

Participatory Risk Mapping for Targeting Research and Assistance: with an Example from East African Pastoralists

Location:	Southern Ethiopia and Northern Kenya
Date:	1999
Sector focus:	Livestock, livelihoods, conflict management
Spatial focus:	Household

Organization

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Bibliographical details

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Language availability

English

Abstract

This paper introduces a systematic but simple approach to classifying and ordering sources of risk faced by subject populations. By distinguishing between the incidence and severity of subjective risk perceptions, this method enhances understanding of the nature and variation of risks faced within a population. We demonstrate the usefulness of the method as applied to pastoralist communities in the arid and semi-arid lands of southern Ethiopia and northern Kenya. This method reveals the considerable heterogeneity of risk exposure and severity that exists within this seemingly homogeneous sector, particularly across strata defined by gender, wealth, and primary economic activity.

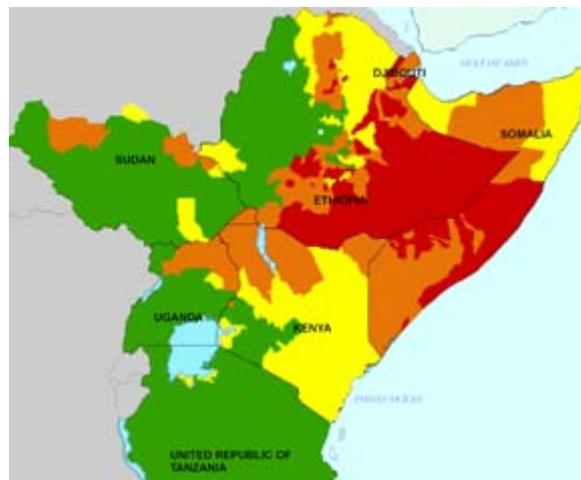
Intended users

Researchers, development practitioners and local government.

Background and context of country, location and project

- **Recent disasters?** Northern Kenya and southern Ethiopia suffer intermittent droughts and localized flooding. Serious droughts affected northern Kenya in 1973-74, 1984-85, 1992-94, and 2006. Localized rainfall variability can cause problems for pastoralists whose coping ability has been weakened and constrained by other stresses such as conflict and market failure.

In 2008 drought and increasing food prices (world wide and locally) combined to put 17 million people at risk in the greater Horn of Africa, according to UN-OCHA (<http://ochaonline.un.org/rocea/HoADrought2008/tabid/4891/language/en-US/Default.aspx>) – see map below from same source:



- **Other recent crises (economic, political)?** Post election violence in Kenya did not affect the far North directly, but service provision and local government functioning may have been interrupted.
- **Recent displacements and population movements?** Large scale displacement of pastoralists is known in Ethiopia due to infrastructure and commercial development (the case of the Afar [1,2]) and during drought crises (for example in the East of Ethiopia (www.cdc.gov/mmwr/preview/mmwrhtml/mm5015a2.htm)). However, displacements have been more localized in the parts of northern Kenya and southern Ethiopia that were the focus of this research, occurring in 1985-86 and in 2008.
- **Recent conflict?** Livestock raiding is an endemic problem among groups of Kenya-based pastoral people and among them and others whose home base is in Uganda, Sudan, and Ethiopia.

Technical description

- **Hazard/risk type:** Multiple hazards (drought, violent conflict, stock theft by bandits, wildlife destruction of crops, human and livestock disease, market price variations, etc.).
- **Type of assessment:** Risk mapping and risk perception study.

CRA process

- **Vulnerability analysis:** Vulnerability was not independently assessed, but rather is assumed to be reflected in the rankings of risk and their severity provided by a stratified sample of sub-groups of pastoralists. Interview groups were stratified by country (Kenya/Ethiopia), ethnic group, wealth, principle livelihood basis, and gender.
- **Capacity analysis:** Capacity to cope was not an explicit focus of the study, but they can to some extent be inferred from the risk mapping provided.
- **Analytical methods:** Open ended group-interviewing, providing lists of subjectively perceived hazards (risks) [3] and quantifiable rankings of them by reported/perceived severity. 120 groups were interviewed within the study region, 49 from Ethiopia and 71 from Kenya. Of these 120 groups, 59 were comprised of women and 61 of men.
- **Tools:** Interview protocol, simple quantitative analysis, and GIS.

Notes on Methods and Tools

[Authors' own assessment of methods and tools]:

“Like any method, participatory risk mapping has shortcomings. We obviously believe the technique's strengths — low-cost collection, letting informants speak for themselves, ease of graphic representation of results — outweigh its weaknesses. But we advise cautious application and wish to point out some deficiencies, both of the method in general and of this particular application.

The main general problem is that the interconnectedness of respondents' challenges makes categorization of responses somewhat arbitrary. Even problems as seemingly unrelated, at first glance, as an inability to meet school fees and food shortage both indicate the lack of resources to meet essential needs. Similarly, food shortage and water shortage are obviously related; insufficient water means that livestock or crops die and people ultimately go hungry. In the ASAL of northern Kenya and southern Ethiopia, people cannot be short of water and not of food unless they rely almost exclusively on relief food aid handouts. Indeed, food security is clearly related to most other responses — e.g., animal health, drought, insecurity — through the complex dynamics of decision-making under uncertainty.”

[Additional comments on methods and tools]:

Over the intervening 10 years much more work has been done developing, refining, and testing participatory tools. [4,5,6,7,8,9] However, this study remains a very important example of a relatively easy and straight forward approach to the complexity and heterogeneity that underlies what often appears a homogeneous surface.

Lessons learned

Groups' responses reveal fifteen major sources of risk: Livestock prices [prices], pasture access and quality, food availability, water availability, crop failure, crop destruction by wild animals, livestock disease, ethnic conflict, banditry, and raids, human illness (chiefly malaria), access to a health clinic, access to shops, access to a school, ability to pay school fees, the need to relocate often, and transport and road conditions.

The most frequently mentioned problems are, not surprisingly for the ASAL, insecure access to food and water, both the result of periodic droughts and long dry seasons throughout East Africa and, for some, severe poverty. Livestock disease and access to health clinics are the other risks cited by at least one-third of the participating groups.

What is perhaps more interesting is that outside of food and water shortage, none of the other thirteen risks are declared by a majority of respondents. This risk mapping technique highlights that the nature of the risks faced by vulnerable populations, much less the subjective severity of those risks, **varies considerably even among what appears to many outsiders as a relatively homogeneous population** with regard to economy and environment. Few risks are perceived by a majority of the population, and almost none that are felt widely are not deemed relatively severe.

This pattern, which seems a useful basic point to grasp, reappears throughout the figures we constructed along various lines of stratification, copies of which are available on request.

The most severe problem, conditional on being identified as a problem, is human illness. This is primarily malaria, a serious problem in parts of our study area during particular periods. Not all communities are equally exposed to human disease, as apparent spatially in contour mapping for disease, created by making a geographic information systems (GIS) layer of the risk index.

As with sickness, violent conflict was cited as an especially severe risk, but again by a minority of the population, and exclusively among the non-wealthy. All of the ethnic groups in our area have felt the effects of an increased number of automatic rifles that make livestock raids particularly deadly.

Key words

Risk mapping, ranking, perception, pastoralists, drought, conflict, disease, markets

Cross references to other CRA Toolkit case studies

Zimbabwe, Beating Hunger: The Chivi Experience
(<http://www.proventionconsortium.org/themes/default/pdfs/CRA/Zimbabwe.pdf>)

Resource people

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End Notes

[1] Helmut Kloos (1982) Development, Drought, and Famine in the Awash Valley of Ethiopia, *African Studies Review*, Vol. 25, No. 4, pp. 21-48.

[2] Lars Bondestam (1981) Understanding Hunger and Predicting Starvation, *Food and Nutrition Bulletin*, Vol. 3, No. 4 <http://www.unu.edu/unupress/food/8F034e/8F034E01.htm> (accessed 28 September 2008).

[3] Risk is defined as follows by these authors: "By "risk", we mean uncertain consequences, and in particular exposure to potentially unfavorable circumstances. This distinguishes risk from uncertainty, which reflects imperfect knowledge without any particular value assessment about consequences."

[4] Hijaba Ykhanbai, Enkhbat Bulgan, Ulipkan Beket, Ronnie Vernooy, and John Graham (2004) Reversing Grassland Degradation and Improving Herders' Livelihoods in the Altai Mountains of Mongolia, *Mountain Research and Development*, Vol. 24, No. 2, pp. 96-100.

[5] Ronnie Vernooy, Hijaba Ykhanbai, Enkhbat Bulgan, Ulipkan Beket and John Graham (2005) Challenges of Participatory Natural Resource Management, in Julian Gonsalves, Thomas Becker, Ann Braun, Dindo Campilan, Hidelisa de Chavez, Elizabeth Fajber, Monica Kafiriri, Joy Rivaca-Caminade, and Ronnie Vernooy (eds.), *Participatory Research and Development for Sustainable Agriculture and Natural Resource Management: a Sourcebook, Vol. 1: Understanding Participatory Research and Development*, chapter 28, IDRC, Ottawa, Canada http://www.idrc.ca/en/ev-85071-201-1-DO_TOPIC.html (accessed 28 September 2008).

[6] Stephen Tyler (ed.) (2006) *Communities, Livelihoods and Natural Resources: Action Research and Policy Change in Asia*, Intermediate Technology Publications and IDRC, London and Ottawa.

[7] H. Ykhanbai, Ts. Odgerel, E. Bulgan and B. Naranchimeg (2006) Herder women speak out: Towards more equitable co-management of grasslands and other natural resources in Mongolia, in Ronnie Vernooy (ed.), *Social and Gender Analysis in Natural Resource Management: Learning Studies and Lessons from Asia*, chapter 7, IDRC, Ottawa, Canada http://www.crdi.ca/es/ev-93080-201-1-DO_TOPIC.html (accessed 28 September 2008).

[8] See the Drylands Program of the International Institute for Environment and Development (IIED) and its flagship journal, *Haramatta* <http://www.iied.org/NR/drylands/haramata.html> (accessed 28 September 2008).

[9] Peter Little, John McPeak, Chris Barrett, Patti Kristjanson (2006) The Multiple Dimensions of Poverty in Pastoral Areas of East Africa, Overview paper for .Pastoralism and Poverty Reduction in East Africa: A Policy Research Conference: 27-28th June 2006, held at the Safari Park Hotel, Nairobi, Kenya, International Livestock Research Institute, Nairobi, Kenya [<http://www.ilri.org/>] <http://www.ilri.org/ILRIPubAware/Uploaded%20Files/Little%20et%20al%20Multiple%20Dimensions%20of%20Poverty%20Draft.pdf> (accessed 28 September 2008).