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The Human Ecology of Disasters in Ethiopia: The Quest for Participatory Disaster Management and Sustainable Livelihood Improvement of Pastoral Communities

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A desk review was conducted during the period 2012 on the quest for participatory disaster management and sustainable livelihood improvement of pastoral communities of Ethiopia from human ecological perspective. Pastoral communities in Ethiopia have issues related to access to and quality of pasture and water, animal health care, domestic and international markets and indigenous, domestic and international strategies for relief and recovery assistance. The general objective of this paper is to evaluate the disaster management system in Ethiopia from sustainable disaster management system perspective. The paper adapts human ecological research approach. Comprehensive literature review on disasters and disasters management was conducted in the course of writing this paper. The findings of the study reveal that disasters like droughts, floods, conflict, insect infestations, and earthquakes occur in Ethiopia. In other words, Ethiopia is vulnerable to disasters caused by drought, earthquake, flood, war and conflict, human and livestock diseases, pests, wildfire and landslide, amongst others. Reversing the history of pastoral communities in Ethiopia needs strong commitment of the government of Ethiopia to design and implement appropriate and sustainable pastoral community development policy and strategy. In other words, there is a need for Ethiopia to have comprehensive and participatory disaster management system which can address both response to disasters and disaster risk management. Moreover, the financial and technical support of international agencies might enhance the endeavor of the country to mitigate disasters and reduce disasters risk.

Key words: Ethiopia, community, disaster, pastoralism, human ecology

Introduction

Natural disasters are very common in today's world, though the human population is more advanced in science and technology than before. This absurdity is the result of ongoing process of global change. In addition, increasing world population, and social trends including expanding economic growth and development, greater investment in infrastructure create a heavy pressure on natural capitals such as land and water (APFM, 2006; Vaghani, 2005; Smith, 2001).

Historical and existing facts clearly show that the impact of natural disasters is a key factor in setting back the development process in developing nations like Ethiopia. Poverty and vulnerability go together. Not all disasters affect the poorest most, yet poorer people tend to be both more exposed and more vulnerable to hazards, suffer greater relative loss of assets, and have a lower capacity to cope and recover. The number and seriousness of disasters have raised dramatically each decade and affecting poor countries and poor communities disproportionately (DFID, 2004). This is true for the pastoralist community of Ethiopia as well. The hazards present in Ethiopia are extensive and may include: flood; conflict; population displacement; drought; earthquake; epidemics; epizootics (livestock disease outbreaks); pests; crop diseases; landslide; economic shock; and the "various acute vulnerabilities that inadvertently arise from large-scale development schemes (UN, 2005).

Ethiopian pastoralism is extensively practiced in the Somali and Afar Regional States, the Borana zone of the Oromiya Regional State, and the South Omo zone of the Southern Nations, Nationalities and People's Regional States. A limited number of pastoralists are also found in areas of Tigray, Benshangul and Gambella Regions (IFAD, 2003). The pastoral areas encompass almost seven million people, 500 000 km2 or 61% of the land area of Ethiopia, and over 11 million animals. Pastoral communities are People living in the lowlands comprising the comparatively wealthy few who hold substantial assets in the form of livestock, a large number of poor people who have small herds and flocks, and a limited number of people who are dependent upon cropping or sale of their labour (agro pastoralists). Although the climatic conditions and hardships are similar for most pastoral

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areas, the people inhabiting these areas differ in their social structure, herd composition, coping strategies and the extent of their integration into the market economy (IFAD, 2003). The United Nations in its focus on Ethiopia recommends that hazards and related risks and vulnerabilities should be identified and routinely monitored; contingency plans and response strategies should be actively and regularly developed, reviewed and refined; the appeal for extraordinary emergency assistance should be based on the gap between prioritized resource needs and existing or potentially available and accessible resources; and non-food activities need to be conducted in an integrated, mutli-sectoral manner, which requires appropriately structured, empowered and resourced standing capacities for disaster management (UN, 2005).

Pastoral communities are the most vulnerable communities to disasters in Ethiopia. Regarding the serious impact of disasters in pastoralist communities of Ethiopia (Helland 2006) stated: The pastoral communities now seem to have become more vulnerable than they used to be. Drought, that after all is quite common in the Ethiopian lowlands, now seem to translate into famines more quickly and more frequently. Why this should be so is not at all clear. Most analysts have now left the formerly widely accepted explanations that the pastoral communities themselves somehow were responsible for their own troubles because of mismanagement of the natural resources. Although climatic variation remains a constant threat, the vulnerability of pastoral communities must be explained with reference to a much broader set of issues. Poorly conceived interventions from the state, but also features like market penetration, failed development projects, the negative effects of famine relief, population growth, and increasing reliance on trade and highly unstable terms of trade, etc., have combined to engender rapid transformations of pastoralism. The situation of Ethiopia's pastoralists is now increasingly characterized by poverty, poor food security and increasing environmental risk as well as political, economic and social marginalization. Changes in the resource tenure systems are fundamentally interrelated to many of these changes (Helland, 2006).

Pastoral communities in Ethiopia have issues related to access to and quality of pasture and water, animal health care, domestic and international markets and indigenous, domestic and international strategies for relief and recovery assistance. That is to mean sustainable development of pastoral communities in Ethiopia requires comprehensive disaster management approach which deals with both response to disasters and risk management of those disasters (Lautze et al., 2003).

Pastoral communities are the most vulnerable part of the communities for disasters. The effort so far made in Ethiopia to deal with disaster management was focusing only on identification and response to drought-related emergency food aid needs. But Non-food needs are equally important for sustainable development of the community (UN, 2005). The United Nations report identified the following reasons for the Ethiopian disaster management system to give more attention to food-related emergency food aid needs than non-food needs: 1) The relatively higher risk of drought as compared to other hazards, and the dominance of drought-related emergency food aid response mechanisms;2) over-reliance on development schemes to reduce disaster vulnerability (and related hope that development will 'eradicate' disasters); 3) institutional structures, attitudes and practices that prohibitively determine and delimit the scope for disaster management; and 4) inadequate investment in livelihood analysis, routine human and animal health surveillance systems, and other forms of (non-food) early warning and vulnerability analysis systems (UN, 2005).

Routine and comprehensive analysis of multiple hazard-related risks and vulnerabilities is not well conducted in Ethiopia, even though the hazards present are extensive. These include: flood; conflict; population displacement; drought; earthquake; epidemics; epizootics (livestock disease outbreaks); pests; crop diseases; landslide; economic shock; and the "various acute vulnerabilities that inadvertently arise from large-scale development schemes (UN, 2005).

This paper is motivated by international conventions on disaster management, research gaps in Ethiopian disaster management system in pastoral communities and international, national and local recommendations on participatory disaster management system. The general objective of this paper is to evaluate the disaster management system in Ethiopia from sustainable disaster management system perspective. The specific objectives of this paper are: to overview the global State of disasters and disasters management, to analyze the weaknesses and strengths of disaster management system in Ethiopia and its challenges and opportunities, to identify good practices of disaster management in different parts of the world.

Methodology

The paper adapts Human Ecological Approach. Human ecology generally refers to the study of the dynamic interrelationships between human population and the physical, cultural and social characteristics of the environment and biosphere (Lawrence, 2003)**.** Human ecology is also the study of complex and

varied systems of interaction between human species and their surrounding environment. It explores not only the influence of humans on their environment but also the influence of the environment on human behaviour, and their adaptive strategies. In other words, the core of human ecology is to understand the interrelationship and interactions between human beings and their environment, which solution targets and strives towards sustainable development (Hens and Quynh, Undated). Human Ecology is described as an interdisciplinary applied field that uses a holistic eco-systems approach to help people solve problems and enhance human potential within their near environments – through family and community as social-cultural environment, and through material culture as human-built environment (University of Alberta, Undated).

The literature reviewed were both from natural science and social science background. The interdisciplinarity between sociology, economics, anthropology, environmental studies, health science, demography, geography, biology, gender studies and other fields of study were reflected in the paper. In other words, disaster management is an issue which must be approached in an interdisciplinary approach. The multi-faceted and complex nature of disasters as a global, international, national and local issue calls for comprehensive approach for its mitigation and risk management (UN, 2005).

The paper employed literature review as method of secondary data collection to collect and synthesize data and information from secondary sources like Internet sources, books, journal articles and reports of international and national organizations on the issue under investigation with a broader goal to recommend appropriate disaster management system to pastoral communities of Ethiopia. The collected data were qualitatively analyzed in the form of description and table.

Results and Discussion

Overview of the global state of disasters and disasters management

The Rio Declaration on Environment and Development, agreed upon by governments at the 1992 United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, states that environmental protection is an integral part of the sustainable development process (UN, 2000).

According to the United Nations report in year 2000 environmental protection encompasses basic needs and the improvement of living standards in order to enhance the prospects for a more prosperous future for all (Principle 4).

Every country in the world is encouraged to have comprehensive disaster reduction framework to protect its citizens from adverse effects of disasters. Regarding the responsibility of every country and the need to sustain a strong and focused international agenda for implementation of disaster risk reduction, Working Group on Climate Change and Disaster Risk Reduction of the Inter-Agency Task Force on Disaster Reduction (IATF/DR) stressed that every country had the sovereign and primary responsibility to protect its people, infrastructure and national, social and economic assets from the impact of disasters. The successor to the IDNDR is the International Strategy for Disaster Reduction (ISDR), founded in 2000 by the UN General Assembly. The ISDR—a coalition of Governments, UN agencies, regional organizations and civil society organizations—was established to sustain a strong and focused international agenda for the implementation of disaster risk reduction (UN/ISDR, 2007). The Hyogo Framework for Action was being used as a platform of action for many countries to manage disasters and disaster risks on sustainable basis. The framework was reported by Leaving Disasters Behind (2007) to draw lessons from and identified gaps in the Yokohama Strategy. These gaps were reported to be associated with governance, risk identification, assessment and early warning, knowledge management and education, reduction of underlying factors and preparedness for effective response and recovery.

The Hyogo Framework aimed to fill the gaps identified in the Yokohama Strategy. The Hyogo Framework for Action is a global plan for disaster risk reduction programmes until 2015. It aims at significantly reducing disaster impacts on lives and livelihoods and deals with principles, priorities for action and practical means for achieving disaster resilience for vulnerable communities (Leaving Disasters Behind, 2007).

Disasters occur when vulnerable societies or communities are exposed to hazardous events and are unable to absorb or recover from their impact. While these events are often described as natural disasters, both vulnerability and some hazards are a result of human activities. Natural hazard events destroy development gains, but development processes themselves play a role in driving disaster risk. Reducing the number of national disasters resulting from natural hazards means improving development planning to halt the trends of increasing vulnerability (Keipi et al., 2007). Global estimates of number of rural poor subsisting in marginal areas range from 600 to 900 million, roughly 9% to 14% of world population. Without livelihood options, these people are forced to migrate to cities, to become refugees, or worse. The whole world has been experiencing both natural and human-made disasters

throughout history. The frequency of their occurrence and the losses associated with them has increased in our today's world. The poor in particular and countless individuals in general are threatened of different types of disasters in the world (Leaving Disasters Behind, 2007). Disaster risk is a global concern; occurrence of a disaster in one region will have implications in others. Demographic, technological and socio-economic changes, especially increased urbanization, have resulted in settlement in high-risk zones. This effect is compounded by disease epidemics, such as HIV/AIDS, and increasing climatic variability, exposing the world's economies and peoples to increased threat of disasters (Leaving Disasters Behind, 2007).

In Africa, the occurrence of disasters triggered by natural and human-made hazards, the number of people affected and the associated economic losses are all rising. Africa's share of total reported world disasters has increased over the past decade. Most disasters affecting Africa are caused by 'hydro-meteorological' hazard (droughts, floods, windstorms) and human factors like war, conflict and bad governance, although disease epidemics often follow in their wake. Climate change is likely to increase the occurrence of hydro-meteorological disasters in the future. HIV/AIDS, malaria and tuberculosis are impacting seriously on households and communities and threatening sustainable development throughout sub-Saharan Africa. Conflict in many parts of Africa has led to complex emergencies. Other less common causes of disasters include pest infestations, earthquakes, landslides, wildfires and volcanic eruptions (Leaving Disasters Behind, 2007).

Overview of disasters in Ethiopia

Backes et al. (2003) reported the experience of Ethiopia with frequent disasters like droughts, floods, conflict, insect infestations, and earthquakes. They also reported that Drought- and conflict-related food crises have been common in Ethiopia, with profound impact on various groups within Ethiopia, e.g. Pastoralists, rain-fed farmers, etc. Disaster risks and the means of reducing its effects have long been a real concern, not only to Ethiopia, but to the world at large. Reports coming out from various agencies show that some 75%- 85% of the world's population living in disaster prone areas has at least been affected once by earthquake, tropical cyclone, flood or drought between the years 1980 and 2005 (Excerpts from ECB3 Ethiopia, 2007).

Ethiopia is one among the community of such nations exposed to intermittent flooding and drought induced disasters that exacerbate vulnerability of the poorer section of the population (Excerpts from ECB3 Ethiopia, 2007). Ethiopia is one of the most disaster-prone countries in Africa, with numerous small and large scale incidents including drought, famine, floods, hail storms, plant pests and insects, as well as epidemic health issues and the threat of violent conflict **(**Emergency Capacity Building Project, 2007). Ethiopia is vulnerable to disasters caused by drought, earthquake, flood, war and conflict, human and livestock diseases, pests, wildfire and landslide, amongst others. These different hazards occur with varying frequency and severity (Leaving Disasters Behind, 2007).

Weaknesses, strengths, threats and opportunities for disaster management system in Ethiopia

The strengths of the disaster management system in Ethiopia include: the implementation of Pastoral Community Development Project (PCDP) with three major components: (a) sustainable livelihood enhancement, (b) pastoral risk management, and (c) project implementation support and policy reform; Extensive capacity building activities being undertaken at all levels to ensure community empowerment and the government's decentralization efforts; Recognition of the Programmes' and projects'community-centered development principles by political and pastoral leaders as well as their full integration with local level development efforts; Initiation of a comprehensive pastoral community early warning system to mitigate the effects of recurrent disasters; Successful management of the financial and procurement aspects of the programmes and project at all levels; Environmental impact assessment before developing and implementing development programmes and projects in pastoral areas; identification and prioritization of pastoral communities' needs; Research based pastoral communities' development programmes and projects; participating stakeholders in development and implementation of programmes and projects; Full participation of local communities in research and development interventions for sustainable disaster management in pastoral areas of the country; Integrated rural development approach to address multifaceted complex problems of pastoral communities in pastoral areas of the country; Alternative livelihoods adopted by programmes and projects to enable the rural communities deal with the disasters management on sustainable basis; Capacity building strategy used to empower the local communities for active participation in development and implementation of sustainable disaster management system; addressing both response to disaster and disaster risk management; Mobile support system used to fit with the living style of pastoral communities.

The weaknesses of the disaster management system in Ethiopia include: Absence of sex disaggregated data; inadequate information on the importance of women's role in disaster management; No well defined participatory disaster management strategies for pastoral communities; Poor coordination and integration between stakeholders in addressing disasters in pastoral communities; No separate ministry dealing with livestock issues and challenges of pastoral communities in Ethiopia.

The threats for disaster management system in Ethiopia include: Pastoral communities are highly vulnerable to both natural and human-driven disasters; limited access to social services by pastoral communities; Lack of well established database for natural and human-driven disasters in pastoral communities; Shortage of technologies and skilled human capital to assess disasters in pastoral communities with the help of Geographic information system; Insignificant number of women in Parliament and Ministries; Unemployment and unstable labour market for graduates; An alarming population growth rate; Presence of harmful traditional practices, customs, discriminatory attitudes, customary laws; Spread of HIV/AIDS at alarming rate; Lack of qualified human resources in using available technologies; Inadequate information exchange system with different stakeholders; Globalization: economic insecurity, social and personal insecurity, cultural dilution, market failure, policy failure and environmental degradation; Environmental: drought and flood are common phenomena in Ethiopia.

The opportunities for disaster management system in Ethiopia include: Political: good political will by the government of Ethiopia to establish green economy, commitment of international organizations in addressing gender issues and presence of HIV/AIDS National Policy; Economic: existence of gender sensitive Poverty Reduction Strategy; existence of disaster management strategies; Globalization: technological advancement like internet service and telecommunication; Stakeholders/ Collaborators: existence of different organizations working on disaster management, availability of donor organizations favoring research and development activities on disaster management; Cultural: rich and diverse culture of more than 80 ethnic groups.

Good Practices of Disaster Management in Different Parts of the World

The following practices are identified as good practices for managing disasters on sustainable basis (ISDR and UNDP 2007): capacity building and institutional development; mainstreaming community based disaster risk management; participatory approaches for need assessment in disaster risk management; combining science and indigenous knowledge to build a community early warning system; participation of community based organizations and local government authorities; and importance of community participation to understand the problems and to make sustainable the mitigation measures; mainstreaming schools, children, gender and youth to boost preparedness; use of community radio and video documentary as effective communication channels to raise awareness among large proportion of communities about disaster risk reduction and management; community-based information campaign for disaster preparedness, mainstreaming disaster risk reduction in development projects and mainstreaming sustainable natural resource management in to disaster risk reduction.

Conclusion and Recommendations

The existence of different types of disasters and their adverse impacts in different parts of our world calls for holistic approaches to their mitigation. For disasters to be dealt with on sustainable basis joint planning and implementation of projects and programmes is required at all levels of research and development. The active participation of local communities in different livelihood options has proved the effectiveness and efficiency of holistic approaches towards disaster management.

Disasters have an enormous impact on development. With every disaster, there is a significant impact on various sectors of development like agriculture, housing, health education and infrastructure. This results in a serious social and economic setback to the development and poverty reduction priorities of the developing countries, and poses a threat for achieving the Millennium Development goals. To meet with this crisis, the scare resources that are programmed for development are often diverted for relief and rehabilitation efforts.

It is through the consolidated and concerted efforts of all stakeholders that safer and sustainable communities are to be attainted. Importance of mainstreaming is also recognized by the Hyogo Framework for Action (HFA) adopted at the WCDR, where integration of disaster risk reduction in the development programmes is a priority**.**

There is a need for strong coordination and collaboration among development and disaster management stakeholders at international level, national level and local level. Without integration and collaboration of stakeholders at all levels it is hardly possible to deal with natural and human-made disasters. Disaster risk management is equally important with response to disasters in efforts to enhance sustainable development by reducing human vulnerability to natural hazards. However, it is mostly observed that disaster

response is given more priority than disaster risk management in national development agenda. International and bilateral organizations must help generate a framework of incentives that encourage the private sector, academia and civil society to create partnerships with national and local governments to address disaster prevention as an integral part of development policies. Strong efforts are needed to build global partnerships for development that integrate the reduction of disaster risk (UNDP, 2004 cited in Keipi et al., 2007).

Reversing the history of pastoral communities in Ethiopia needs strong commitment of the government of Ethiopia to design and implement appropriate sustainable pastoral community development policy and strategy. Moreover, strong linkage between nongovernmental organizations and governmental organizations. On top of that participatory research and development intervention is the best solution for Ethiopia than continuous relief based interventions only when disaster happens.

It is very important for community development interventionists to work towards community resilience. Resilience refers to a household's or a community's ability to bounce back or recover after adversity or hard times, and to be capable of building positively on these adversities (Frankenberger et al., 2007). It is also quite important to give due attention to contributing factors for household resilience across livelihood systems in pastoral communities. Frankenberger et al., (2007) identified the following key factors to contribute for household resilience across livelihood systems: An ability to diversify sources of income; a willingness to invest in productive household assets; a commitment to establishing savings and/or contingency funds; and Shared decision making between spouses; community attitudes toward collaboration; cooperation and change; the strength of relationships between internal (local) and external institutions; the degree of collective decision making; and the management of internal and external resources.

The current endeavor of the government of Ethiopia to deal with disasters is a good start. There are many international non-governmental organizations, bi-lateral and multi-lateral agreements on combating disasters in Ethiopia. The life saving actions of many humanitarian agencies is always appreciated and acknowledged by every Ethiopian citizen. But, there is a need for Ethiopia to have comprehensive and participatory disaster management system which can address both response to disasters and disaster risk management. The repetitive occurrence of drought and the rapid dissemination of HIV/AIDS in the country are demanding more effort of the current regime to develop and implement comprehensive and participatory disaster management system. On top of that the financial and technical support of international agencies might enhance the endeavor of the country to mitigate disasters and reduce disasters risk. Based on the challenges prevailing for disasters management in general and disasters in pastoral communities of Ethiopia the following recommendations are forwarded:

- The early warning, surveillance and monitoring systems need to capture and analyze a greater range of information than they presently are designed to do;
- A common framework for identifying and prioritizing disaster response strategies across a range of actors, populations, vulnerabilities and livelihoods systems is needed;
- The Government's non-food aid emergency policies should be reviewed and implemented by each of the line ministries, especially Health, Agriculture (including for livestock) and Water Resources;
- The capacity of Ethiopian institutions to implement a concerted effort to train the disaster relief workers in Ethiopia in the basics of disaster relief and disaster management (health, nutrition, agriculture, pastoralism, urban, water/sanitation, etc.) should be strengthened and supported;
- Diversification of livelihood strategies is greatly needed in order to enhance survival and build resilience;
- The Government of Ethiopia (GOE) and donors should increase focus on natural resource conservation and watershed management as emergency issues;
- The Government of Ethiopia (GOE) should consider the creation of a single, empowered entity such as a distinct Ministry of Livestock to oversee livestock sector development, production and marketing, as well as, animal health services.

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