

An Investigation into Community Perceptions and Response to Flood Risks in Western Kenya

Location: Nyando district, Western Kenya

Date: 2004 – 2008

Sector focus: Flood hazard mitigation

Spatial focus: Village and district level

Bibliographical reference

Hellen Nyakundi, 'An Investigation into Community and Response to Flood Risks', ProVention/World Bank Young Researcher report, 2008.

Abstract

In Kenya, the ability of local people to resist the impact of disasters has not been given adequate attention. The primary goal of this study was to examine community flood risk perceptions and responses in relation to flood disaster management at two risk levels in Nyando District. The high risk areas were purposively selected because they have experienced the worst effects of the flood while the low risk areas were selected because they offered an interesting comparative study.

A total of 528 members of the community were sampled to participate in the study. Of these residents, 264 (half) were surveyed in the low risk areas to see if significant differences were apparent. The results were derived from a mixture of quantitative techniques (questionnaires and structured interviews) and qualitative data collection methods.

Results from the research outline traditional knowledge and warning systems, behavior associated with flood control, perceptions and attitudes towards current initiatives and external support. It also highlighted gaps in communication of flood knowledge; warning systems, alternative flood control measures and proper utilization of existing community based service delivery systems.

Technical description

Hazard/risk type: River flooding (flash floods and gradual on-set)

Type of assessment: Coping strategies analysis and risk assessment

CRA process

Methods used: Questionnaire survey, in depth interviews, focus groups.

This was a descriptive cross sectional study. Review of secondary data, questionnaires, focus group discussions and key informant interview data collection methods were applied. A list of frequently flooded areas in the region was drawn and two categories, most prone and medium prone were selected to give a wider coverage to the sample with a view to accommodate risk level variability. As is standard with similar studies, informed consent was sought from the respondents.

Was livelihood analysis used? No

Was external specialist knowledge introduced? Background information on the hydrology of the river and other externally collected background information. More specifically, Kenyan government staff had been proposing various solutions to the flood problem.

Vulnerability analysis: Results demonstrate that traditional flood knowledge does exist in the study area and these traditional strategies are a trusted source of information and importance to this community. The finding of the study further revealed a greater level of awareness of flood hazards in the high risk areas in comparison to the low risk areas. They also demonstrate significant clear spatial differences in the level of awareness and use between the respondents living in the high risk community. These were influenced by demographic variables such as age, occupation, education and length of residency. Perception of the risk is influenced by several variables, most notably past experience of major floods.

Capacity analysis: A wide and varied range of measures for counteracting flood risks were found to exist. Most of these actions were taken at the household level in order to adapt to the impact of floods. However, community members felt external assistance offered was completely inadequate. This raises questions about dependency and puts sharply in focus the management and distribution of development aid in this area and the impacts of these programs on the livelihoods of beneficiaries.

Resources available: ProVention grant enabled the research finally. The community has a strong fund of local knowledge; some NGOs are active; and there are agricultural extension workers and community health workers.

Limitations to capacity: Funding.

Action planning and implementation

What actions were actually planned?

Suggestions coming from the respondents include:

(a) Introduction of flood management topic in schools affected; (b) Dyke construction currently covers 3.5km on either side of the Nyando River. The respondents felt the dyke would be more effective if it covered a further 8.5 km of the river bank that still overflows and should extend further up to where the Nyando River meets Lake Victoria; (c) Build dams to reduce flooding and at the same time retain some water for the dry season; (d) Plant trees along the river bank; (e) Construction of better bridges.

Actions that were actually carried out?

Actual flood management plans at the grass root level

1. Community action: An initiative of the local community is the Kenya disaster cooperative of the disaster committees where members contribute money that is used to assist them during the flood times.

2. Government disaster programs: Survey results showed that 85.2% of the support received by respondents comes from Government. Government initiatives at the district are coordinated by the District Disaster Management Committee (DDMC) that has incorporated all key government departments. Their role is to assess the damage after a flood event and propose type of intervention. The DDMC is represented at the location and sub location levels (flood control committees). These

committees, together with the chiefs and sub chiefs organize, implement and oversee the following government initiatives, including:

- a. Food for work program introduced by the government to engage the community in clearing the drainage system and repairing damaged roads. In some areas the silt in the flood channels is up to 10 feet deep -- brought about by the El Nino rains of 1997-1998. The community members work in exchange for food.
- b. Construction of a dyke along river Nyando by the government.
- c. Anti-malaria campaign, which attained 70% coverage; about three-quarters of people have access to mosquito nets. (Flooding expands the habit and breeding sites for the malaria-vectoring mosquito.)

Anti-Poverty Development Initiatives

From June 2006 to February 2007, the following pilot projects were implemented by JICA:

- Outreach Oriented Community Health Improvement Program,
- Livelihood Improvement Oriented Forestry Program
- Human Resource-Led Cottage Industry Program with Training Provision
- Local Key Farmer-Led Paddy Cultivation Extension Program
- Local Cottage Industry Promotion.

These all potentially increase the economic stability of household livelihoods, and thus indirectly impact on the food mitigation problem by providing more available surplus at household level for personal and social protection. Some of the other JICA sponsored programs have the potential for strengthening community networking, hence social capital and human capital through learning and training centers.

Have these actions turned out to be sustainable?

Achievements by the JICA pilot projects include establishment of learning centers, community pharmacies, information sharing chalk boards, tree nurseries targeting CBOs strengthened, community representatives trained on human-resource led cottage industry and demonstration of paddy cultivation done in demonstration plots. It is too early to say if these projects are sustainable and will survive the end of the project cycle and JICA funding.

Were there any unanticipated additional benefits of the actions? N.A.

Were there any unanticipated negative consequences of the actions? N.A.

Limitations on action/sustainability of actions: N.A.

Indicators: Data collected include (1) traditional knowledge of flood risks (level of awareness and use); (2) Perception of flood risks (perceptions on assumed flood risk characteristics and attribution of cause-relationships of floods and their impact); (3) Behaviour associated with flood management (level of preparedness and effectiveness of coping action); (4) Attitude towards external support (satisfaction levels and level of dependence on aid). Whilst this study did not explicitly discuss indicators of use in future evaluation of follow up projects, data showing changes in any one or more of these categories would constitute excellent indicators.

Contextual Notes

Existence/role of prior or contemporaneous conflict?

The land tenure system in Kenya recognizes land owned by a community. This has raised problems because the Nyando community members are always in conflict on who will surrender land for construction of structures like dykes and dams.

Role of displacement/relocation

The first major flood experience was in 1962 which prompted the government to come up with an irrigation scheme to re-channel the water as well as resettle people in higher grounds. The government had targeted the area to be a rice plantation and identified land in Muhoroni Division for resettlement of the flood victims. Those affected have so far refused to move to higher ground as farms on banks of the river are considered to be the most fertile.

Role of prior disaster & prior recovery attempts?

In 2003, most parts of Kenya were engulfed in an unexpected heavy rainfall in mid-April which continued to the end of May. The long rains which normally start in March and end in June were almost two months late, but then fell heavily causing severe flooding in many parts of the country. Seventeen districts were affected to varying degrees by the floods, and the Government of Kenya reports indicated a death toll of 77 and displacement of over 60,000. According to official reports confirmed by ACT Nairobi Forum members, the Lake Victoria basin was the most affected with over 50,000 displaced in Nyando, Migori, Kisumu, and Busia districts, while the Tana River plains accounted for 10,000 displaced. Despite the fact the flooding was not declared a national disaster by the president, an encouraging response to the humanitarian needs was recorded from the government, UN, NGOs, multilateral donors and the local churches on the ground. Kshs. 37 million were spent on rehabilitation of Nzoia River dykes and another Kshs.47 million in channel dredging, bush clearing and drainage repairs on the Nyando River (FEWSNET Report 2003).¹

The earlier national experience with flood is relevant to understanding the context in Nyando District. The 1997-98 El Niño episode magnified the short rains, which occur during the months of October to December. The rains, which started as normal rains in October in most parts of the country, picked up to flooding levels during the beginning of November and continued at high levels into January of the following year. The total cost of these negative impacts has been estimated at over 1 billion US dollars. The 1997-98 El Niño event hit the country at a time when the government had no plans or policies in place to deal with the associated flood and resulting health hazards. Due to the low frequency of widespread flooding problems in the country, the Kenya government had neither a flood disaster management policy nor an institutional framework to monitor and manage flood disasters prior to the 1997-98 El Niño floods. However, after the effects of the rains began, the government acted by setting up the National Disaster Operation Centre to oversee and coordinate all efforts put toward addressing the serious impacts.

Significant historical, geographic, economic, political, or cultural issues that influenced this instance of CRA and its consequences?

One geographical reality is seasonal flooding during the long (March–May) and short rains (September–November) in a relatively flat topographic setting. The people living there have been settled for many hundreds of years and share a uniform linguistic and cultural background, making it easier for deep local knowledge and coping strategies to develop and be transmitted from generation to generation. However, since independence, this part of Kenya had been marginalized until recently in terms of investments by the central state, and economic resources for expanding flood control.

¹ FEWSNET 2003 <http://www.reliefweb.int/rw/rwb.nsf/AllDocsByUNID/5d4840275d8c474649256d20001c18bf> & <http://www.reliefweb.int/rw/rwb.nsf/db900sid/ACOS-64DDG6?OpenDocument> .

Strategic notes

How has this practice of CRA influenced change in policy and practice at the national level?

The study has identified gaps in flood risk management and communication systems in the study area. These are common gaps encountered elsewhere in the country could be taken into account by national planners in implementing Kenya's Poverty Reduction Strategy. Baseline data similar to that which this study collected could be instrumental in facilitating development of community based services in other parts of Kenya to strengthen capacity to respond more effectively to flood emergencies and to provide insights into possibility of a more integrated approach to flood prevention and coping with loss. Whether national level planners utilize these, and other similar, data, is quite another question.

Possibly as an indirect effect of this study and other expressions of rural dwellers' dissatisfaction with external (i.e. governmental) assistance, in 2005, the Kenyan Government requested JICA (Japan International Cooperation Agency) to carry out a feasibility study in Nyando District to identify district development program with an aim to reduce poverty.

How has this practice of CRA influenced change in policy and practice at local level?

Establishment of the flood control committees at the local level has resulted in tapping invaluable input from the community and this information has been used in prioritizing interventions.

The study of community initiatives and perceptions has highlighted gaps the flood control system that include lack of proper flood warning systems, lack of transparency in distribution of relief aid, lack of utilization of established community based systems as being the main barriers to proper flood management. This information can be used to strengthen community service delivery systems that are not fully utilised. It is more likely that the information will be used at local (e.g. District) level, than at the national level.

How has this practice of CRA influenced the level of organization and solidarity in the locality where it was carried out?

Establishment of flood control units starting at the village level all the way to the district level has opened a communication channel that has encouraging dialogue and feedback between stake holders at all levels.

Less divided along class, gender, age, ethnic lines?

Less divided as they work towards a common goal of finding a solution to the perennial flood problem.

More divided along these lines? N.A.

Are the people living in this area more able to speak out on issues that concern them?

There are flood control committees at the village level consisting of 6 elected community members. The flood committees are also represented at the location, division and district level disaster management committees.

Have new civil society organizations been created directly or indirectly because of this practice of CRA?

Yes, but indirectly and linked to a huge investment program of the World Bank. The background is as follows.

The World Bank's strategy in Kenya seeks to assist the Government to accelerate generalized growth, and to assure that the growth is environmentally sustainable and inclusive of the poor. In support of this effort, the Bank has financed the new Western Kenya Integrated Ecosystem Management Project (WKIEMP). One of its major components is the Community Development and

Flood Mitigation Project which uses what the Bank calls a “community driven development”² approach at the community level, coupled with investments at district and catchment level that contribute to better management of resources. A multi-purpose flood management investment of US\$ 50 million includes measures to reduce erosion, increase water storage for flood control and irrigation, small hydro-electric power generation, etc. Lower catchment areas will be assisted to develop an early warning system for flood detection and flood protection works. In order to implement an integrated flood management strategy, a comprehensive investment plan has been developed, and priority elements financed as resources permit, both from the credit and possible co-financing. Activities financed under this project are coordinated fully with those financed by the linked NRM project. The catchment offices of the National Water Resource Management authority together with the District Steering Groups are the key institutions guiding the development and implementation of the investments, together with the appropriate new institutions in the water sector. Factors exacerbating the intensity and frequency of flooding in the upper catchment areas will be studied in order to prepare a strategy for future interventions.

The project will be carried out through the decentralized structures of the local and provincial government to cover (provisionally) the eight districts of Western Province (Mt. Elgon, Teso, Vihiga, Bungoma, Busia, Butere/Mumias, Kakamega and Lugari) and four districts (Bondo, Siaya, Kisumu and Nyando) in Nyanza province. The water resources management components of the project will be carried out in cooperation with the Water Resources Management Authority and their catchment offices. In short, if well implemented, this project should build upon and considerably reinforce the decentralized structures such as village flood committees described earlier.

Lessons learned

1. Focus group discussions and in depth interviews were the most effective data collection tools because they focused on psycho-social factors and drew out in-depth responses from participants about what they think and how they feel. These techniques provide depth of understanding about their response mechanisms and highlight barriers and motivators to use these measures.
2. Local resources available for flood risk reduction should be more fully utilized, with less reliance on external aid to ensure sustainability. Whether and how this lesson is compatible with the huge World Bank investment that is just beginning remains to be seen.
3. Use should be enhanced of existing agricultural extension service staff and Community Health Workers (CHWs) to promote food security, water and environmental sanitation and health services. Additional training and incentives could extend their messages to explicit ones concerning flood control and proper understanding of early warning alerts.
4. Community links with government agencies and NGOs should be strengthened in order to ensure continuity of efforts at flood risk reduction.
5. Flood risk needs to be considered within development strategies and planning at all levels.

Keywords

Traditional flood knowledge, flood risk, perception of risk, flood warning, flood control, attitude towards external support.

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² CDD is described on the World Bank web site:

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTCDD/0,,menuPK:430167~pagePK:149018~piPK:149093~theSitePK:430161,00.html> .