

Community-based Adaptation to Climate Change in Southeast Asia

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Photo by Anh Tuan | Yen Bai, Vietnam

Southeast Asia relies heavily on its agricultural capacity, species diversity, and natural resources. However, with the whole region experiencing the impacts of climate change, the need to identify strategic roles for climate change adaptation and mitigation in Southeast Asia rises. Therefore, initiatives, policies, and new technologies are needed to help different countries in the region manage the effects of climate change. The challenge is in contextualizing and localizing international policies in designing and implementing projects on climate change adaptation and mitigation. Small communities should realize the need to contextualize such initiatives to fit their own needs and capacities.

Community-based adaptation to climate change

In these cases, community-based adaptation (CBA) to climate change is an appropriate approach and strategy. CBA is a community-led approach wherein members of the community assess their own strengths, vulnerabilities, knowledge, and capacities that are necessary in devising strategies for climate change adaptation and mitigation. It empowers communities to plan for and cope with climate change impacts based on their priorities, needs, knowledge, and capacities.

In this way, the strategies devised are more sustainable since locals who directly experience the effects of climate change in their area craft them, aligned to their priority needs.

Most of the CBA initiatives mainly focus on (a) livelihood diversification and making existing livelihood options more resilient to present and future climate, and (b) enhancement of capacity to deal with disaster risks.

One of the frameworks used in designing core strategy and actions is called “LOCATE” or Local Options for Communities to Adapt and Technologies to Enhance Capacity. LOCATE uses a sustainable livelihood framework and realizes the context that the community is the entry point in planning for climate change adaptation.

In CBA, information on climate change and its impacts must be incorporated in the planning process. Scientific information, such as long-term prediction from climate change models, seasonal forecasts, and information on trends based on collected data must be integrated to the local knowledge on climate trends and strategies previously used to cope with these changes. LOCATE applies both top-down and bottom-up approaches to capture climate change scientific assessment and local level community aspects.

To make climate change adaptation projects sustainable, CBA also considers the community’s livelihood, ecosystems in and around it, and the natural resources available in the community. Thus, natural resource management (NRM) along with some primary livelihood practices (e.g., for agriculture) must be incorporated in CBA planning process.

Climate change and natural resource management

Integrating NRM in CBA planning process can make the project sustainable. There are challenges, however, since impacts on natural resources and ecological processes brought by climate change are still unpredictable. Despite



this, there are some adaptation measures that can be applied:

- preserving ecosystem integrity to maintain genetic diversity and promote ecosystem health through restoration;
- landscape management methods such as providing buffer zones and representing forest types across environmental gradients;
- protecting key species and ecosystems by taking care of mature forest stands and functional groups and keystone species; and
- active management of pests, natural fires, forest productivity, and migration of species.

In addition to these adaptation measures, natural resource management also entails enhancing agroforestry in order to improve water holding capacity. Also, planting shade trees allows reasonable yield under dry conditions. It is also necessary to study the impacts of climate change on forestry, fisheries, and water resource management.

If left unmonitored, natural resources could undergo extreme degradation, resulting to poor quality of the environment. This, combined with the effects of climate change, such as changes in temperature and rainfall, sea level rise,

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and climate-related disasters, can also significantly affect agricultural practices, food production, and food security.

Adaptation and mitigation for agriculture

CBA and mitigation for agriculture include managing and minimizing not only the impacts of climate change on agriculture but also the contribution of agricultural practices to global warming.

Agriculture contributes to climate change because some of its practices like land clearing, livestock production, rice cultivation, biomass burning, and fertilizer use emit greenhouse gases (GHGs), such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

Therefore, adaptation and mitigation measures for agriculture should also be applied in CBA planning. In crop production, some mitigation strategies that can be done are:

- increasing soil carbon storage through efficient crop management;
- restoring degraded lands;
- regulating the use of fertilizer and pesticides;
- converting from conventional to traditional/organic agriculture; and
- improving rice-growing techniques to help reduce methane emission.

In livestock production, some mitigation strategies are:

- raising faster-growing breeds;
- using easily-digestible feeds;
- efficient waste management;

- practicing rotational grazing and planting grass species and legumes into grazing lands to enhance carbon storage in soil; and
- reducing livestock production and consumption.

On the other hand, the effects of climate change on agriculture are also widespread. In crop production, the impacts of climate change include the decrease in yield and land area for production, loss of biodiversity, increase of pests and vector-borne diseases, loss of fertile coastal lands, and problems in water allocation and prioritization.

In livestock production, effects of climate change can be observed on production performance, endocrine function and reproduction, feed production, and animal health and diseases.

All of these must be taken into consideration during CBA planning to ensure sustainability and applicability of the projects. Evaluation measures should also be observed to assess whether CBA projects are successfully implemented.



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