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COURTING CATASTROPHE?
Humanitarian Policy and Practice in a Changing Climate

Can different types of knowledge be integrated for climate change adaptation?

A case study from Siaya, Kenya

Since 2011 the communities of fishers and farmers in Siaya, Western Kenya have been increasingly affected by floods, droughts, and other changes in weather patterns. The Kenya Red Cross Society and the Norwegian Red Cross are trying to facilitate local people's adaptation to climate change (CC) through a humanitarian project: *Integrated Food Security and Livelihoods Project in Siaya County (IFSPL)*. The project promotes a preventive, and long-term approach to humanitarian aid. This research brief, presents empirical results related to this humanitarian project to illustrate the importance of one of our central research hypotheses: "*Different actors have different kinds of knowledge, relevant to different space/time scales, and reflecting different interests for climate change adaptation*". These findings indicate that 1) the types of knowledge different categories of stakeholders possess about CC are different, as are their framings of the priorities for adaptation; 2) humanitarian actors are well-placed to foster the integration of the different types of adaptation solutions. The findings also suggest that humanitarian interventions aimed at building climate-resilient livelihoods may require more explicitly normative choices on the part of humanitarian actors. More specifically, we suggest that different types of climate adaptation knowledge and solutions can only partly be integrated, and that humanitarian actors have to make clear, and perhaps controversial, choices about whose solutions to promote.

By Andrei Marin[1]

Introduction

Humanitarian interventions focus increasingly on long-term adaptation and resilience in the face of climate change. However, there is little evidence regarding the opportunities and obstacles to achieving this shift. In 2012, the Kenya Red Cross Society and the Norwegian Red Cross embarked on a 26-month humanitarian effort called the *Integrated Food Security and Livelihoods Project in Siaya County* (IFSLP). Siaya, in Western Kenya, has been heavily affected by recent climate-related hazards (floods and droughts) that disrupted livelihoods, damaged local environments, and created major health risks. These stresses combine with longstanding high prevalence of HIV/AIDS and deep poverty. The major aim of the IFSLP programme, is "to improve the resilience of the local population to environmental hazards". Specifically, the project envisioned supporting 150,000 beneficiaries through

1) improved food production, focusing in particular on cassava as a drought tolerant crop,

2) strengthened cassava value chain and income generation,

3) strengthened community based disaster risk reduction (DRR), and

4) strengthened health and nutritional security.

IFLSP aims to deliver food and livelihood security mainly by providing a new, improved cassava cultivar with higher yields, tolerance to disease, and accepted by farmers.

Research approach

The research this brief is based on (see overleaf for details on the research project) has two main objectives: First, it aims to understand how the **current context** of humanitarian interventions can support adaptations that are equitable and sustainable. This contextual analysis focuses on the kinds of climate knowledge, priorities, and views of adaptation present among different stakeholders, and the kinds of social interactions that influence whose adaptation priorities and knowledge gets precedence. Second, the research aims to **identify lessons** from current humanitarian interventions – such as the IFSLP - on how to reduce long-term vulnerability and empower voices of the vulnerable in adaptation decision-making.

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Fishers are registering detailed changes in the timing and intensity of rains. They adapt by adjusting their fishing techniques, tools, and schedules (©Andrei Marin).

Data collection is conducted at three levels: village, county and at national levels. At village level, the methods include semi-structured interviews, focus group discussions and transect walks, complemented by semi-structured interviews with decision makers and key humanitarian actors at county and national levels.

Research findings

Findings from two rounds of fieldwork in Siaya County (May-June 2014, and May-June 2015) show that different categories of stakeholders possess different types of CC knowledge and suggest different solutions/priorities for adaptation.

Farmers and fishers identify changes in precipitation patterns as the most significant in terms of vulnerability and livelihoods insecurity. The long-term normal precipitation seasonality identified by the farmers stopped ca. 20 years ago. Now, the long (*Higa chiwiri*) and short (*Opon)* rainy seasons can start several months later, and end one month earlier than normal. In addition, local residents agree that even after onset, rains can stop for several weeks during the two rainy seasons. *Farmers* adapt to these changes by delaying their land preparation (traditionally done in January, but now postponed until signs of rainy season-onset appear) and staggered planting of maize, cassava, and sweet potato. Farmers unanimously identified switching to farming cassava as an adaptation to drought. Adaptations against flooding mentioned are terracing, digging channels, and planting deep-rooted *Nepia* grass (used for roof thatching and livestock fodder).

The *fishers* confirm the observations of farmers that rains are becoming fewer and more intense. Nevertheless, whereas intense rains are not useful or damaging to farming, it is the excessive rains that bring alluvial nutrients that are the most beneficial to fishing. The period most conducive to fishing is the long rainy season when enough alluvial water in-flow brings food for the fish (bees, termites, etc.). One adaptation was to set up ponds for aquaculture on the edge of the lake but this has been hampered by a large-scale land investment initiative that has drastically reduced water levels in the lake and the Yala Swamp ecosystem, stopping the ability of ponds to be integrated with the lake (allowing water to circulate through the ponds).

Fishers have reacted by reducing the fishing period to rainy seasons/intense rain episodes and adjusting fishing gears (smaller net gauges-some bellow the legal limit). The raising frequency of intense rains causes reeds to break away from the banks and become floating islands in the lake. In consequence, fishing nets left in the water overnight are destroyed by floating islands, so fishing has to be done during daytime or use other techniques (e.g. fishing with rods, by the banks) – an adaptation that is more labour-intensive and less productive.

Traditional authorities (chiefs, sub-chiefs, village elders) are knowledgeable of the weather changes described by regular farmers and fishers but with a less detailed insight on specific changes. On the other hand, they are more knowledgeable about changes at larger spatial scales. They describe for instance that colonial-era water ponds can be used in mitigating droughts through limited irrigation and as sources of drinking water, and relate local flooding hazards to deforestation and other land-use changes in the whole watershed. Local authorities' adaptation solutions try to mediate between the needs and adaptation solutions proposed by farmers and fishers and those of formal authorities (e.g. planting trees to 'produce rain'). In addition, they propose collective adaptation initiatives such as a reliable drainage channel system (adaptation to floods) and using the ponds for fish-farming and irrigation (adaptation to droughts).

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Farmers in Siaya value the improved cassava varieties as a beneficial adaptation to drought (© Andrei Marin).

Formal authorities (high-level bureaucrats for agriculture, environment, water resources, meteorology):

Despite having the technical know-how, the meteorological agency could provide little insight into county-level climate changes mainly because of the lack of data (local systematic data collection began only in 2012). Nevertheless, they could provide a good contextual understanding of changes in regional climate. The root causes of local floods were identified as deforestation in Cherangani hills, and the fact Yala River could not be diverted due to protection under international agreements.

The National Environmental Management Agency (NEMA) is the formal seat and coordinator of climate change adaptation initiatives. Their knowledge of climate change is very general and pertaining to the larger scale (county). They promote adaptation measures such as afforestation (e.g. tree nurseries in schools) and agricultural initiatives such as soil and water conservation and irrigation. Their views of adaptation rely on technical guidelines and provisions (using environmental impact assessments, environmental audit regulations, guidelines for using water ponds, riverbanks, etc.). The agency decries local people's ignorance of the management regulations, potentially leading to maladaptations (riverbank erosion, more flooding). Similarly, the county Water Management Authority (WARMA) also has large-scale general understanding of climate changes and solid technical expertise, yet showing limited understanding of the detailed socio-environmental contexts in which adaptation should take place.

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In contrast, the Siaya department of agriculture has a detailed understanding of weather patterns and changes in them, *and* a better understanding of the socio-economic context. They provide services and technical support (plowing, fertilizing, disease control, etc.) and have adjusted the timing of their activities to fit the changes in weather patterns (e.g. delayed onset of long rains requires that plowing must be done before the rains, due to the soil texture). In addition, agricultural officers noted that socio-economic and environmental factors often overlapped to hamper adaptation and exacerbate the impacts of harmful weather. For instance, floods lead to reduced market access and consequent increase in consumer goods prices, while more severe and frequent droughts and floods promoted influxes of food relief sometimes contaminated with new plant diseases. Importantly, the department of agriculture experienced that their own cassava distribution system can spread diseased plant material that contaminates existing cassava plantations.

Humanitarian actors:

Humanitarian actors working at the level of county, locality (branch) and in the villages confirm a high level of detail in understanding the changes in climate relevant to the local stakeholders. They are usually well attuned to the socio-economic context. Some of the specific changes identified by humanitarian actors in Siaya were the decrease in the quantity of rains and the unreliable rainfall patterns, flooding occurring in new geographical areas, and the novelty of drought. They identified 'disaster floods' during the short rainy season, and much stronger winds as significant changes in weather patterns. Nevertheless, the geographical and temporal scales for this type of knowledge were limited (to the county, and 20-30 years respectively). The adaptation solutions proposed by humanitarian actors aimed at building sustainable livelihoods, agricultural product development, value chains and markets. Still, humanitarian adaptation solutions seem to miss some important points about external factors that can come in the way of such adaptation potentials. For instance, the adaptation centered on cassava is being hampered by the increasing land tenure fragmentation since cassava requires larger plots than other crops to ensure the necessary for subsistence. This may exclude the peasants with limited access to land.

Conclusion

This brief account shows great variation between the climate and adaptation knowledge of different categories of stakeholders. Local farmers, fishers and traditional authorities have a very detailed knowledge at a small scale. They appreciate cassava production as a viable adaptation initiative but in order for it to translate into a sustainable adaptation option, it has to be connected to development measures regarding improved land tenure security, better agricultural extension services, and better market access. On the other hand, formal authorities understand changes at larges scales but often lack insight into the root causes of local people's vulnerabilities.

Humanitarian initiatives focusing on building resilience and climate change adaptation operate at the interface between these two visions for adaptation. They are well placed to understand both of these rationalities and identify important pressure points for effective adaptation. One such pressure point is removing stagnant water during floods which may reduce malaria risk, thus improving health and labour capacity at the busiest time of the year (March-May).

It is fundamental nevertheless, that humanitarian programmes of this type engage the different kinds of knowledge with the realization that they have to take clear decisions regarding whose adaptation strategies they promote. If resilience-building is to be successful, root causes of vulnerability should also be tackled by such programmes. In Siaya, addressing the sources of flooding (by changing swamp drainage regulation), drought (by afforestation) and land tenure fragmentation (by fostering cooperatives) may be a necessary element of the humanitarian programmes. This involvement with root causes may actually be too political for standard humanitarian interventions, and attempts to tackle both root causes and proximate causes may actually run counter to each other (e.g. afforesting land in a situation where very little land is available for agriculture). In this sense, adaptation solutions don't just run parallel to each other, they intersect and potentially compete with each other for priority in humanitarian programmes.

Disclaimer

This research brief does not represent the official view of project partners or the Norwegian Research Council. Responsibility for the text remains with the authors.

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The main research objective of this project is to critically examine the scope and practical ways in which humanitarian responses may contribute to adaptation to climate change. It draws on experiences and lessons from six countries in Africa and Asia.

Project partners

Main research partners

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- Institute of Development Studies (IDS), University of Sussex, Brighton, England
- The Red Cross/ Red Crescent Climate Centre (RCCCC), Hague, the Netherlands
- Institute of Environment, Gender and Development Studies, Mekelle University, Ethiopia
- COMSATS Institute of Information Technology (CIIT), Pakistan
- Norwegian Red Cross
- The Development Fund

Other partners

- Nepal Institute of Development Studies (NIDS)
- Norwegian Refugee Council (NRC)
- Local Initiatives for Biodiversity, Research and Development (LI-BIRD), Nepal
- Center for International Climate and Environmental Research (CICERO), Norway

For more info, see the project webpage:

https://www.nmbu.no/en/about-nmbu/faculties/samvit/departments/noragric/research/clusters/chsd/projects-and-activities/courting-catastrophe

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