategies must directly address the basic substance of the state and the systems of governance and institutions that enable fragile states to take action in these areas, beginning with the basic foundations that enable people to live in balance with the environment. Adaptation is, as a consequence, embedded in a much larger international context. Returning to Article 4 (1)(b) of the UNFCCC, it should be underlined that all states party to the treaty have undertaken binding legal commitments to facilitate adequate adaptation to climate change.
This commitment is not limited to the territories of the individual states but is, instead, a commitment to the international community as a whole. Having said this, one cannot help but wonder if the rest of the world were to stop behaving like “bad neighbors” (Collier, 2008), take an example from “better performing local government” and actually do a good deal of the climate change-related actions they have already legally committed themselves to do – say mitigation, as a start – and if they were to do so “with a greater sense of urgency and a little more forethought”, perhaps adaptation would not be so complex after all.

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Exploring Social Resilience in State Fragility: A Climate Change Perspective
Rajeev Ranjan
Vivek Prasad

Abstract

Fragile states are facing double challenges: conflict and climate change. Regional fragility and impacts of climate change have so far remained under-researched and studies have failed to capture the hot spots of fragility within countries. This paper focuses on fragile regions within countries and argues that regional fragility exists even in politically stable states.

Using the case of regional fragility in Jharkhand, a conflict-affected eastern state of India and experiencing climate change, this paper explores social resilience embedded in CBA. It further examines autonomous strategies and assesses bottom-up approaches that can facilitate adaptation at the local level and enhance social resilience. Jharkhand, which was carved out from Bihar in the year 2000, as the 28th Indian state, has received a connotation as a low-performing state and depressed region of India. The state exhibits traits similar to that of fragile states. In its critical phase of transition from a history of conflict to a state building process, Jharkhand’s people are also challenged by the local effects of global climate change which work to intensify the pre-existing problems.

Keywords: climate change, fragile states, resilience, community-based adaptation, Jharkhand, India

A. Introduction

Globally there is a growing consensus that climate change will have severe impacts on the poorest and most marginalized communities. Findings from the Fourth Assessment Report of the IPCC clearly inform that poor communities can be especially vulnerable due to limited adaptive capacities, and high dependency on climate-sensitive resources (IPCC, 2007). Scheffran and Battaglini (2010) emphasize that the “impacts of climate change will exacerbate the vulnerability of existing systems including water resources, agriculture, forestry, human health, human settle-
ments, energy systems, and the economy”. It is also predicted that the impact of climate change will severely affect the livelihood of poor communities having already a low socio-economic portfolio and often neglected in the developmental process due to weak state functions.

To understand why poor people are more vulnerable to climate change than other sections of the society facing the same climate, Ensor and Berger (2009) point out that their vulnerability to climate change is aggravated due to the persistence of poverty, little access to new knowledge or opportunities, and their inaccessibility to influence policies. According to Smith and Vivekananda (2009), this intractability of underdevelopment is further shaped by the fragility of state institutions for the communities living in regions with unstable political arrangements. For the poor and marginalized, the impact of climate change and variability will interact across social, economic, and political factors to produce a low capacity to adapt and a high risk of serious consequences such as widespread malnutrition and starvation, mass migration or violent conflict (Smith and Vivekananda, 2007).

Many studies have been conducted to understand the nuances of climate change within the context of biophysical and socio-economic conditions in particular regions or sectors (O’Brien, 2000; O’Brien and Leichenko, 2000) so that related adaptation can be planned keeping in mind the local specificities (Prasad, 2011). However, in the context of fragile states, agreement on the concepts of state fragility and clear links between adaptation and climate change remain limited and underdeveloped. Literature on state fragility in recent years has focused mainly on country fragility and has failed to capture the fine-grained scale in terms of regional fragility within a country (Verdier, 2009). There may be regions within a country representing fragile situations of high population under conflicts, poverty, food insecurity and many other social, economic and political stresses. This is mostly evident in regions within a country which have stark differences such as regions between Punjab and Balochistan in Pakistan; and Terai and Kathmandu valley in Nepal; between Dhaka and Chittagong in Bangladesh; and between Colombo and Jaffna in Sri Lanka (Chandran, 2009).
In a similar vein, although India ranks better in the Failed States Index (FSI), never having felt seriously threatened at the national level, it possesses regions – Northeast India, J&K, and increasingly, Central/East India (the so-called Red Corridor) – that have been facing serious problems relating to governance and violence (Chandran, 2010, p. 1). The Ministry of Home Affairs for India clearly points out the threat from left-wing extremists as a major challenge to the security of the state (PIB, 2011a). Apparently, if the same twelve yardsticks used to measure state failure in the FSI are applied to these affected parts of India, it would suggest that the defined parts of India are in failure (Chandran, 2010, p. 1).

This paper considers the case of Jharkhand, a conflict-affected eastern state in India and argues that the present situation in Jharkhand is fragile, by elucidating indicators of state fragility. Additionally, the local effects of global climate change and variability has further exacerbated the vulnerability of local communities in the last two decades (Prasad, 2011; Wadood and Kumari, 2009). Living with multiple risks, poor and marginalized communities of Jharkhand have been adapting to the effects of climate change and variability with limited external support. To this end, their local knowledge and social capital have played a key role in helping them survive even the most extreme events (Prasad et al., 2009).

1. Structure of the paper

The paper begins by reviewing the current knowledge and gaps on fragility with a focus on regional fragility and the influence of climate change across social, economic and political patterns of the vulnerable societies and examines the fragility of Jharkhand and the impacts of climate change. The paper then highlights the role of local knowledge, social capital and the approaches of fostering CBA and building resilience to climate change.

8. Dimensions of fragility and climate change

There is no authoritative definition of state fragility, nor is there an agreed list of fragile states (DIIS, 2008, p. 8). Fruchart et al. (2009) draw a consensus on fragility from related definitions given by international communities focusing on the key characteristic of quality of governance and state institutions: “when state structures lack political will and/or capacity to provide the basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations” (OECD, 2007).

“those where the government cannot or will not deliver core functions to the majority of its people, including the poor” (DFID, 2005). “countries facing particularly severe development challenges such as weak institutional capacity, poor governance, political instability, and frequently on going violence or the legacy effects of past severe conflict” (World Bank, 2007a).

Fragility is not an absolute term but has a range of connotations that can be summarized as follows:

- Weak states: The term represents poor states suffering from significant “gaps” in security, performance and legitimacy (Rice and Patrick, Brookings Institute, 2008). Even in well-functioning states there can be peripheral regions where the state is weak and challenged by local actors;

- Failing states: This term is often used to describe states that are substantially failing their citizens and/or are failing to achieve economic growth. But this is contentious because it is confusingly applied both to states that are failing and those at risk of failing;

- Failed states: A failed state is marked by the collapse of central government authority to impose order, resulting in loss of physical control of territory, and/or the monopoly over the legitimate use of force. Crucially, it can no longer reproduce the conditions for its own existence (Crisis States, 2007);

- Collapsed states: Collapsed and failed states are often used interchangeably to convey a situation where the state has entirely ceased to function (Crisis States, 2007; Crisis States 2007 in Mcloughlin, 2010).

While most of the literature defines the concepts of state fragility in different ways, a key gap in the study of fragile states is the under-researched dimensions of conflict and fragility at regional scales. The definitions and measurements of fragile states do not capture small-scale variability within a state territory (Harwell, 2010). For example, Mindanao in the Philippines,
Papua in Indonesia, Amazônas in Brazil, Chiapas in Mexico and the Naxalite strongholds in India (Harwell, 2010) are small pockets of fragile regions within states and across state borders. Here, it is important to understand how local state functions and drivers of fragility such as socio-economic profile, external shocks, transitions, natural resource entitlements, conflict, geography, etc. interact at regional scales (Vallings and Magüi, 2005). Towards understanding similar interplay at a local level the recently established EU-funded programme MICROCON aims to engage in the microlevel analysis of conflict and make the links to macro-processes, and includes a programme on a variety of themes ranging from poverty and livelihoods to exclusion, inequality and identity (Hilker et al., 2008, p. 24).

Further, security and conflict aspects of climate change are gaining wider attention from researchers (e.g., Barnett and Adger, 2007; Brown et al., 2007; Buhaug, 2010; Mearns and Norton, 2010; Scheffran, 2009; Scheffran and Battaglini, 2010; Smith and Vivekananda, 2007, 2009). Scheffran and Battaglini (2010) point out the need for clear understanding on the causal relationship between climate impacts, security and conflict. They further add that understanding the complexity of interactions between climate stress factors, and their human and societal impacts and responses, is crucial to assess the implications for security and conflict. They have modelled the relation between climate stress, human dynamics and societal impacts as shown in Figure 1.

It is generally agreed that environmental factors, including climate change, can be contributing factors to conflict. However, climate change is best thought of as an aggravating factor or trigger in places where some of the characteristic ingredients for conflict such as weak, corrupt, fragile or failed governments already exist (Stark et al., 2009).

In the following section we focus on microlevel analysis of fragility in Jharkhand by understanding the past natural resource-based conflict in the political struggles of Jharkhand. Such challenges of the state including poverty, food insecurity, violent conflicts and weak governance are compounded by the additional stress of climate change. Further, this paper attempts to distill the impact of climate change through the Scheffran and Battaglini (2010) model using local specifics of Jharkhand. The exploration and discussion help illustrate how climatic impacts and human dynamics interact to express possible societal impacts.

**Figure 1. Relationship between climate stress, human dynamics and societal impacts.**

*Source: Scheffran and Battaglini, 2010, p. 29*
C. Understanding fragility in Jharkhand

The evolution of Jharkhand (meaning land of forest) as a new state of India in the year 2000 occurred after a prolonged history of tribal movements centred on ethnic identity rights and alienation from natural resource entitlements (Prasad, 2011). The historical evolution of the state provides important insights on the understanding of its current challenges. In the last 11 years of its transition to a newly formed state, it has been given a certain reputation by media reports and even research papers present it as a low-performing state and depressed region of India.

Jharkhand represents a natural resource-abundant state of India, rich in both mineral and forest endowments (World Bank, 2007b). Geographically, the state lies on the Chotanagpur plateau in the eastern region of India with high undulating topography and a humid to sub-humid climate. The lives of the rural population and tribal communities in particular revolve around natural resources for supporting their livelihood. This paper emphasizes the tribal population because they are the first settlers of the state but are the most deprived from development and resource entitlement.

Alienation from land-based resources has been common to the tribal communities of Jharkhand and that has led to the political struggles of Jharkhand (DN, 1988). The tribal areas being rich in natural resources have attracted and continue to attract considerable investment in mineral-based industries, such as hydro-power and mining projects. This has led to large-scale displacement of tribal communities (Singh et al., 1999). A study by Alex Ekka estimated displacement of three million people (90 per cent tribal) during the period 1951–1995 as a result of development-induced displacement and only about 25 per cent of them rehabilitated so far (Ekka, 2000, p. 4610). Displacement has caused countless suffering to the indigenous people of Jharkhand leading to the rise of several movements to protect tribal rights. Since the British period the region witnessed several movements led by tribal people to protect their rights and lands, such as Hul, Kol, and Birsa. The abundance of natural resources and alienation of the tribes from the resources has been a root cause for the conflict in Jharkhand. The conflict stretched over long years in demand for a separate state and continued even after the formation of the state. According to Sarah Jewitt, the Jharkhand movement has the elements of both ethnic and environmental movement. She further examines the movement from a political ecology perspective focusing on violence arising from natural resource-related grievances, notably land alienation, forest policy and employment from Jharkhand’s mines, and proposes that a political ecology emphasis on local level responses to resource conflict through bottom-up approaches may help to prevent conflicts from developing into further full-blown escalation (Jewitt, 2008).

In the wake of present challenges of the state having links to its evolution, and the additional pressure of climate change, this paper tries to understand various factors that represent the fragile situation of the state. The state has a complex socio-ecological system exhibiting key interlinked traits of fragility such as a high rate of poverty, migration, health and nutrition issues, illiteracy, food and water insecurity, environmental degradation, resource conflict and alienation. Based on the experience of fragility in other parts of the world and comparing their historical experience and symptoms with the contemporary situation of Jharkhand, this paper proposes that it may move towards state fragility if the contemporary conditions persist.

Drawing from multiple concepts in the definitions of vulnerability given by Liverman (1994), such as marginality, susceptibility, adaptability, fragility, and risk, rural communities and especially the tribal communities of Jharkhand represent marginalized communities predominantly living in rural areas having natural resource-dependent livelihood practices. This has led to their increased susceptibility and limited adaptive capacity to external stressors such as climate change and variability. Further, the inherent problem of conflict and weak governance makes the situation fragile for them with high risk.

Similarly, a recent analysis of the hazards, risks and vulnerability of the state by the disaster management department outlines key areas of the state's vulnerability to drought, mining accident, chemical and industrial hazards, lightning, bird flu, flood, earthquake, fire/forest fire, elephant attacks, climate change, biodiversity loss and Naxalism/landmine blasts (GOJ, 2011). This
analysis fails to capture what the precursors of these hazards and risks are. In a way, the attention of governments is primarily on the outcomes and events and not on underlying causes or the symptoms of those underlying causes.

The political-economy part of the vulnerability is reflected in a finding of the World Bank’s report on Jharkhand. The report clearly states the ineffectiveness of implementation of finances due to four sets of factors: (i) high micro-risks such as insecurity relating to extremist violence; (ii) problem of corruption; (iii) inadequate administrative capacity; and (iv) low beneficiary participation and satisfaction (World Bank, 2007b, p. 16).

Table 1 is an explicit summary of precursors and their indicators. These indicators closely align with the indicators often used to designate and define a fragile state.

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Table 1. Some key indicators of fragility in Jharkhand. Source: Author
1. Major issues explaining the links to fragility in Jharkhand

This section addresses some of the major issues pertaining to Jharkhand state which lend an improved understanding on defining the fragility of the state. These parameters are important from the view point of traits exhibited by fragile states according to current discourse.

(a) High level of poverty

The majority of the rural population of Jharkhand is comprised of the marginalized and poor communities who are primarily dependent on natural resources and agriculture for their livelihood. Acute and persistent poverty is a potential cause of fragility (USAID, 2006). A study on poverty by Oxford Poverty & Human Development Initiatives and UNDP compares incidence of poverty in Jharkhand with the poorest African countries (Alkire and Santos, 2010). This is happening in India, a country with a strong economic growth in recent years and considered as a transitioning economy. Often Jharkhand's acute poverty is masked due to poor recognition of the facts and inappropriate choice of indicators.

(b) Naxalism: conflict surrounding Jharkhand

According to USAID (2006), most of the work on state fragility has been derived from the work on conflict having a strong conceptual link between the two phenomena. A pioneering work by Collier and Hoeffler (2000) distinguishes between greed and grievance as key sources to conflict. In the context of Jharkhand, Jewitt (2008) analyses the history of conflicts from a political ecological approach focusing on violence arising out of natural resource-related grievances (see section C of this paper). The conflict scenario has extended in the form of left wing extremism in the state. The continuities between the local state and the “terrorist” extreme left-wing armed guerrilla Naxalite movement have gained grassroots support. Now it has taken the shape of a well-organized mechanism of resource extraction in terms of ransom and forceful communion in development projects (Shah, 2006).

The conflict data released by the Ministry of Home Affairs of India (see Table 1) suggests a high number of Naxal incidences in Jharkhand in recent years leading to several deaths, disruption of transportation services – trains, busses, vehicles – and market closures during frequent Naxal bandhs. The government’s intervention is inadequate and is treating it as a law and order problem rather than a social problem which has roots in poverty, unemployment and exclusion. For example, the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), a social protection programme, has, in general failed to provide alternate and supplemental employment (Drèze, 2008). The Naxal movement poses significant challenges and a threat to institutions of the state. In addition, it increases revenue losses from reduced economic activity, and loss of territorial control for the government and constrains the government’s ability, at all levels, to deliver services and to plan for medium-term peace, recovery and development (Shah, 2010).

According to a report published by the Norwegian Geotechnical Institute (NGI), almost half of all ongoing armed intrastate conflicts in the world today are fought in the Asia-Pacific region. The report further adds that India, in particular, displays high internal variation in conflict hazard reflecting on the long-lasting separatist conflicts in Kashmir, Assam, Manipur and Nagaland, as well as the Naxalite rebellion around Chhattisgarh, Jharkhand and Andhra Pradesh (Nadim et al., 2009). Figure 2 is a visual representation.

(c) Governance: marking political instability of the state

According to Vallings and Magüi (2005), in a full democracy, the legislative, executive and judicial arms of the state structure reinforce each other by sharing distinct powers. They further add that the state’s ability to settle disputes and conflict peacefully is disturbed where the power distribution amongst these institutions is unequal. In Jharkhand, the imbalance and inconsistent power distribution is attributed to several incidences of failed governments (in the past 11 years the state has witnessed eight governments and two spells of President’s rule). This should not be the case under the constitutional foundation of India and its federal arrangements.
D. Climate change: creeping into Jharkhand

The local impact of global climate change and variability has exacerbated the vulnerability of the rural communities of Jharkhand. The IPCC defines vulnerability to climate as a function of three factors – exposure, sensitivity and adaptive capacity. The first issue relates to whether a socio-ecological system is exposed to the physical effects of climate change. The second is how sensitive it is to that exposure. And the third issue is whether there is adaptive capacity that permits preparation (Smith and Vivekananda 2009; IPCC, 2007). In section C, we explicitly tried to analyse the underlying vulnerability of Jharkhand exacerbated by the impact of climate change from a further understanding of the linkages of climate stress, human dynamics and societal impacts modelled by Scheffran and Battaglini (2010).

In the context of climate change effects in Jharkhand, the vulnerability of the population is well explained by the concept of “double exposure” (O’Brien and Leichenko, 2000). According to this concept, there are many regions with pre-existing problems (such as socio-economic and conflicts in Jharkand) and when they are exposed to environmental and climatic stresses their vulnerability increases manifold.

The state Jharkhand is characterized by recurrent occurrences of severe drought, monsoon variability and numerous agro-climatic constraints such as high undulating terrain, low irrigation facilities, small landholdings, etc. Rai et al. (2008) have developed a relative index of 15 agro-climatic zones of India. Jharkhand falls in the agro-climatic zone 7 and this zone has been ranked low in all indices, such as infrastructure, agriculture, livelihood, health and sanitation, food security and nutrition, and economic status.

An analysis by Pandey et al. (2006) revealed that drought results in an overall income loss of about 25 per cent in Jharkhand. Similarly, Sharan (2007) explains that Jharkhand is one of the severely drought impacted states of India with a high incidence of food insecurity among tribal communities, also leading to death from starvation and hunger. He further adds that the role of governance and policy in addressing this acute problem is critical and needs a fresh look at the solution. A related effect of the drought is high temporary migration of the rural population from...
Jharkhand to other states of India (Deshingkar, 2004). In general, this migration is between rural drought-prone regions and rural areas of irrigated agriculture which require seasonal labour. This further contributes to social frictions and conflict between the localities and rural migrant workers. Also, narratives from migrant workers reveal that they feel a loss of social network and identity due to the absence of participation in household and community decision-making. Another dimension in this reference is the weakening of local institutions due to the migration of people from villages.

The pressures of climate change on the existing system of Jharkhand shows an intensified conflict among the natural resource-dependent communities. We do not have clear data on the correlation of increasing conflict with climate change impacts, but empirical studies, local narratives and prolonged experiences of local people support this argument. In addition, Naxal and state conflicts in recent years represent a growing discontentment amongst the rural population and rural people joining several Naxal outfits. This has added to the complexity of the pre-existing resource conflict and climate change interface.

E. Rethinking adaptation and developing social resilience

For adaptation to be successful in fragile regions needs the application of integrated approaches that encompass broad developmental issues, state building and peacemaking processes, adaptation itself and resilience. It is critically important to rethink adaptation by reinventing and exploring already existing approaches, principles in the discourse and practice of development, peacemaking, adaptation and resilience. A cursory review of literature and practices reveal that certain principles are overlapping and mutually exclusive as well. The development approaches advocate principles such as efficiency, effectiveness and equity whereas the state building processes in fragile regions emphasize rapidity, responsiveness and inclusion. Adaptation draws from the development approaches and also adds prediction, projection and information sharing as prerequisites of adaptation. The resilience theory promotes system thinking which entails self-organization, capacity for learning and capacity to absorb change. Here it is important to mention a general definition of adaptive capacity, which is the ability of a system to evolve in order to accommodate environmental hazards or policy changes and to expand the range of variability with which it can cope (Adger, 2006). Resilience is the “ability to face internal or external crisis [stress] and not only effectively resolve it but also learn from it, be strengthened by it and emerge transformed by it, both individually and as a group” (Brenson-Lazan, 2003, p. 1). Adaptive capacity is an integral component of resilience.

It is well recognized that the drivers of fragility and impacts of climate change are site specific and vary from place to place. Therefore, attention should be on the understanding of the complex socio-ecological system in fragile situations for facilitating acceptable adaptation that is localized in nature and aimed at developing the social resilience of the communities. The community is the vital level to foster adaptation in fragile regions, as they are the hardest hit by the interaction of climate change with pre-existing underdevelopment and conflict surrounding them (Smith and Vivekananda, 2007). CBA approaches have evolved over years out of experience of local natural resource management and have helped communities to absorb shocks and stresses with the help of their traditional knowledge, social capital and local institutions.

We have selected a few case studies from Jharkhand state that demonstrate a fair degree of success and exemplify adaptation in fragile situations. The case studies also build our perspectives on conflict sensitive interventions having local acceptance and aimed at developing the resilience of the community in the long run.

1. Community-based adaptation in Jharkhand: exploring local responses

For the tribal communities of Jharkhand the coping and adaptation strategies include the efforts of an individual of the family, the households and the community under a leadership at village level. The tribal communities of Jharkhand have a rich indigenous knowledge about their micro-environments such as weather, climate, birds, forestry, indigenous medicinal practices and indigenous agricultural practices that has helped them in overcoming climatic stresses and shocks in the past and present.
There is evidence of coping with climate change and variability where communities have adopted measures, such as creating water harvesting tanks, lift irrigation, planting trees, building check dams and changing the patterns of agriculture such as mixed cropping, inter cropping, etc. Also, there is evidence of proactive autonomous adaptation on an individual level (Prasad et al., 2009). The local knowledge and its practice are cost-effective, culturally appropriate and acceptable, and fit into the local ecosystem. These local practices have proved effective ways to adapt to change. Local narratives from the field study revealed that the rural communities rely heavily on resources from the forests and this has helped them to survive in many past drought years. The role of communities in management of forests and resources is worth noting and is well explained in the case study of Khaksi Toli.

**Autonomous adaptation – case study of Khaksi Toli:** Khaksi Toli is a small tribal hamlet consisting of around 65 households in the Bero block of Jharkhand. This block of the Ranchi district of Jharkhand has also gained attention for being conflict affected due to strongholds of Naxalites. The community-based natural resource management in Khaksi Toli is an intuitive example which demonstrates the overall well-being and sustainable livelihood of the villagers despite conflict surrounding the region. The forest is being managed by the villagers themselves and they protect and harvest forest products collectively. This land and water management initiative in combination with forest protection started four decades ago under the traditional leadership of Simon Oraon who used local institutions and traditional skills of land and water management techniques coupled with the local weather predictions practices for agriculture.

This is a good case exemplifying how local natural resources can be managed at micro levels, while at the same time supplementing villagers’ livelihoods. However, the benefit goes beyond this. Due to the presence of forest cover on the higher ridges of the watershed, there is replenishment of groundwater which helps in maintaining the water table and provides irrigation in times of need. In 2009 and 2010 when there was drought in the region, this watershed emerged as an example of socio-ecological intervention to withstand drought and protect livelihoods (Prasad, 2011). The case strongly reflects collective action for natural resource management with social acceptance at a local level.

**The second case study is related to agricultural innovation.** In response to recurrent drought and food insecurity, in 2008 – 2009 the NGO Lohardaga Gram Swarajya Sansthan, with the help of the Society for Promotion of Wasteland Development (SPWVD) India, introduced the System of Rice Intensification (SRI) project in the Ulti village of Jharkhand. This example is based on a focus group discussion with Ulti village farmers and local NGO functionaries who were involved in the introduction and promotion of SRI. This case study provides useful insights of how using local culture, knowledge and skill worked to enhance the adaptive capacity of local people.

SRI is a technique of paddy cultivation developed in Madagascar in the early 1980s. The tribal farmers of this project’s study area have long been practicing paddy cultivation with local varieties of rice such as Dahiya, Ketaki, Tilshari, Bhajni, Kalamdaani, Bhaisa, Bacchadhan, Neta, Sadhma, Agnisaal, Goda, etc. Though the 1970s Green Revolution played a significant role in introducing modern agricultural practices, tribal communities and poor farmers of this project’s study area have not benefited much. This is mostly due to low irrigation facilities, undulating topography, a lack of technological expertise, high incidence of poverty and other socio-economic factors.

On the other hand, SRI has proven to work well with the local variety seeds with which it has produced high yields. This method has proved to enhance the agricultural productivity of especially tribal and poor farmers who cannot afford the rising prices of agricultural inputs such as hybrid seeds, chemical fertilizers, labour cost, pesticides, etc. According to Lacchu Oraon, a tribal farmer of the village Ulti, SRI has helped to enhance the paddy production with the local variety of seed Dahiya that he has been using for paddy cultivation. Moreover, this has helped him to maintain genetic diversity of paddy varieties, and helped many other villagers who have started experimenting with SRI using traditional varieties. He further adds that the success of SRI in the village has helped spread the practice in other neighbouring villages of Ulti. SRI has proved to be favourable for small and marginal farmers who all have the potential to adopt and practice SRI if...
dissemination of the method is proper and widespread (Ranjan and Prasad, in press).

These are sporadic examples in a fragile region and provide insight that adaptation in fragile regions needs a relatively high degree of grounding, robust analysis of the situation and integration of approaches drawing from development, state building and peacemaking, adaptation itself and resilience. The integration is required both at the conceptual level and at the operational level (Shah, personal communication, 2011).

**F. Challenges and potentials of adaptation in fragile regions**

Issues of climate change and adaptation in states facing fragile situations need greater attention and recognition from policymakers and researchers. For example, the recent research in the villages of Jharkhand conducted by Prasad (2011), explored and examined vulnerability and its components – exposure, sensitivity and adaptive capacity (resilience). The definition and framework of vulnerability was adapted from the IPCC and tailored to the local specifics. With regard to exposure, it was obvious that both local and scientific communities are observing climate change and variability. There are two challenges inherent in this context. First, although the scientific communities have the capability to record, process and inform local communities but the communication channel to exchange knowledge with communities is very weak. Second, communities are also keenly observing using their cultural background, but their knowledge has yet to inform policymaking.

These challenges can be addressed by establishing a culturally acceptable interaction within the framework of the existing political and administrative set-up. With regard to sensitivity, this research examined the sensitivity of important local resources using two lenses, endowment and entitlement. It was found that entitlement is more pronounced than endowment, but at the same time cultural notions provide an avenue to intervene through the entitlement lens that can be done by adjusting existing formal institutions and prompting inclusive governance. An adaptive capacity with its various features and components provided evidence that communities and institutions have exemplified, though in limited scale, successful adaptation using existing programmes and policies. Also, there are cases of maladaptation, when institutions failed to deliver.

According to Dr. Sant Kumar Prasad, an expert on local institutions in Jharkhand, *Panchayat* (local institution) has great potential to promote microplanning and development and it may promote CBA. He further added that in Jharkhand most of the plans and policies are borrowed directly from the central government (federal government). They need to be tailor-made to the local realities and preferably planning and policymaking should be situated with the state and lower bodies (Prasad, 2011).

In sum, in Jharkhand, even under weak governance and various environmental and socio-political problems, there is evidence of successful projects and initiatives, such as the examples of SRI in *Ulti* and natural resource management in *Khaksi Toli*. These are happening at the community and household levels. The need is to understand these examples further and find out what factors enabled and constrained them and finally promote and upscale these initiatives.

**G. Gleaning framework of recommendation**

Based on the above discussion and analysis of case studies this paper deciphers a framework of recommendation that may be applied in conceptualizing and framing adaptation policy and projects in a fragile situation. We do not claim that these recommendations are innovative or new, rather what we are arguing is that there is a need for using elements of this framework with newer vigour, intelligent combination, and without ignoring a reasoning approach. Here is a discussion on elements of the framework recommendation.

1. **Bottom-up approaches**

The major weaknesses of various macro studies on vulnerability, especially in fragile states, are in terms of scale and lack of rationale that fail to capture why a certain group or region is vulnerable, what the underlying narratives are and how those narratives, factors and drivers are linked to each other and with the overall complexity of vulnerability. The guiding principle in using the bottom-up approach following the IPCC vulnerability framework is aligned to “practical appli-
cation” (Smit and Wandel, 2006). This enables the identification and development of particular adaptive measures or practices tailored to the needs of that community. It is an approach of promoting inclusive development and adaptation, often missing in fragile and weak governance systems. This “bottom-up” approach may raise an operational question of how to upscale it and how it can be effective in terms of time and resources involved in the research when we translate this approach to a macro-scale. Prasad (2011) argues that this bottom-up approach is suitable for the governance structure of Jharkhand that is a federation of smaller administrative units (villages) with its linkages to upper administrative bodies in a hierarchal order.

2. Strengthening of local institutions

Local institutions exhibit the potential to improve the adaptive capacity of local communities. In the adaptive capacity-building process, an important first step is to recognize how crucial these institutions can be and to provide enough space for these institutions to flourish and act for the well-being of the family and community. In general and particularly in fragile situations, strengthening local institutions promotes addressing the issue of differential adaptive capacity of different ethnic or social groups.

3. Integration of scientific knowledge and indigenous knowledge

Scientific knowledge has its role to play but we cannot substitute it completely for what people have been practicing and relying on through the ages. We need to test the relevance of this local knowledge and see how scientific weather forecasts can work to compliment it so that local people have better options and information sources that allow them to make well-informed decisions. Further, future research needs to enlist and explore the continued relevance and potential of this local knowledge under increasing climate change and variability. Similarly, villagers and farmers in particular have exhibited a variety of autonomous adaptation measures under different climatic conditions. There is a need to create a robust analysis and a resulting portfolio of successful adaptation and recommendations for decision-making across different social and economic groups of farmers. This portfolio will be helpful in developing participatory adaptation plans for farmers throughout Jharkhand and the approach will be useful in fragile regions and states.

4. Mainstreaming adaptation plan with development strategies

“Mainstreaming” entails making more efficient and effective use of financial and human resources rather than designing, implementing and managing climate policy separately from ongoing activities. Prospective efficiency and effectiveness gains provide a rationale to development agencies for analysing the potential for mainstreaming in their development activities (Eriksen et al., 2007). A mainstreamed adaptation strategy should include measures that address the underlying factors of vulnerability to climate change, particularly on a local scale. Mainstreaming can then ensure that development activities themselves are not maladapted to climate change (ibid). There is a need to do a comprehensive social and environmental policy analysis, identifying contradictory policies, removing them and reinforcing those which are complementary to each other in fragile regions.

5. Governance and assistance

The government’s spending on conflict-affected districts of India has increased significantly in recent years with a focus on addressing pressing development challenges such as poverty, unemployment, health, drinking, education and roads. Towards this aim the Integrated Action Plan (IAP) by the central government of India was launched to counter the menace of Naxalism in affected regions. Under this central assistance scheme, each of the 78 Naxal-affected districts will be given a block grant of Rs. 25 crore (US$5.5 million). In Jharkhand alone, 17 out of 24 districts are under the assistance of this central funded scheme. However, the implementation of this scheme at the grassroots level remains a daunting task if we look at the failure of other big programmes, for example MNREGA and state-funded development projects and programmes in the Naxal affected regions. The project implementation of government agencies presents a top-down approach. This is quite the opposite in cases of NGOs and civil societies that can reach the remotest of regions and have links with the local communities and institutions. In the mining regions of Jharkhand, development seems a
challenging task. On the other hand, the business of private companies and local mine owners seems to be little affected as they pay levy for protection and smooth operations (Shah, 2010). Corruption in government projects and poor implementation strategies in these backward regions further intensifies the depravity of the communities. For peace positive development, it is important that in these regions bottom-up approaches are applied, to have strategies that reach out to the local communities first, develop strong linkages with people and foster development based on the local realities and needs.

H. Conclusion

Globally there are many hotspots representing the high risk of populations from state fragility and the aggravated impacts of climate change. It is important here to understand the interface of the local specificities within the framework of climate change and the related aspect of building the resilience of the vulnerable communities. Through this paper we tried to address the issues of climate change by understanding the regional fragility of Jharkhand. It is notable from the above case study that adaptation to the effects of climate change is happening even in the regions facing fragility. But the question is how far the autonomous strategies will be successful in reducing the vulnerability of the population to fragile conditions facing the aggravated effects of climate change. This draws attention to approaches that are locally facilitated and intended to strengthen local institutions and enhance social resilience.

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Planning Through Complexity: Employing Scenario Analysis to Facilitate Climate Change Adaptation in Fragile States

Mark R. Read

Abstract
Planning effective CCA in fragile states is complicated by a wide range of social and environmental factors, as well as high levels of uncertainty. Scenario analysis, a method used extensively by the business community and gaining recognition by the policy and research communities, is well suited to studying plausible futures in complex problems that are highly uncertain and uncontrollable. By bringing together interdisciplinary groups of experts and stakeholders, scenarios can be used to examine policy impacts, identify areas for future research, and anticipate the effects of different surprises. Scenarios may be qualitative (e.g., narratives or storylines), quantitative (e.g., models), or both. Additionally, scenarios may be developed for any temporal, spatial, or institutional level, and some attempts have been made to build multi-level scenarios. This paper outlines recent developments in socio-environmental scenario analysis, exploring two major threads – an inquiry-driven thread that caters to the research community, and a strategy-driven thread that caters to the policy community – as well as attempts to combine these two threads. Next, the paper examines attempts to and challenges associated with creating multiscale and multilevel scenarios, and scenarios that incorporate surprise. Finally, the paper proposes a scenario analysis framework that might be used to focus research or develop policy related to CCA, security and stability in fragile states, including advantages and limitations of such an approach. A case study examines the utility of such a scenario analysis framework for CCA in Iraq.

Keywords: scenario analysis, fragile states, adaptation, climate change, uncertainty, Iraq

A. Introduction

The ongoing socio-political unrest in the Middle East and North Africa has once again demonstrated the complex, dynamic nature of today’s global community. Although some experts, policy analysts and pundits correctly predicted pieces of the ongoing upheaval, none could have foreseen precisely the way in which certain catalysts triggered key events across a range of spatial, temporal, and institutional levels. There are numerous proximate and underlying causes of the unrest. Repressive governance, communications technology, social media, a youth bulge, urban poverty and the rapid rise in global food prices have all emerged as causes of or catalysts for popular uprisings that resulted in ongoing violence in many Arab states, altering the national and international security landscape of the region. At least one of the aforementioned variables – the spike in global food prices – was associated with extreme meteorological events in the summer of 2010, including record heat and drought in Russia and severe, widespread flooding in Pakistan. Although these meteorological anomalies cannot be directly linked to the changing climate, climate scientists predict higher frequency and intensity of such anomalies as the atmosphere warms in the coming decades.

The Arab Spring provides but one example of a complex web of environmental and social variables interacting and changing over a range of temporal and spatial levels to influence local, national, and international stability and security. Given such complexity, and the associated uncertainty, how can we possibly learn the effect that environmental change or, more specifically, climate change may have on national or international security or stability, and plan adaptation accordingly? How might political unrest in the Middle East affect development and stability in a fragile state such as Iraq? In the midst of political uncertainty and ongoing security challenges, how can a state like Iraq possibly consider long-range issues such as CCA? Scenario analysis – a methodology employed to understand and plan for the future in the face of significant uncertainty (Van Der Heijden, 2005) – represents a tool that may be useful for scholars, strategic planners, decision makers and other stakeholders. Scenario analysis exercises have been employed over the past decade to understand and plan through complex, highly uncertain socio-environmental problems. The uncertainty associated with the far-reaching implications of complications associated with climate change is nowhere more acute than in fragile states. Yet it is in fragile states that the institutional capacity to plan for and resource CCA is usually the lowest. This high uncertainty
coupled with low adaptive capacity contributes to inaction— a lack of planning as well as a lack of coordinated adaptation— or worse, maladaptation. Top-down efforts to implement CCA have proven difficult, ineffective or even counterproductive.

In this paper I provide a brief background of futures studies, focusing on scenario analysis. I review examples of recent socio-environmental scenario exercises. Throughout the background discussion of scenario analysis I highlight areas where this evolving area of futures studies might contribute to climate change adaptation in fragile states. Then, I discuss two important but largely neglected types of socio-environmental scenarios— those incorporating multiple scales and those addressing surprise. Next, I propose a scenario analysis framework that may be useful for studying, planning for, and facilitating CCA in fragile states. I conclude with a case study, returning to the questions raised above about CCA in Iraq, and examining how such a framework might be employed there.

B. Background

Empirical research, whether qualitative or quantitative, dominates scholarly inquiry and influences policy at all levels of governance. Nonetheless, empirical research has limits, especially when examining or anticipating events that have not yet happened. Additionally, most empirical research focuses at a single scale or level, often neglecting cross-scale or cross-level interactions (Leemans, 2005). Complex, large- or multi-scale problems, such as climate change or global change, can be particularly difficult to study using the scientific method, especially considering that future conditions affecting these problems are likely to be unprecedented. Traditional employment of the scientific method tells us much about the past and present physical and social impacts of climate change, but is often not suitable for predicting, forecasting, or planning for future climate change and its implications. Anticipating and planning for CCA in fragile states presents very complex problems, the study of which is not well suited for most traditional research methods. The field of futures studies employs an array of methodologies to anticipate and plan for the future, including use of a wide range of modelling, simulations and trend analysis.

1. Futures studies and scenario analysis

Although not nearly as well established as most empirical research, the field of futures studies has a long history, both in the academic and policy communities. The purposes of futures studies are “[t]o discover or invent, examine and evaluate, and propose possible, probable and preferable futures” (Bell, 1997, p. 73). Futures studies offer many methods for problem solving, most of which aim to be practical and usable in the real world. Basic futures studies exercises employ relatively simple methods such as time series extrapolation or survey research. The Delphi Method, developed by RAND researchers in the 1950s, is another example of futures studies—one that combines survey research with expert opinion and feedback through a series of steps that typically culminate with a report discussing possible future scenarios. Simulations, computer modelling, and gaming are also common futures study methods. Each of these specific methods can be employed to help develop storylines or scenarios that depict plausible future events, pathways or situations. Such scenarios can then be examined, compared or analysed using a wide range of scenario analysis techniques.

Scenario analysis represents a method of developing and then comparing plausible futures. In simple terms, scenario analysis methodology is “the process of building scenarios, comparing them, and evaluating their expected consequences” (Alcamo, 2008b, p. 3). Specific methods employed in scenario analysis are quite diverse, leading to what some have called methodological chaos (Bradfield et al., 2005), but recent efforts in the academic community have worked to streamline scenario methodologies, improve the academic rigour of scenario analysis and make scenario processes more transparent. Many definitions of scenario-related terms exist, which can easily lead to confusion; for the sake of clarity, I employ the following definitions throughout this paper: A scenario is “a tool for ordering one’s perceptions about alternative future environments in which one’s decision might play out” (Schwartz, 1996, p. 4). More specifically, a scenario “is a coherent, internally consistent, and plausible description of a possible future state of the world” (Carter et al., 2007, p. 145). A scenario is different than a forecast, which is a prediction of the future in some form. A forecast generally requires...
more data and greater certainty than is required for building a scenario (Van Der Heijden, 2005). The distinction between scenario and forecast is important – scenarios do not try to predict the most likely future, only to create a plausible future. A probabilistic future can be similar to a scenario in that it depicts a plausible future, but goes beyond a scenario in that the future circumstance is ascribed a likelihood or probability of occurrence.

Figure 1 compares a number of ways to characterize the future – scenarios represent a characterization that is plausible, but is not ascribed any likelihood, and can range from moderate to high levels of comprehensiveness.

First developed by military strategists following World War II, then adopted and refined by the business community for several decades, scenario analysis “emerged as a means of characterizing the future and its uncertainties through structured, but imaginative thinking as a process that pushes us beyond the axioms and norms that are the constraints of conventional wisdom” (Rounsevell and Metzger, 2010, p. 606). One of the most well-known scenario analyses was started in the early 1970s by the Royal Dutch Shell Corporation in order to map out plausible futures for energy markets. Shell continues to periodically develop scenarios that look forward over a 40-year horizon (Shell, 2011), and their original methodology has developed into one of the primary scenario methodologies employed by scenario practitioners today – in the business community as well as the research and policy communities (Bradfield et al., 2005).

Scenario analysis methodologies have evolved in many directions, but most scenario exercises are conducted in order to satisfy one or more of the following four objectives (see Figure 2):

- to make sense of a confusing or puzzling situation;
- to develop some type of strategy;
- to anticipate future events or series of events; or
- to facilitate organizational learning in some way.

Figure 2. Purposeful Scenario Work. Opening up exploration aligns with inquiry-driven scenarios, while final decisions line up with strategy-driven scenarios, after Alcamo’s (2008b) typology. Source: Schweizer (2010) and Bradfield et al. (2005).
The scientific community tends to focus on scenario analysis that attempts to open up exploration of a problem, while the policy community tends to focus on scenario analysis that helps create or determine the effects of policy decisions. Recent attempts have been made to employ scenarios to combine these two approaches in order to help bridge the science and policy communities (Alcamo 2008b). Most scenarios are conducted as one-time problem-solving exercises, but there are examples of ongoing scenario exercises where participants or institutions revisit previously developed scenarios to update assumptions, revalidate storylines and assess scenario validity – the Shell Energy Scenarios are one such example. Another example is the recurring Global Trends scenario analysis, conducted by the United States Intelligence community every five years in order “to stimulate strategic thinking about the future by identifying key trends, the factors that drive them, where they seem to be headed, and how they might interact” (National Intelligence Council, 2008).

Because scenario analysis is appropriate in highly uncertain, uncontrollable situations, both the research and policy communities have employed scenario analysis in the past decade to study environmental and socio-environmental systems and problems, and to conduct planning in light of these problems. The following section discusses environmental and socio-environmental scenario analysis and highlights why this developing area of scenario analysis might be useful in understanding and addressing CCA in fragile states.

2. Socio-environmental scenario analysis

Scenario analysis has been applied to a wide range of topics and problems by scholars and policymakers, including a growing list of complex environmental problems (e.g., Biggs et al., 2007; Kok et al., 2006a; Kok et al., 2006b; Peterson et al., 2003; Wollenberg et al., 2000). Like other areas of research that have employed scenarios, environmental scenario analysis has developed two distinct threads: an inquiry-driven thread that caters to the scientific community, and a strategy-driven thread that caters to the policy community (Alcamo, 2008b). Inquiry-driven scenarios attempt to make sense of complex or puzzling situations, anticipate future events or pathways and may help to guide research. Such scenarios are more commonly constructed within the research community, are usually quantitative, and sometimes employ computer models. Strategy-driven scenarios attempt to develop strategy or facilitate learning. Typically, strategy-driven scenarios are developed qualitatively by groups of experts, planners or stakeholders, with a goal of facilitating planning, creative thinking about the future, or organizational learning. In the past, strategy-driven scenarios have been criticized by the scientific community for their lack of rigour, transparency, and reproducibility. More recently, several strategy-driven environmental scenario analyses have been conducted by scholars, who have been more methodical and transparent with their methods than has been the case with strategy-driven scenario analyses conducted in the business or policy communities. Additionally, recent attempts have been made to combine the inquiry and strategy-driven threads (Wilkinson and Eidinow, 2008).

The two most comprehensive examples of environmental scenario analyses are the Special Report on Emissions Scenarios (SRES) of the IPCC (IPCC; Nakicenovic and Swart, 2000), and the Millennium Ecosystem Assessment (MA; Millennium Ecosystem Assessment, 2005). Both are wide-ranging scenario exercises combining qualitative and quantitative methods, involving hundreds of individuals, and requiring considerable time and resources to complete. More narrowly focused scenarios have been employed to understand water use (Mahmoud et al., 2009), agricultural land use (Abildtrup et al., 2006), desertification in the Northern Mediterranean (Kok et al., 2006a; Kok et al., 2006b), management of community forests (Wollenberg et al., 2000), dryland development (Enfors et al., 2008) and environmental impact assessments (Berkhout et al., 2002).

Although most of these examples have been labelled “environmental” scenario analysis, all of them include social variables, and several were conducted in order to inform policy or management decisions. It is appropriate, therefore, to discuss how these “socio-environmental” scenarios might inform CCA in fragile states, which is quite clearly a complex, highly uncertain, socio-environmental challenge with significant policy implications. Examining the scientific and policy
responses to the MA, Carpenter et al. (2009) note the role of scenarios in future research and policy planning:

“Many of the environmental challenges that we face are unprecedented in human history, so we lack relevant data for prediction. In such cases it is important to expand the scope of questions being asked, in the hope that important possibilities are not overlooked. For this purpose, the MA used scenarios at global and local scales. Use of scenario methods should be expanded, and tools for coupling scenarios with quantitative models should be improved. Scenarios also provide a tool for communicating uncertainties and complexity among diverse groups of experts and stakeholders” (p. 1308).

Scenarios are not only useful for understanding complex, unprecedented problems; they are also useful for communicating uncertainty across disciplinary boundaries and among stakeholders. Uncertainty associated with climate change and its physical and social impacts, together with the inherent uncertainty associated with fragile states, can combine to create highly uncertain futures when attempting to understand and plan for climate change adaptation in fragile states. Polasky et al. (2011) recently identified scenario planning as one of four approaches that can facilitate decision-making in problems with high uncertainty (along with decision theory, thresholds approach and resilience thinking).

How can scenario analysis help us understand such complex, highly uncertain problems, or facilitate planning in light of such problems? Alcamo (2008a, p. 4 – 5) identifies nine ways that environmental scenario analysis can inform research and policy. Each of these translates directly to ways that socio-environmental scenario analysis can inform research and policy related to CCA in fragile states. Alcamo states that scenarios can:

- “Provide an interdisciplinary framework for analysing complex environmental problems and envisioning solutions to these problems”;
- Provide a picture of future states in the absence of new or changed policy;
- Illustrate how policy may or may not achieve targets;
- “Identify the robustness of a particular environmental policy under different future conditions”;
- Help communicate complex information about the future of a problem;
- Raise awareness about a new or intensifying problem;
- Raise awareness about connections between different problems;
- Help policymakers, stakeholders, and others “think big” about an issue; and
- Facilitate stakeholder involvement in policy development.

Each of these points will be addressed below in the proposed scenario framework for CCA in fragile states. In applying scenario analysis to facilitate climate change adaptation in fragile states, there are two types of scenarios that are often neglected but should be incorporated – multilevel scenarios and surprise scenarios, both of which are addressed in the following section.

3. Multilevel and surprise scenarios

Two types of scenarios have been largely neglected in recent socio-environmental scenario analyses: multilevel scenarios and surprise scenarios. Very few scenario analyses formally consider multiple institutional or spatial levels (Biggs et al., 2007; Kok et al., 2006a), yet consideration of multiple scales may strengthen scenario analysis (Döll et al., 2008). Formally coupling or nesting level or scale interactions in scenarios can be very resource intensive, but loosely or informally coupling level or scale interactions can be accomplished more easily, and may add credibility to a scenario analysis exercise. Multilevel scenarios are especially important to consider for understanding and facilitating CCA in fragile states. Methods that focus primarily on top-down approaches or solutions alone have consistently proven ineffective, often due to weak institutional capacity at the state level (Faria, 2011). Top-down decision-making or planning approaches tend to exclude local-level stakeholders. Similarly, bottom-up analyses alone may fail to address or incorporate important state-level factors or issues. By loosely coupling or nesting local level and state level scenarios, for example, the scenario analyses con-
ducted at the two levels can inform each other, making the overall scenario process more robust. Additionally, multilevel scenarios can serve to improve learning and foster communication across institutional levels. Finally, multilevel scenarios tend to improve participation, reaching beyond experts, decision makers or other elites to incorporate a wider range of stakeholder perspectives in the research or planning process.

In addition to a dearth of multilevel scenario analyses, there have been very few scenario analysis exercises that have incorporated surprise (Toth, 2008). Many definitions and typologies of surprise exist – for clarity I draw on the typology of surprise outlined by Kates and Clark (1996), who discuss two broad categories of surprise events: rare events with serious consequences, and common events that either are not detected or are not prevented. Additionally, surprises may arise from unexpected or mistakenly attributed consequences. On the one hand, the lack of surprise scenarios in scholarly literature may seem strange, given that scenarios are not intended to serve as predictions or forecasts of probable futures, but can be employed to explore any plausible future. On the other hand, a significant challenge in constructing a surprise scenario is getting experts or stakeholders to suspend disbelief and focus on low probability events (Frittiaion et al., 2010). There are many methods that can help identify and incorporate surprises into scenario analysis. For example, cross impact analysis offers one method of identifying internally consistent, low probability, but plausible “surprise” scenarios for analysis (Toth, 2008). A challenge in constructing surprise scenarios is effectively communicating the results of the analysis (Mahmoud et al., 2009) – if not effectively communicated, surprise scenarios can discredit the scenario process in the eyes of scenario users, including policymakers or stakeholders, who might not understand the purpose of scenarios, or that scenarios differ from forecasts or predictions. Multilevel and surprise scenario analysis seems especially well suited for exploring possible futures in the complex environments associated with fragile states and CCA.

4. Fragile states and climate change adaptation

Although the term fragile state is widely used, there is no agreed upon, precise definition of the concept, and application of the term to a particular state can be contentious. Nonetheless, general characteristics of fragile states include some combination of extreme poverty, poor governance, violence and insecurity, lack of basic public services and low economic development (Faria, 2011). Their growth lags behind other low-income states in areas related to the Millennium Development Goals, and can include high rates of malnutrition, child mortality and low education rates. Often the most adversely affected people in fragile states are marginalized populations, and there are usually both regional and international implications linked to fragile states, including transboundary migration, environmental degradation and the direct or indirect effects of violent conflict, including terrorism (Mcloughlin, 2010).

Poor governance is a common thread that runs through most of the challenges faced by fragile states – increasingly, international and intergovernmental organizations are targeting governance in fragile states, seeking ways to improve governance at all levels while simultaneously working to improve security, reduce poverty and provide other essential services. All of the aforementioned challenges coalesce to reduce adaptive capacity of a fragile state, or a marginalized population within a fragile state.

CCA represents a relatively new challenge for populations in fragile states, and is a challenge that cannot be faced without considering or addressing the previously noted problems of governance, poverty, environmental degradation, health and others. There is consensus that climate change mitigation alone is incapable of solving present and future challenges posed by climate change, so over the past decade the scientific, policy and development communities have focused increased attention on CCA. As summarized by Adger et al. (2007, p. 720) in the IPCC’s fourth assessment report:

“Adaptation to climate change takes place through adjustments to reduce vulnerability or enhance resilience in response to observed or expected changes in climate and associated extreme weather events. Adaptation occurs in physical, ecological and human systems. It involves changes in social and environmental processes, perceptions of climate risk, practices and functions to reduce potential damages or
to realize new opportunities. Adaptations include anticipatory and reactive actions, private and public initiatives, and can relate to projected changes in temperature and current climate variations and extremes that may be altered with climate change."

CCA presents challenges in “normal” states – the challenges are often much more acute in fragile states. Many of the same factors hindering security and development in fragile states serve as barriers to effective CCA: financial constraints, technological limitations, informational and cognitive barriers, and social and cultural barriers, including good governance (Adger et al., 2007).

Despite the many barriers to CCA in fragile states, some in the international community see CCA as an opportunity to align often disparate external or international policies on economic development, security, poverty reduction and other key areas designed to assist fragile states (Faria, 2011). Peace-positive CCA interventions will require new methods and approaches that, at least initially, focus on intervention below the state level.

"An increasing focus on adaptation to climate change at local scales requires new methods, scenarios, and models to address emerging issues. New approaches are also reconciling scale issues in scenario development; for example, by improving methods of interpreting and quantifying regional storylines, and through the nesting of scenarios at different scales" (Carter et al., 2007, p. 162).

Scenario analysis helps to identify critical uncertainties in complex problems – uncertainties that can stifle traditional empirical research or planning methods. The following scenario analysis framework for CCA in fragile states incorporates both multilevel scenarios and surprise scenarios.

5. A scenario framework: climate change adaptation in fragile states

Scenario analysis is an appropriate tool to improve research, develop and test policy, and otherwise facilitate CCA in fragile states. Speaking broadly, CCA in fragile states is a highly complex, highly uncertain, and sometimes uncontrollable challenge, under conditions of unprecedented glo-
can also improve local level “buy in” for new or adjusted policy. To be sure, there are other methods that can directly or indirectly address the recommendations listed in Table 1. But in 11 of the 12 recommendations scenario analysis can play a direct or indirect role in finding solutions.

More recently, Smith and Vivekananda (2009) outlined the importance of ensuring that CCA is effective. Effectiveness requires appropriate institutional structures and flexibility, dealing with uncertainty (as opposed to inaction in the face of uncertainty, or dismissing uncertainty altogether), enhancing knowledge, and enhancing the governance contract between citizens and state. Again, scenario analysis is well suited to address several of these essentials. Strategy-driven limited resources. Scenarios are especially helpful in dealing with uncertainty: “To judge uncertainty – its magnitude and origins – requires thorough analysis and scenario-planning” (Smith and Vivekananda, 2009, p. 24). Scenario analysis helps to enhance the knowledge base, both for those involved in scenario exercises, and those to whom the scenario results are effectively communicated. Scenarios often summarize very complex data into storylines that are much more eas-

### Table 1. Role for Scenario Analysis for Climate Change Adaptation in Fragile States. Recommendations from Smith and Vivekananda (2007). Source: own draft.

<table>
<thead>
<tr>
<th>Recommendation to facilitate climate change adaptation in fragile states (from Smith and Vivekananda 2007)</th>
<th>Role for Scenario Analysis</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move issue of conflict and climate change higher up in international political agenda</td>
<td>Direct</td>
<td>Scenario results, properly communicated, facilitate broad thinking about complex problems</td>
</tr>
<tr>
<td>Research the indirect local consequences of climate change</td>
<td>Direct</td>
<td>Inquiry-driven and surprise scenarios are suitable for exploring and identifying new areas for research</td>
</tr>
<tr>
<td>Develop and spread research competence</td>
<td>Indirect</td>
<td>Scenario analysis can enhance dialogue and exchange among participants</td>
</tr>
<tr>
<td>Improve knowledge and generate policy through dialogue</td>
<td>Direct</td>
<td>Strategy-driven scenarios are designed to generate and test policy options under different future conditions; multilevel scenarios incorporate local knowledge into the policy process</td>
</tr>
<tr>
<td>Prioritize adaptation over mitigation in fragile states</td>
<td>No</td>
<td>Scenario analysis may help lead to this, but prioritization remains the responsibility of decision makers</td>
</tr>
<tr>
<td>Develop the right institutional context</td>
<td>Indirect</td>
<td>Scenarios enhance understanding of climate change related problems among decision makers, contributing to better governance</td>
</tr>
<tr>
<td>Prepare to manage migration</td>
<td>Direct</td>
<td>Include migration issues in scenario analysis exercises (both inquiry- and strategy-driven scenarios)</td>
</tr>
<tr>
<td>Ensure National Adaptation Plans of Action are conflict-sensitive</td>
<td>Direct</td>
<td>Strategy-driven scenarios test conflict sensitivity of NAPAs (as well as development and peace building strategies) under different future conditions</td>
</tr>
<tr>
<td>Climate-proof peace building and development</td>
<td>Indirect</td>
<td>Strategy-driven scenarios test peace building and development policy against climate change scenarios</td>
</tr>
<tr>
<td>Engage the private sector</td>
<td>Direct</td>
<td>Incorporate private sector into scenario analysis process; communicate scenario findings to private sector stakeholders</td>
</tr>
<tr>
<td>Link together international frameworks of action</td>
<td>Indirect</td>
<td>Strategy-driven scenarios can examine different linking options under future conditions</td>
</tr>
<tr>
<td>Promote regional cooperation on adaptation</td>
<td>Direct</td>
<td>Include regional level stakeholders and decision makers in scenario exercises</td>
</tr>
</tbody>
</table>
ily understood by non-experts, or experts with different backgrounds. Additionally, scenarios are typically interdisciplinary exercises, so knowledge is shared across sectors or disciplines. Finally, inclusion of citizens or local level participants in scenarios focused on CCA helps build trust and strengthen the governance contract between citizens and their government – a challenge in any state, and an acute problem in fragile states.

(a) A scenario framework for climate change adaptation in fragile states

The following methodological framework provides a baseline from which to begin developing a scenario analysis exercise to facilitate CCA in fragile states. In general, the framework presents a methodology that follows the intuitive logics approach to scenario planning, focusing on broad trends and processes (Rounsevell and Metzger, 2010). The framework can be applied to a specific state, or to a sub-state level problem. Although this framework may be suitable for any location, it is adaptable to allow for proper geographical context. A common criticism of past and ongoing development policies established by the international community to assist or intervene in fragile states is that too often such policies are developed using blueprints, with little or no consideration of local, regional or country level context (Faria, 2011). The framework (summarized in Table 2) allows for specific situational context – it is not merely a generic, global approach:

1. Identify the problem and area or region of focus. Scenario analysis provides a way to include context that is important to a specific region, state, or community. In this step, it is important to come up with an overarching problem to be examined, and not get caught up in too much detail – the details and more nuanced problems and issues will emerge in follow-on steps. The problem might include a specific geographic area of interest in a fragile state, and a climate change-related challenge this area may face. Additionally, in this step organizers should determine if the scenario exercise will be inquiry-driven (i.e. exploratory) or strategy-driven (i.e. developing or testing policy options).

2. Determine levels (or scales) of interest. Determine the optimal (or, in some cases, the feasible) institutional and spatial levels of interest, and then decide which levels will be incorporated in the scenario analysis. Most scenario exercises focus on a single level; inclusion of multiple levels of analysis will be more challenging, but may make the analysis more productive and insightful. Additionally, scenario organizers should determine a temporal framework for the scenarios. Scenario planning typically looks at least five years into the future, and may look at 20, 50, or even 100 years.

3. Identify participants. Based on the levels of analysis established in the previous step, identify the exercise participants. Seek to balance a manageable group size (a group in which all members can provide input) with representation from the public and private sector, scholars or other subject-matter experts. Participants need not have prior scenario experience, but should have expertise or knowledge that they are willing to share and that is beneficial to the focus established in Step 1. Too often, participants are selected based on availability or holding positions of influence, instead of their abilities to work with an interdisciplinary group, think critically, suspend disbelief and represent the viewpoint of the organization, community or institution they are tasked to represent in the scenario exercise. Combining expert and lay knowledge presents unique challenges, but in many cases, even in the context of fragile states, boundary organizations (including some community-based organizations, as well as local and international NGOs) can help mediate and facilitate communication among experts and laypersons. Care must be taken to include marginalized groups when possible, especially when those groups represent important stakeholders in CCA planning.

4. Establish appropriate baseline knowledge and boundary conditions. Gather the best information possible to establish baseline knowledge of the problem and area of focus for the participants involved in the exercise. Much of this work will be accomplished by the scenario organizers, but participants with expertise in appropriate areas (such as water resources, agriculture, or policy) can contribute as well. Ensure all participants have this information well in advance of the exercise.
Baseline knowledge and boundary conditions can be qualitative or quantitative, and will most likely include both, but should be presented in a simple format that all participants can understand.

5. **Identify drivers.** A scenario analysis can only incorporate or analyse a limited number of drivers – the more drivers incorporated, the more complex the scenario, and the more difficult it becomes to ensure scenarios remain internally consistent. It is important to employ a systematic approach to identify the most important or influential variables at each level to be included in the scenarios. There are several options for identifying factors. One approach that may be helpful for either inquiry- or strategy-driven scenarios is Cross Impacts Balance Analysis (CIBA; Weimer-Jehle, 2010), where participants are surveyed to identify key factors, and how those factors may or may not influence or interact with other factors. Another more simple approach is to identify two critical (and uncontrollable), context-specific uncertainties, and create three or four scenarios based on combinations of these uncertain factors.

6. **Create scenarios.** The creation of scenarios can occur in many ways. It can be participative, accomplished in a group setting with the assistance of a facilitator. Or, it can be iterative, tasked out to a subset of participants to draft, and then revised based on input from the larger group. In order for any scenario analysis to take place, at least two scenarios must be created, but three or four scenarios are more optimal. At least one scenario should incorporate surprise in some way. In multilevel scenario exercises, scenario creation can take place simultaneously or sequentially between groups focused at different levels. If the scenario creation is accomplished collectively, it is important for participants to be explicit about their role in the process – are individuals representing a particular community, organizational or institutional viewpoint, or are they representing their own personal viewpoints? Of course it is extremely difficult to completely separate or exclude one’s own thinking and beliefs from those of a larger group or organization one is tasked to represent, but scenario facilitators can help by making clear whether individuals are free to express their personal views, or should speak and act from an institutional or organizational perspective (akin to role playing). A final, but important step in scenario creation is selecting a name for each scenario developed. While this may sound simplistic, a brief, descriptive, and even catchy name for each scenario will help significantly in communicating scenario results, making the scenarios easy to distinguish and remember.

7. **Review scenarios.** Once scenarios have been drafted, participants review all scenarios and provide feedback. In multilevel scenarios, when feasible, participants at each level should review and provide comments on scenarios developed at each level. Feedback may be submitted individually, in a group setting, or a combination of the two. It is important to consider power dynamics when reviewing scenarios in a group setting – some participants may be less likely to offer important criticism or feedback in the presence of more outspoken or influential individuals.

8. **Incorporate feedback.** Based on the review of the draft scenarios, any final feedback from participants is incorporated into scenarios. This may be accomplished collectively, or by an individual or facilitator tasked to write up the final scenarios or storylines.

9. **Analyse the final scenarios.** Ideally, comparison and analysis of the different scenarios involves all participants, with the assistance of a facilitator. Analysis can take on many forms, and might include comparison of key actors or factors as they play out in each scenario.

10. **Communicate the results.** Scenarios are briefed or shared with decision makers, other stakeholders, the general public, etc. The scenarios should be published, and publication should include details of all previous steps, including the methods employed. Effective communication helps to ensure transparency in the scenario analysis process – lack of transparency has been a critique of scenario methodologies, especially by members of the academic community. In communicating the scenario results, it is important to emphasize that the scenarios are in no way intended to serve as predictions or forecasts.
These steps provide a simple overview of a flexible scenario analysis framework that can be employed to facilitate CCA in a fragile state. The steps require additional details and consideration, but those are beyond the scope of this paper.

(b) Challenges and limitations

Using a scenario analysis framework to facilitate CCA in fragile states is not without challenges and limitations. Selection of participants for a scenario analysis, especially multilevel exercises, may be difficult or contentious. Scenario groups should not be too large, which means that not all groups or ideas can be directly represented in the scenario building process. If not handled with care, such exclusion can undermine scenario results and offset the many benefits of an otherwise successful scenario analysis. Time, resource constraints and limited access or security concerns may lead to the exclusion of certain stakeholders, especially at a local level. Another challenge is documenting the scenario building and analysis process. A common criticism of the scenario analysis process, especially among scholars, is the difficulty in reproducing the results, which can happen when there is an overemphasis on the results of the scenario analysis, at the expense of capturing and recording the process of scenario development (Alcamo, 2008a). Yet another challenge is in determining the optimal spatial, institutional or temporal levels at which to focus the scenarios (Döll et al., 2008). Finally, as discussed previously, effective communication of scenario results can be difficult, especially when analysing surprise scenarios. In addition to communicating the final scenarios and analysis of the scenarios, it is critical to communicate the purpose of the exercise, and stress that scenarios are not intended to serve as forecasts. This is especially important when sharing results with policymakers, the general public and the media.

6. Case study: Iraq

Let us now return to the questions raised at the beginning of the paper about the relationship between climate change and stability, and focus those questions on CCA in Iraq. How can we possibly learn the effect that climate change may have on national or regional security or stability, and plan adaptation accordingly? How might political unrest in the Middle East affect development and stability in a fragile state such as Iraq? In the face of political uncertainty and ongoing security challenges, how can a state like Iraq plan and implement CCA? How might scenario analysis facilitate CCA in Iraq?

(a) Overview

By all accounts Iraq is a fragile state, struggling to emerge from decades of dictatorial repression, warfare, international sanctions and other complex challenges. Although its security situation has improved over the past three years, post-conflict Iraq remains in “critical” status, still listed among the top ten states on the Foreign Policy failed state index (Foreign Policy, 2011).
On a positive note, international aid and development no longer circumvents the state but, in most cases, is working through state level institutions. In 2005, Iraqis adopted a new Constitution. The elected central government has continued to rebuild national institutions and make efforts to maintain legitimacy among citizens. Institutions at the governate (province), district and sub-district levels have been functioning to varying degrees of success for several years, and the rule of law is becoming more common. However, sectarianism between the Shia majority and Sunni minority, as well as ethnic tensions between Arabs and Kurds, remain strong, and regularly result in political impasse and isolated violence. Local government lacks the ability to generate revenue, and top-down distribution of resources below the governate level is problematic. Consequently, infrastructure development, essential services and economic progress are improving at a very slow rate, if at all, and Iraqis have grown increasingly frustrated with elected and appointed officials (UNDP, 2010).

Already an arid state, dependent on limited precipitation and streamflow from outside its territory, Iraq faces CCA challenges. Iraq has been identified as a state with high vulnerability to climate change (Brooks et al., 2005). Among the potential impacts of climate change for Iraq are changes in winter precipitation (when Iraq receives most of its annual rainfall), as well as changes to precipitation in neighbouring, upstream countries on the Tigris and Euphrates Rivers and their tributaries. These rivers serve as the primary source of water for Iraqi agriculture, which is the second largest sector of the economy (after oil). The United Nations has identified pressures from climate change (along with population growth and inappropriate agricultural practices) as one of the top priorities for governance development:

“In view of the impact of climate change on poverty alleviation and achieving the [Millennium Development Goals], it becomes important to align human development goals with measures for addressing climate change. This calls for a commitment to addressing climate change as a matter of priority by all stakeholders, particularly relevant [Government of Iraq] ministries, and will entail a continuous and flexible process of mainstreaming climate change mitigation, adaptation, finance and capacity development into existing strategies and policies. This process is also an opportunity for climate-resilient development, given the vast amount of resources available to support climate change efforts” (United Nations, 2009, p. 64).

Iraq has made some progress toward CCA. Iraq ratified the UNFCCC and the Kyoto Protocol in July 2008 as a Non-Annex I party. However, Iraq presently has no NAPA, and has not yet made any official report or communication to the UNFCCC regarding climate change impacts or adaptation. Iraq’s central government has established a Climate Change Section as part of its Air Quality Department in the Ministry of the Environment, and within the past year this Climate Change Section has commenced work with other ministries to assemble the first national report on climate change. The Climate Change Section is also working to improve the climate change knowledge base within the government, and has cooperated with UNDP, UNEP and various NGOs. The Iraqi government seeks to work with Arab neighbours on climate change and renewable energy issues, and is preparing proposals for submission to the Clean Development Mechanism in the GEF.

(b) Iraq climate change adaptation scenario analysis

Scenario analysis offers a tool to integrate CCA with other governance and development planning issues in a fragile state such as Iraq. Using the scenario analysis framework outlined above, the following hypothetical scenario analysis exercise demonstrates how scenarios might facilitate multilevel CCA in Iraq. The example is brief, but even without details it allows an illustration of the utility of scenario analysis.

1. Identify the problem and area of focus. The focus problem for this scenario exercise is CCA in Iraq, driven by potential economic and security concerns related to changes in precipitation and stream flow in the Diyala River, which originates in the Zagros Mountains of Iran, flows through the Kurdish region of Iraq, and is a major tributary to the Tigris River, which the Diyala River joins near Baghdad. The scenarios will help inform domestic
policy related to this problem over a 20-year planning horizon, beginning with present-day conditions, and looking out to the year 2031.

2. **Determine levels of interest.** For this problem, nested scenarios will be constructed at the national and local (district) levels. The local level will focus on the central Diyala province, where communities are almost entirely dependent on Diyala River water for agriculture, household use and industry. This area in the central Diyala province represents a microcosm of Iraq’s ethno-sectarian landscape, with significant populations of both major sects of Islam (Sunni and Shia), and both Arabs and Kurds, living in close proximity or intermixed. Central Diyala witnessed intense fighting from 2004 through 2007, and ethno-sectarian tensions remain high. Other spatial and institutional levels will be considered during the scenario exercise, but will not serve as the primary focus of the scenario development and analysis. For example, when building the national level scenarios, it will be important to consider the influence of water use by upstream countries such as Turkey, Syria and Iran. Similarly, when constructing district level scenarios within the Diyala province, it will be critical to consider the role of governate level institutions (the level of governance between the national and district levels), but the primary focus of the local scenarios can remain at the district level.

3. **Identify participants.** Participants at the national level might include ministerial level representatives (including representatives from the Ministries of Defense, Finance, Health, Higher Education and Scientific Research, Interior, Trade, and Water Resources), security planners, scholars, as well as representatives from UNDP, UNEP and selected NGOs. Participants at the local level might include representatives from local government (including the governate, district and sub-district), tribal leaders, religious leaders, farmers, members of private business and local public sector employees who understand water systems and infrastructure. Scholars and graduate students from Diyala University might also contribute to the analysis. There is no ideal number of participants for a scenario planning exercise, but organizers should aim to strike a balance: on the one hand, one of the strengths of scenario planning resides in the inclusion of many different experts, disciplines, fields and stakeholders; on the other hand, inclusion of too many participants might hinder interactive discussion and participation, and may derail the exercise, or lead to marginalization and frustration among participants.

4. **Establish appropriate baseline and boundary conditions.** Details for the baseline information are beyond the scope of this example, but should include the best available data about current and projected climate and streamflow conditions, agriculture, economic data, security issues, cultural factors and politics. When presenting this information to participants, it is important to distinguish between facts and assumptions. It is also critical to present information that is detailed enough to be informative and relevant, yet is understandable by non-experts. Scenario organizers bear the primary responsibility for assembling and sharing baseline data and establishing boundary conditions, although they may draw on participants with relevant expert knowledge to provide information.

5. **Identify drivers.** There are many methods that may be employed to identify factors or drivers. When considering drivers for scenarios related to CCA in Iraq, it is important to focus on drivers that are critical to the problem, and are uncertain. Drivers may be internal to Iraq, or external. For the sake of this hypothetical scenario exercise, we will assume that participants have been surveyed and asked to rank-order five of the most critical but uncertain factors or drivers shaping the future of their community, province, or Iraq. The survey results are analysed, and the scenario organizers identify political stability and water availability as the two critical drivers to be used in developing four scenarios. In this case, political stability represents an internal, socio-political driver – there are external influences on Iraq’s political stability, but for the foreseeable future, Iraq’s internal political stability remains a predominantly domestic issue. Water availability might be considered an external environmental factor – although water use within Iraq does have an important
role in water availability, upstream water use in neighbouring countries like Turkey, Syria, and Iran, coupled with the long-term effects of climate change on precipitation and evapotranspiration, are outside the control of Iraqis. With these two critical drivers, scenario organizers create a 2x2 matrix, defining the four scenarios to be created by scenario participants (see Figure 3).

6. **Create scenarios.** Based on the critical drivers identified in Step 5, scenario organizers establish the general conditions for the four scenarios to be developed by participants. Since this hypothetical exercise employs the 2x2 matrix approach, organizers establish the range of each of the two critical drivers. For political stability, the scenarios will consider a low stability and a high stability scenario. For water availability, the scenarios will incorporate either a no change (based on current water availability) or a decrease in water availability. This arrangement leads to four scenarios at each spatial level to be considered, for a total of eight scenarios (four at the national level, four at the district level). Scenario organizers divide participants into working groups to flesh out the details and develop the general plots for each of the eight scenarios. In this case, the scenarios at the national level will be developed first, and can then be used to inform the local level scenarios (scenario organizers could also begin with the local level scenarios). For example, once the national level “Arid Spring” scenario (Figure 3) has been developed, the local level “Arid Spring” working group can utilize the national level scenario to inform their local scenario. Facilitators or selected members of each scenario group then create a more detailed narrative based on discussion and input from group members, describing the evolution of their scenario over the 20-year planning horizon. The narratives should contain enough detail to allow for strategic thinking and planning, but should also be kept concise and readable by parties outside the scenario exercise.

7. **Review scenarios.** Participants review the scenarios created in Step 6 and provide feedback to facilitators. This can take place in a group setting, or participants can review the scenarios and provide written feedback independently. Ideally, participants at both levels review all eight scenarios (four at the local and four at the national level). It is especially important for participants at the national and local levels who worked on the same scenario quadrant (e.g., Running on Empty) to review one another’s scenarios to ensure consistency across the scales as much as possible. Maximizing participation in the review process improves learning across the scenario groups, increases

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*Figure 3. A 2x2 scenario matrix of a climate change adaptation scenario exercise for Iraq. Each axis represents a critical driver—the x-axis is political stability; they y-axis is water availability. The combination of these two variables leads to four plausible scenarios, named in each of the four quadrants of the matrix. Source: own draft.*
buy-in by participants, facilitates transparency and helps ensure participants from many areas of expertise and background contribute to the process.

8. **Incorporate feedback.** Final feedback from participants is incorporated into scenarios by facilitators or designated representatives from each scenario working group, and scenarios are drafted in final form.

9. **Analyse the scenarios.** Although it is not necessary to compare the different scenarios, doing so can be helpful in identifying trends or variables that should be researched in more depth. Analysis and comparison of the different scenarios may also help identify policy options that can improve adaptation under multiple scenarios (or help prevent certain less desirable scenarios from developing). Scenario analysis can take place in a large-group setting with all participants, in smaller working groups or by a handful of scenario organizers.

10. **Communicate results.** Scenarios and the comparison or analysis of the scenarios are shared or briefed, first to participants, then to decision makers, the public and private sector stakeholders. To ensure transparency (and ideally reproducibility, although this can be very difficult), detailed methods and results should be published or otherwise made publicly available. It may be especially helpful to develop a detailed communication plan or campaign that includes the means of communicating the results (briefings, publications, web-based material), the target audience(s) for communication, and the timing of communicating the results. Throughout the communication process, it is important to emphasize that scenarios are not intended to serve as forecasts or predictions, but are only plausible futures focused on a specific problem—in this case, CCA in Iraq, as it may be affected by political stability and water availability.

Although this example focusing on CCA in Iraq lacks detail, it demonstrates the utility of a multilevel scenario analysis exercise in a fragile state. Such an exercise, if well planned and conducted, could provide a framework for interdisciplinary groups of experts, policymakers and stakeholders to begin adaptation planning. It may also provide a way to test current or planned adaptation policy under different future conditions, or explore what happens in the absence of policy. A relatively simple scenario analysis exercise such as this would help communicate complex information to decision makers and stakeholders, raise awareness of upcoming problems and encourage local level stakeholder involvement or buy-in, improving the governance contract, and addressing several of the key governance and development challenges facing Iraq as identified by the United Nations (2009).

C. Conclusion

This paper has provided a brief background of futures studies, with a focus on socio-environmental scenario analysis—an evolving area of futures studies that can contribute to CCA in fragile states. A flexible methodological framework for scenario analysis was proposed, and then described using a hypothetical multiscale scenario exercise focusing on CCA in Iraq. Although the circumstances contributing to Iraq’s status as a fragile state are unique, many of the challenges Iraq faces in coming years are shared by other fragile states. Anticipating the social impacts of changing climate will continue to be extremely difficult, with high levels of uncertainty. But uncertainty cannot continue to serve as an obstacle to planning. Scenario analysis exercises have been employed at an increasing rate over the past decade to help understand and plan through complex, highly uncertain socio-environmental problems, and scenario planning offers a flexible tool that can be employed at many institutional and spatial levels to facilitate effective CCA in fragile states. All too often, fragile states are focused on significant short-term issues of immediate concern, such as security, governance and meeting the basic needs of the population. While understandable, such short-term focus happens at the expense of long-term issues, including CCA. Scenario planning offers a tool that can, with minimal resources, incorporate both short-term and long-term drivers to facilitate strategic planning. Additionally, scenario planning can be conducted at a local or regional level, in locations where state-level participation is not possible. Scenario analysis can help ensure adaptation is conflict sensitive, with an aim towards peace building. Scenario analysis results, properly communicated, can improve knowledge about complex prob-
lems associated with climate change and CCA, help identify previously unforeseen problems ahead, advance interdisciplinary understanding of and solutions for complex problems, and improve public understanding of climate change issues. CCA in fragile states presents complex, highly uncertain, often uncontrollable problems. Scenario analysis represents a tool that can help envision and plan through complexity and uncertainty toward a more promising future.

References


Climate Change and Displacement: Human Rights and Local Knowledge as Guiding Principles for New Policy Initiatives

Julie Maldonado

“No community with a sense of justice, compassion or respect for basic human rights should accept the current pattern of adaptation...As climate change destroys livelihoods, displaces people and undermines entire social and economic systems, no country – however rich or powerful – will be immune to the consequences.”


A. The breadth of climate change and displacement

The physical effects of climate change will increasingly be major causes of population displacement (IPCC, 2007; Myers, 2005; Stern et al., 2006; UNDP, 2007/2008). According to the IPCC (IPCC, 2007, p. 787), “stresses such as increased drought, water shortages and riverine and coastal flooding will affect many local and regional populations. This will lead in some cases to relocation within or between countries, exacerbating conflicts, and imposing migration pressures.” Due to current warming trends and past greenhouse gas emissions, we are already committed to some amount of temperature increase and sea level rise, as well as other climate-related impacts in the 21st century and beyond. In some cases, these impacts will create permanent inundation, leading to loss of land and displaced populations (Stern et al., 2006, p. 76; UNDP, 2007/2008, p. 30). Such science-based assessments point to the increasing number of people being displaced by climate change impacts and relocation becoming more and more necessary. In fact, the scope of displacement “challenges the international community to find new ways of conceptualizing and putting into operation proactive policies and responses to environmentally-induced migration” (Boano et al., 2007, p. 17; IOM et al., 2009, p. 3).

Displacement related to climate and environmental change varies from temporary to permanent displacement due to natural hazards, environmental disruption or ecological change people cannot afford to mitigate (Bates 2002; Black 2001; El-Hinnawi, 1985). As Walter Kälin (2008), representative of the Secretary General on the Human Rights of Internally Displaced Persons, explained, along with sea level rise, “higher frequency of storms and floods will impact tens of millions of people, in particular in coastal areas and on islands”. Overall, Myers (2005) estimated that at least 200 million people would be displaced by climate change, including sea level rise, flooding, rainfall regimes and drought, by 2050. Other estimates show the numbers displaced by climate change increasing to as high as 250 million to 1 billion people by 2050 (Christian Aid, 2007, p. 6; UNHCR, 2008).

It is difficult to estimate the number of people who will be displaced by climate change because very different stories can be projected depend-
ing on the different levels of temperature rise and different emissions scenarios used (Black et al., 2008, p. 13; IPCC, 2007). Furthermore, the debates on the scope of climate change and displacement take an environmental determinist perspective, assuming that the nature and extent of these migration flows will depend primarily upon the impacts of climate change (e.g., IPCC, 2007; Myers, 2005; Stern et al., 2006). However, in reality people are forcibly displaced due to a multitude of stressors (Black et al., 2008, p. 17; Boano et al., 2007, pp. 21, 25; Gemenne and Shen, 2009; Global Humanitarian Forum, 2009, p. 36). The estimated numbers do not take into account the population and geographic dynamics of at-risk areas and fail to illustrate the dynamic interaction that climate change has with many other factors, such as social marginalization and poverty. For example, the poor physical and social conditions of the informal settlements that developed around Cape Town, South Africa, following colonial and apartheid development policies increase the vulnerability of people living in the settlements to climate-related hazards (e.g., flooding), which are only expected to intensify with increasing climate change (Mukheiber and Ziervogel, 2007, p. 43). Complex social dynamics also play a key role as people migrate away from climate change impacts and into host communities. The informal economic sector that many host communities’ households might be reliant on becomes increasingly competitive with an influx of people. Therefore, host communities’ households could become economically displaced by climate change impacts occurring in a distant location.

By postulating a direct causal link between climate change and displacement without accounting for other social and economic stressors, policymakers and even scientists are able to hide the social and economic conditions and power relationships that drive climate change and determine who is in harm’s way. Such analyses do not consider the underlying causes of vulnerability, make the people impacted by climate change invisible, and perpetuate the emphasis on technological solutions to climate change over local people’s adaptive strategies. The analyses place developing countries in opposition to developed countries, giving both the people and their land an aura of danger as something “other” than ourselves (Bankoff, 2004, p. 29). They ignore the heterogeneity of places and fail to realize that it is not only developing nations that are most vulnerable to climate change, but rather marginalized individuals and groups within countries. For example, the aftermath of Hurricane Katrina demonstrated how the so-called “South” can also exist in the “North” (Klein, 2008). Additionally, the perception that people will flood across international borders is based not on empirical evidence, but is rather a political manoeuvre to portray people as the “other”, de-humanize them, and exacerbate the exclusion effect of building walls along borders to keep out the other. Because of these processes, it is important to consider the power structures that underlie climate change and displacement.

B. Global economic processes: fueling climate change

We need to look at the intersection between particular structural forces and agents of power, as well as the socio-historical context under which the least powerful groups and individuals in society came to inhabit the most hazardous environments. It is imperative to understand the ways that social and economic processes are linked to power because “people, economies, and nature are in a process of co-evolution on a global scale, each influencing the others in unfamiliar ways... with serious implications for the adaptive capacities of people and societies” (Oliver-Smith, 2004, p. 24). The consequences of modern economic and political processes, such as global capitalism and neoliberalism, positioned humans and the environment in conflict, masked subsequent social and environmental destruction and established a framework that led to the overconsumption of natural resources and the disconnect between consumption, production and environmental degradation (Harvey, 2003; Kovel, 2007; Kütting, 2004, p. 28; Marx, 1994/1867, pp. 226, 231).

Neoliberal capitalist policies that allow state power to open up markets and territories to capitalist investment played a major role in creating climate change and led to contemporary consumption practices and what Harvey (2003, p. 145) dubbed “accumulation by dispossession” (also Foster, 1999, pp. 192-93; Kovel, 2007; Wallerstein, 1979, p. 285). Based on Marx’s (1994/1867, p. 296) notion of primitive accumulation, which entailed “divorcing the producer
from the means of production”, accumulation by dispossession includes the commoditization and privatization of land appropriated by the wealthy ruling class and highlights the loss of environmental, social and economic rights (Harvey, 2003, p. 145). Harvey (2005, p. 160) contended that neoliberal practices led to the “escalating depletion of the global environmental commons (land, air, water) and proliferating habitat degradations”. For example, Bolin (2009, p. 231) noted that the water shortages Quechuan communities face are linked to outside forces, including multinational corporations building luxury hotels in southeast Peru that use up scarce water resources (e.g., Starwood), and international mining companies polluting the water and land and destroying sacred mountains to extract minerals (e.g., Newmont and Freeport McMoRan). The economic processes that shape the current development paradigm – which has a tunnel-vision focus on economic growth, views the world as an infinite resource, and decouples humans and the environment – now impacts marginalized communities in new ways through climate change. For example, small island developing states are “responsible for 3/100th of 1 percent of global emissions” (Barker, 2008), yet suffer the greatest consequences, as entire populations risk complete inundation from sea level rise (also Barnett, 2006, p. 118; Fisher, 2009, p. 175). The converse relationship between the people responsible for climate change and those most affected highlights the power dynamic between the capitalist elite who control policy decisions and access to resources, and marginalized individuals and communities whose power is constrained by modern economic and political processes (Klein, 2008). Thus, climate change and its impacts follow in line with what Paul Farmer (2003, p. 7) referred to when discussing human rights violations, as “symptoms of deeper pathologies of power”.

C. Vulnerability and adaptation to climate change: the long-term perspective

Disaster researchers in the 1970s started analysing societal features that affect people's vulnerability to hazards, criticizing the lack of attention on local and global factors shaping people's vulnerability (Hewitt, 1983, p. 29; Hilhorst and Bankoff, 2004, p. 5; Oliver-Smith, 1977; Quarantelli, 1998). Currently, the most accepted definition of social vulnerability in hazards research stems from Blaikie et al. (1994, p. 9), who saw vulnerability as involving “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 in society”. Focusing on human agency and social relations, this definition acknowledged outside forces creating people’s vulnerability, which led to impeding their ability to adapt to environmental changes. For example, in parts of India people are at great risk from floods. One solution to escape these vulnerable conditions would be to move to higher ground. However, social structures create a barrier to alleviate vulnerability to flooding. Significantly, the “dominant, high-caste owners of the higher land prevent lower caste villagers from living on this land. Lower caste villagers cannot earn enough income with which to buy higher land of their own. The caste system therefore creates and sustains vulnerable conditions for the poorer villagers” (Venton and Hansford, 2006, p. 17).

Understanding people’s current vulnerability includes understanding the past and current conditions that hinder people's ability to adapt to environmental changes (Hewitt, 1983; Kelman, 2009; Vázquez-León, 2009; Wisner, 2004). This requires taking people's experiences and perceptions into account (Hilhorst and Bankoff, 2004). Local perceptions “can alert the larger society to vulnerabilities that experts...have failed to perceive or that have been obscured by the hegemonic forces of our society” (Button and Peterson,
These forces are power dynamics played out through everyday social organization and interaction and enforced through economic class domination (Gramsci, 1970). Yet, the scientific community has mostly ignored people’s perceptions of vulnerability and failed to account for the dominant forces shaping social conditions.

Furthermore, much of the climate change literature on adaptation, such as Gore (2006), IPCC (2007) and Stern et al. (2006), looks at options through a cost-benefit perspective and emphasizes technology over local knowledge as the most effective means of adaptation to climate change. These ideas leave out “the important role that individuals, cultures, and societies play in constructing and living out an adaptation dynamic” (Adger et al., 2006, p. 1; Nelson et al., 2009, p. 272).

Understanding vulnerability as a long-term process means understanding the conditions, such as poverty, political disempowerment, and economic oppression that create vulnerability and create barriers to adapting to environmental changes. Thus, the vulnerability process is ever evolving and changing over time and space (Hewitt, 1983; Hilhorst and Bankoff, 2004, p. 2; Kelman, 2009, p. 2; Vázquez-León, 2009, p. 290; Wisner, 2004). For example, the indigenous communities in Southern Louisiana have a long history of displacement and environmental degradation. After the United States Congress passed the 1830 Indian Removal Act, European settlers pushed many tribes living along Louisiana’s lower Mississippi River to the end of the bayous (Brasseaux, 2005, p. 127; Burdeau 2009; Miller, 2004; Tidwell, 2004, p. 137). Moving into marshes near the Gulf of Mexico, these communities’ culture and water-based settlements and livelihoods, focused around fishing, shrimping and crabbing, have been continuously threatened by external forces changing their environment. Some of the causes of these changes include the digging of the Mississippi River-Gulf Outlet Canal in the 1960s, transportation canals for the petrochemical industry, dredging projects and the construction of dikes and levees (Button and Peterson, 2009; Freudenberg et al., 2009). There are approximately 10,000 miles of gas and oil pipelines cutting across Louisiana’s Gulf Coast, massively degrading the coastal environment (Laska et al., 2005). Since the 1940s, the damming of the Mississippi River and other flood control measures and agricultural development have prevented sediment and silt from reaching the delta, hindering the restorative process that previously built up the land, and resulting in about 500 square miles of wetlands lost each year (Austin, 2006, p. 676).

The communities’ marginalization continues today, as some are left out of the United States Army Corps of Engineers’ Morganza-to-the-Gulf-of-Mexico Hurricane Protection Project, a levee system being proposed to protect communities from hurricanes (Kat, 2003, pp. 1 – 2; Wade, 2010). Instead of supporting these communities to adapt and maintain their place-based livelihoods and culture where they are, the Corps of Engineers suggested relocating one entire community (Institute for Tribal Environmental Professionals, 2011). To complicate matters further, there is no federal government agency mandated to manage communities’ relocation; even the Federal Emergency Management Agency is restricted to supporting relocation efforts only after a disaster occurs, but not in taking proactive measures to help people relocate out of harm’s way (Shearer, 2011, pp. 140 – 141).

All of these processes have resulted in severe loss of wetlands, sinking land, saltwater inundation into freshwater marshes that destroys the natural vegetation, and decreased natural protection against hurricanes and storms. These phenomena are compounded by climate change-induced sea level rise and increased storm intensity and frequency (Karl et al., 2009). Rapid environmental change threatens these communities’ livelihoods, and they face the threat of displacement as the Gulf of Mexico reaches their doorsteps (Lueck, 2011, pp. 16 – 17; Tidwell, 2004).

Understanding the long-term perspective and taking into account the imbalanced power relationships and neoliberal capitalist policies that both shape vulnerability and hinder adaptation are important to keep in mind when considering the current climate change and displacement discourse and formulation of policies, as discussed in more detail below.

D. The climate change and human movement debate

There is an ongoing debate among policymakers, organizations and researchers about the percep-
tion of viewing human movement as a positive or negative adaptation strategy to climate change. According to the International Organization for Migration (IOM, 2009), “migration often seems to be misperceived as a failure to adapt to a changing environment. Instead, migration can also be an adaptation strategy to climate and environmental change and is an essential component of the socio-environmental interactions that needs to be managed”. However, IOM (2009) acknowledged that migration “is a coping strategy not open to everyone as it depends on resources, information and other social and personal factors”. This means that the groups with greater resource access and economic capital are more readily able to migrate to adapt to climate change. It is also acknowledged that “the main impacts of mass migration, however, are very overwhelmingly negative; they include escalating humanitarian crises, rapid urbanization and associated slum growth, and stalled development” (Morton et al., 2008, p. 2). Because of the intersecting stressors to vulnerable populations, such as poverty and health, the ability to adapt is hindered and successful relocation is not always possible. The most vulnerable people often find themselves unable to leave because they do not have the resources to overcome the barriers to migration, placing their lives directly in danger and infringing on their human right to a healthy and safe environment (Gemenne, 2010; Office of the United Nations High Commissioner for Human Rights, 2009).

Furthermore, several studies focusing on perceptions of vulnerability to and risk of climate-influenced displacement reveal how relocation is perceived differently by groups as an adaptation strategy to climate change (Bronen et al., 2009, p. 16). For example, Bolin (2009) realized that Quechuan communities in the Peruvian Andes were against relocation because they would lose their identity if they left a specific place and lifestyle. Similarly, Lazrus (2009) found that officials in Tuvalu saw migration as the key adaptive strategy to environmental changes, but local residents focused on in-place adaptation strategies. Marino (2009, pp. 47 – 48) discovered that in Shishmaref, Alaska, while residents “voice their desire for eventual relocation,” they perceived moving as a risk if it was led by outsiders. And in Newtok, Alaska, Bronen (2009, p. 71) found that the community has identified a relocation site, but has been hindered in its relocation efforts because the 25 different government agencies designated to facilitate their relocation “have no mandate or dedicated funding for relocation assistance”. Whether relocation is viewed as a positive or negative adaptation strategy, the reality is that climate change is happening, climate change impacts will increase and more people will be affected as places become either temporarily or permanently uninhabitable (IPCC, 2007, p. 787; Lueck, 2011, p. 4; Stern et al., 2006, p. 76; UNDP, 2007/2008, p. 30).

Currently, much of the empirical evidence available for climate change and displacement is limited to small island communities, such as Tuvalu (Lazrus, 2009), the Solomon Islands (Habru, 2008), the Carteret Islands (Rakova, 2009), the Maldives (Galloway McLean et al., 2009) and small remote communities, such as Kivalina, Newtok, and Shishmaref, in Alaska (Bronen, 2009; Marino, 2009; Shearer, 2011). If and when territories, such as small islands, become submerged and the residents are forced to move, according to Kälin (2008), “present international law leaves such persons in limbo. They are neither economic migrants nor refugees”. To assist people in being as supported and protected as possible, it is necessary to understand how terms used to describe people facing climate-influenced displacement, such as “climate refugee,” continue to propagate social inequality among already marginalized communities.

1. Rights considerations in terminology

Popularized in 1985 by Essam El-Hinnawi, the term “environmental refugee” has been used since the 1970s to describe people displaced by environmental impacts; it is generally accepted by the public, as well as promoted by several scholars, evolving into the more narrow term “climate refugee” (Biermann and Boas, 2008; Conisbee and Simms, 2003; Macchi et al., 2008, p. 33; Myers, 1996, p. 72). A group of European scholars recently defined “climate refugee” as “people who have to leave their habitats, immediately or in the near future, because of sudden or gradual alterations in their natural environment related to at least one of three impacts of climate change: sea-level rise, extreme weather events, and drought and water scarcity” (Global Governance Project, 2008b). However, as Castles (2002, p. 9) explained, “definitions reflect and reproduce
power, and none more so than the refugee definition...It makes a big difference whether people are perceived as refugees, other types of forced migrants or voluntary migrants”.

A refugee, as defined by UNHCR in the 1951 Refugee Convention, Article 1, is a person who, “owing to wellfounded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country” (United Nations High Commission for Refugees, 2007, p. 16). Some argue that because climate-driven forces can lead to displacement without the possibility of return, the United Nations refugee definition should be expanded to include “climate refugees”. However, others argue against expanding the definition because the fundamental aspect of refugee law is based upon state-led persecution or legitimate fear of such persecution that forces people to flee their homelands. And some critics found that the term itself, “climate refugee”, places the blame on the biophysical world by emphasizing the environmental push-factor, homogenizes the displaced population and takes away human responsibility and accountability for emitting greenhouse gases and creating oppressive social conditions (Black, 2001; Boano et al., 2007, pp. 7 – 8; Castles, 2002; Oliver-Smith and Shen, 2009, p. 10).

Discussing terminology is about more than semantics; labels are important because they “impose boundaries and define categories...labelling can shift – or sustain – power relations in ways that trigger social dislocation and prejudice efforts to achieve greater equity” (Moncrieffe and Eyben, 2004, p. 1). While the majority of people displaced by climate change impacts will be internally displaced (Kälin, 2008; Kolmannskog, 2008, p. 4), the refugee definition is based on a person being persecuted and forced outside their country of origin. Thus, the labelling process can create a dichotomy between citizen/foreigner and insider/outsider. For example, through personal communication, an activist working in the United States Gulf coast recalled an afternoon when Walter Kälin visited New Orleans post-Katrina and Senator Landrieu encountered him and stated, “We really need to have you here because of those refugees, those poor refugees”. The refugee label that the Senator used elicited a context of foreignness when discussing the local residents who were displaced by Katrina, mostly low-income African-Americans, socially constructing a marginalized community as “the other” and with the underlying implication that they lack citizenship.

The power dynamic between those shaping the popular discourse and those who the discourse is about is also illustrated through descriptions of Tuvalu’s residents, who, along with residents of Kiribati, the Maldives and the Carteret Islands, among others, have been dubbed at risk of becoming what several scholars (e.g., Macchi et al., 2008) and the popular media have called, “the first ‘sea-level refugees’”. Yet, Lazrus’s study (2009, p. 37) found that despite Tuvalu needing a conceived plan for migration, this should not be done “at the expense of in situ disaster mitigation and climate adaptation”. The island residents, Tuvaluan government, United Nations Pacific Ambassadors and the Chair of the Alliance of Small Island States have adamantly resisted the notion of “climate refugees,” refusing to allow relocation away from their homelands as being the go-to answer for CCA (McNamara and Gibson, 2009, pp. 479 – 481). Therefore, we have to be mindful of the role the mass media, writing and research play in “reproducing ideologies and reinforcing the privileged positions of authority” (Button, 2001, p. 145). We need to primarily consider local ideas and support communities in creating adaptation strategies as they best see fit.

At the same time, there is an imminent need to establish an international legal framework to support people displaced by climate change impacts and to ensure the protection of their human rights. For example, at the 2005 United Nations General Assembly, Kiribati’s President Anote Tong noted “the need for nations to seriously consider the option of relocation – the ultimate form of adaptation to climate change...and that now is the time to be discussing what might need to happen in the coming decades” (Loughry and McAdam, 2008, p. 52). Yet, there are currently no legally binding policies that deal with displacement caused by severe, slow-onset environmental deterioration and destroyed livelihoods (Martin, 2010, p. 4). Furthermore, climate-influenced displacement and relocation is insufficiently discussed at both the international and national...
levels. For example, hardly any of the “major middle-income developing countries which are major source countries for migrants, such as Mexico, India and China, have included any reference to migration in their climate change adaptation plans” (Laczko, 2010, p. 4). In the case of Kivalina, Alaska, residents discovered that there is no United States government agency that directly handles relocation, as residents have struggled to find the means to relocate their community out of harm’s way from climate change impacts (Shearer, 2011). There are some exceptions, such as the Maldives’ government developing a “Safer Island Strategy” that includes internal resettlement from smaller, less populated islands to larger islands with better natural protection and enhanced coastal defenses” (Galloway McLean et al., 2009, p. 105; Global Environmental Facility, 2009). However, for the most part, climate-influenced displacement and relocation is excluded in international and national climate change plans.

According to Kälin (2008), “most of the displaced will remain inside their country and as internally displaced persons should receive protection and assistance in accordance with the 1998 Guiding Principles on Internal Displacement”. However, the United Nations Guiding Principles on Internal Displacement are limited in that they protect those forcibly displaced by immediate-onset disasters and do not necessarily account for the range of people impacted within the context of climate change. Additionally, as Schmidt-Soltau (2010) noted, in the case of climate-influenced displacement, the United Nations Guidelines on Internal Displacement are non-binding, the United Nations Geneva Convention on Refugees does not apply, UNHCR does not protect people displaced by climate change and the Convention for Protection and Assistance of Internally Displaced People in Africa by the African Union has limited ratification.

Therefore, additional safeguards and instruments are needed to ensure the human rights of those displaced by climate change are upheld. Such instruments would need to account for the gradation of movement experienced. As Adamo (2008) explained, “at one end of the spectrum there would be refugee-like situations,” such as that experienced in Darfur, in which climate change is counted among the numerous co-existing factors that led to violence in the region (Eccleston, 2008; Wisner et al., 2007). At the other end of the spectrum, “migrant-like situations would be characterized by greater control over the process and less vulnerability even if people are moving in response to deteriorating conditions” (Adamo, 2008). The responsibility of the international community needs to be solidified and upheld, especially in cases of permanent relocation.

2. New guiding principles to address climate change and human movement

Because of the immense global scale of the problem and the interwoven complexities of the economic, political and social phenomena involved, I fully agree with Bronen’s (2009) call for a new Guiding Principles on Climigration. These Guiding Principles should co-exist and work alongside the United Nations Guiding Principles on Internal Displacement, as there is potential for overlap (e.g., people fleeing conflict stemming from environmental degradation). For those who do cross national borders, as is potentially the case for the inhabitants of small islands such as Tuvalu or the Maldives, UNHCR would play a role because of the concern of statelessness. The Guiding Principles should also take the Universal Declaration of Human Rights into account (Bronen 2009, p. 71), as people displaced by climate change face the potential loss of human rights to life, adequate food, water, health, adequate housing and self-determination (Office of the United Nations High Commissioner for Human Rights, 2009).

In cases of climate-influenced displacement, without international guidelines, it is difficult to assess how people are entitled to support. There is the additional issue of who is responsible for providing such support since so few parties claim responsibility for climate change. This lack of acceptance of responsibility violates the United Nations Guiding Principles on Internal Displacement’s Principle 5 that states, “All authorities and international actors shall respect and ensure respect for their obligations under international law, including human rights and humanitarian law, in all circumstances, so as to prevent and avoid conditions that might lead to displacement of persons” (Brookings-Bern Project on Internal Displacement, 1998). All actors need to be held accountable for their contribution to climate change and its impacts, which can lead to mass population displacements. For example, the United States has four per
cent of the world’s population, but according to Barker (2008), “is responsible for one-quarter of the carbon emissions from burning fossil fuels”. Furthermore, Principle 9 of the United Nations Guiding Principles on Internal Displacement declares that “States are under a particular obligation to protect against the displacement of indigenous peoples, minorities, peasants, pastoralists and other groups with a special dependency on and attachment to their lands”. Yet, these are the groups experiencing the most dire effects of climate change. The United Nations Declaration on the Rights of Indigenous Peoples also needs to be upheld to its full extent, and concerns about loss of place, identity and resources need to be incorporated into the new Guiding Principles on Climigration, which should be binding.

Emphasizing the need for planned resettlement, one option, as described by the Global Governance Project (2008b), is to see “the climate refugee crisis as a development issue, since climate refugees require protection in the form of long-term voluntary resettlement programs for collectives of people, which can often take place within their own country. Such programs can more effectively be provided by development agencies than by security or human rights institutions”. However, having development agencies, such as the World Bank, in charge of such resettlement under current policy guidelines carries with it the very real and full potential to continue down the track of increased marginalization and impoverishment to individuals and communities displaced by climate-related impacts (Maldonado, 2012; World Bank Independent Evaluation Group, 2010).

E. Lessons learned from development-caused forced displacement

In creating the new Guiding Principles, lessons need to be drawn from some of the tragic consequences that have occurred and continue to occur in cases of development-caused displacement, such as what happened – and continues to happen – to the Ogoni community in the Niger Delta and communities displaced in Orissa by the Sardar Sarovar Dam, who experienced severe social marginalization and increased impoverishment. I use forced displacement caused by development projects as a way to conceptualize the effects of climate-influenced displacement because much research has been done on the impacts of development-caused forced displacement (e.g., Cernea, 2008; De Wet, 2006; Downing, 2002; Koenig, 2009; Mahapatra, 1999; Sapkota, 2000; Scudder, 2005; Vine, 2009). Also, climate change is tied to many types of development projects that cause displacement (e.g., oil drilling and coal-fired power plants) and, like development-caused displacement, displacement related to climate change will often take place over time (e.g., sea level rise), which allows time for resettlement planning.

A growing body of social science literature has documented the many negative consequences for the individuals, families, and communities affected by forced displacement, which is defined as “the process through which population groups are compelled against their will to leave their habitat or/and productive activities and to seek alternative locations and modes of securing their living” (Cernea, 2008, p. 12). These impacts include, among others, lack of livelihood opportunities, marginalization, loss of resilience, health and education risks, break up of kinship groups and communities, the loss of traditional skills and the mental stress of living in a strange place (Cernea, 2008; De Wet 2006; Downing, 2002; Mahapatra, 1999; Sapkota, 2000; Scudder, 2005). Displacement often disrupts the social fabric of people’s lives and communities become disassembled and fragmented (Cernea, 2005; McDowell, 2002; Ohta and Gebre, 2005). Yet, the social effects of displacement are often ignored by organizational actors, practitioners and researchers in favour of emphasizing impacts that can be economically compensated (Cernea, 2002). By emphasizing the economic aspect, it is easy to neglect all of the impacts that cannot be assigned a monetary value, such as ruptured social networks (Page, 2006, p. 43). Furthermore, “when an entire place or landscape is destroyed, the sense of betrayal and disorientation is acute,” as the known environment and “communal pattern of identity” breaks apart (Tall, 1993, p. 91). This most severely affects communities who have strong place attachment.

It is well documented in the social science literature that in cases of development-caused forced displacement, people displaced are often offered cash remunerations and/or land compensation (Cernea and Mathur, 2008). However, this is ineffective and insensitive to the
long-term impacts of displacement because it completely disregards displacement’s negative social impacts, such as increased marginalization and loss of social networks and access to social services (Cernea and Mathur, 2008). For example, a study that analysed compensation use in 50 multilateral development agencies’ sponsored development projects causing forced displacement found a number of severe problems with the over-reliance on compensation to resettle populations. Some issues with the compensation process itself included delays in payment, inventoring and valuation of assets, and discrepancy in the number of people deserving compensation. Furthermore, projects ignored the populations’ social aspects, resulting in the displaced individuals suffering from increased impoverishment and marginalization (Maldonado, 2008). Hoshour (2010) found similar issues in her study of the Phulbari Coal Mine in Bangladesh, in which she linked development-caused forced displacement to climate change through dams, mines and deforestation that displace people and generate mass amounts of greenhouse gas emissions. The people impacted by the coal mine received cash compensation, but not land compensation, which greatly increases impoverishment when people with land-based livelihoods are displaced in a densely populated country that lacks replacement land (Hoshour, 2010; International Accountability Project, 2008).

A similar scenario has started occurring in cases of climate-influenced displacement. For example, the United States government has deemed the communities of Kivalina and Newtok on Alaska’s west coast in need of resettlement because, as Bronen (2009, p. 70) explained, the “climate-induced disappearance of sea ice and sea-level rise create stronger storm surges that are eroding the land on which they are situated, thereby precluding a sustainable future of each community in its present location”. Yet, there is still insufficient compensation allotted for the communities’ relocation and there is minimal beyond compensation measures that have been granted to the communities (Bronen, 2009; Galloway McLean et al., 2009, p. 30; Hanna, 2007, p. 37; Marino, 2009, p. 47; Shearer, 2011).

Beyond reflecting on the lessons learned from over-reliance on compensation to resettle populations, when developing new Guiding Principles it is also important to consider various frameworks that incorporate the displacement risks that need to be addressed and how communities can most effectively be supported through the resettlement process. One example of such a model is Cernea’s Impoverishment Risks and Reconstruction (IRR) Model, which was originally designed for development-caused forced displacement, but has since been used to address different kinds of displacement. The IRR model signals eight impoverishment risks that people often experience when forcibly uprooted from their homes, such as joblessness and social disarticulation (Cernea, 2005). As Ragsdale (2001) explained, the IRR model “has placed at its center the onset of impoverishment, its unfolding, and the process of escaping impoverishment,” which I believe is one of the key elements to ensuring human rights are upheld in the relocation process. There are also other frameworks to consider, such as Scudder and Colson’s (1982) four-stage model of resettlement processes.

It would also be useful to consider lessons learned from proactive resettlement measures to disasters. For example, some countries in Latin America have pursued resettlement as a preventive tool for DRR (Correa et al., forthcoming). While some communities have successfully moved to areas at lower risk of hazards, the process highlighted the lack of attention given to the cultural dimensions, social ties and accountability mechanisms (Correa et al., forthcoming). Lessons need to be learned from previous mistakes to ensure that people do not suffer increased hardship through the displacement and resettlement process.

F. Suggested directions for future research and policy initiatives

New Guiding Principles should be established that include, along with the ideas discussed above, the recognition of the social and cultural dimensions of displacement. This requires understanding people’s social and cultural values and worldviews, which involves a participatory process of two-way information flows between local populations, agencies, practitioners and researchers.

Ensuring voices of those most impacted by climate change are heard and included in the Guiding Principles is essential to mitigating impover-
lishment risks and the adverse consequences of climate-influenced displacement. If relocation is deemed unavoidable by the local population, research on local perceptions could influence what measures should be included in the Guiding Principles – which could be adapted to fit particular situations – to avoid impoverishment risks and loss of human rights. This framework ties into the Global Governance Project’s (2008a) idea of multiple actors implementing a collection of rules and coming together in a multitude of layered partnerships through which all voices are heard and empowered.

Beyond establishing new Guiding Principles, research alternatives that bridge scientific and local knowledge are needed, such as participatory action research and detailed empirical research on vulnerability and adaptation of particular people in particular places (Barnett, forthcoming; Button and Peterson, 2009; Crate, 2008; Lazrus, 2009). Understanding local perceptions of climate change could influence what actions policymakers need to take to help increase communities’ resilience, which is about more than just institutional indicators. It is also contingent on how people perceive climate change. Research is also needed that analyses how people perceive climate change impacts affecting their movement, how people are socially, economically and culturally affected by these movements, and what other non-environmental factors contribute to people’s movement. Efforts need to be made to consider how communities’ vulnerability to climate change has been shaped over time by outside forces, also recognizing that climate change is not the only reason for people needing to relocate. This research needs to provide information that can facilitate action. Platforms should be rigorously established that contribute to knowledge-sharing and knowledge-generation on the commonalities and learning experiences about climate change, displacement, relocation and adaptation.

While the research, media and policy attention on climate change and displacement focused in isolated locations (e.g., Arctic communities and the Small Island Developing States), is essential and there is a tremendous need to understand what is happening on-the-ground in these places, the vast majority of people affected by climate change will be impacted in much more subtle ways. Most of the affected people will not experience the complete inundation of their homeland, such as the case in Tuvalu, or their village literally falling into the sea, as in Kivalina. Rather, most of the experiences will be by people in marginalized situations where climate change acts as a tipping point to force them to move and also impacts places where they are moving to in subtle, yet profound ways, such as increased flooding and droughts, which effect their lives and livelihoods.

Understanding the processes that shape climate change and displacement is significant for governments and civil society to take proactive measures to assist people who have to relocate due to climate change impacts, as well as ensuring the safety of those who continue to be at risk to climate-related hazards even after relocation. This also means the need to establish an evaluation process so that when policies are implemented, they capture the complexity of displacement and relocation and guarantee the rights of people who are displaced. As governance mechanisms and policies are created, learning about people’s experiences and responses can provide important learning tools for policymakers to effectively mitigate potential consequences of displacement, such as social dislocation and support individuals and communities through the process of climate change, displacement and relocation.

In the hotter world that we are heading towards, climate change needs to be addressed in development planning, considering both mitigation efforts and adaptation needs, as well as the question of whether the project will lead to second-order effects. For example, does dam and reservoir construction for adaptation to droughts in one area lead to displacement of downstream communities? There needs to be a systems-thinking approach in which all people are placed at the core of adaptation thinking and planning. We need to look at local alternatives that allow communities the space and power to create adaptation strategies in their changing environment. Policies will also need to consider higher migratory pressures and include proactive population relocation when people living in high-risk areas determine the need to move as a preventive measure. This minimizes the technical, economic-based approach that focuses on controlling the environment, instead shifting towards a people-centred framework that focuses on human rights,
includes the participation of local communities, and highlights the need to reconfigure the current global economic structure. By implementing this framework, we will hopefully avoid a further “drift” into what Archbishop Desmond Tutu (2007, p. 26) called “a world of ‘adaptation apartheid’”.

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Resilience in a Vulnerable Environment: Identifying Resources for Young People’s Resilience in Burkina Faso
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Abstract
Climate variability and change is an increasing issue in Burkina Faso: extreme weather events occur more frequently and have disastrous impacts. This paper begins with an exploration of how the events of climate change affect Burkina Faso and identifies what factors cause and augment its vulnerability and state fragility. Drawing from empirical research performed within Burkina Faso, the paper then focuses on the impact that the environment plays on young people, since they form the majority who need to deal with and adapt to the changing climate. Tangible and intangible resources are identified, which allow youth to be resilient, and the main similarities and disparities within this heterogeneous group are explored. The findings reveal that the youth of Burkina Faso are a pluralistic group and that their resources are influenced by gender, age and ethnicity. The paper concludes that effective approaches to climate change require the inclusion of strategies aimed at enabling youth resilience against extreme weather events.

Keywords: climate change, fragile states, resilience, resources, youth, Burkina Faso

A. Introduction
The IPCC identifies that around the globe, climate change is a reality (Pachuauri and Reisinger, 2007). Climate change is believed to manifest itself through an increase in extreme weather events which, in turn, lead to a higher intensity and frequency of weather-related hazards such as droughts, floods and hurricanes (Solomon et al., 2007). Volatile weather patterns, coupled with changes in rainfall and temperature, have the capacity to reshape the productive landscape of entire regions and exacerbate food, water and energy scarcities. Furthermore, natural disasters, salinization and mega-droughts could make entire areas uninhabitable and may possibly contribute to unregulated population movements (Brown and Crawford 2008, p. 41).

Of all people whose lives are disturbed by disasters, children and young people are often the most seriously affected. This is because such events lead to food shortages, poor water and sanitation facilities, interrupted education and family separation which occur during a crucial period of personal development (Peek, 2008; UNICEF, 2007, 2011). In addition, 88 per cent of adolescents who bear the burden and costs of mitigating and adapting to climate change live in developing countries and as a result are projected to suffer disproportionately (UNICEF 2011, p. 42). Worldwide however, more often than not, children and young people are ignored: they are rarely formally involved in disaster preparedness, response and recovery and, on the whole, their participation is often not acknowledged (ADPC, DIPECHO and Plan Bangladesh, 2010). Also, within the academic arena, children’s experiences of disasters have been historically overlooked and are often absent from the Social Science Disaster research agendas (Anderson, 2005). Although there is currently an increasing amount of research on children’s experiences, there remains a need for more evidence-based knowledge in order to design effective preparedness, response and recovery strategies (Peek, 2008).

The focus of this paper is on flooding as it is the most reported and costly disaster that affects the most number of people (Jonkman, 2005; Wisner et al., 2004, p. 124). In turn, Burkina Faso was chosen as a case study because recent research demonstrates that it is a country extremely vulnerable to climate change (Bonfiglioli, 2010; Engberg-Pedersen, 2003; UNDP, 2010; World Bank, 2011). The paper sets out to identify the resources that enable young people to be resilient against climate change events. Resiliency can be more formally defined as: “the capacity to recover from, adapt to, and/or remain strong in the face of adversity” (Boyden and Cooper, 2007, p. 1). Resources are one of the numerous moderating factors of resilience and it is acknowledged that access to or possession of tangible and intangible resources influences individuals’ ability to deal with disasters (Wisner et al., 2004).

Given that in Burkina Faso the young rural population form a significant share of those who need to deal with and adapt to the changing climate, they are an important research population (INSD, 2008). While globally young people are
exposed to a wide range of threats, one cannot assume uniformity in their capacity to be resilient. Scholars stress that childhood and adolescence is common to all children, however it is also fragmented by the diversity of their everyday lives, contexts and cultures (Boyden and Cooper, 2007; James and James, 2004, 2008, p. 13). Because of the need for more evidence-based and locally informed knowledge, the objective of this paper is to identify the resources that will allow young people living in Burkina Faso to be resilient to flooding in the future. Moreover it sets out to provide recommendations for climate change-related policy and practise. The foundations of the paper are a mix of primary and secondary sources. The findings concerning resources that enable youth resilience were mainly based on empirical data gathered through qualitative (child-centred participatory rural appraisal activities, interviews and focus group discussions) and quantitative methods (N=582) employed during a period of five months in rural areas in the Centre North (Tougouri) and the South West (Midebdo) of Burkina Faso.

B. Burkina Faso, climate change and risk

Situated in the heart of West Africa, Burkina Faso has an area of 274,000 km² and is a landlocked country that borders six countries in the sub-region. It is located on the Greenwich meridian between 9° N and 15° N and has three main climatic zones: the Sudano-Guinean, the Sudano-Sahelian and the Sahelian (Manson and Knight, 2006). Due to its location in the hinterland and within the confines of the Sahara, the climate in Burkina Faso is prone to strong seasonal and annual variation (World Bank, 2011). On average, more than 900 mm of rain falls in the Sudano-Guinean region while in contrast the Sahel region receives less than 300 mm per year.

In terms of expected changes in climate, the Sahelian region of Africa is believed to be affected through severe variations in rainfall, water shortage and low agricultural yields. Simulations made by theoretical models indicate that Burkina Faso will experience a 0.8° C rise in average temperature by 2025 and a 1.7° C rise by 2050. Furthermore, an expected decrease in rainfall of -3.4 per cent by 2025 and -7.3 per cent by 2050 is expected to couple with very strong seasonal and inter-annual variability of climatic factors (Sawadogo, 2007; World Bank, 2011, p. 2). Apart from a variation or drop in the overall amount of rainfall and a rise in temperature, the primary climatic hazards in Burkina Faso are identified as excess precipitation within short time periods and increased wind speeds. Excess precipitation leads to floods and erosion, crop destruction, drowning of livestock, and surface water pollution. Additionally, increased wind speeds augment the frequency of desert windstorms and soil erosion (Ministère de L'Environnement et du cadre de vie, 2007, p. 13). The expected higher temperatures could bring about an evaporation of water, degradation of soil, increased spread of pests such as locusts, reduced crop yields and a crippled biodiversity. The lower rainfall and higher temperatures could also contribute to silting and the evaporation of lakes and rivers, in addition to a long-term decline in water reserves. This in turn could produce droughts which negatively impact on agricultural output and cause food insecurity which can threaten the population’s health (Sawadogo, 2007; World Bank, 2011). In the long-term, these hazards are believed to cause:

- a drastic decrease in water availability;
- a drastic decrease and deterioration of pastures; and
- a decrease of the biomass potential (Ministère de L'environnement et du cadre de vie, 2007).

The four sectors which are thought to be most vulnerable to climate change are water, agriculture, stock farming and forestry. In addition, the main human vulnerabilities and livelihood impacts expected as a result of climate change include: reduced agricultural production; secondly water shortages and/or groundwater depletion, increased diseases and/or other health problems; and finally food insecurity (Ministère de L'Environnement et du cadre de vie, 2007; Sawadogo, 2007).

Apart from what is expected for the future, variability and change in climate is currently evident in West Africa and Burkina Faso. From the 1930s to the 1950s there was a period of unusually high rainfall. This period was followed by an extended drought which lasted for much of the latter half of the century (Brown and Crawford, 2008, p. 46). Mean annual rainfall and run-off dropped by as much as 30 per cent and had devastating effects on local populations and their
livelihoods (ibid). An estimated 500,000 people died across the Sahel and as many as one million people left Burkina Faso during the droughts, and most settled in urban areas of other West African countries (Brown and Crawford, 2008; Niamir-Fuller and Mann, 2007). Over the past decade the country witnessed major natural disasters and ensuing humanitarian crises such as droughts, flooding, epidemics of meningitis, avian flu, insect infestation and the mass movements of populations (Gouvernement du Burkina Faso, 2009).

As a Sahelian country, it is first and foremost confronted by drought and lack of water; however, over the past 20 years flooding has also become increasingly prevalent (Sawadogo, 2007). The main major floods that took place in Burkina Faso were in 1988, 1992, 1994, 2003, 2006, 2007 and 2009 (DFO, 2010; EM-DAT and Université Catholique de Louvain 2010; Gouvernement du Burkina Faso, 2009). Although various databases differ, the floods in 2006, 2007 and 2009 were the largest both in terms of magnitude, duration and concerning the number of square kilometres of flooded land. The most well-known flooding event remains the massive rainfall during September 2009, which caused extensive damage and left more than 150,000 people homeless in Ouagadougou alone (Egeland, 2008; USAID FEWS NET, 2009; UNOCHA, 2009). Exact figures of the height and impact of flooding in rural areas are not easily accessible, however the qualitative empirical data confirm the trend of increased flood risk. Figure 1 shows youth’s perception on the height of the floodwater for the period between 2004 and 2009. As can been seen in the graph in the figure, increasing flood heights are experienced by the youth in their community and the specifically disastrous impacts of the 2009 floods were emphasized during the focus group discussions. One of the male participants explains the impact of the 2009 flood: “the rain swept along everything, houses collapsed and animals, clothing, kitchen tools, food and grains were all taken by the water”.

Figure 1. Results of PRA mapping activity. Illustrates flood occurrences (between 2004 and 2009) and height of floodwater.
Created by youth in the Centre North of Burkina Faso - Tougouri (February 2010). Source: Author
C. State fragility and climate change in Burkina Faso

Exposure to the impacts of climate change in Burkina Faso is evident, and it is therefore of significant importance to understand which factors increase vulnerability and state fragility. In the discussion of climate change in this paper, identifying the extent to which a state is fragile is seen to be of importance since, in fragile states, the physical impacts of climate change can potentially lead to instability and conflict (Faria and Hamza, n.d.). Smith and Vivekananda argue that tracing the “consequences of consequences” is key to understanding how the effects of climate change will interact with a country’s socio-economic and political problems (2007, p. 3, 2009). However, before these factors can be adequately addressed, it must first be established how state fragility is defined and to what extent Burkina Faso is a fragile state.

Although there is a lack of consensus in academia regarding the use of the term “state fragility” and numerous descriptions and interpretations exist, the definition by Carmet et al. (2010) is used for this study. They define a fragile state as one that: “lacks the functional authority to provide basic security within their borders, the institutional capacity to provide basic social needs for their populations, and/or the political legitimacy to effectively represent their citizens at home and abroad” (Carment et al., 2010, p. 5). In this interpretation fragility is seen as a process, not an outcome, and it is measured by a state’s performance in authority, legitimacy and capacity, willingness and its absorptive capacity, and vulnerability to exogenous shocks (Carment et al., 2010, p. 5).

In order to identify how fragile a state is, a “state fragility index” (SFI) was developed in which six key determinants were analysed (CIFP, 2011b). From the SFI it becomes clear that a high score of 6.5 or higher indicates that a country is performing poorly relative to other states. Values in the moderate 3.5 to 6.5 range indicate performance approaching the global mean. A low score ranging from 1 to 3.5 indicates that a country is performing well relative to others, or that a country’s structural conditions present little cause for concern. On average Burkina Faso’s fragility index is 5.76 which demonstrates that its performance is approaching the global mean. Cluster analysis shows Burkina Faso scores as governance (5.21), economics (5.61), security/crime (3.61), human development (8.01), demography (6.75) and environment (4.09) (CIFP, 2011a). This suggests that in no aspect is the country performing well relative to others and that its performance is poor with regards to human development and demography.

Building on these findings, the root causes of the country’s vulnerability to climate change can now be explored. These are believed to have both a “natural explanation” and a “socio-political explanation”.

D. Natural factors triggering vulnerability

Burkina Faso is generally less endowed with natural resources and a significant share of its people live in drought-prone rural areas and typically struggle with substantial risks, poor natural resources and few opportunities to make a living (Engberg-Pedersen, 2003). Although not static, the distribution of land across the entire national territory is: 13 per cent cultivated land; 40 per cent arable land; 16 per cent protected areas (classified forest, reserves, national parks) and 61 per cent grazing land during the rainy season (Bonfiglioli, 2010, p. 5). The major environmental risks are low soil suitability, erratic rainfall and cold stress risk, severe land degradation and low climatic production potential. In terms of agricultural production, the low level of natural soil fertility is one of the main constraints. Most soils are very old and washed-out. The low ratio of organic matter in the soils (<1 per cent) also causes: high soil sensitivity to water-induced and wind erosion; reduction of the water stocking capacity of the soil; inefficient use of water by plants; a drop in agricultural, animal and forestry production; and intensification in the phenomenon of desertification (Bonfiglioli, 2010). Of the few natural resources the country possesses, manganese, limestone, marble, phosphates, pumice, gold and salt are the main natural assets.

The vast majority of the working population (86 per cent) are subsistence farmers who breed livestock and cultivate, for example, sorghum, corn, rice and fonio (Ménager and Nikiema, 2005). Industrial production is low and mostly concentrated in copper, iron, manganese and gold mining. Cotton (seen as the main cash crop),
livestock, gold, manganese, zinc and handicrafts are the country’s core export products (Manson and Knight, 2006; Ménager and Nikiema, 2005). The economy is heavily dependent on cotton exports and is therefore vulnerable to external shocks such as low cotton prices and inauspicious weather conditions (Bonfiglioli, 2010, p. 3). On top of this, Barbier et al. (2009) emphasize that the Sahelian climate is highly variable and point out that the droughts of the 1970s and 1980s demonstrated the devastating impact of climate on people's persistent vulnerability. They argue that the irregular characteristics of the climate have made it difficult for Sahelian populations to invest and accumulate wealth (Barbier et al., 2009, p. 791).

In sum, one of the core reasons for Burkina Faso’s vulnerability is that scarcely available resources feed more than two thirds of the population and the vast majority of the total population depend on agriculture and animal husbandry for subsistence. Moreover, Burkina Faso relies on rain-fed agriculture for food security and agricultural exports (mainly cotton) (Brown and Crawford, 2008, p. 45). Thus, given the prognosis of climate change, the management of natural resources and the protection of the environment are crucial to prevent future crises and possible increases in levels of poverty (UNDP, 2010, p. 15).

E. Socio-economic factors triggering vulnerability

Households in Burkina Faso are faced with extremely unstable and precarious livelihoods which are often characterized by frequent crises and constant efforts to: address the situation, rehabilitate, reconstitute granaries and make reserves (Engberg-Pedersen, 2003). Four important socio-economic factors trigger this vulnerability.

Firstly, Burkina Faso is one of the poorest countries in the world, ranked at number 181 out of the 187 nations in the human development index (UNDP, 2011). The country has an annual income per capita of 1141 PPP$, which is one of the lowest in the world. Moreover, the richest 10 per cent of the population receives 46.3 per cent of all income, and the country has a Gini-coefficient of 0.396 (Manson and Knight, 2006, p. 34).

Secondly, there is generally a lack of investment in education and health care. Adult-literacy rates are low (28.7 per cent) and gender-biased, since 29 per cent of the literate adults are believed to be male and 15 per cent female (Trench et al., 2007, p. 23; UNDP, 2011, p. 161). While attempts are being made to increase the levels of literacy and make education more accessible to the less wealthy, there is believed to be a decline in the quality of education due to growing class sizes.

Thirdly, the country is ranked as a “low revenue economy”. The International Monetary Fund estimated the per capita GDP in 2010 was US$ 639. In addition, Official Development Assistance (ODA) still constitutes an important percentage of Burkina Faso’s GDP. It has constantly increased since 2004, reaching 15.2 per cent in 2007, which is much higher than the average of 5.1 per cent for sub-Saharan Africa (UNDP, 2010, p. ix). In 2007, the ODA per inhabitant increased to US$61.18 compared to the African average of US$42 (UNDP, 2010, p. ix). Engberg-Pedersen claims that development assistance in Burkina Faso does not just contribute to economic growth or the national health sector, but it also provides significant opportunities that can be used by households in their fight for subsistence. Development assistance has become pivotal in livelihood strategies since it provides such important resources in proportion to other local resources (Engberg-Pedersen, 2003, p. 1). Although development has immediate advantages, it also has drawbacks since it often entails a transformation of social organization, along lines that are radically different from local values, practices and understandings. In addition, it creates a dependency on development assistance since it is being utilized to support general government budgets (Engberg-Pedersen, 2003).

Finally, Burkina Faso has enjoyed political stability for nearly two decades. However, since February 2011 it has been affected by episodes of internal violence due to unrest in neighbouring countries, high food prices, unemployment, rising costs and looting by troops (Agence France-Presse, 2011a). Over the past years, Burkina Faso undertook a process of democratization. Structural reforms, policies, strategies and action plans have been issued and provide a framework for reform; however, the implementation often lagged behind (UNDP, 2010, p. 5). Various laws and regulatory instruments were formulated and enacted by the government, which eased the administrative and political decentralization process.
of sharing responsibilities between the state and local authorities (Bonfiglioli, 2010, p. 9). Human rights laws and frameworks were adopted, however there is no independent national commission and the United Nations stresses that implementation needs to be strengthened (ibid). On the other hand, the well-organized independent and active civil society and relatively free media play an important role as a counter-power in the absence of a political opposition. Elections have been held since the adoption of the Constitution in 1991, and President Blaise Compaore, who seized power in a 1987 coup, has been re-elected four times since 1991 (UNDP, 2010). In April 2011, however, soldiers and paramilitary police joined the unrest which started in February of the same year, by going on the rampage in several towns (Agence France-Presse, 2011a). In a bid to quell the unrest, the President fired army and police chiefs in April and formed a new government. He named himself Minister of Defense and promised subsidies on basic commodities and other urgent measures (Agence France-Presse, 2011a, 2011b).

Under the above described socio-economic and political circumstances it is explicable that population growth forms another major challenge for Burkina Faso. The population of around 14 million is rising at an annual rate of 3.1 per cent (Plan Burkina Faso, 2009, p. 5; UNDP, 2010). The country has a high birth rate of 6.1 children per woman and it is predicted that the population will rise to 21.4 million by 2020. This high growth rate adds to the challenge in dealing with the high prevalence of malnutrition, low literacy rates and high burden of disease. Moreover, the scarcity of resources, combined with an increasing population density, is believed to increase people’s vulnerability as the ecological equilibrium will be surpassed. Reasons to a decline in soil fertility, land degradation or even to an aggravating crisis are over-cultivation, lack of or short fallingow, overgrazing, deforestation, disappearing woodlands, deterioration of groundwater and lack of appropriate agricultural techniques (Barbier et al., 2009, p. 792; Mortimore and Adams, 2001, p. 50). Of others, poor farming output and poverty are factors pushing rural Burkinabè to migrate in search of better opportunities and, according to Kress (2006), one Burkinabè in five lives abroad (Beauchemin and Schoumaker, 2005; Henry et al., 2004; Wouterse and Taylor, 2008). This being said, scholars emphasize that Sahelian farmers and herders have a better capacity for adapting to climate variability than previously thought and that famine is more a result of bad policies than of the incapacity of the local communities (Barbier, 2009; Mortimore and Adams, 2001).

The findings are worrying, especially since Smith and Vivekananda point out that political instability, economic weakness, food insecurity and large-scale migration are key elements which increase the risk of armed conflict as a resulting consequence of climate change (2007, p. 3, 2009). Moreover, it emphasizes the need for designing and implementing effective preventive strategies.

F. Resources for youth resilience in Burkina Faso

Although the Burkinabè have been severely tested by their environment in the last few decades, they have not been passive recipients of this changing climate. Some analysts suggest that “the inherent adaptability of the Sahelian peoples is one of their greatest assets” (Brown and Crawford, 2008, p. 46). In Burkina Faso, it is the young rural population who form the majority of those who need to deal with and adapt to the changing climate. The median age is 15.5 years and 53 per cent of the population is below 18 years (INSD, 2008). Life expectancy is 52.7 years and the population age distribution is: 46.2 per cent between 0 and 14 years; 51.3 per cent between 15 and 64 years and finally 2.5 per cent of the population is 65 years and older (CIA, 2010). With 51.7 per cent of the population women, and 79.7 per cent living in rural areas, the country has a predominantly rural and female population (UNDP, 2009).

As mentioned in the introduction, this paper set out to understand how young people have access to or possession of tangible and intangible resources which allow them to deal with flooding. The resources explored were classified according to the livelihoods framework, since it supports a holistic and multidisciplinary analysis for identifying how people cope with and recover from stresses and shocks (Twigg, 2001). In short, the sustainable livelihoods framework seeks to comprehend how “poor” people operate within the vulnerability context; how they choose and implement livelihood strategies on the basis of their livelihood resources and assets and
under the considerable influence of transforming
structures and processes (DFID, 2005; Scoones,
1998; Twigg, 2001). A livelihood comprises: “the
capabilities, assets and activities required for a
means of living”, which is considered sustain-
able when: “it can cope with and recover from
stresses and shocks and maintain or enhance its
capabilities and assets both now and in the fu-
ture, while not undermining the natural resources
base” (Chambers and Conway (1992) in Scoones,
1998, p. 5). The framework identifies five vital
assets for people’s livelihoods which are physi-
cal–material, natural, financial, social and human.
Resilience depends on one’s capacity to navigate
through tensions and stresses caused by flooding.
This capacity is on the one hand personal (inter-
nal level) and on the other hand depends on the

<table>
<thead>
<tr>
<th>Non-existent facilities</th>
<th>Percentage</th>
<th>Frequency (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community communication tools</td>
<td>58%</td>
<td>335</td>
</tr>
<tr>
<td>The dike of the dam</td>
<td>50%</td>
<td>292</td>
</tr>
<tr>
<td>The channel systems</td>
<td>54%</td>
<td>314</td>
</tr>
<tr>
<td>Evacuation sites</td>
<td>42%</td>
<td>243</td>
</tr>
<tr>
<td>Health clinic</td>
<td>38 %</td>
<td>219</td>
</tr>
</tbody>
</table>

Table 1. Resilience enabling facilities identified as “non-existent” by youth.
Source: own draft, based on questionnaire (N=582)

Youth explained that of the contextual re-
ources, public buildings are particularly im-
portant because they are often constructed of
stronger materials (cement instead of mud) and
are used as evacuation sites or locations for tem-
porary shelter. School buildings were identified as
the most helpful infrastructural facilities for deal-
ing with floods (helpful/very helpful for 63 per
cent of the youth, N=367), followed by health
clinics (56 per cent, N=326) and religious build-
ings (Mosque, Church and Temple) (47 per cent,
N=274).

Three findings of the quantitative data analysis
are noteworthy. Firstly, as can be seen in Table 1,
numerous facilities important for resilience to
flooding were identified to be “non-existent” by
the majority of the respondents:

strengths and resources available through the en-
vironment (external level) (Ungar, 2008). The five
vital assets will be explored, where possible, both
on a contextual and on a personal level.

1. Physical–material resources

Firstly, physical–material resources enabling
youth to deal with flooding were studied. In
terms of infrastructure, youth were asked to
identify what within their environment was per-
ceived to be helpful in dealing with floods. The
most important tools they identified included
the dike of the dam, community communication
tools, the granaries, tents, hangars, the channel
system, the health clinic, the school buildings, the
youth house and evacuation sites.

These results suggest that infrastructure that
enables communities to be prepared for, respond
to and recover from flooding could be strength-
ened. Secondly, 70 per cent (N=404) of the youth
felt that the (straw) granary was helpful/very
helpful to deal with flooding. Straw granaries
are crucial resources for households since they
are used for storing millet, sorghum and maize
by a wide range of ethnic communities living in
Burkina Faso (UNFAO, 1994). The rainy season,
which is the only period of food production, lasts
only three months, thus the granary is supposed
to provide protection against rain, soil, and in-
sects, and serve households for the entire year.
Finally, it was interesting to find that tents, which
are often donated, were felt to be slightly more
helpful than the more traditional straw “hangar” (shelter) (51 per cent versus 43 per cent).

Furthermore, the youth’s personal possession of physical material resources was explored. Material belongings identified as most precious included the cart, various working tools (such as the hand hoe, axe and machete), cooking equipment (such as cooking pot) and the millet pounder. Other identified items were shoes, clothes, an identity card, mobile phones, vehicles (i.e. bicycle, motorbike), jewellery and school utilities. These resources are valuable because they are essential in maintaining the livelihoods of youth and their families and moreover they provide status (also confirmed by De Lange, 2007, p. 164). Furthermore, when times are harsh and food is absent, material belongings are often sold or exchanged in order to acquire cash or other necessities for subsistence.

From the analysis of both qualitative and quantitative data, it becomes evident that male youth own more physical–material resources than female youth. Graph 1 demonstrates the resources which youth own through a gendered perspective. According to literature, women in Burkina Faso can face restrictions in relation to ownership rights. Although the current law grants equal rights to men and women, there are still gaps between the legislation and reality (SIGI, 2010). This was also brought up during the qualitative data collection, where one female respondent emphasized during a focus group discussion: “We girls have plates, clothes and shoes, but the boys have bicycles, motorbikes and some have carts and shovels”. Gender inequality corresponds with the fragility index where Burkina Faso scores 7.24 on gender, which from a Western perspective indicates that the country is performing poorly relative to other states (CIFP, 2011a).

2. Natural resources

For the majority of the families in Burkina Faso, agricultural production provides the foundation for food consumed in the villages, as well as some of the income needed to cover various expenses. Especially in rural areas of Burkina Faso, not all people work to acquire a financial income, but instead, work to produce natural assets to subsist (Hagberg, 2008, p. 29). Therefore, ownership of natural resources and assets is of crucial importance for maintaining livelihood (IFAD, 2001).

Of the community-owned natural resources, the youth found the backwaters, the dams (and fish), the hills, the bushes and the wild animals of importance to their livelihood. Agriculture, husbandry, livestock and domestic stock constitute the principal economic assets in rural communities in Burkina Faso. These resources form wealth because they allow people to get food, shelter

![Graph 1. Overview of the youth’s resources according to gender](image)

*Source: own draft, based on questionnaire, N=582*
and clothes, for example, but also because they give them the opportunity to perform socially valued actions (Hagberg, 2008, p. 42). This was confirmed during data collection where youth identified poultry, livestock and crops as the most important domestic and personal natural resources.

There are numerous ways in which youth have access to resources. Depending on age, gender and ethnicity they will receive resources from their parents, their family members (inside and outside of the community), friends and or community members. Also, other actors such as religious organizations, aid organizations and the government provide the youth and their communities’ resources, especially in times of crisis. Other strategies employed by the youth to access resources are exchanging goods, working (paid and unpaid) and saving or borrowing money. According to the questionnaire, 21 per cent (N=64) of the male youth owned animals and 19 per cent (N=58) owned crops. Of the female respondents, 12 per cent (N=33) owned animals and 16 per cent (N=45) owned crops. The distribution of ownership of animal species and land/land-use between men and women is strongly related to livestock production and to social and cultural factors (UNFAO, 1994). Typically, women in Burkina Faso do not own land but rather “own crops” and have the rights to cultivate and dispose of crops and crop income (Kevane and Gray, 1999, p. 2). The position the women have towards men – as mother, wife, sister or daughter—will influence their rights. In addition, the ethnic group a woman belongs to will influence if she has the right to utilize her husband’s land for personal use. In Mossi areas, for example, a woman cultivates her husband’s fields but is also strictly entitled to private fields where the husband cannot exercise any influence. Without encumbrance, the income from these parcels of land is for the women (Kevane and Gray, 1999, p. 8). Lobi women, on the other hand, are believed to have no access to any sort of land, have no personal fields and participate little in agriculture (Pere (1973) in Kevane and Gray, 1999, p. 9).

3. Financial resources

Given the importance of subsistence farming in Burkina Faso, absolute monetary measurements are not always as meaningful (Hagberg, 2008, p. 29). Good health, food, herds and clothing are often experienced to be more valuable than money. Although of less importance, the ownership and utility of both community and personal financial resources and assets were explored. Collective funds refers to money which is collected on a village level to cover specific village expenses (i.e. broken borehole) or which is used to buy “items,” for example for the traditional practice of “sacrifices”. Money donated to the village by organizations or individuals external to the community, in this study, is referred to as external funding/aid. To deal with flooding, youth indicated that external funding/aid (51 per cent, N=296) was slightly more helpful than the collective community funds (44 per cent, N=254). Nevertheless, the questionnaire specified that a vast majority of the respondents, namely 50 per cent (N=291), felt that collective funds did not exist and this was 37 per cent (N=217) in terms of external funding/aid.

Apart from the above-mentioned collective funds, the youth pointed out the existence of various other forms of communal financial assets. In the South West, the youth described the existence of neighbourhood associations who commonly saved money to help their members who were affected by flooding. The various churches in the communities in the Centre North and South West also collected money during the Holy Mass and some expected their members to give up to one-tenth of their income. A leader of a youth group in the Centre North explained that their members needed to pay around 2000 CFA to become a member25. The money from the group was then spent to buy agricultural seeds or, if possible, a plot of land on which they jointly work. The profits made from the land were subsequently used for the organization and its members.

On a personal level, 15 per cent (N=87) of the questionnaire respondents indicated they performed paid work, of which 72 per cent was male and 28 per cent was female, and in total 6 per cent of the youth said they own money. In total, 16 per cent of the youth had an income, and the level of income per month was for 10 per cent of the youth less than 5,000 CFA, 5 per cent earned between 5,000 and 15,000 CFA and only 1 per cent earned more than 15,000 CFA.
4. Social resources

Before, during and after adversity takes place individuals as well as groups rely on a number of structures and relationships to deal with this hardship (Twigg, 2001, 2004; Wisner et al., 2004). Data collected revealed that the youth received support from both external actors (which have their foundations external to the community) and internal actors (those from within the community).

With regard to the internal social actors, the support provided by the youths’ parents, the elderly, their friends and neighbours was experienced to be very helpful in dealing with floods. Often this involved a less tangible form of assistance such as psychological support, spiritual support and the provision of information. Especially during qualitative data collection, the youth pointed out the importance of the assistance from the village head, the head of household, other family members and the religious leaders. They also gave noteworthy importance to external social actors such as aid organizations, the president and his government, the Ministry for Social Action and National Solidarity and religious organizations.

They stressed that the significance of these social actors was strongly related to the level of material support or donations (food or financial) which they provided. Also, the government’s role of “sharing the country’s difficulties” with others was strongly valued. In contrast, critical notes were also placed concerning the lack of response from the government, in the rural areas. When discussing the 2009 flood response, a male respondent pointed out during an interview: “For the flooding last year we didn’t receive any assistance from the national level. You know, Ouagadougou was also flooded so we had to resolve it all ourselves on the local level”. An eye-catching finding in the data analysis is that the youth in the Centre North of the country rank the support of the actors in their environment much more positively than those in the South West. Graph 2 gives an insight into the ranking of the helpfulness of the support provided by various actors in the youth’s environment.
The data suggests that the social fabric of the youth in the Centre North (ethnically mainly Mossi) is experienced to be more supportive by the youngsters, than for those in the South West of Burkina Faso (ethnically mainly Lobi). Although the exact reason for the differences in social support remains unclear it could be explained by the varying communal focus of the two main ethnicities of the research areas. Some youth and community members in the South West emphasized that one of the reasons for the lack of social cooperation and solidarity is that generally speaking the Lobiri are more focused on the individual. This finding was reconfirmed by the questionnaire in which 72 per cent of the youth in the Centre North and only 28 per cent of the youth in the South West experienced “community solidarity” to be helpful or very helpful to deal with flooding.

5. Human resources

In dealing with flooding, human resources are of importance, which in this study refers to the youth’s flood-related knowledge and skills. The vast majority of the youth, namely 79 per cent (N=460), identified to have received information about flooding and 65 per cent (N=378) felt they knew how to act when a flood occurs. Furthermore, 57 per cent (N=332) of the youth indicated to be able to swim to save themselves when there was a flooding and 45 per cent (N=262) specified to recognize the signs of flooding. A male respondent emphasized the importance of knowledge and skills during an interview: “youth should receive information and advice so they can prepare their courage for the flooding, whatever its scale or impact is” (Adger, 2006).

Various formal and informal channels are believed to provide youth with knowledge and skills. School enrolment is generally low in Burkina Faso and of the respondents only 23 per cent (N=134) indicated that they attended school when the questionnaire was performed. Apart from school teachers, the youth explained to gain knowledge and skills from the elderly, parents, friends and the Ministry of Social Action and National Solidarity. The elderly also emphasized that they felt it an obligation to share their life experiences with the youth, who in turn stressed the importance of learning from the elderly and their family about what and how to do things in life. A male youth in the Centre North stated during an interview: “In the family I learn what to do and what to know and that makes me stronger”. Analysing differences in knowledge and skills, age-related differences were found (see Table 2). Of the various age-groups, the youth between 22-25 years of age more often knew how to act when there was flooding: they could swim to save themselves and recognized the signs before a flood. This suggests that flood-related knowledge and skills in Burkina Faso is age-related. G. Youth resilience in a vulnerable environment

From this paper it has become evident that climate variability and change is a reality in Burkina Faso and results in extreme weather events with disastrous effects. Since young people are often overlooked in policy, research and practice, this paper focused on presenting the pluralistic set of physical–material, natural, economic, social and personal resources which enable youngsters to deal with climate-related adversity.

<table>
<thead>
<tr>
<th></th>
<th>12-16 years of age</th>
<th>17-21 years of age</th>
<th>22-25 years of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive information about flooding</td>
<td>35%</td>
<td>49%</td>
<td>47%</td>
</tr>
<tr>
<td>Know how to act when there is flooding</td>
<td>22%</td>
<td>36%</td>
<td>45%</td>
</tr>
<tr>
<td>Swim to save oneself</td>
<td>32%</td>
<td>37%</td>
<td>43%</td>
</tr>
<tr>
<td>Recognize the signs of flooding</td>
<td>15%</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 2. Overview of flood-related knowledge and skills. Source: own draft, based on questionnaire (N= 582)
Although Burkina Faso is not identified as a “fragile state,” the SFI suggests that the country is in no aspect performing well relative to other states (CIFP, 2011a). Moreover, since February 2011 the country has been suffering from political instability which is caused by and further aggravates environmental, economic, demographic and political stresses. These increased tensions are occurring in a context where economic weakness, food insecurity and large-scale migration are already part of daily reality. This is worrying since scholars warn that these issues are key elements which increase the risk of armed conflict and in turn will leave communities poorer, less resilient and less able to cope with the consequences of climate change (Smith and Vivekananda, 2007, p. 3).

In terms of “looking forward” to what can be done to address the situation in Burkina Faso, the first recommendation raises the need for including the potential risk of conflict in climate change-related policy and practise, especially since water, agriculture, stock farming and forestry are the four most vulnerable sectors to climate change and those on which the vast majority of the population depend for survival. As societies are most resilient when there is preparation for potential future risks, it is of importance that this possibility is considered and that a conflict-sensitive approach is employed.

Secondly, it is recommended to develop and implement strategies specifically aiming at enabling young people to be better prepared for and adapted to both existing and anticipated climatic events. In total 53 per cent of the population is below 18 years old, thus the young Burkinabé are a majority of those who need to deal with the impacts of climate change. A crucial starting point for these strategies is to acknowledge young people’s competence as a social actor. This entails recognizing their visions, participation, skills, knowledge, resources and agency, both in crises and in daily life (Boydén and Mann, 2005; James and James, 2008; Montgomery, 2009). The research shows that in Burkina Faso, young people’s physical participation is indispensable in times of adversity and for maintaining the household’s livelihood. With a net primary school enrolment of 63 per cent and a net secondary school enrolment of 16 per cent, it is evident that the main occupation and responsibility of the majority of the youngsters is the contribution to the household’s livelihood. Approaches should be assumed which build on and strengthen young people’s capacities to recover from, adapt to and/or remain strong in the face of adversity.

Thirdly, it is argued that strategies targeting young people should be built on the “new” sociology of childhood and therefore recognize that they are a heterogeneous group (James and Prout, 1990; Jenks, 2005; Matthews, 2007). Socialization and developmental psychology perspectives have led scholars to write about children as if they were the same regardless of social location or context (Matthews, 2007, p. 325). The plurality of young people’s lives is emphasized in the new sociological perspective of childhood, which stresses the diversities within the same society but also between settings (Jenks, 1996; Matthews, 2007; Montgomery, 2009). The research findings show that for Burkina Faso this implies taking an age-, gender-, and context-sensitive approach. The findings demonstrate that access to and possession of tangible resources is influenced by gender, as women culturally have different ownership rights. Thus for both sexes, different strategies should be developed in order to be culturally sensitive and successful. In terms of access to and possession of intangible resources, the study demonstrates that they play an important role and that ethnicity and age have a significant influence on the extent to which they are enabling factors for youth resilience. In this line, the concept of “cultural competency” is strongly supported. This approach advocates obtaining knowledge about specific people and groups and integrating and transforming this knowledge into specific standards, policies, practices and attitudes (Davis, 1998; Wind and Marshall, 2008). Acknowledging, understanding and integrating a gender, context and age dimension will allow this group of young people to adapt and be resilient to the impacts of climate change.

The fourth recommendation is for future approaches to aim at strengthening and improving the identified key physical, natural and financial resources youth build on, since these are often not accessible to the majority of them. The lack of access to these resources forces them to choose more extreme coping strategies which in turn could make them and their families less re-
The research found that a common strategy of young Burkinabè is migration, which is not surprising in a country where people, due to environmental factors and as a way of life, have been following livestock and crops on a seasonal basis for over 1,000 years (Henry, et al., 2004; Kress, 2006). Generally, three types of migration occur in Burkina Faso, namely rural–urban migration, internal migration (i.e. towards gold mines) and finally migration across borders (external migration). The questionnaire revealed that 27 per cent (N=157) of the adolescents and youth in the past migrated internally and 11 per cent (N=64) migrated across the border. Of the respondents who had internally migrated, 61 per cent was male and this was 80 per cent in relation to external migration. Furthermore, 38 per cent (N=223) of the adolescents identified to consider migrating in the future and this choice was more common for the male youth than for the females. Although the search for areas with more rainfall and water, financial and material resources and a better livelihood for themselves and their families is believed to be the most common factor triggering this migration, the desire for more autonomy and new skills are also reasons for Burkinabè adolescents to migrate (Conseil Municipal, 2009; De Lange, 2007; Thorsen, 2005). Thorsen emphasizes that in rural communities, with no electricity and low levels of literacy, the exposure to stories and actions of others who migrated before them increases the wish of young people to pursue the opportunities, with the hope of doing better. Although migration is often essential for survival it is frequently considered as a negative coping strategy by the youth and their families. On top of that, it is globally identified as one of the most serious problems and greatest feared social consequence of climate change given the potential of generating conflict (Smith and Vivekananda, 2007, p. 40). In order to address and prepare for climate change in Burkina Faso, managing youth migration is thus the ultimate recommendation.

Based on this locally informed research, this paper can be concluded by underlining that for effective CCA there is a fundamental need to include young people in the scope of policy and practise.

H. Acknowledgements

The authors would like to thank Plan Ireland and Plan Burkina Faso for the financial and logistical support, which made the study in Burkina Faso possible. Thanks also go out to the Network on Humanitarian Action and the Institute for the Study of Culture (University of Groningen) for supporting the overall research project. The views in this paper are those of the authors.

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Unsupervised Recovery: Adaptation Strategies by two NGOs in Post-Mitch Honduras
Ryan Alaniz

A. Introduction

Concerns surrounding the stability of fragile states are increasingly salient as the rising number of disasters threaten government legitimacy and stress their capabilities. As seen with the recent earthquake in Haiti (2010), the state has had difficulty maintaining control of the country, and arguably would have failed without the support of international organizations such as the United Nations. Similar to Haiti, Hurricane Mitch (1998) highlighted vulnerabilities of the Honduran state. During the emergency response and later the recovery phase, the Honduran government had little capability to deal with the human and infrastructure toll wrought by Mitch (Jackson, 2005). International and national NGOs thus became the default leadership. Even during the recovery phase, the state was still too weak to address long-term housing issues and therefore called upon NGOs to build and develop new and intentional communities for displaced survivors.

This paper investigates how the void left by the Honduran state enabled NGOs to implement their own disaster recovery and development agenda. After Hurricane Mitch, eight organizations founded new communities and resettled survivors in the Amateca Valley north of the capital city Tegucigalpa, without governmental oversight. Focusing on only two NGOs, the Fundación Cristo de El Picacho (Fundación) and the Red Cross of Honduras (Red Cross), this paper argues that this lack of oversight permitted organizations to enact significantly different development agendas, which in turn led to stratification in long-term social health and development in their respective communities, Divina Providencia and Ciudad España. More specifically, the paper explores why the two resettled groups of survivors have had different experiences with resident feelings of insecurity, high crime, violent murders and conflict with the NGO. Lessons can be drawn from these experiences for future resettlements in fragile states.

To understand how unsupervised recovery efforts by NGOs have long-term impacts on communities, the paper will begin with a description of the methods, background on the importance of this topic and a review of definitions as it applies to disasters, fragile states, community social health and resettlement as an adaptation strategy. The discussion will then narrow on the case of post-Mitch Honduras, illustrating how a lack of legitimacy and resources of the state enabled two NGOs, the Honduran Red Cross and the Fundación Cristo de El Picacho, to take over the role of needs provider to survivors. Each organization’s philosophy and practices will be described showing how development paradigms may have led to different social health outcomes. The paper will conclude with strategies that NGOs may utilize for the resettlement of disaster survivors in fragile states. These strategies can be applied in other post-disaster contexts.

B. Methods

To investigate how the building of an intentional community by an NGO led to different social health outcomes, this paper draws on historical documents including crime statistics, 932 household surveys and 36 interviews with key stakeholders. Records and documents from each NGO and community political organization were obtained, which offered perspectives of each entity concerning their role and responsibility. Complete police records from each community also provide excellent data on differences in amounts and types of crime. Also, a 96-question household survey was conducted as a census in Divina (N=449 of 585 homes) and a random sample in España (N=506 of 1,285 homes). These surveys provide insight into the social health consequences and opinions about organizational practices by NGOs. Additionally, multiple Red Cross and Fundación staff were interviewed to obtain a personal perspective on the philosophies and practices of the organizations. Similarly, residents and leaders in Divina and España were interviewed in order to gain a broad picture of the sense of social health and beliefs about the developmental trajectory of their communities. Finally, living in Divina for nine months (2009-2010) and commuting to España an average of one day a week provided the author with an insider’s view
of community dynamics and community/NGO interactions and relationships.

C. Background
According to the Red Cross (IFRC, 2004), natural disasters have increased significantly since 1960 and have impacted inhabitants on every continent. Indeed, last year the European insurance company Munich Re (2011) reported that 2010 had the second highest number of natural disasters in recorded history. Additionally, low human development countries (UNDP, 2011) (which often also maintain fragile states) had a seven times higher mortality rate than highly developed countries and the number of reported disasters is rising most dramatically in the low and middle human development countries (IFRC, 2004). This concern and recent changes in the global political economy provoked the United Nations Under-Secretary-General for Humanitarian Affairs, Valerie Amos, to explain growing human vulnerability. The global economic crisis, she noted, especially historically, high food and fuel price averages and a downturn in trade, have weakened the ability of nations to withstand financial shocks, having the greatest impact on the poorest people.

Defining a fragile state, especially in the aftermath of a disaster, depends on how the label “fragile” is characterized (Bratton, 1989). One of the most common definitions of a fragile state was developed by the OECD Development Assistance Committee (OECD-DAC, 2007): “States are fragile when state structures lack political will and/or capacity to provide the basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations”. Additionally, DFID defines fragile states more in terms of its social contract with the citizenry: “those where the government cannot or will not deliver core functions to the majority of its people, including the poor” (DFID, 2011). For the purposes of this paper, both definitions of fragility will be used – a politically weak state and one that cannot fulfill its social contract through serving its constituents, especially in a post-disaster setting.

D. Post-Mitch Honduran state fragility
Although Honduras is not always indexed as a fragile state, there is considerable evidence that the government did not have the capacity to provide the basic functions needed after Hurricane Mitch. Two years before the hurricane, social scientists warned of the nation’s vulnerability as it did not have the national apparatus or the capacity to deal with disaster. Leon and Lavell (1996) publishing from Central America explained: “In Honduras and Costa Rica, community work for disaster evacuations are not usually planned, but rather are spontaneous responses and support at the time of emergency” (Leon and Lavell, 1996, p. 61). Indeed, even before Hurricane Mitch had finished roaring through the country, the government was already in disarray and even basic services could not be provided. Jackson (2005) points out that in the initial days following Mitch it was the World Bank, the International Development Bank, and USAID who took control of the logistical issues and decided how to organize the relief effort. In fact when asked about the Honduran emergency commission (COPECO), international financial institutions (IFI) staff commented that the agency “was unprepared and had no funds. It was unable to perform at all” for emergency response and relief, let alone recovery (Jackson, 2005, p. 262; see also Jeffrey, 1999). Due in part to the weakness of the Honduran state to deal with the disaster and the amount of human and material capital obtained by the NGOs, the Honduran congress had little choice but to follow the programs and actions decided upon by foreign development actors (Jackson, 2005). The fragile (and minimal) social contract between government and citizenry was broken creating a space to be filled by NGOs.

The increasing presence of NGOs in the Global South and political/economic conflicts with national government were clearly seen in post-Mitch Honduras (Craig and Mayo, 1995; Fisher, 1997; Mohan and Stokke, 2000). Although there was a need for outside assistance in the relief and recovery effort, the Honduran state was concerned about being sidelined, and that reconstruction funding would bypass governmental coffers (due to concerns of corruption) and go directly to NGOs (Jackson, 2005; Bratton, 1989). The state marginalized grass-roots organizations that wanted a voice in the rebuilding process. It
was only during the Stockholm Summit\textsuperscript{26} that Honduran state representatives were pressured by international donors to meet directly with representatives of Honduran civil society (Jackson, 2005).

The same fragility of the Honduran state that necessitated intercession by organizations continued in the disaster recovery phase. During the 1999 Stockholm Summit, international donors and IFIs knew there was a need for significant involvement by “civil society” including NGOs. However, the Honduran state felt the threat that funding might be diverted away from them toward organizations. Bradshaw et al. (2001, p. 87) found the Central American governments actively resisted the growing pressure from international donors to work with organizations and civil society in the creation of national reconstruction plans. O’Neill (2000) saw this resistance specifically in Honduras, noting:

“One year after Mitch their [the donors’] analysis is that the reconstruction process is going slowly and that transformation has not yet begun. In addition, during 10 months the Central Government has not opened real spaces for civil participation in the definition and management of new policies, programs and development projects.”

However, this did not stop organizations from coming together to have a voice in the reconstruction process. O’Neill goes on to explain,

“While governmental coordination has been virtually nil, the NGO sector has restructured regional groups and these have greatly benefited from newly created networks in Honduras, El Salvador and Nicaragua. In Honduras, the country with the weakest NGO capacity in the region, changes have been dramatic with the creation of Interforos, a coalition bringing together almost 500 grassroots organizations and NGOs.”

Indeed, Espacio Interforos defined themselves in contrast to the fragility of the government, focusing on “equity in the access and control over resources and benefits; the efficiency and efficacy and transparency of the institutional state; and democratization with citizen participation” (Espacio Interforos, 2011).

The lack of state capability to address social problems that motivated Espacio Interforos also encouraged the Honduran Red Cross (HRC) and the Fundación to help resettle survivors away from high-risk areas. Both organizations built new intentional communities, Ciudad España (España) and Divina Providencia (Divina) respectively. They were constructed in the Valle de Amateca, thirty-six kilometers north of Tegucigalpa and within five kilometers of each other. Although both communities began with many similarities, years later they have significant differences in terms of community social health. This paper will bridge the literature on disasters, fragile states and NGOs, specifically as it relates to post-disaster recovery to illustrate that in the absence of state capability and oversight, organizations implement their own development processes creating important differences in social health outcomes.

To address the above issues, the following sections will chronologically outline the starting point and current status of each community. To begin, the next section will briefly describe the key development philosophy of each organization that was implemented in their respective community. It will then connect this practice to differential social health outcomes illustrating that without recovery oversight by government, a probable result is stratification in long-term development between intentional communities. The paper will conclude with possible strategies to encourage the highest level of social health among neighbouring post-disaster communities.

E. NGO response to Hurricane Mitch in Honduras

The inability of the Honduran government to confront the enormity of the disaster pushed government officials to hand over much of the recovery and reconstruction efforts to national and transnational NGOs (Jackson, 2005). Throughout interviews with NGO staff, the author repeatedly heard complaints about the lack of government involvement and support in the community building process. Organizations were encouraged to take full responsibility of their projects—issues such as water works, road construction, schools, housing, etc. were handed over by the state to the participating NGOs. Promises were made by the government to take care of some aspects
of the community-building process (putting in sewer lines, roads, schools, clinics, police stations, electricity, potable water, etc.) but rarely and only after significant persistence and time were some of these basic services provided. Habitat for Humanity’s La Joya community is an example. Habitat’s job was to build homes and move people in while the government was to provide basic plumbing and electricity (PC-Diana, 2009). Although the community was the first built in the Valle de Amarateca, it was one of the last to obtain these services precisely because they had to wait for the government to build the system (PC-Siembieda, 2010). To this day Habitat waterworks are not up to par with many of the other post-Mitch intentional communities in the valley.

To contrast, according to the Executive Director, the Fundación did not have expectations of the government, having seen government inefficiencies on other projects. This NGO then took on the responsibility itself, to either find external funding to implement the service or persistently and through political contacts gained these services through the government (PC-Myra 2010). Like the Fundación, most organizations needed to look for funding elsewhere, not only to build homes, relocate survivors, and offer community-building classes, but also to build the entire basic infrastructure.

HRC is a case in point. The organization initially did not want to get involved with house building, as their historical strength and mission lie in emergency relief, not recovery and development. However, after the government petitioned the Red Cross to build a community they did so choosing to help about 800 families from Tegucigalpa (and many more throughout the country). Naomi, a top director of social projects for the nation including Ciudad España explained: “There was a commitment the HRC would provide housing to families and the government committed to provide the land on which to build, all basic services to the population, such as education, basic health, access roads, and others. The whole process was originally going to take less than a year but the government had to prepare the land for Red Cross to build” (PC-Naomi, 2008). Yet by the time the government had the land rights and had the land terraced, more than three years had passed and not a single house had been built. This was not the only problem. The government, due in part to corruption and in part to disorganization, did not fulfill its promise to provide water for the homes. As a high-level waterworks employee in España, Don Roberto explained that after years of waiting, the HRC finally gave up on the government services promised and asked the American Red Cross to build a water system for the community, which they subsequently did.

The same issues occurred with building a school, a clinic, a police station, a library, roads and a community center—all of which were constructed by HRC in partnership with other NGOs. Without state support or guidance, the Fundación and the Red Cross were obliged to do the construction, resettlement and development on their own. The following section will describe the social health outcomes of the two communities, Divina and España, noted above. Afterwards, the ways in which the freedom granted each organization shaped these outcomes will be discussed.

F. Social health outcomes

Without government supervision, each organization was able to implement its own recovery and long-term development philosophy, leading to vastly different results. This section will describe the long-term social health outcomes of each community providing a foundation to understand how, without state intervention, each NGO implemented its own recovery and development practices.

How does one measure a “more successful” community in comparison to another? Currently, metrics called social indicators are being used as measures for future development strategies, government national plans, and even the Healthy Cities Initiative promoted by the World Health Organization (WHO, 2011). These can be narrow, focusing only on economic or physical health indicators, or as broad as measuring numerous characteristics from all aspects of community or national life. Costa Rica, for example, draws upon some common social indicators (such as civic participation) but also includes economic, education, and health indicators (MPNPE, 2007). Panama, in their 2006 community social well-being report, highlighted issues of social exclusion, conflict, social infrastructure (health and education) and access to basic services as issues affecting social health in communities. One of the most comprehensive social well-being reports is the recent Canadian study entitled
“Community Vitality: A Report of The Canadian Index of Wellbeing” (Scott, 2010). The study pinpoints specific social health indicators which have been highlighted in the literature (Chambers, 1997; Edwards and Hulme, 1996a; Mohan and Stokke, 2000; Plunkett, 1995; Putnam, 2001; Sampson et al., 1997; Smith and Wenger, 2007).

Although vast in scope, the social indicator literature does maintain commonality regarding some basic agreed upon measures. Of these, six stand out as the most suitable to rate the social health in post-disaster intentional communities: low crime, social capital, collective efficacy, community participation, vision and community independence. To find out which, if any, of these indicators residents and leaders were interested in, each interviewee was asked about the major differences between the two communities.

Though other factors were mentioned including levels of self-organization and (in)dependence, there was unanimity in responses concerning levels of crime. Based on these responses and space considerations, this paper will focus on arguably the most significant social health indicator: crime (Sampson and Wilson, 1995).

G. Crime

One would expect that when two groups are drawn from the same population and provided with comparable economic and infrastructure resources, the groups would have similar outcomes. Yet, as seen in Tables 1 and 2 below, this was not the case for España and Divina.

Tables 1 and 2 illustrate that there are significant differences in crime between the two communities even when population is controlled for, and when there is a higher underreporting in España. España citizens are significantly more afraid to go out at night due in large part to the high crime in their community. Additionally, when residents in both communities were asked to compare the delinquency rate of their pre-Mitch community with their current one, 96 per cent of Divina residents believe it is less while only 34 per cent of España citizens do. Based on the crime indicator alone, the difference in social health between the two communities is alarming.

Although there are many factors that affect crime rates, residents and leaders repeatedly pointed to different NGO practices as the significant single factor in affecting crime rates.

<table>
<thead>
<tr>
<th></th>
<th># of full-time police</th>
<th># of homes</th>
<th>Do you feel you can report a crime that happens in the community? (%)</th>
<th>Are you afraid to go out at night? (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divina</td>
<td>1-2</td>
<td>586</td>
<td>Yes – 86% **</td>
<td>Yes – 6**</td>
</tr>
<tr>
<td>España</td>
<td>2</td>
<td>1364</td>
<td>Yes – 62%</td>
<td>Yes – 24</td>
</tr>
</tbody>
</table>

Table 1. Criminal Activity in Divina and España - 01/2004 to 12/2009+. Source: Author
Z-test significance at *.01
+ Data provided by the communities and author’s survey

<table>
<thead>
<tr>
<th></th>
<th># of crimes per 1,000</th>
<th>Average # of crimes per year</th>
<th>Murders per 1,000</th>
<th>Kidnappings per 1,000</th>
<th>Rapes per 1,000</th>
<th>Thefts per 1,000</th>
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</thead>
<tbody>
<tr>
<td>Divina</td>
<td>95.4*</td>
<td>42*</td>
<td>0*</td>
<td>7**</td>
<td>.7</td>
<td>12.1**</td>
</tr>
<tr>
<td>España</td>
<td>270.7</td>
<td>116</td>
<td>3.42**</td>
<td>.514</td>
<td>1.37</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Table 2. Criminal Activity in Divina and España-01/2004 to 12/2009+. Source: Author
Z-test significance at *.01, **.05
+Data was obtained from each community’s police station records
++The homicide rate in España (.49) averaged annually is still half of that in Tegucigalpa (1.13). Source: Honduras Weekly, 2011
Often with any significant intervention there are unforeseen consequences. The Fundación does find a way to protect the community from crime, especially murders – a major feat in the country with the highest murder rate per capita in the world outside of a warring country. Yet, the Fundación’s paternalist approach to community development also may have created a more dependent community while the Red Cross partnership approach permitted a less secure but more independent environment. The following sections highlight which practices contributed to the broad differences in levels of community crime and dependency.

1. The Fundación and Divina Providencia

The Fundación believed their role in community building was that of a parent to a child. Doña Rosa, board member of the Fundación, would often use the metaphor of a parent caring for her child to define NGO/community relations. “The parent had to raise the child, teach the child right, accept the pushback of the child, and eventually let the child go.” She believed the role of the Fundación was to teach the child through the sternness of formal and informal means of social control as well as through the encouragement and positive support of resident goals. Doña Rosa later related to me: “Many of the residents here never paid for or even had services such as water or trash. Many lived next to the river and would just throw their trash in the river and it would float away. We had to teach them not only how to put the trash in the trash can, but also how to learn to live for the wellbeing of everyone, not just themselves” (PC-Rosa, 2009). Divina residents had to be taught how to live in the community – leaving it to residents would, in the minds of the Fundación, lead to a regression to their previous life as it was in Tegucigalpa – a state of poverty, violence, distrust, crime and moral failure.

Paternalism continues to be a contentious concept in literature ranging in diversity from philosophy to development. Drawing on the philosophical understanding of paternalism (Dworkin, 2010), it is in the case of the Fundación in Divina defined as adopting a specific strategy of paternalism with three characteristics: the NGO’s involvement on behalf of the welfare of the Divina community, the organization’s involvement of Divina leadership’s autonomy and the NGO’s involvement without the consent of residents. A few examples will illustrate this development strategy.

Neither the Fundación staff nor residents would deny that the organization interceded into the affairs of the community (mostly for its beneficence) on an almost daily basis. During the work week, the organization had between four to five employees working in the office located a hundred metres from the central park of the community. The employees, a secretary, an accountant, an engineer and two social workers were constantly working on projects for the community. An office worker, Kara, interacted with each head of household on a monthly basis as they came to the office to pay a mortgage. The engineer, Santiago, was constantly working throughout the community, directing the repair of a water pipe, building a new fence or designing a new soccer field for the high school on the other side of town. Berta and Oscar, the social workers, not only acted as intermediary between the Fundación and residents, they also solved problems (such as arguments between neighbours, fighting adolescents or bridging political rivalries), initiated new capacity-building classes and encouraged civic participation. In addition to the full-time staff, the Fundación had also brought in a number of specialists over the years to encourage start-ups of micro-enterprises, community development initiatives and classes. From tortilla making to sewing, welding, growing and selling pastes (luffa-like vegetables), the NGO worked closely with other organizations to bring in economic opportunities for residents.

This integrated management by the Fundación also bleeds into community autonomy in its politics and decisions concerning the use of the community development fund. The Cómite Cívico Social (CCS), the political head of the community, was a form of community governance designed by the Fundación. Two of the seven members, the President and legal counsel of the CCS, are not voted on by the community but are two Fundación board members appointed by the Fundación board of directors. Although mostly symbolic, these two members hold two significant positions on the CCS, a point that creates anger among some residents.

An example of the conflict this created between the resident CCS representatives and the
Fundación was illustrated in the ending of meetings between the CCS and the NGO. From the beginning of the community, the representatives of the CCS met with Fundación board members in Tegucigalpa on a monthly basis. This ended in 2008 with a disagreement about the implementation of a cellphone tower. The Fundación wanted to put in a tower, which would bring revenue to the Fundación for rental of the land. The residents did not want it because of the possible physical harm the constant cell signal might have on residents. Myra, a high level employee of the Fundación, explained that the resident representatives just stopped coming to the meetings. There was a disagreement, but the residents would not listen to the expert opinions about the safety of the tower; they were stubborn. On the resident side Victor, an interim board member of the CCS, explained: “The Fundación has changed over time. It has moved from a mission of solidarity and humanitarianism to a realistic and mercantilist approach to the community.” The cellphone tower is only a single example of the community pushing back against the will of the Fundación.

The Fundación also interferes in the community development fund. Even as the fund is financed by resident mortgage payments, it is the Fundación board, not the CCS or the community, that decides which projects to pursue with the funds. In addition, the Fundación has withheld from public knowledge how much money is in the fund and what it has been spent on throughout the life of the community, leaving residents to wonder where exactly all of their payments have been going.

In sum, the Fundación has created and upholds a paternalistic philosophy and practices toward Divina Providencia. The organization continues to intercede in the political, social, and economic aspects of Divina’s development. From the Fundación’s viewpoint, their work is seen as necessary and beneficial. From the residents’ perspective, the Fundación is often controlling and overstepping its role. A more objective standpoint illustrates that the Fundación’s paternalism may have been one of the most significant and beneficial factors in the long-term social health of Divina.

Since the hurricane the Fundación has played a major role in the lives of Divina community members. The NGO was a consistent and strong presence and intervened in the social aspects of community life, encouraged economic development and even used the mortgage payment as a social control mechanism (the Fundación took homes away from residents who sold drugs [who also were not paying their mortgage], were unwilling to pay their mortgage, or who were “bad influences” on the community). According to staff from both of the NGOs, police officers and residents from both communities, it was this involvement that protected the community from the encroachment of crime. HRC, however, took a different approach and therefore had different results.

2. The Red Cross of Honduras and Ciudad España

In the immediate aftermath of Hurricane Mitch, HRC, along with its international partners, were the first on the scene with emergency relief and aid. As hours turned into days and days into weeks, the organization quickly put up large groupings of temporary housing, called macro-albergues, for survivors who had been displaced. These wood and plastic shelters became home to thousands of survivors in the major cities. While working in the macro-albergues, HRC was asked by the government to build a new housing settlement for survivors in and around the Tegucigalpa metro area. They initially refused on account that it was not their work to do community development (PC-Naomi, 2008). Faced with such overwhelming need, however, HRC agreed and spoke with its international partners, notably the Red Cross of Spain, Switzerland and the United States. With this alliance and land donated by the government in the Valle de Amateca, Ciudad España was born (RCH, 2004).

As noted in the Ciudad España Plan, the goal of HRC was: “A comprehensive intervention aimed at developing a new, safe and healthy sustainable community” for survivors of Hurricane Mitch. HRC took a partnership approach to building España. NGO partnerships with citizens (sometimes called collaboration, coalition, accompaniment and development alliances) can be summarized as: “a working relationship that is characterized by a shared sense of purpose, mutual respect and the willingness to negotiate” (Lister, 2000, p. 228). The organization focused heavily on empowerment and capacity-building.
offering dozens of classes that provided different types of employable skills to survivors. Once the community was built and residents resettled, HRC stepped back, respecting the autonomy of the community to manage itself. As Naomi explained to me: “We only give them (España) the orientation of how to do it and where to go. If they need something – advice, support – well, we give it to them, but we are not over them. It is only little by little [we provide] because the community is relatively young.” She goes on to explain that their goal was community self-sustainability. By creating clear guidelines concerning their role, the organization wanted to continue to serve the people through support but also letting the community develop on its own terms.

According to Fiona, a HRC social worker and staffer in Ciudad España for the entirety of the development process, the motto in addressing resident concerns was the following: “We wanted residents to come to us for help. But we were not going to help them. We were only going to show them which other doors [e.g. government departments] they needed to knock on.” Knowing that the organization was not going to be around forever, HRC focuses on breaking any sense of dependency the community may have gained over the years. Their hands-off approach put the responsibility back onto the community, especially community leadership, with varying degrees of success.

Another clear practice of partnership was the decision by HRC to use a participatory model to owning a home. Unlike the Fundación model in Divina, in which residents take on a 15-year mortgage paid to the Fundación, HRC had residents literally build the community from the ground up to encourage greater commitment to the community and avoid incurring debt; with the extra disposable income residents would be able to spend it on living essentials rather than a mortgage or rent (PC-Naomi, 2008). One member from each family had to commit to working 40 hours a week for 40 weeks on building homes and infrastructure for España. Once their work was completed, residents would be given the keys to their new home through a lottery system. A similar housing development scheme was used by other organizations working in the Amatitlán Valley including Habitat for Humanity and the Adventist Development and Relief Agency.

The HRC staff also had different expectations of their role in the post-disaster recovery effort. Naomi and her co-worker Ignacio, who also ran social programmes in España, (2009) noted that the HRC did not necessarily want to be involved in community development projects. They did implement a few social programmes to build community, but as Ricardo (2010) describes, they were too late. The Red Cross “came to work in the social area the last two years, after all of the houses had been given away. [At that time] It was almost impossible to make people think in a different way.” A community culture had been created and the moment to change (or create) residents’ expectations and vision of community had passed, leaving people to return to previous ways of doing things. In addition, the organization was involved in multiple community development projects throughout the country; indeed, after Hurricane Mitch, the different international arms of the Red Cross through HRC had worked in over 500 projects helping more than 1,000,000 citizens from 1998-2008 (IFRC, 2008). Unlike the Fundación, which directed their energies at only one project, HRC was spread thin in service to multiple communities.

A final illustration of the partnership paradigm was the HRC’s non-interference with España leadership. Implementing the most widely used political setup in Honduras, España residents wanted a patronato (similar to a board of directors) to run their community. Made up of seven members, it is a winner-take-all slate system. While returning democracy to the hands of the people is a great idea in theory, it seems that España may not have been ready for such a system, as general malaise and corruption soon plagued the administration. In speaking with the longest serving board member of the patronato, Ricardo, he explained that the current appointed officials have done little to improve the community. This was echoed by multiple other interviewed residents and anchored by the fact that although the patronato was supposed to hold elections in 2008, the community had no leadership until elections were held in early 2011. Additionally, members of the patronato engaged in corrupt dealings, stealing from the community coffers in 2006 and more recently from the water works fund in 2009-2010. Even though the España community was far less dependent on an outside organization for resources and support,
it also had to wrestle with significant governing inefficacy that Divina did not.

Disorganization and corruption have not been the only problems. As noted above, there is a major difference in both the number of common and violent crimes committed in each community; there is also residents’ feeling of security. Maritza, an España resident since the beginning, explained that “We always leave someone in our house. If my mom, my sister or I were not here, they would break in and steal everything.” She has reason to be concerned. There has been an average of two murders per year in the community, the Methodist church has been vandalized and broken into and even the police have been assaulted and hospitalized by residents (PC-Eduardo, 2009; PC-Officer Tomas, 2009). Gangs also had a strong presence in España until the government in 2004-2005, at the request of the patronato, raided the community and took many known gang members to prison (Ricardo, 2010). Born from this was the community’s negative reputation. Tegucigalpa residents continue to be afraid to visit or even having their car break down in the Amarateca Valley as they are concerned about being robbed or perhaps worse (PC-Santiago, 2008).

HRC utilized a partnership development strategy that also had strengths and weaknesses in affecting community social health. While avoiding dependency and encouraging citizen participation, the actions of residents illustrate that greater involvement by the organization may have been beneficial. However, without strong oversight, a long-term involvement strategy, significant engagement in all aspects of community life (especially politics) and a strong social control mechanism to evict problem residents, the Red Cross could not prevent the encroachment of violence and crime into the community. This is not to say they did not try, but the overarching philosophy was to empower/partner and not to use their power to impose social order.

H. Resident opinions about the NGO

To further illustrate the particular nature of the relationship between NGO and resident, residents in seven new intentional communities were surveyed concerning how they felt about the sponsoring organization. The questions were designed to recognize different aspects of the resident’s opinions about the organization’s role vis-à-vis paternal/partnership development spectrum. All questions were statistically significant as illustrated by the standard (Z) score. Below are the findings.

Table 3 highlights the desire of Divina residents for the Fundación to have had less influence within the community than the average of the six other communities. Indeed, more than 2.5 times more residents had wished the Fundación played a lesser role in community affairs than Ciudad España (it was also significantly higher than any

<table>
<thead>
<tr>
<th></th>
<th>Left as soon as possible</th>
<th>Had less influence</th>
<th>Had the same influence</th>
<th>Had greater influence</th>
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<td>Divina (N=441)</td>
<td>7%</td>
<td>13%**</td>
<td>34%</td>
<td>46%**</td>
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<tr>
<td>España (N=447)</td>
<td>7%</td>
<td>5%</td>
<td>29%</td>
<td>60%</td>
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<tr>
<td>Avg. of five com. (N=932)</td>
<td>7%</td>
<td>4%</td>
<td>33%</td>
<td>56%</td>
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</table>

Table 3. In the last few years, do you wish the NGO would have... Source: Author
Z-test significance at * .01
one community). This sentiment is supported by many informal conversations with members who feel the Fundación has interfered in community issues and/or overstayed its welcome and should move on. On the other hand, residents in España would have liked HRC to have had a greater influence in the community, highlighting that the partnership could have been strengthened.

Similarly, Table 4 illustrates that a significantly larger percentage of residents have had problems with the Fundación than España residents with HRC. Although this could have been for many reasons, the four most common explanations I heard from members were: 1. having to pay the mortgage when they had no money; 2. the lack of transparency by the organization in its financial accounting; 3. the poor treatment of some residents by the Fundación, especially those who have been evicted; 4. the religious nature of the organization and its treatment of non-Catholics. Even though Divina as a whole had higher social health indicators (especially lower crime) than España, individuals still had to wrestle with the Fundación concerning the issues noted above. España residents, however, had very few problems with HRC and reported the fewest problems of any community studied.

Finally, Table 5 underlines the apprehension residents feel with the Fundación. Almost three-quarters of the community are concerned that the Fundación will evict them for behavioural issues (such as selling alcohol in the communities, domestic violence, selling their home, maintaining a billiards hall, gambling, not paying their mortgage, etc.). This is in contrast to just over half of residents from the other communities on average (this is also true of the communities individually). The Fundación maintains a level of social control over residents that is seen on their own part as benevolent but understood by residents as an impediment to their autonomy. The fear that their house could be taken away is very tangible, as it has happened to residents in the past. Yet, España residents are significantly less concerned, even though residents have also had homes taken away. The reasons for this are not completely clear, though it seems that the eviction process and the mortgage payments play significant roles in their experience.

<table>
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<tr>
<td>Divina (N=447)</td>
<td>91%</td>
<td>9%</td>
</tr>
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<td>España (N=503)</td>
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<td>2%</td>
</tr>
<tr>
<td>Average of other five Communities (N=959)</td>
<td>96%</td>
<td>4%</td>
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</tbody>
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Table 4. Have you had problems with the organization? Source: Author
Z-test significance at *.01 compared to the average of five communities

<table>
<thead>
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<th></th>
<th>NO</th>
<th>YES</th>
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<td>Divina (N=443)</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>España (N=495)</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Average of other five Communities (N=949)</td>
<td>49%</td>
<td>51%</td>
</tr>
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</table>

Table 5. Are you concerned that the organization can take away your home for your poor behavior in the community? Source: Author
Z-test significance at *.01 compared to the average of five communities
I. Lessons for future post-disaster resettlement as an adaptation strategy

There are four concrete lessons to be drawn from this comparative case study. First, on a general level, it appears that resettlement works. With the help of the Fundación and the Red Cross, survivors were able to move out of the macro-albergues not to return to unsafe hillsides or along high-risk river banks but rather to well-planned and disaster-safe communities. When residents were asked if their lives today were worse, the same or better than before Mitch, a substantial number believed their lives were better and at least 84 per cent in any given community believed it was the same or better. Although Divina and España were different within this question, the high positive response to the question illustrates a significant satisfaction. In both the interviews and the surveys, residents were happy to have the opportunity to own a home and to have a healthier natural and social environment than in Tegucigalpa. While resettlement is always a contentious process (Oliver-Smith, 2006), as an adaptation strategy it may be a significant way to mitigate future vulnerability.

Second, fragile states like Honduras are highly vulnerable to a lack of capacity to deal with disaster recovery, and may regularly be forced to hand over responsibility to an NGO. This can create stratified development among communities, which lack broader oversight by the state. A possible preventative measure would be to have a government-point person maintain contact with all NGOs working in resettlement and conduct quarterly meetings with staff to share strategies and maintain common guiding principles in the development process. Having this in place before a disaster occurred would potentially mitigate the narrow organizational focus (based on donor desires) of each NGO.

Third, NGOs may be the right agents to resettle displaced populations in fragile states. In the case of Honduras, both organizations were efficient and transparent with their resources (HRC to International Red Cross donors and the Fundación to the Honduran government). As noted earlier, Honduras has one of the highest corruption rates in the world, and it is unlikely that with the same resources the government could have done a better job than each NGO. The recent United Nations World Conference on Reconstruction (Migiro, 2011) found that “well-planned and coordinated recovery achieves better results at lower cost, and supports sustainability and disaster-resilience. Leadership, partnership and coordinated support from the international community are essential to success”. This was the case in Honduras. Lastly, each NGO was well connected to the communities; each organization was present for multiple years, they implemented many grassroots social programmes for community building and they were available for immediate advice and assistance for residents. With a state unable to meet the needs of its population, NGOs were a positive and active force in resettling survivors.
Yet there is also risk involved. Independent development of communities without a centralized and shared vision can mean a messier and stratified development for residents in these intentional communities. The paternalist work of the Fundación did lead to better social health outcomes as seen in crime rates. The organization also had more success in creating collective efficacy, community participation and a unified vision for the future of the community (Alaniz, 2011). At the same time, the highly structured organization and strong influence of the NGO in all areas of social, political and economic life led to some degree of dependency by residents on the organization, which did not happen in Ciudad España. Where the balancing point is (or margin of error) concerning NGO involvement and community participation, at least in these cases, is complicated and needs further research.

In addition, without an umbrella reconstruction plan, it is unlikely that organizations will obtain similar levels of social health (however this is defined) within their resulting communities. An additional problem is the nature of resettlement. Within the context of a fragile state and without the benefit of centralized planning, the Valle de Amarateca in Honduras saw ad hoc management and planning by NGOs. When I asked Fundación and HRC staff what type of philosophy or theory they were drawing upon for community development, both exclaimed that they were drawing on none – they were doing the best they could with what they knew (PC-Rosa, 2009; PC-Naomi, 2008). This lack of holistic vision and “winging it” can lead to significant future problems, the least of which is a stratification of development. Depending on which community a survivor ended up in, as in the case of these communities, their life chances may be significantly different. The long-term consequences of this difference on the next generation will arguably also be significant (Shanahan and Macmillan, 2008).

Finally, NGOs can also work at odds with each other. An example of this is the conflict between whether to give people their homes (Habitat), make people work 40-hour weeks for their homes (HRC), or make people pay a 15-year mortgage on their homes (Fundación). Since the three communities are located within five miles of one another, people talk and frustrations rise concerning the work versus pay model for their “donated” homes. Had the organizations strategized together, there might have been inherent benefits such as implementing cost-cutting measures (buying in bulk), sharing best practices and defining a holistic vision for the Valle instead of creating three different agendas. Also, unlike rebuilding in a neighbourhood, relocated survivors are forced to rely almost completely on the support of relief agencies for their livelihood. This dependency on an organization can limit residents’ ability to voice opposition. A final consideration is that NGOs historically have been found not to be sustainable in the long-run (Edwards, 1999; Edwards and Hulme, 1996a). NGOs are limited by resources, donor demands and time; they must be forward-thinking on how to create a healthy “exit strategy” so their work is sustainable.

J. Conclusion

In conclusion, this comparative case study of two intentional communities built for resettled survivors of Hurricane Mitch offers numerous generalizable lessons for other fragile states. As illustrated above, when a strong state is not present, NGOs have broader opportunity to shape their prospective communities as they see fit, creating stratification among disaster resettlements. As was the case in the Valle de Amarateca, Divina and España had significantly different outcomes. Divina, due in part to differences in philosophy, time commitment and resource allocation and management, had significantly better long-term social health than its counterpart España, even though they had similar material inputs and drew residents from the same pool of survivors.

Changes in growing economic vulnerability, weakening of undeveloped nation-states and growing natural vulnerability to disasters have created a perfect storm of high disaster risk. Since there is only so much that can be done to mitigate these issues, scholars and NGOs must consider future post-disaster adaptation strategies. This study illustrates that although some difference in community development is a natural outcome, resettlement may be a plausible strategy that mitigates future vulnerability and provides survivors with a better life. If a country chooses to hand over the relocation of survivors to NGOs, a secondary recommendation is to encourage NGOs to work together to share strategies and ideas concerning philosophy and best practice, lead-
ing to a more standardized recovery process (and hopefully a healthier outcome). At the very least, a more standardized process will enable organizations to share ideas, resources, possible costs and avoid conflict that may come up between communities and their respective organizations.

References


International Federation of the Red Cross (Cruz Roja Espanola) (IFRC) (2008). Informe


**Personal Communications (PC)**

(Due to the nature of the topic, I have used pseudonyms for all informants except for Siembieda, B.)


Siembieda, B. 2010. Personal communication. March 5.

Endnotes

1 Where a link between climate change and conflict in IPCC reports is mentioned, it is weakly substantiated with evidence. The Stern Review’s references to how conflict “may” occur as a result of climate change are mostly based on second-hand sources of the same nature as those used by the IPCC. Some recent econometric work on the relationship between internal conflict and rainfall changes (as a proxy for economic instability) is also cited, but the implications of this work are not discussed at any length (Gleditsch et al., 2007).

2 Many of the Nile Basin countries are characterized by high levels of instability and even civil conflict. The ten Nile Basin states – Burundi, the Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda – have developed an initiative that centres around eight “Shared Vision” projects including: Regional Power Trade, Water Resources Management, and Efficient Water Use for Agriculture projects.

3 GEF: Global Environment Facility; SCC: Special Climate Change Fund; LDC: Least Developed Countries Fund; KPA: Kyoto Protocol Adaptation Fund.


5 Tanzania, for example, typically has to prepare 1,200 reports a year for the aid system (Ghani et al., 2005).

6 The United Nations usually focuses on political issues, organizations such as NATO respond to security issues, international financial institutions address financial issues, and development agencies concentrate on social and development issues.

7 In the majority of the six case-study countries on which the Do NO Harm study was based, donors were still delivering most of their support in the form of various projects that are usually not reported in the country’s budget.

8 In Afghanistan, approximately 280,000 civil servants work in the government bureaucracy receiving an average pay of $50 per month while approximately 50,000 Afghan nationals work for NGOs, the UN and bilateral and multi-lateral agencies where support staff can earn up to $1,000 per month (Ghani et al., 2005).

9 Two main research projects in this area are:


10 Incentives include what donor staff face to disburse money quickly, deliver on target to tight time schedules beyond their influence and the tendency to micromanage recipient governments.

11 Derived from the Drei-Elementen-Lehre developed by Georg Jellinek (Jellinek, 1905). A fourth criterion, “capacity to enter into relations with other states”, derived from Article 1 of the 1933 Montevideo Convention on the Rights and Duties of States, is also often included amongst these elements.

12 One critical observation should be made concerning the authors’ use of the word “citizens” in their definition of service failures. The basic services discussed here as core functions of the state – healthcare, food, water and sanitation – correspond to human rights which must be guaranteed to the entire population of the state, irrespective of citizenship. The exclusion of specific groups from
access to these services – for example the urban poor from water supply or girls from healthcare – would constitute human rights violations under international law as well as service failures from the standpoint of international policy.

13 See for example the World Bank/Global Environmental Facility-supported Ethiopia Sustainable Land Management Project (P107139) supported until 2013, which addresses land degradation, rural land administration and security of tenure for individual farmers.

14 See Principle 3 of the OECD’s (2007) Principles for Good International Engagement in Fragile States and Situations where it is emphasized that state-building activities should concentrate on two categories of action: 1) good governance, human rights, peace building and civil society, and 2) strengthening state capacity to perform basic functions to reduce poverty.


16 Section E onwards draws from the Doctoral Research of Vivek Prasad, funded by Dept. of Environmental Science and Public Policy, George Mason University, USA.

17 The word Naxal or Naxalite is a generic term used to refer to various militant Communist groups operating in different parts of India under different organizational envelopes. Naxalite say that they are fighting for the rights of indigenous people and rural poor (BBC, 2011).

18 Tribal communities living in Jharkhand comprise of nearly 28 per cent of the total population and are known as “Adivasis” meaning early dwellers Adi - first or early and vasis - meaning dwellers or settlers (Mundu, 2006). They are also referred to as ST (scheduled tribe), Banjati (Ban - forest and jati - caste), Banvasi (forest dwellers), local people, indigenous people etc. The Ministry of Tribal Affairs India highlights essential characteristics of tribal communities such as primitive traits, geographical isolation, distinct culture, shy of contact with community at large and economical backwardness.

19 The notion of low performance embodies indicators of performance of state and local government and various socio-economic indicators that place Jharkhand in the lowest rung of poverty and development comparing to other Indian states. Sample indicators are: food security index - Jharkhand is last of three states. The expenditure percentage of development fund is very low, sometimes less than 5 per cent. Local government was dysfunctional for last 32 years due to not having elections.

20 Distinguishes between regions with above-average population density and those that are less densely populated.

21 In India's administrative divisions, a federal state is divided into several districts that act as local administrative units. The districts are further sub-divided into several blocks consisting of cluster of villages.

22 Robust decision-making, costs, benefits and the tradeoffs inherent in climate policies are assessed under all scenarios. The policy prescription is not to pursue an “optimal” policy – in the traditional sense of maximizing utility – that performs, on average, better than the others. Instead, sound policies are those that withstand unpredictable futures in a robust way (World Bank, 2009).

23 The 2x2 scenario matrix approach has been used extensively in both the business and policy communities. For an example of this more traditional approach to scenario development, see www.mindofafox.com/gameboard.ph.
Ethnically, the Centre North is mainly dominated by the Mossi and the South West by the Lobi. The main target group of the study was youth; however, to get a more holistic understanding of the topic, adults were also included in the data collection. Various child-centred participatory rural appraisal activities (PRA-activities), interviews and focus group discussions were performed. Within the child-centred rural appraisal methods, 8 workshops were performed (40 school going and 36 non-school going youths participated), in total 28 interviews (20 adults, 8 youths) and 17 focus group discussions (FGD) were held (12 FGD with adults and 5 FGD with youth). In total, 582 young people between 12 and 25 years of age responded to a questionnaire. 582 young people between 12 and 25 years of age responded to a questionnaire. Of the questionnaire respondents, 52 per cent (N=303) was male and 48 per cent (N=279) was female and their age distribution was: 12-16 years (38 per cent of respondents), 17-20 years (30 per cent of the respondents) and 21-25 years (33 per cent of the respondents).

At the time of data collection, 1,000 CFA is approximately €1.50. This means 5,000 CFA = €7.50 and 15,000 CFA = €22.50.

Through interviews with España and Divina leaders and residents, España citizens are less likely to report crimes as they trust the police less.

The Tegucigalpa metro area’s water, land, and air are very polluted. Since the city sits in a valley, low-lying smog is not uncommon. Socially, much of the city is unsafe after dark for Honduran or foreigner.

However, resettlement must be done well. As noted earlier the building of homes and leaving residents to their own devices is not a successful model.
### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CBA</td>
<td>Community-based approach</td>
</tr>
<tr>
<td>CBD</td>
<td>Convention on Biological Diversity</td>
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<tr>
<td>CCA</td>
<td>Climate change adaptation</td>
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<tr>
<td>CCD</td>
<td>Convention to Combat Desertification</td>
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<td>CCS</td>
<td>Cómito Cívico Social, Honduras</td>
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<tr>
<td>CIBA</td>
<td>Cross Impacts Balance Analysis</td>
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<tr>
<td>COP</td>
<td>Conference of the Parties</td>
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<tr>
<td>COPECO</td>
<td>Honduran emergency commission</td>
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<tr>
<td>DFID</td>
<td>UK Department for International Development</td>
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<tr>
<td>DRR</td>
<td>Disaster risk reduction</td>
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<tr>
<td>FSI</td>
<td>Failed States Index</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
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<tr>
<td>HFA</td>
<td>Hyogo Framework for Action</td>
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<tr>
<td>HRC</td>
<td>Honduran Red Cross</td>
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<tr>
<td>IADB</td>
<td>Inter-American Development Bank</td>
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<tr>
<td>IAP</td>
<td>Integrated Action Plan</td>
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<tr>
<td>ICCPR</td>
<td>International Covenant on Civil and Political Rights</td>
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<tr>
<td>ICESCR</td>
<td>International Covenant on Economic, Social and Cultural Rights</td>
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<tr>
<td>IFI</td>
<td>International financial institutions</td>
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<td>IFRC</td>
<td>International Federation of the Red Cross</td>
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<tr>
<td>IISP</td>
<td>Institute for Innovation in Social Policy</td>
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<td>IOM</td>
<td>International Organization for Migration</td>
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<tr>
<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>IRR</td>
<td>Impoverishment Risks and Reconstruction</td>
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<tr>
<td>KPA</td>
<td>Kyoto Protocol Adaptation Fund</td>
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<td>LDC</td>
<td>Least Developed Countries</td>
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<tr>
<td>MA</td>
<td>Millennium Ecosystem Assessment</td>
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<td>MRF</td>
<td>Munich Re Foundation</td>
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<tr>
<td>NAPA</td>
<td>National Adaptation Programme of Action</td>
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<td>NCCP</td>
<td>National Climate Change Policy</td>
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<tr>
<td>NDRMF</td>
<td>National Disaster Risk Management Framework</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>NGI</td>
<td>Norwegian Geotechnical Institute</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organization</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-Operation and Development</td>
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<tr>
<td>OECD-DAC</td>
<td>Organisation for Economic Co-operation and Development-Development Assistance Committee</td>
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<tr>
<td>PIU</td>
<td>Project Implementation Units</td>
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<tr>
<td>SCC</td>
<td>Special Climate Change Fund</td>
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<td>SFI</td>
<td>State Fragility Index</td>
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<tr>
<td>SPWD</td>
<td>Society for Promotion of Wasteland Development</td>
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<tr>
<td>SRES</td>
<td>IPCC Special Report on Emissions Scenarios</td>
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<tr>
<td>SRI</td>
<td>System of Rice Intensification</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
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<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<tr>
<td>UNGA</td>
<td>United Nations General Assembly</td>
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<tr>
<td>UNHCR</td>
<td>United Nations High Commissioner for Refugees</td>
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<tr>
<td>UNSG</td>
<td>Secretary-General of the United Nations</td>
</tr>
<tr>
<td>UNU-EHS</td>
<td>United Nations University Institute for Environment and Human Security</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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