

Engaging village communities in designing ‘climate smart’ landscapes

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Abstract: In the uplands of northern Lao PDR, extreme weather events, such as warmer temperatures, drought periods or shifting precipitation patterns are expected to be more frequent as a consequence of climate change. The EFICAS project (Eco-Friendly Intensification and Climate resilient Agricultural Systems), promotes climate resilient approaches based on a combination of participatory land use planning and promotion of agroecological practices. After an initial diagnosis of climate change vulnerability at the village level, adaptation strategies are co-designed with local communities. Our climate-smart landscape approach is conceived as an empowerment process of villagers who first learn about their vulnerability to natural hazards and economic fluctuations, and then are trained to assess the potential impacts of different land-use planning scenarios before making informed decisions. The combined use of high-resolution remote sensing data and 3D-participatory modelling helps upland communities in visualizing land-related issues and planning relevant actions. Then concrete extension activities are implemented in relation with their collectively negotiated plan and resource management rules. Finally, villagers are involved in participatory monitoring of their climate change adaptation strategies. Together with district extension staff, they assess impacts on landscapes and livelihoods and adjust their practices through reflexive learning loops.

Keywords: climate-smart landscapes; community engagement; social learning, upland development, Lao PDR

Introduction

The EFICAS Project (Eco-Friendly Intensification and Climate resilient Agricultural Systems) is supporting the adoption of agroecology practices through a landscape design approach in the three provinces of Luang Prabang, Huaphan and Phongsaly in the northern uplands of Laos. The project develops innovative participatory methods (scenario exploration, 3D modelling, monitoring of ecosystem services) to empower village communities in exploring integrated landscape development scenarios, co-designing and implementing agricultural development plans with district authorities.

Methods

The landscape approach (Opdam et al., 2013) is based on a spatially-explicit community-based agricultural development plan (CADP) bridging local and scientific knowledge. Adaptation scenarios have been developed through simulations of specific events: e.g. climatic events such as flooding, drought, etc., agribusiness investments, national policies or projects such as infrastructure developments. Then, visioning exercises assessed (i) villagers understanding on the implications of different landscape patterns and resources management rules to the resilience of their village to external events and (ii) their level of empowerment as negotiators with external

actors. Whole village communities are thus involved in the implementation of the plans with the support of district extension staff and national scientists. At the same time, all stakeholders are monitoring the changes in agricultural practices and their impacts on both performances and resilience of the local socio-ecological systems.

Results

The local farmers have shown their capacity to co-design landscapes supportive to innovative agroecological practices. A negotiated village land use plan fully owned by the village community shows how village development goals are translated into spatial patterns of land uses, description of land zones, and agreement on land management rules. All partners are involved in a continuous learning process throughout the CADP design and implementation so that they gradually gain in self-confidence and autonomy. In the twelve target villages a consensus has been reached about the actions to be undertaken (e.g. fencing livestock areas, increased control of animal roaming, testing alternative cropping techniques, developing new production patterns in response to market demand), about the implementers and beneficiaries, about the time frame and the proposed technical support to make sure their goals can be reached.

The stepwise approach to CADP implementation is associated with objective indicators of progress shared by both villagers and project implementers. For each outcome, participants to CADP planning have agreed on ‘smart indicators’ (Belcher et al., 2013) that they use to measure progresses and to anticipate problems so that appropriate adjustments can be made. These elements are essential to sustain their collective efforts in implementing planned activities over long periods of time while keeping the CADP meaningful for all stakeholders involved.

Discussion and conclusion

Participatory simulations based on a combination of role-playing game and simple multi-agent models can help visualizing the benefits of CADP implementation on the village landscapes and livelihoods and, with a longer term perspective, on their resilience to climate change. This modelling approach is being developed for continuous exploration of alternative scenarios with village communities and other stakeholders as part of the collective learning process, but also to convince the donor community and policy makers about the potential long term impacts if implementation efforts are sustained beyond the initial 4-years phase of the project and results scaled-up to other villages, districts and provinces. As impact pathways of landscape approaches are complex and often unpredictable the project is not expected to have a measurable impact on the target landscapes over the short project timeframe (about 3 years), but the investment in environmental awareness is expected to create the enabling environment leading to farmers’ adoption of agroecology practices.

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References

- Belcher, B., Bastide, F., Castella, J.C. and Boissière, M. (2013) Development of a village-level livelihood monitoring tool: A case-study in Viengkham District, Lao PDR. *International Forestry Review* 15(1), 48-59. <http://dx.doi.org/10.1505/146554813805927174>
- Opdam, P., Nassauer, J.I., Wang, Z., Albert, C., Bentrup, G., Castella, J.C., McAlpine, C., Liu, J., Sheppard, S. and Swaffield S. (2013), Science for action at the local landscape scale. *Landscape Ecology*, 28(8) 1439-1445. <http://dx.doi.org/10.1007/s10980-013-9925-6>