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CLIMATE CHANGE ADAPTA- TION LOCAL PRACTICES IN THE ANDEAN REGION:

An overview

EXECUTIF SUMMARY

Nowadays, the region of the tropical Andes is experiencing a rapid climate change (increase of temperature, uncertainty about precipitation and its future evolution). Future scenarios are full of uncertainty, which is partly due to current knowledge gaps in ecosystems functioning. Moreover, it is difficult to discern what is due to CC and what is due to degradation processes of local nature, such as changes in land use in a watershed.

For now, adaptation to CC in the Andean region is more autonomous, reactive and private, rather than planned, anticipated, and public (Doornbos 2009).

Adaptation is now unavoidable. There are no realistic mitigation policies that restrict warming to a level that does not require substantial adaptation (Fankhauser, 2009). The question now is if the rapidity of change will allow humanity to adapt to new climatic conditions.

CCA LOCAL PRACTICES IN THE ANDEAN REGION

As for the local climate change adaptation practices in the Andean region, numerous projects have been developed in recent decades. There is a large variety of actions, ranging from the local to the international level, although most actions have been executed at local level, taking the watershed as geographical unit. A common practice of several programs is to implement pilot actions in order to allow experimentation and methodological learning, and thereafter, scale up the experience to larger levels. Also, most experiences are focused in capacity building. Aid agencies and the Global Environment Facility (GEF) are the main sources of funding for adaptation actions in the Tropical Andes, although investment amounts reported suggest that the financing gap in the region is still very large (Cuesta et al., 2012).

Local CCA actions can be addressed to communities, ecosystems, river basins or territories, cities or sector specific projects (health, agriculture).

Regarding the main topics in the Andean countries, adaptation actions have been principally directed to the management of water resources, Agriculture production systems and biodiversity.



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WHAT DEFINES A GOOD CCA LOCAL PRACTICE?

- A good CCA local practice must meet the needs and expectations of the local population
- It must be Socially, economically and culturally feasible. An important asset for the adoption of a local CCA practice is to have positive results in the short term.
- It must arise in response to an analysis of local vulnerability.
- A good CCA local practice should have proved benefits. A strategy to promote the implementation of CCA measures is to quantify the benefits of its application instead of inaction.
- Analysis and strengthening of the institutional dimension of the ACC is critical. Local actors should be involved in the design, implementation and financing of measures ACC. If the practice is a technological measure, must be accompanied by appropriate management rules.



TOPIC	BACKGROUND STRATEGIES/ APPROACHES	CCA LOCAL PRACTICES
Water Resources management	Research (characterization of vulnerability, threat, risk, adaptive capacity, hydrology, glaciology) IWRM / Watershed Management Capacity Building Recovery of traditional knowledge Information and wareness programs	Water Governance (strengthening traditional organizational forms of water management, irrigation community based organizations, etc)
		Re/Afforestation
		Restoration of paramos, pasture and natural forest to promote water retention
		Increase of storage capacity: rustic dams, storage infrastructure
		Technological innovations (water treatment, modern techniques of irrigation)
		Control of water demand: improving distribution networks, installation of water meters, wastewater recycling, irrigation technology, irrigation infrastructure improvement
		Weather forecasts, early warning systems
Agricultural production systems	Food security Recovery of traditional knowledge Capacity Building Research (climate risk characterization, agricultural research) Diversification of production and activities Promote safe access to productive resources for small producers	Control of erosion (terraces, windrows, etc)
		Use of resistant varieties to climatic extremes (frost, drought) and pests
		Agrobiodiversity / management of genetic diversity of crops and livestock, recovery of local varieties
		Changes in agricultural calendar (planting time, use of short cycle varieties)
		Seed Management
		Promotion of agroecological techniques (agroforestry, organic fertilizers)
		Greenhouses
		Conservation and food processing
		Agricultural insurance against disasters
		Improving market access for small producers
		Strengthening local community organization
Weather Forecasting through local climatic indicators		
Biodiversity	Research (characterization of vulnerability)	Conservation and land management, ecological restoration processes (forest management plans, paramos, protected areas)
		Creating biological corridors that maximize the coverage of environmental gradients, particularly in mountainous and coastal ecosystems.



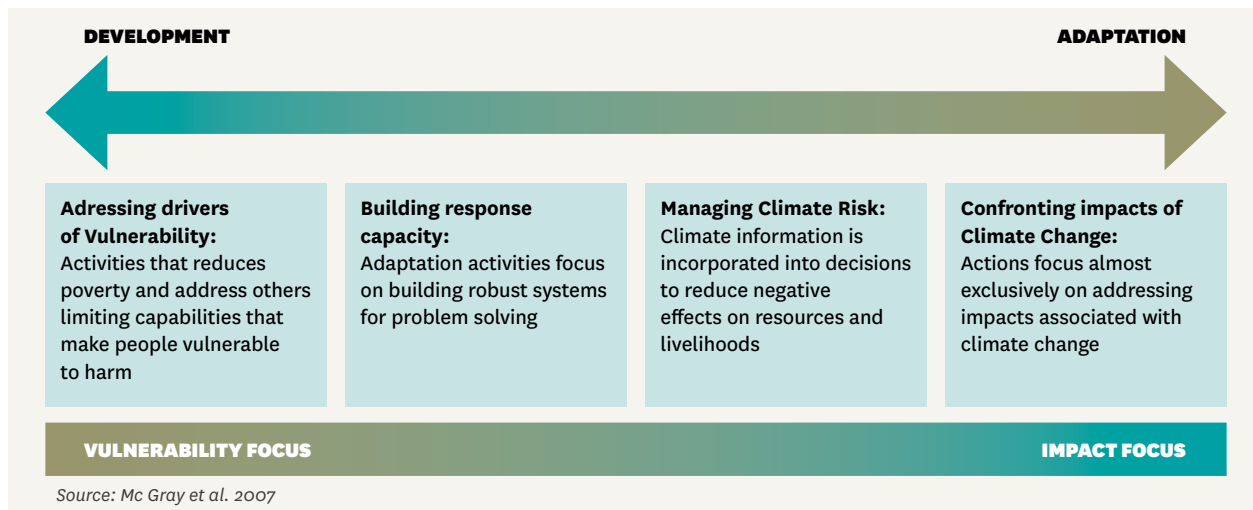
These themes and actions are intrinsically interrelated. Thus, measures taken in the field of water management have implications for agriculture and biodiversity, and vice

versa. Many ACC projects include actions in several areas to promote synergies and positive impacts.

ADAPTATION OR DEVELOPMENT

Overlaps exist between adaptation and development activities. According to McGray et al. (2007), the range of adaptation activities may be framed as a continuum of responses to climate change, from “pure” development activities on the one hand to very explicit adaptation measures on the other. At one far end of the continuum, the most vulnerability-oriented adaptation efforts overlap almost completely with traditional development

practice, where activities take little or no account of specific impacts associated with climate change. At the far opposite end, highly specialized activities exclusively target distinct climate change impacts, and fall outside the realm of development as we know it. In between lays a broad spectrum of activities with gradations of emphasis on vulnerability and impacts. The continuum can be roughly divided into four types of adaptation efforts:



What determines the type of adaptation activity? Two factors appear to predominate in shaping the characterization of an adaptation response: the existing capacity of those responding and the certainty of information about climate impacts (Mc Gray 2007).

Thus, in the Andean region, the measures developed by the projects of CCA have been mainly aimed at reducing structural vulnerability, to promote robust and resilient systems and to manage climate risks through appropriate technologies, cheap and locally accessible. These measures are positive in all possible climatic scenarios.

PUBLIC POLICIES ON CCA

According to Ryan (2012), most countries in the region have taken relatively significant steps in recent years in the formulation of policies on climate change and in the development of specific institutions. National adaptation

processes, strategies or policies have been developed to a differing degree in the region. For example, Peru has issued an Action Plan for Adaptation and Mitigation Against Climate Change (2010). Bolivia has published a National

Adaptation Plan (2007) and Colombia has recently developed guidelines for a National Plan Adaptation to Climate Change (2012). Ecuador has developed a Climate Change National Strategy in 2008. However, there is a large deficit in the implementation and execution of these measures and plans.

Also, there is a weakness in the integration and coordination of climate policies with other sectorial policies and macroeconomic policies. This clearly weakens substantially the potential impact of government policies to mitigate and adapt to climate change, since in many cases the policies of development go in opposite directions.

In political terms, although there is a growing attention to the climate problem, the issue still occupies a rather marginal place in the domestic political agenda of most countries in the region. In front of economy, climate change is not a priority. In these contexts of low relevance and political attention, the existence of certain structures within the state bureaucracy, focused on climate issues with technical capabilities and access to international resources have been very important to support projects and lines of work over time and beyond the attention of governments.

CHALLENGES AND OPPORTUNITIES

The fight against climate CC, and in particular adaptation, faces a high degree of uncertainty. There are gaps in the current knowledge on how Andean ecosystems work. Moreover, climate predictions and scenarios also present large ranges of uncertainty, especially at local level; so they are not useful for planning. In addition, there is a combination of low availability, access, use and inappropriate forms of dissemination of information and knowledge of climate trends (Doornbos, 2009).

Also, one of the biggest challenges of the countries of the Andean Community is to match economic growth with social development, giving a sustainable use of their natural resources and minimizing impacts on the environment

So the underlying question in this debate is how compatible is the fight against climate change with economic growth based on an extractive model?

While the problem is serious, every crisis presents opportunities. The CCA is an opportunity to promote environmental projects and tools that put the welfare of people and ecosystems in the center of development.

RECOMMENDATIONS

It is necessary to fill the actual gaps in knowledge (functioning of Andean ecosystems, contribution of glaciers on water availability, effectiveness of CCA measures). To do so, a major effort to systematize and organize current knowledge issued from local CCA projects must be made, in order to facilitate the dissemination and use of information at all levels. Moreover, local and traditional knowledge must be taken into account, promoting a genuine dialogue with science and politics, without mystification or preconceived ideas.

In the absence of specific information on the effects and local impacts of CC, it is preferable to promote "not regrettable" options to reduce vulnerability of the population and enhance ecosystem resilience.

At the regional level, collaboration between the Andean countries in terms of adaptation can be oriented to the generation of knowledge and research, networking and improving coordination between local, subnational, national and regional levels through the following actions:

- To develop synergies in technical and territorial experiences.
- To systematize knowledge from existing projects.
- Harmonize methods.
- To identify new activities, products and best practices.
- To disseminate, complement and exchange knowledge.

Likewise, in the field of technical cooperation, the CCA may provide an oppor



FOR MORE INFORMATION

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