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Discussion Paper

Climate Change and Livelihoods: The Vulnerability Context

December 2013

United Nations Development Programme

ENVIRONMENT AND ENERGY



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Background

Vulnerability is a term used by academicians, practitioners in various fields including for instance ecology, climate change, and Disaster Risk Reduction (DRM), among others. Recently, vulnerability has further been popularized by climate change talks and Inter-Governmental Panel on Climate Change's (IPCC) reports, and climate change adaptation practitioners. However, there are variations in relation to vulnerability's definition by different approaches. Also, as an evolving process, a range of analytical frameworks and instruments have been developed to support vulnerability assessment practices. A well-defined vulnerability context is a key process in a scenario-based adaptation planning which in turn aims at identification of well-informed livelihood resilience-building policy and/or programmatic interventions.

As such, an understanding of the concept and its related practical frameworks is a key in a pursuit for enhanced climate change adaptation planning especially at local community levels. Yet, a common ground understanding related to community-based climate change vulnerability contexts need to be further reinforced. Therefore, this paper seeks out to contribute a brief overview of the vulnerability context of poor communities under a changing climate while at the same time spur relevant discussions among climate change policy practitioners. The aim is to provide insights related to definition of vulnerability, and relevant criteria, and instruments for assessment in a pursuit for strengthening community livelihood resilience under a context of changing climate. This paper is limited in terms of its scope, and does not aim to provide comprehensive scenario based analysis; however, precautionary hedging approach is adapted taking the likely pessimistic projections into a perspective.

Climate change vulnerability

Vulnerability is defined as risks induced by sensitivity and exposure to certain hazards/threats (e.g. environmental hazards such as drought, floods, earthquake, and landslides, etcetera) and lack of adaptive capacities to cope with and/or adapt to underlying potential impacts. In other words, vulnerability has three dimensions: exposure to potential hazards; sensitivity to hazards, and lack of capacity to respond, adapt to the external stresses and shocks. The degree of exposure and sensitivity to hazards defines the vulnerability context under which communities live. On the other hand, vulnerability context interacts with the adaptive capacity of communities and hence define the potential impacts. The impact can be numerous but vulnerability of individual and community in particular imply costly consequences especially loss of lives, and deteriorations of livelihoods especially when exposure to hazards is extremely high.

It is worth noting that local communities are used to cope with and adapt to certain environmental hazards relying on their local knowledge which has accumulated through learning processes which includes observations and interpretations of recurring environmental phenomenon around them. Best local knowledge related practices respond well to specific vulnerability context which usually produces limited levels of exposure to livelihood risks under certain degree of relevant parameters including sensitivity and adaptive capacity. Notably, climate change exacerbates the vulnerability context especially through reshaping risk exposure dynamics under which local knowledge will unlikely be amenable to produce effective coping and adaptive response. For instance, rising temperature will likely to allow much wider spatial and bio-physical exposure to climate change including micro-climate, and micro-habitats, and hence exaggerate the vulnerability context of local community livelihoods.

In general, climate change induces greater livelihood vulnerability characterized with more frequent occurrence of unfavorable weather conditions such as droughts, temperature change which usually go beyond community capacities to cope with and adapt to. Changing climate typically compounds vulnerability contexts with which community livelihoods interact leading to enormous potential impacts induced by greater degrees of risk severity, intensity, and frequency compared with business as usual. In other words, climate change develops exceptional contexts with which vulnerability parameters interact and goes beyond the local knowledge in dealing with business as usual livelihood related risks such as environmental hazards including droughts, pest outbreak, and floods, etcetera.

To put in a relevant context, such kind of interaction between vulnerability parameters and the contextual circumstances induced by climate change produces compounded impacts on community livelihoods especially of those locally disadvantaged, and powerless rural inhabitants whose livelihoods are extremely exposed, sensitive to unfavorable climatic conditions. Put this way, climate change tends to substantially aggravate the vulnerability context due to changes in a range of climatic parameters especially temperature which in turn set ground for unfavorably diverse livelihood potential consequences.

So, the potential impacts of compounded livelihood risks induced by contextual climatic extreme weather events on vulnerable communities is huge including for instance massive loss of lives, livelihood assets (i.e. agricultural land, water wells, livestock, etc), infrastructure (community health care centers, roads, etc). Following such understanding, vulnerability under climate change contexts can be defined as a compounded risk induced by extreme weather events which in turn interact with poor adaptive capacities of extremely disadvantaged local communities leading to catastrophic potential impacts on their lives and livelihoods.

Climate change vulnerability assessment

It worth noting community-based climate change vulnerability assessment draws upon existing and relevant frameworks and instruments such as multi-hazard approach which have been in practices for instance by Disaster Risk Reduction (DRM) practitioners. In addition, sustainable livelihood frameworks can provide a useful conceptual instrument to conduct climate change community-based vulnerability assessment taking the aforementioned vulnerability dimensions as core criteria during a process known as scenario-based adaptation planning. For each of the vulnerability dimension criteria, a range of relevant indicators need to be established in consultation with stakeholders, and local institutions. An important point to note is that local institutions including social norms, and networking also determine the vulnerability context under which the local poor live.

Analysis of local institutions and their capacities is an important activity to consider while planning for climate change vulnerability assessment. Stakeholder analysis is powerful tool which provides insightful information related to the local institutions and community vulnerability context, among others. For instance, lack of community-based risk management plan, and/or weak local organizations is an indicator of sensitivity which intensifies the vulnerability context of the poor in particular.

In addition, other indicators such as socio-economic characteristics and access to livelihood assets including finance, safe shelters, and alternative sources of water, and backup health care, and food supplies are used as indicators related to community-based adaptive capacity. Whereas, biophysical characteristics of local community set-up can be used and an indicator related to exposure to potential livelihood risks induced by climate change. On the other hand, characteristics of the community agricultural system can be used as an indicator of the sensitivity to climate change induced livelihood hazards.