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Notes From The Field

Resilience to climate change: Community-based adaptation in Kenya and Senegal

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Key Messages

- International funds for adaptation to climate change in developing countries are growing, but fund allocation is top-down while the impact of climate change – and action to adapt to it – is local.

- Policies that ignore local approaches may be ineffective and damaging.

- Studies on local action in Kenya and Senegal demonstrate the value of analysis at local household level to inform adaptation planning.

- Adaptation planning should be informed by local priorities and visions of resilience.

Climate change is already having an impact on social, environmental and economic systems worldwide and will continue to pose significant challenges for human development over the decades to come. Communities that rely on natural resources for their livelihoods, especially in developing countries, are among those hardest hit. The international community is investing in planning and action to help countries adapt to climate change. The urgent question is how to channel funds towards the most vulnerable families and communities and how to prioritise adaptation initiatives that increase resilience most effectively.

Historically, concepts of resilience have been imposed on developing countries, often by proclaimed experts, through top-down decision making processes. This has led to ineffective climate change adaptation initiatives focused on techno-fixes. Given that funding for adaptation comes largely from international institutions, these top-down approaches are likely to continue unless counterbalanced explicitly by bottom-up approaches.

This policy brief sets out a new community-based adaptation framework to prioritise local norms and visions of resilience. It draws on insights from field work between June and November 2011 in Kochiel village and Othidhe village in western Kenya and N'Dodji village in Senegal. The framework is particularly effective when applied at an early stage in the planning process at the point where a community has been identified and the next step is to determine the most effective adaptive actions to pursue locally.

Key Terms

One challenge with using resilience as a goal is its numerous definitions. The following terms are defined as follows in this policy brief:

Resilience - the ability of a system to "absorb perturbations without changing overall system function, the ability to adapt within the resources of the system itself, and the ability to learn, innovate, and change" (Adger et al., 2011). Resilience can only be assessed meaningfully when there is a clearly defined system in question (resilience *of what*), reference to a change in the system at a specific time (resilience *to what*) (Carpenter et al., 2001; Smit et al., 2000), and an explicit understanding of future desired states and how they were determined (from *whose perspective*) (Helfgott, 2011). Resilience incorporates the ability to respond to changes in a system in uncertain futures.

Adaptation – "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). This is *how* a system can move towards desired states, building resilience. Adaptation can be assessed related to whether it was planned or not (autonomous) or whether it happened before a change (anticipatory) to the system or after (reactionary).

Adaptive capacity – having characteristics necessary to adapt to change and the ability to mobilise these elements.

Maladaptation - when an adaptive action decreases resilience. For example, an adaptation initiative may increase resilience in the short-term, but result in maladaptation in the long-term. Establishing clear

Why a community-based approach to adaptation?

Community-based adaptation (CBA) and local participatory decision-making are being recognised as vital additions to adaptation policy. Despite the limitations of current frameworks, there is a growing body of research, programming and policy on CBA. It is increasingly clear that planning initiatives need to include processes that address multiple visions of resilience in an equitable way, and that adaptation policies based on local norms and institutions will be more effective. The challenge is to create policies that are broad enough to address diverse needs and uncertainties, and specific enough for local contexts.

Climate change adaptation planning is less likely to be maladaptive (see Key Terms) if local context, values, and participatory decision making are embraced. However, it is important to realise that maladaptation is always a possibility, regardless of the approach used, given an uncertain future and the complex links between different challenges and actions. But using iterative feedback processes in planning, such as those used in the proposed framework, could aid the assessment of changing values and systems.

Understanding resilience

One weakness of the CBA approach is that adaptation initiatives are often assessed without a clear definition of resilience: *of what*, *to what*, and *from whose perspective* (Carpenter et al. 2001; Smit et al., 2000) the final aspect being most often left out of the analysis (see Key Terms). Understanding these aspects, followed by assessments of *how* adaptation can occur (Smit et al. 2000), is a necessary pre-requisite to assessing the resilience of the system in question.

The proposed community-based resilience and adaptation framework engages stakeholders in identifying what a future resilient state would look like, ensuring a clear vision of the ultimate measures of success.

The first step is to define the system in question: the resilience *of what.* System boundaries are not objective, despite the claims of different professional and academic disciplines. Decisions on what to include and exclude in a system of interest are based on values.

For this research, individual villages in Kenya and Senegal were selected as the physical system in question. Selection was based on local perceptions of community and physical governmental jurisdiction boundaries. The system boundaries could have just as easily been defined by environmental characteristics, livelihood strategies, kinship, etc.

Identifying resilience versus maladaptation also depends on where boundaries are drawn in terms of scope, scale, and timeframe. The change that is being adapted to (*to what*) must also be defined and incorporated. Given that adaptation occurs at the local level, scientific understanding of environmental change is not enough. Local perceptions must be the starting point of analysis as individuals only adapt to what they perceive is happening or will happen.

The final component of this framework is what stakeholders want and who they represent (*from whose perspective*). This is the community vision of the desired situation – the one considered resilient. In Kochiel village, Kenya, residents prioritised having more trees, adequate water supply and good farming knowledge as the three essentials for the future. Adaptation actions that move the village towards these goals are most likely to be effective in increasing resilience.

A new framework to identify adaptation options

The proposed methodological framework for policy makers, researchers, and practitioners recognises that adaptation policy is more effective if the system and problem are defined in partnership with those directly affected by that policy - communities impacted by climate change. The approach outlined below combines resilience, adaptation, action research, and critical systems heuristics frameworks, using participatory methods such as workshops and household level studies.

First, a community workshop and follow up interviews address the key questions '*of what, to what, from whose perspective, and how?*' in relation to resilience. Conversations on adaptation and resilience can then move forward within the boundaries identified, with stakeholders aware of the baseline assumptions, as well as recognising alternative views of the system, including the perspectives of more marginalised community members.

The workshop identifies where the community is now, its vision for the future, and where it wants to go. The workshop starts with discussions of what matters and why, and identifies challenges and local responses. Multiple visioning exercises include focus group discussions on desired aspects of the community, creation of a physical map of the future village, and a picture collage of important qualities and assets for the community in the future. Adaptation interventions are then prioritised and key interventions are backcasted, with participants planning backwards from the future goal to the current assets. These exercises are combined with participant-led asset assessments, as well as follow up interviews and analysis.

Development projects and analyses often focus on needs and barriers. While this is important, this framework uses a participatory approach based on existing strengths to assess adaptive options and processes. This focus on strengths can motivate action and lead to more practical and timely adaptation. While backcasting may reveal barriers, communities can still start working with current assets while simultaneously addressing these barriers with policy-makers and other external agents, such as NGOs, funders and experts. This collaboration is particularly important if the barriers are systemic and large-scale.

Participants should be aware the workshop does not aim to provide interventions. However, it does allow a community to create a shared understanding of its goals. These goals can be used by policy makers to assess priorities before any commitment to funding is made. Workshop and interview data can also be used to analyse current adaptation processes and adaptive capacity, with certain limitations discussed below. Ideally, the community would then receive seed funding to start work on selected initiatives.

Insights from Kenya and Senegal

This framework was tested in three pilot studies in 2011. These case studies revealed important insights for adaptation policy creation in Kenya, Senegal and beyond.

Firstly, in Kochiel village, Kenya, adaptations strategies used by and within individual households were found to be highly diverse. There were also complex linkages between different adaptation processes. An earlier framework developed by Thornton and Manasfi (2010) on motivation for adaptive action was used, with some modifications, to characterise current adaptation strategies in this village (Figure 1 in Appendix). Pooling of resources, such as sharing knowledge, finances and labour, was the key adaptive process and affected many other adaptive actions. Both informal and formal institutions, such as community-based organisations, were linked with pooling. Characterisation was difficult because of the overlapping causes and effects of adaptation actions.

These findings suggest that, to succeed, adaptation initiatives must be coupled with an in-depth understanding, ideally down to the household level, of key adaptations processes, linkages, and mechanisms for adaptation.

In the second pilot study, in Othidhe village, Kenya, the community noted a close link between roads and health. Poor roads prevent the sick from travelling the 6 km to the nearest hospital, and roads are often impassible in the wet season. Pregnant women reported miscarriages while trying to walk to give birth in hospital and one person had to transport an injured family member in a wheelbarrow, as motor vehicles could not use the road. Roads are also crucial for access to markets. Addressing poor roads is viewed as the key priority in relation to climate change because no adaptation initiative aimed at markets or health can succeed unless the roads are improved. This demonstrates the potential role that infrastructure can play in building adaptive capacity.

The importance of power and gender dynamics was highlighted in the third pilot study in N'Dodji village, Senegal. Specific gender roles meant that women and men had different visions of a resilient future. Women prioritised water sources, while men prioritised agricultural tools. These differences need to be captured by policy-makers to ensure that adaptation interventions are both effective and equitable.

Finally, it is notable that communities in both Kenya and Senegal prioritised initiatives that fall squarely within the realm of development, including education, road building and health clinic construction. Therefore, many actions to address climate change will come in the form of more traditional development projects within sectors that are not always associated with adaptation.

Recommendations

Community-based resilience and adaptation approaches must be used to inform policy at all levels, from local to national. Assessing adaptation or adaptive capacity without first addressing judgements on boundaries and visions of resilience could lead to maladaptation. Multidisciplinary participatory methods are crucial for policy-makers, NGOs, and civil society to prioritise adaptation interventions that lead to long-term resilience to climate change.

The following five recommendations for adaptation planning and policy creation emerged from this research.

1. **Collaborate with local stakeholders**, e.g. through community-based resilience and adaptation workshops, to identify desired future states and components of resilience. Those affected by adaptation policies must have the opportunity to critique assumptions of resilience and prioritise adaptation strategies.

2. **Engage with policies and barriers to adaptation** – social, economic, and environmental – beyond the traditional realm of climate change. This can be done by incorporating assessments of multiple challenges and their consequences, as well as links between adaptation strategies, adaptation processes, and development objectives.

3. **Invest in the development of research tools** to analyse and scale up information on links between adaptation processes at the local level. Characterising adaptation processes and strategies is only one analytic tool that needs refinement.

4. **Avoid generalising local adaptive capacity** as an indicator of adaptive capacity at broader levels. Construct policy that recognises diversity of adaptation strategies down to the household level and embraces local nuances.

5. **Adopt long term and flexible approaches to adaptation planning** and the assessment of resilience to address the dynamic nature of social and ecological systems and plan for the unknown. This can be done by creating multiple centres for adaptation governance, building institutional support, and including multiple adaptation processes in policy.

Notes from the field, December 2012, Caitlin Corner-Dolloff

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Appendix

Figure 1: Adaptation processes used by interviewees in Kochiel Village, Kenya. Categories based on motivation for adaptive action (Thornton and Manasfi 2010) are shown on the left with current adaptation actions by community members on the right.

Adaptation process	Common strategies (mentioned by over 35% of interviewees)	Other strategies (mentioned by less than 35% of interviewees)
Rationing	- Animal storage - Behaviour change/change in eating habits (substitution) - Food storage	- Financial rationing and storage - Water rationing and storage
Diversification	- Farm management behaviour - Income	- Crops - Diet - Livestock - Skills and occupation training
Intensification		- Farm inputs - Extensification (essentially negative intensification) - Irrigation scheme - Labour inputs - Land management
Infrastructure		- Ditches - Housing - Terracing - Water
Exchange	- Bought food - Remittances - NGOs	- Food aid - Hire tools - Increase price of goods - Inputs - Loan - New product sales
Pooling	- Financial support - Knowledge - Labour	- Communal resources - Food - Joint business - Land - Tools - Water
Mobility	- Remittances	- Migrate for wage labour - Travel further for resources
Revitalisation	- Planting trees	
Innovation		- Niche development