ASISTENCIA A LOS PAÍSES ANDINOS EN LA REDUCCIÓN DE RIESGOS Y DESASTRES EN EL SECTOR AGROPECUARIO

POLICY BRIEF 10. ANCESTRAL PRACTICES FOR THE MANAGEMENT OF NATURAL RESOURCES

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Why it is important to include ancestral natural resources management practices within contemporary agro-environmental agendas?

Ancestral practices refer to the knowledge and practices developed by local communities throughout history for understanding and managing their own local environments. It is a practical and non-codified knowledge created by first-hand observation over generations as a way to enhance the resilience of their natural environment and their communities, and thus adapt to historical weather conditions. In today´s tropical Andes, it is necessary to draw both on traditional knowledge and science-based modern technologies and practices for designing socially and environmentally appropriate solutions. The challenge, however, is how to bring together both types of knowledge and practices without substituting each other, building on their respective strengths. Local peoples' perception on climate variability is necessary to communicate scientific weather forecasts, since it follows specific language, beliefs, values and processes. Perceiving such knowl-

Indigenous knowledge and ancestral practices

Throughout history, how to manage climatic variability has been a constant worry for local rural communities, in the Andes and elsewhere. As a result, Andean rural communities have developed their local food systems by manipulating ecological niches, shaping their microclimates, and attempting to encourage landscape regeneration. These management activities encompass agro-ecological knowledge and practices, which have been regulated by informal institutional arrangements, customary laws and cultural values. According to this non-codified knowledge, these populations have developed their own set of actions to enhance their resilience and adapt to historical weather conditions.

Indigenous knowledge, also called "traditional" or "ancestral" practices. refers to the methods and practices developed by local communities throughout history for understanding their local environment. It is knowledge of local conditions created by first-hand observation formed over numerous generations, that is transmitted through oral tradition. It is, therefore, different from other types of knowledge, because it is culturally specific, and rooted in local community livelihoods.

Three important caveats have to be kept in mind. One is the danger to assume that these practices have not evolved, and adapted to changing local conditions. The second is to generalize all traditional knowledge as appropriate, therefore to develop a naïve view of their relevance and current applicability. The third is that because of contact between different cultures and societies over centuries, as well as exchange, communication, and learning between their members, it is difficult to adhere to a view of "indigenous" versus "non-indigenous" forms of knowledge being untouched by each other (Agrawal 1995).

The perspective adopted in this paper, however, is that in order to find solutions to current problems it is necessary to draw both on traditional knowledge and practices, rooted in local conditions, together with critically adopting science-based modern technologies and practices - also referred to as "modern" practices - when they are deemed appropriate to local conditions. The challenge is how to bring together both types of knowledge and practices without substituting each other, respecting their underlying value differences, and building on their respective strengths.

Traditional knowledge and practices and climate change

If, as a result of the phenomena associated to climate change, environmental variability is enhanced, the quantifiable risks are increased. Thus, non-quantifiable uncertainty factors have to be included in natural resources management, both by local actors and governments.

At the local level, adaptation to environmental change combines the adoption of technical solutions, based on the perception by local dwellers of their own conditions, i.e. their local, tacit, or indigenous knowledge, together with an evaluation of the advice received by external agents. Therefore, relatively poor and small farmers always need to adapt their farming practices to guarantee a reliable supply of food satisfying their household needs. To cope with the increasing unpredictability created by the current climate change scenario, these same farmers need to widen their knowledge base to adapt to the newly created conditions. Within this new scenario there is thus a huge policy role by the external public agencies in assisting farmers to adapt more efficiently to these newly created conditions.

This is also the viewpoint adopted by the Hyogo Framework for Action (HFA), which highlights the importance of indigenous knowledge in assisting to mainstream DRR policies and practice (ISDR 2008).

Yet, because most local populations are not fully informed about available technologies, there is a need for technology transfer, information and dissemination.

The objective is, thus, to integrate solutions, combining so-called “modern” with so-called “traditional” or “ancestral” practices.

It is evident that an increased collaboration between external collaborators and local farmers is needed in assisting them to adapt to the conditions created by current climate change conditions. The issue is to identify how to create these synergies between so-called “ancestral” practices and “modern” science-based technologies and practices.

Traditional agro-ecological knowledge and practices

Indigenous agro-ecological knowledge, rooted in pre-Hispanic ”traditional” practices is a good example. Rotational farming, i.e. shifting cultivation between the wild and cultivated areas, and their integration under a single management system that complements each other, exemplifies this situation by the local ethnic groups of the Amazonian rainforests. Various forests and individual trees, though not planted, are cared for, managed and used for food, fuel, medicine, timber, and various other necessities. Natural ecosystems provide environmental services essential for the resilience of agro-ecosystems, such as erosion control, microclimate regulation, pest regulation, and pollination. Wild species provide alternative sources of food and income during the periods of bad harvest or herd loss due to unfavourable weather conditions. Yet, in some current rural scenarios the historical conditions for rotational farming might have changed, and the practice if continued today may conduce to environmentally unsustainable practices.

In the case study of Bolivia´s traditional practices of *taqanas* and *canchones,* an excellent illustration can be found of the current use of traditional agro-ecological knowledge and practices. This is also the case in the adoption by the Allin Cápac Ecological Producer Association of Integrated farm practices which heavily rely on traditional agro-ecological knowledge and practices.

Knowledge transmission

The case study of Highlands Coalition of Producer Associations (UNAPA), in the province of Pajaces at the department of La Paz, in the Bolivian highlands, and the *Yapuchiri* transmission of knowledge of bioindicators from generation to generation (*cfr.* above), is an excellent example of how the links established by local communities and Andean “indigenous” people between traditional and modern knowledge.

Terraces

Agricultural terraces are one of the most distinctive features of the Andean landscape. The Andes "Poncho Verde" (Green Coat) image rests on the experience of terrace agriculture as an ancestral practice geared to strengthen hydrologic stability, particularly in the steep slopes of some Andean communities.

Farming in the Andean steep slopes is related to loss of soil´s nutrients, erosion, loss of hydrological retention and recharge, and generates a reduced profitability of farm activities.

It was the anthropologist John Murra's (1975) hindsight of identifying the principle of "vertical control" which underpinned the ancestral practice developed by the indigenous pre-Hispanic Andean societies for managing the slopes, and developing a variety of agro-ecological zones, thus reducing soil erosion.

Scientific knowledge and modern technologies and practices

Soil degradation, unexpected changing water resources, and climate variability are three main obstacles in sustainable agricultural development. Changing climate conditions, including weather, are important abiotic factors affecting crop production. The most effective way to deal with increased vulnerabilities due to climatic variability is by integrating climate concerns in the development processes.

On the one hand, scientific knowledge and modern technologies have some evident advantages, but frequently generic scientific forecast information does not help the farmers to take appropriate decisions at the farm level. Usually these forecasts are formulated at a much larger scale than needed. On the other hand, traditional knowledge and practices also have the advantage of being generated in the immediate context of the livelihoods of rural populations, providing rich information on farming practices, agroforestry, pest management, soil fertilization, and multiple cropping patterns. It is basically contextual knowledge. Yet, its main disadvantage lies in the fact that it always has a fragmentary and provision nature. However, increasing variability in climate has reduced farmers´ confidence in traditional knowledge and has led them to seek out scientific weather forecasts.

Thus, to replicate "traditional" good practices elsewhere, there will always be the need for both a solid scientific rationale for adopting a particular practice or technology, and knowledge which is specifically rooted in a particular cultural and institutional context.

The challenge is how to bring together both types of knowledge without substituting each other, respecting their underlying value differences, and building on their respective strengths.

Why it is important to create synergy between both types of knowledge and practices?

Thus, "scientific" and "traditional" knowledge and practices complement and do not exclude each other. Traditional knowledge use helps to improve project implementation by providing valuable information on the local context, at both the landscape or ecosystem level, upon which rural communities depend and at the household farm level, in which they might include both the revival of traditional product practices and the adoption and development of new techniques (e.g. a switch to low input agriculture and the use of alternative ways of livestock management).

Besides, the recognition of traditional practices enhances the long-term sustainability of proposed interventions and fosters the self-esteem of communities, helping them to actively participate in their own local and country development.

The basic lesson learned from these good practices in this project is that understanding the local peoples´ perception on climate variability is necessary to communicate scientific weather forecasts as it follows specific language, beliefs, values and processes. Perceiving such knowledge-base facilitates acceptance among local populations. Therefore, access to "modern" scientific and technical infrastructure, skills and expertise is crucial to developing current reliable context specific forecasts.

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