

## **What can local innovation contribute to adaptation to climate change?**

Summary paper to be presented and discussed at the PROLINNOVA International Partners Meeting,  
8–12 May 2009, Nepal

Compiled by Mariana Wongtschowski, Miranda Verburg & Ann Waters-Bayer  
PROLINNOVA Secretariat – ETC EcoCulture, Netherlands

Based on studies by Yohannes GebreMichael & Mebratu Kifle (Ethiopia),  
Lalita Thapa, Suman Manandhar & Anuja Shrestha (Nepal) and  
Magagi Saidou, Abdou Dan Gomma *et al* (Niger)

### **1. Introduction**

The clear evidence that climate change is already a reality calls for action not just to try to slow down the process by reducing the effects of human activity on the global climate (mitigation) but also to assist those affected or threatened to cope with the changes taking place (adaptation). As a result, governments and international bodies started paying increased attention to measures aimed at adaptation. In most cases, this is done by supporting externally-driven processes often dominated by high-tech, exogenous and large-scale “innovations”.

While in certain parts of the developing countries such initiatives will be needed and useful, most of the adaptation efforts will have to take place at the local level. For local people directly suffering the results of climate change, international and macro policies are meaningful (if at all) only when accompanied by local, micro-level initiatives that help them to innovate and adapt, to face the challenge posed by the changing climate. Few of the many organisations and stakeholders involved in the climate-change debate know how to do this effectively.

Therefore PROLINNOVA started an exploratory study in Ethiopia, Nepal and Niger in January 2008 to explore the relevance of local adaptation/ innovation and the PID approach to climate-change adaptation at local level. More specifically, the study tries to:

- Systematically document local experimentation processes which come about as a response to a felt need to adapt to climate change;
- Understand local communities' perceptions of "climate change";
- Stimulate documentation of local innovation (processes) at local level;
- Draw lessons on the potential impact/influence of local innovation processes on climate-change adaptation policies and programmes.

### **2. Discussion**

The distinction between local innovation and traditional practices is not always clear. That is also due to the dynamic character of traditional practices, their different application in different areas and, last but not least, the fact that practices might have been there for centuries, but had not been perceived by outsiders until they started to give more attention to how to deal with climate change. In this sense, the present study provided partners with a good opportunity to notice these local practices and their improvements over time, calling their attention to local capacity to create, innovate, adapt and cope.

In addition, it is not always evident that these practices are innovations or adaptations that come about as a direct response to perceived climate change. Some of them might be a response to

climate variability – a normal phenomenon in arid environments – rather than long-term change. Moreover, changes come about as a response to an ensemble of intertwined factors.

As pointed out in the Ethiopia study report, in the arid and semi-arid areas, drought is part of a normal cycle and pastoralists have developed some strategies to cope with it, such as mobility, livestock species diversity, reciprocity in use of resources, territorial fluidity and social safety nets. However, the vulnerability of pastoralists to drought is very complex and diverse. Some claim that drought as such is not making pastoralists vulnerable. Rather, the increasing marginalisation of their drought-response mechanisms is (Devereux 2006<sup>1</sup>). Restriction on mobility of people and animals, intensification of conflicts and stricter control of cross-border trade are some of the threats (Hesse & MacGregor 2006<sup>2</sup>, Yohannes & Waters-Bayer 2002<sup>3</sup>). Some authors underlined that the prolonged droughts combined with environmental degradation and increasing sedentarisation have led to deterioration of pastoral livelihoods (e.g. Ayelew 2001<sup>4</sup>). Others consider the frequency of drought as a crisis of pastoralism and predict that this way of life and production will not be viable; they therefore recommend sedentarisation of pastoral communities (e.g. Devereux 2006<sup>5</sup>).

In the same line, Niger is among the fastest-growing countries in Africa in terms of population, with a growth rate estimated in 2.88%/yr (CIA 2008<sup>6</sup>). That, of course, means that many more people are using water than in the 1960s and 1970s, which exacerbates the consequences of a drier environment.

Several issues are raised here: the first is that vulnerability is complex. Vulnerability is determined by a combination of factors and events (erosion, demographic changes, macro policies, market changes, etc). And this means that consequences of climate change cannot be clearly separated from those of other events.

The point of the present study is to understand the relevance of local adaptation and innovation to climate-change adaptation at local level. Even if climate change is not an isolated factor, the studies in the three countries show that local capacities to innovate and adapt to changing conditions is an important element in reducing vulnerability.

Here, the issue of making a difference between local innovations *per se* and the use of traditional practices loses much of its importance. One advantage of the “climate-change alarm” is that external actors (scientists, extensionists etc) are now beginning to value local practices which have been used for a long time and are, under uncertain climatic conditions, more suitable than many introduced techniques. They are also more commonly trying to build on these practices and understand the current efforts of local communities for coping with and adapting to climate change or variability. This, as such, is a step forward towards more participatory and farmer-centred local development.

That is not to say that local innovation and creativity is all one needs to adapt to climate change. As said before, other factors affect people’s vulnerability than their intrinsic capacity to innovate. Farmers’ adaptation to climate change is an inherent part of their social dynamics, but that it also has limits, and should not be romanticised. It is here that other stakeholders have an important role to play: in recognising local capacities and resilience, and helping local farmers to recuperate, strengthen and put their knowledge and creativity into practice. This has been the principle behind PROLINNOVA – one that we argue also fits into the climate-change debate.

---

<sup>1</sup> Devereux, *op. cit.*

<sup>2</sup> Hesse C & MacGregor J. 2006. Pastoralism: drylands’ invisible asset? IIED Issue Paper 142. London: IIED.

<sup>3</sup> Yohannes GebreMichael & Waters-Bayer A. 2002. Evaluation of natural resource management programme in the pastoral area of Somalia region, Study commissioned by NOVIB, Addis Ababa, unpublished.

<sup>4</sup> Ayelew Gebre. 2001. Pastoralism under pressure: land alienation and pastoral transformations among the Karayu of Eastern Ethiopia, 1941 to the present. Maastricht, Shaker.

<sup>5</sup> Devereux, *op. cit.*

<sup>6</sup> CIA. 2008. World Fact Book. At: <https://www.cia.gov/library/publications/the-world-factbook/fields/2002.html>.

### 3. Conclusions

There seems to be a clear need to continue to investigate the way local practices and innovation respond to climate-change related challenges, if only to better inform policymakers and other stakeholders of the potential role local capacities can play in local adaptation, and to trigger a process of recognition and reflection. The focus here is not on specific innovations, but rather on documenting local innovation as a process. Though, at local level, farmers might be able to benefit from knowing what other farmers are doing to cope – adapting their innovations and practices to their own situations – the documentation of innovations (understood as specific techniques, ideas and technologies) is not an end in itself. It remains, nevertheless, important as a symbol of the local capacity to create and react to local problems. In this same line, the multi-stakeholder workshop held in Ethiopia came up with a recommendation to establish and strengthen a documentation and information centre, making data and information available for various audiences.

At the present political moment, we risk treating climate change much as agricultural research and development has been in the past, i.e. in a rather top-down way. This paper advocates for a bottom-up approach (complementary to macro policies, which have a role to play), in which local capacities are taken as a starting point. Adaptation to climate change demands a multi-stakeholder approach (just as agricultural research and development does), building on the strengths of each stakeholder group.

Exchanging information and actually working together with different stakeholders demands much stronger communication than what is presently observed in the three countries that took part of this study and at international level. It demands bringing together environmental and agricultural (including livestock) organisations. At country level, if climate-change adaptation is to play an important role, PROLINNOVA platforms should be broadened to include actors who are actively implementing climate-change adaptation programmes.

As part of an international programme, we clearly see the need to learn from others' experiences and similar studies and to share with them our own. This pilot shows that results coming out of this and similar studies are potentially good material for advocacy at country and international level, towards a more participatory approach to climate-change adaptation.

In fact, the network still must learn to make the most of the fact that what PROLINNOVA does within and outside the scope of this study (i.e. supporting local innovation) is largely directly related to strengthening local capacities to adapt and therefore cope with climate change.

#### List of acronyms

ACCCA	Advancing Capacity to Support Climate Change Adaptation
ACP-EU	African, Caribbean and Pacific (Group of States) – European Union
CBA	Community-Based Adaptation
CIA	Central Intelligence Agency
CLACC	Capacity Strengthening of Least Developed Countries for Adaptation to Climate Change
CRESA	<i>Centre Régional d'Enseignement Spécialisé en Agriculture</i> – Regional Centre for Agricultural Education, Faculty of Agronomy of the University of Niamey
CTA	Technical Centre for Agricultural and Rural Cooperation ACP-EU
DGIS	Netherlands Directorate General for International Collaboration
IIED	Institute for Environment and Development
IISD	International Institute for Sustainable Development

INRAN	<i>Institut National de la Recherche Agronomique du Niger</i> – National Institute for Agronomic Research
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
LI-BIRD	Local Initiatives for Biodiversity, Research and Development
NGO	non-governmental organisation
NRM	natural resource management
PFE	Pastoral Forum Ethiopia
PID	Participatory Innovation Development
PROLINNOVA	Promoting Local Innovation in ecologically oriented agriculture and NRM
SEI	Stockholm Environment Institute
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research