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Strengthening Adaptation Capacity of Rural People in the Main Agro-ecological Zones in Cambodia

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KEY MESSAGES

- The Tonle Sap and Lower Mekong zones are likely to be the most vulnerable to flood, while at the same time the Tonle Sap, Lower Mekong and Mountains/ Plateau areas are vulnerable to drought. As the sea level rises, saltwater intrusion and windstorms are expected to be the main climate-related impacts on coastal communities.
- Adaptive capacity of rural people/ communities, in particular the poor and marginalised groups, is moderately low as they are dependent on climate-sensitive resources and have limited livelihood assets and options.
- Components that support adaptive capacity in rural areas remain limited: livelihood assets, institutions and entitlements, access to knowledge and information, fostering of innovation, and flexible and forward-looking governance and local participation in decision making.
- Effective local adaptation for rural people living in the four agro-ecological zones to cope with climate change impacts should be achieved through the collective action of all stakeholders at all levels.
- Top-down and bottom-up approaches that integrate and promote local people's involvement and participation, especially that of women and the poor, throughout the planning process would ensure success of local adaptation measures and this should be taken into consideration in climate change-related decision-making processes.

THE PROBLEM

The anticipated impacts of climate change would adversely affect rural people whose livelihoods are heavily dependent on climate-sensitive resources. Climate change model predictions show that in Cambodia temperatures and rainfall will increase, rainfall patterns will change with a longer dry season with less rainfall, more intense rainfall in the rainy season, and shifts in timing, duration and intensity of seasons, and sea level will rise (MOE 2002; MOE 2011 cited in AIT-UNEP AAC.AP 2011).

Besides natural changes, human-induced changes have also been a major concern in natural resource depletion/degradation and changes in ecosystem services. This is the result of the interrelationship between resources, local livelihoods and people (Nuorteva et al.

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2010). The cumulative and combined impacts of natural climate change and human system changes would have lasting effects on river hydrology, sediment and nutrient transport, as well as biodiversity. Community livelihoods and food security would be affected by losses in water supply for agriculture, irrigation, fish catches, riverbank gardens and downstream floodplain farming.

Climate change impacts and the adaptive capacity of local people vary according to the geographical area, but generally, climate change heightens existing vulnerabilities. Adaptation measures and options differ according to the sector and specifically to the locality, adaptive capacity and severity of impacts. Local people in the Tonle Sap Lake area, for example, migrate to find alternative means of livelihood or borrow from moneylenders (Nuorteva et al. 2010). In the northern or mountainous/plateau areas, in coping with climate-related hazards, farmers have to move to rice fields in areas that are less exposed to hazards (Thuon 2009). Local communities' capacity to respond or adapt to climate change impacts is still limited. Meanwhile, communication systems and coordination mechanisms for an effective multi-hazard early warning system are lacking, and the preparedness capacity of local communities at risk from natural hazards remains low (RGC 2012).

THE CASE STUDY

This study adopts a qualitative approach. It examines the impact of climate change and existing local adaptive capacity using the Local Adaptive Capacity (LAC) framework (Jones 2011) then identifies practicable measures for strengthening the capacity of local people and communities to cope with climate change impacts in the four agro-ecological zones. The key elements of the LAC framework relate to institutions and entitlement – knowledge and information; fostering innovation; promoting forward-looking, flexible governance; participation in decision making; and potential interventions. Thirteen key informant interviews were undertaken with representatives from the Provincial Department of Environment, Provincial Department of Agriculture, Forestry and Fisheries and Provincial Committee for Disaster Management in 10 provinces across the four main agro-ecological zones. Eighteen focus group discussions were held with members from twelve local communities, including community protected areas, farmer water user communities, and community fisheries, located in 17 communes.

THE FINDINGS

Cambodian agriculture is affected by the impacts of climate change in four ways: increases in temperature, changes in rainfall patterns, floods and droughts, and sea level rise. The impacts differ according to geographical conditions of each area (weather, soil type and quality), dependence on climate-sensitive resources, socioeconomic conditions and infrastructure, internal and external support, and government.

The Tonle Sap and Lower Mekong zones are likely to be the most vulnerable to flood, while the Tonle Sap, Lower Mekong and Plateau areas are vulnerable to drought. In the mountainous region, local communities have observed that if there is sufficient rainfall in the early rainy season, the end of the season has always had insufficient water or vice versa. Farmers also noted that over the last ten years droughts have lasted longer and caused damage to their crops. In coastal areas, where climate change is affecting marine resources, some coastal communities are being compelled to find alternative livelihood sources and new adaptation strategies to cope with the changes. Sea level rise, saltwater intrusion and windstorms are the key climate-related impacts.

The study also found that the adaptive capacity of rural people/communities, in particular the poor and marginalised groups in

the four zones, is moderately low since they depend mainly on climate-sensitive resources such as farmland and water and have limited livelihood options. In addition, their access to key assets including physical, financial, social, human and natural resources to help them to cope with climate-related hazards is notably deficient although ongoing support from relevant institutions is already in place. In some areas, key assets to help local people to cope with the hazards and changes, while accessible, are to some extent out of reach for the poor and marginalised groups.

Local institutions such as Provincial Departments of Agriculture, Forestry and Fisheries, commune councils, farmer water user communities, and local NGOs and social networking support adaptive capacity in helping people to cope with the changes. Local people depend on these relationships to get information and help when they face challenges. Existing climatic information and agricultural knowledge sharing mechanisms are limited although many channels of sharing are found. Local innovations such as new agricultural technologies and climate-resistant crops to adapt to climate change impacts (flood and drought) are already taking place but the enabling environment to support innovative development is still only partially established. There have been a number of interventions both from government and from NGOs and development partners in building climate change adaptation. Collaboration and support has been significant, yet the interaction and sharing mechanisms remain inadequate due to limited resource mobilisation. Although commune-level governance is found to be flexible enough in coping with change, lack of resources is still a major constraint to meeting farmers' needs.

It is apparent that adaptation actions to minimise the impacts of climate change and weather variability must be undertaken and strengthened by all stakeholders, at all levels and in all agro-ecological zones. It is noted that the availability of livelihood assets, and of institutions and entitlement, access to knowledge and information, the fostering of innovation, and the promotion of forward-looking, flexible governance in participatory decision making and potential interventions are key aspects in supporting the adaptive capacity of rural people. The stakeholders involved should work cooperatively to ensure that local farmers/communities have better access to these assets and support. In addition, the top-down and bottom-up approaches which take into account the involvement and participation of local people, especially of women and the poor, throughout the planning process, should be strengthened since these would support the success of local adaptation measures.

The recommendations below endeavour to provide to all relevant institutions, development partners, academics, managers and practitioners, and local communities and authorities, with the basis for determining future policy directions and actions to strengthen local adaptation.

POLICY CONSIDERATIONS AND SUGGESTIONS FOR FUTURE ACTION

There are three sets of policy suggestions:

1. Improve adaptation capacity:
   - Improve access to new climate-resilient agricultural practices, services and technologies such as multi-purpose farming, system of rice intensification, and so on, to improve agriculture products and food security with more focus on marginalised groups such as women and the poor.
   - Enhance access to water in both the wet and dry seasons by revisiting water storage options such as reservoirs, natural and dug ponds, and soil water conservation techniques that can improve soil fertility and soil moisture retention.
   - Improve access to financial resources by expanding the financial services of both

formal and informal institutions, and encourage pro-poor services that have lower interest rates and more flexible loan repayment periods.

- Promote climate resilience projects targeting the poor, women and marginalised groups and expand the coverage of existing climate change adaptation projects to all vulnerable areas identified.

2. Strengthen local participation:
   - Localise sectoral adaptation strategies by considering social institutional arrangements, and possible challenges.
   - Provide local people with accurate and timely climatic data on more specific locations in their provinces and disseminate appropriate climate change adaptation strategies to help them to cope with climate change impacts.
   - Improve the flow of information in the community through vertical and horizontal channels/communication – word-of-mouth, and via phone calls.
   - Foster local innovation in each agro-ecological zone by establishing an enabling environment such as benefit sharing and social networking in the local area, and collective action.
   - Strengthen the top-down and bottom-up approaches, including their integration, and promote local people's involvement and participation, especially women and the poor, throughout the planning process. Create an environment in which their voices can be heard and their ideas/suggestions are taken into consideration in climate change-related decision-making processes.
3. Improve implementation of government plan and promote research:
   - Better implement the Cambodia Climate Change Strategic Plan at all levels (national, subnational and local) by promoting and consolidating institutional cooperation and conducting further research on climate-resilient agricultural technology/practices.
   - Encourage academia, research institutions and civil society to play the facilitator and coordinator role (particularly in linking the top-down and bottom-up processes) and to work as active agents to ensure that climate change adaptation policy and strategy have effectively responded to actual needs of local communities.

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