

# Building Capabilities of Local Climate Change Communicators towards Climate Change Adaptation in the Upland Communities in Southeast Asia

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## HIGHLIGHTS

- The capability of smallholder upland farmers to experiment the appropriate climate change adaptation strategies, their ability to teach other farmers, and the effectiveness of farmer-to-farmer teaching were the basic considerations in implementing this capacity development programme.
- A total of 109 farmers and technicians in the selected upland communities in the Philippines, Lao PDR, Indonesia and Viet Nam were trained as local climate change communicators.
- A total of 205 students, farmers, agricultural technicians and faculty members formed as the trainees of the local climate change communicators in the four national local climate change awareness programmes organised in the four collaborating countries.
- Climate change information materials were developed to help in the information dissemination and education of the public about climate change—its issues, impacts and adaptation strategies.
- A policy brief was developed to facilitate local policy making processes about climate change mitigation and adaptation.

**ABSTRACT** This article highlights the experiences of the Southeast Asian Network for Agroforestry Education (SEANAFE) and its collaborators in implementing capacity development activities for climate change adaptation of upland communities in the four collaborating countries, namely Indonesia, Lao PDR, Philippines and Viet Nam. This capacity-building project focused on the training of local climate change communicators who would serve as the local trainers and disseminators of climate change-related issues and developments among the local community members. It also aims to continuously build awareness among the local stakeholders about climate change issues, causes, impacts and adaptation strategies. Among the outputs of this project are the information materials on climate change and a policy brief that would be used as an instrument in lobbying local policy makers.

**KEYWORDS** *local communicators; climate change; policy brief; Southeast Asia; upland communities*

## 1. Introduction

Climate change has become a serious global problem as evidenced by the erratic change in temperature and rainfall patterns around the world, which have caused negative impacts, practically, to all living creatures. Yohe and Tol (2002) argue that the high number of poor people in developing countries is generally more vulnerable and likely to feel the negative effects of climate change since they have limited economic and technological capacities to adapt to climate change.

The IPCC (2011) highlights that “yields of some crops in tropical agricultural areas decrease with even minimal increase in temperature because they are near their maximum temperature tolerance. Where there is also a large decrease in rainfall in subtropical and tropical dryland/rainfed systems, crop yields would even be more adversely affected.” Among the projections and predictions of climate change experts, the agriculture and food security in Asia would be highly vulnerable to the impacts of climate change. Specifically, there would be crop yield decline which may put many millions of people at risk from hunger; reduction in the soil moisture and increase in evapotranspiration which may increase land degradation and

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desertification; and expansion of agricultural productivity in northern areas (UNFCC, 2007).

These projections are now a reality. Climate change is already being experienced in the agriculture sector, particularly in the upland farming communities in Southeast Asia. Tolentino and Landicho (2013) highlighted that the smallholder upland farmers in the Philippine and Indonesia have been experiencing abnormal rainfall and temperature patterns, which have greatly affected their agricultural production. These effects include higher incidence of pests and diseases, low crop productivity/yield, stunted growth, delays in the fruiting and harvesting, and declining quality of farm product. These have led to increased labour costs and lower farm income. These findings are consistent with the claim of Aliteri and Koochafkan (2008) that most of the climate change models predict that the small farmers, particularly those engaged in rainfed agriculture would bear the negative impacts of climate change.

Recognising the capability of the smallholder farmers to experiment on the appropriate climate change adaptation strategy, their ability to teach other farmers, and the effectiveness of a farmer-to-farmer-teaching, the need to train farmers and technicians as local climate change communicators was deemed necessary. The Southeast Asian Network for Agroforestry Education (SEANAFE), through its national networks, namely Philippine Agroforestry Education and Research Network (PAFERN), Indonesia Network for Agroforestry Education (INAFE), Lao Network for Agroforestry Education (LaoNAFE), and Viet Nam Network for Agroforestry Education (VNAFE), embarked on the capacity development of local climate change communicators to enhance climate change adaptation of upland communities in Southeast Asia.

This project aimed to develop the capabilities of at least 15 farmer-leaders as climate change communicators in the selected upland communities in each of the four collaborating countries. This project also intended to provide training activities for local technicians and selected farmer-trainers around the science of climate change—its issues, causes and impacts on agricultural production, health and the environment, including the appropriate climate change adaptation practices; produce easy-to-learn and farmer-friendly information materials about climate change, and organise a local climate change awareness programme in the most strategic upland community in each collaborating country with the local climate change communicators as lead persons.

## 2. Methodology

The capacity development activities centred on training of local climate change communicators, developing and disseminating climate change information materials, and developing a policy brief to facilitate climate change policy-making processes at the local level.

### 2.1 National Training of Local Climate Change Communicators

This training generally aimed to develop the capability of the local farmers and agricultural technicians as climate change communicators in their respective communities. Specifically, this training discussed the issues on climate change with emphasis on its causes, evidences and impacts; drafted/initially

developed farmer-friendly climate change information materials, and provided the farmers and agricultural technicians with the knowledge and skills on basic communication particularly their presentation and facilitation skills. This two-day training revolved around the following methodologies:

- Lecture-discussion, which covered the science of climate change with emphasis on its causes, evidences/indications and impacts; agriculture-related climate change adaptation strategies, and basic concepts and principles of communication.
- Workshop, which gives an opportunity for the participants to articulate their concepts about climate change and their own climate change adaptation strategies being employed in their farms. The initial output of the workshop was used as inputs in the development and production of climate change information materials.
- Field visit, which enabled the local farmers and agricultural technicians to observe the demonstration farms for climate change adaptation strategies. These demonstration farms were established in the APN project CBA2013-10NSY-Visco.
- Planning, which provided an opportunity to train participants in planning for the implementation of the Local Climate Change Awareness Programme, where they would serve as the lead resource persons/speakers.

### 2.2 Local Climate Change Awareness Programme

This activity generally aimed to create public awareness about climate change, particularly on its causes and impacts, as well as the different climate change adaptation and mitigation strategies that are being employed/practiced by the farmers, local government units, and academic institutions. Specifically, this awareness programme served as a venue for the selected potential local climate change communicators to re-echo the learning that they have gained from the national training of local climate change communicators and provided an opportunity to exhibit and display the different farmer-friendly information materials about climate change adaptation strategies for possible adoption by the other farmers.



**FIGURE 1.** Potential farmer-trainers in Lao PDR being trained on how to prepare climate change information materials.

Collaborating countries	Participants	Total
Indonesia	30	119
Lao PDR	24	
Philippines	22	
Viet Nam	33	

**TABLE 1.** Number of training participants in each of the four collaborating countries.

### 2.3 Production of Climate Change Information Materials

Participants of the national training of local climate change communicators, including the project collaborators, developed and produced information materials about climate change in the form of posters, flyers and brochures. These were all exhibited, displayed and distributed during the Local Climate Change Awareness Programme.

### 2.4 Policy Brief for Enhancing Adaptive Capacities of Upland Communities in the Philippines

The project collaborators held a writeshop to consolidate the project outputs and results. These project outputs, together with the outputs of the earlier initiatives of CBA2013-10NSY-Visco, served as basis in drafting the Policy Brief for Enhancing the Adaptive Capacities of Upland Communities in Southeast Asia. This policy brief will serve as the instrument of the project collaborators and concerned groups/stakeholders in lobbying with their respective local policy makers towards the institution of climate change adaptation programmes in their local development programmes.

## 3. Results and Discussion

### 3.1. The Participants

A total of 119 upland farmers and agricultural technicians were trained as local climate change communicators (Table 1). The trainers' training focused on the different climate change issues, climate change mitigation and adaptation strategies, and building communication skills of the training participants. Table 2 shows that the local climate change communicators have re-echoed their training to a total of 205 individuals comprising students, farmers, agricultural technicians and faculty members through the local climate change awareness programme that was organised in each of the four collaborating countries.

### 3.2 Relevance and Challenges of Building Farmers' Capability for Enhanced Climate Change Adaptation

Information and technologies to guarantee sustainable farming in the uplands abound. However, such usually do not reach the farmers because of inadequate extension services (Carandang, Tolentino, & Roshetko, 2006; Van Noordwijk, et

Collaborating countries	Participants	Total
Indonesia	38	205
Lao PDR	42	
Philippines	90	
Viet Nam	35	

**TABLE 2.** Number of participants in each of the collaborating countries.

al., 2008). With climate change aggravating the existing constraints to farm productivity and the need to insure the ecological integrity of the farming communities in the uplands, extension will all the more be imperative in such areas.

Communicating climate change-related information was emphasised as the best strategy to be able to create or effect changes among the concerned stakeholders. Moser and Dilling (2011) argue that communicating climate change is essential because not all have noticed and have experienced climate change. The lack of direct experience makes climate change a problem that requires explanations from those who have an expert knowledge and experiences.

Visco (2014) confirms that farmers are the best source of on-the-ground experiences on climate change, and could serve as the best channel of communicating climate change information to the other farmers within the community. Because they have the direct experiences and observations, there is also a higher chance for them to employ climate change adaptation strategies, considering that agriculture is their main source of livelihood. For instance, Tolentino and Landicho (2013) explains that the smallholder upland farmers in the Philippines and Indonesia have been employing their own climate change adaptation strategies in the absence of technical assistance from extension agencies. These include changing the cropping patterns, changing the crop, engaging in agroforestry, and engaging in non-farm activities.

The smallholder farmers may not have the scientific basis about climate change issues and impacts, but their mere experiences on the field-level evidences and impacts of climate change on their agriculture production, therefore, make them a very good candidate as climate change communicators to the other farmers and members of the local farming communities. This capacity-building initiative has seen advantages in training farmers as local climate change communicators. They can easily communicate with the other community members because they share the same symbols and languages, and therefore, they can reflect on the needs and aspirations of the communities. In addition, they have the knowledge about the local conditions and practical experiences. As argued by Karuhanga, Kiptot and Franzel (2012), the constraints in ensuring effective agricultural extension in most of the developing countries include the large number of poor farmers with small plots in geographically-dispersed communities and the underdeveloped transport and communication infrastructure. With these





**FIGURE 2.** An upland farmer in the Philippines sharing his own experiences in adapting to climate change impacts.

constraints, therefore, the use of farmer trainers' approach offers great potentials in ensuring widespread and rapid agricultural knowledge diffusion. Kaminski (2011) cited Roger's theory of diffusion which places peer networks as an important construct. The innovators and the early adopters who serve as the opinion leaders play a critical role in the innovation adoption process, as they spark the initial take off point. They influence their peers through peer communication, role modelling and networking. Thus, the concept of farmer-to-farmer communication and learning is founded on this theory.

However, there are also challenges when training local climate change communicators. Their facilitation and communication skills are limited particularly for the first-timers, and they have limited access to recent information about climate change because their geographical location is mostly inaccessible to media and other means of information. Farmers have a tendency of getting intimidated by their co-participants from the local government units and the facilitators, which can be explained by their limited exposure and engagement. However, their concept about climate change and how climate change has created impacts on their agricultural production were well-articulated during the lecture-discussion and presentation of workshop outputs. In the case of Indonesia, on the other hand, the resource person argued that while implementing climate change mitigation and adaptation practices are necessary for addressing climate change impacts, it requires change among the farmers and individuals. The change could be attitudinal/psychological and behavioural. Thus, the communicators should be able to have a grasp about the principles of change management—that change should be gradual, rather than abrupt, and needs continuous communication, information dissemination and capacity-building. Adopting a particular change, technology or innovation requires attitudinal and behavioural change. Khaila, Tchuwa, Franzel, and Simpson (2015) stress that lead farmers help in changing attitudes of the farmers, who motivate and encourage one another in adopting technologies. The trust, closeness and shared common attributes of one another also influence how farmers learn from their counterparts.

This capacity-building programme has indicated that the farmers have shown their interest and willingness to share their ideas, concepts and field experiences that are related to climate change. The challenge now is to further train and build the capacities of these farmers as local climate change communicators. Support system such as providing them access to climate change information, training them to document the climate change impacts and their corresponding climate change adaptation strategies, enhancing their communication skills, and tapping them as speakers or resource persons in climate change forum and conference, are necessary for sustaining their interest.

Communicating climate change-related information requires information materials and visual aids that would help create awareness among the stakeholders. These information materials should be simple that could be easily understood by a layman. Thus, the project collaborators in the four countries came up with their own versions of the climate change information materials that were used during the conduct of the Local Climate Change Awareness Programmes. The development and production of these information materials were done in cooperation with the participants or trained local climate change communicators.

From the remarks of those who have participated in the local climate change awareness programmes, the project collaborators have validated the relevance of organising this kind of event. Foremost, the audience/participants were ordinary people without any technical know-how about climate change. Overall, this activity served as an eye-opener to the public that indeed, each individual at the household level has contributions to climate change, such that even in their simple household chores such as cooking and cleaning the surroundings/backyard through burning, they already contribute to gas emissions. More importantly, the local climate change awareness programmes have provided reminders to the individuals and community members, that each of them can do a simple practice or strategy to help mitigate climate change impacts. These observations are consistent with the arguments of Moser and Dilling (2011) as regards the essence of communicating climate change.

### 3.3 Sustaining Communication of Climate Change through Policy Measures

Raising awareness and imparting knowledge do not directly result in behavioural change, nor guarantee that it will be translated into action (Moser & Dilling, 2011; Mwazi & Ndokosho, 2011). For a more effective communication and engagement, Moser and Dilling (2011) contends that policy, infrastructure and economic changes should likewise be installed. They believe that communication for social change should consist of efforts that would motivate people to make a change.

The project collaborators argue that climate change is real, and that, nobody can do away with it. This phenomenon has now become part of human life, and therefore, there is nothing we can do but simply to adapt to its impacts. Because of the severity of its impacts, policy measures therefore should be in place to help enhance the adaptive capacities of the society, particularly the agriculture/farming sector. The locals, particularly the farmers can serve as a channel for dissemi-

nating information and educating other farmers about climate change issues, impacts and adaptation strategies. Therefore, policy-making bodies at the local level should consider the following recommendations to enhance adaptive capacities for climate change adaptation.

a) Creation of a Local Climate Change Team comprising representatives from the state colleges and universities, local government units at the municipal and barangay (ward) levels, and farmer-trainers who would develop a plan for enhancing adaptive capacities of the upland farming communities in their respective areas. The team shall also be responsible for (a) organising local public awareness programmes about climate change so that all sectors within their local community would be able to understand this worldwide phenomenon; (b) pursuing research and development programmes related to climate change to test for appropriate crops and cropping combination in the changing climate in their respective areas; (c) establishing demonstration farms showcasing climate change adaptation strategies; (d) linking with the local policy makers to ensure that climate change adaptation measures are integrated in their development programmes; and (e) documentation of best practices showcasing climate change adaptation.

b) Mainstreaming agroforestry in the development programmes of local government units whose majority of land area is classified as upland areas. These areas are vulnerable to climate change because of the marginal conditions of the biophysical and social aspects. Agroforestry can be included as one of the development programmes in the barangay and municipal levels. With this, there could be a regular funding allocation for relevant agroforestry activities that may be identified in the upland communities. These may include training programmes, information drive, and establishment of on-farm demonstration areas showcasing different agroforestry technologies and systems that are appropriate to the local conditions

c) Enhancing adaptive capacities of smallholder holders in a holistic manner so that the human, social, financial and natural capitals are taken into consideration as follows:

- The human capital should be developed through capability-building or training programmes, particularly on the appropriate/site-specific climate change adaptation strategies. As discussed above, there are smallholder farmers in other tropical countries who have been employing climate change adaptation strategies such as changing their cropping patterns, establishment of soil and water conservation measures, planting of short-duration crop varieties, among others.
- The natural capital including the land and the farming system should be enhanced. The farms of the smallholder upland farmers are highly dependent on rainfall (being rainfed areas), and therefore, any change in rainfall pattern would surely affect crop performance, farm productivity and farm income. They have small landholdings classified as public lands, and therefore, these are bound within the policies of the government. Cost-effective and environment-friendly soil and water conservation measures should be introduced in these rainfed areas, without jeopardising the policies that govern the cultivation of upland areas/farms within the public lands. The farmers should capitalise on the

presence of forest and fruit trees on their farms. The ecological services of trees, particularly their potential in climate change mitigation and adaptation, should be well recognised by the farmers via information education campaigns and capability-building programmes.

- Social capital enhances the capacity of an individual to address his/her problems or concerns by way of networking and establishing good relationship and solidarity between and among the members of the community (bonding capital) and their linkages with outside organisations (bridging capital). In most cases, the local development organisations channel their technical support services to the existing people's organisations from which farmers are given the opportunity to attend trainings and seminars, avail of the planting materials, and gain access on the recent developments and information about agriculture. In most cases, there has been very little support services that are being provided by the local development organisations. This implies, therefore, the need to link the farmers to relevant organisations to enable them tap the latter's assistance in any agriculture-related problems or concerns (e.g. marketing of products, climate change, etc).

### 3.4 Lessons learned from the project implementation

This capacity development programme has shown the importance of creating awareness about climate change at all levels and sectors. In this way, these sectors could also be mobilised to help enhance climate change adaptation capacities. This programme has likewise recognised the essence of involving the active participation of farmers in climate change research and capacity-building. Foremost, the farmers have the direct experiences of climate change impacts, and likewise, have the capability to share their own experiences with their fellow farmers.

This project has the potential for scaling-up in other upland communities in the four collaborating countries. Generally, the agriculture sector in these four countries is dominated by smallholder upland farmers, and therefore, it's necessary to scale-up and promote this kind of capacity-building projects to the upland communities. The lessons and experiences, as well as the relevant outputs of this project can be used by the project collaborators in the future capacity development activities. In a broader context, the partnership that was built by this project among the local stakeholders, namely farmers, local government units and state colleges and universities can be harnessed to sustain and scale-up the project.

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