Climate Change Practice Note

The factors of change

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CAMBODIA CLIMATE CHANGE ALLIANCE

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About the Cambodia Climate Change Alliance and the projects it supports

The Cambodia Climate Change Alliance (CCCA) was launched in February 2010 as a collaborative approach among development partners and the Royal Government of Cambodia to address climate change in the country. The initiative is led by the Ministry of Environment (MoE) and is supported by the European Union, the Governments of Denmark and Sweden, and the United Nations Development Program (UNDP). The CCCA is anchored in the Cambodian government's National Climate Change Committee (NCCC), which is the mandated government coordinating and policy support entity for all aspects of climate change.

The overall objective of the CCCA is to strengthen the capacity of the National Climate Change Committee to fulfill its mandate to address climate change and to enable line ministries, local government institutions, and civil society organizations to implement priority climate change actions. The CCCA's work focuses on five main areas including: 1) national level climate change policy making and coordination; 2) capacity building for knowledge management and access to information; 3) creating an enabling environment for a nationally owned climate change financing mechanism; 4) building coastal climate change resilience; 5) provide climate change response initiatives for adaptation and mitigation.

The CCCA operates a Trust Fund which provides a single engagement point for both donors and organizations interested in submitting project proposals to deliver climate change adaptation and mitigation initiatives at both the community as well as policy levels. A total of 21 projects have been funded to date. Most grants awarded are between $150,000 and $300,000 USD per grant cycle of 15-22 months and are delivered by various line ministries at the national and sub-national levels as well as by national and international non-governmental organizations. The initial grants were awarded in October 2011 and have since concluded implementation. In December 2012, 11 new projects were awarded covering most priority sectors of the climate change response in Cambodia. These included a mix of community based infrastructure projects, such as irrigation channels aimed at improving water management in water scarce areas, as well as intensification and diversification of agricultural production such as home and commercial vegetable gardening, rice farming, livestock raising, aquaculture, and post harvest production. There are also health initiatives as well as disaster reduction initiatives in the context of climate change. National as well as sub-national policy initiatives also form a significant part of the work. The overall value of the program is $10.85 million USD. In November 2013 at the 3rd National Forum on Climate Change, the continuation of the CCCA was announced beyond June 2014 and defining the next phase is currently underway. For a full list of grantees to date as well as other information about CCCA please visit www.camclimate.org.kh.

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Author and Disclaimer

This document was written by Mona Laczo. The views and opinions expressed in this document are that of the author and may not represent the views and opinions of the Ministry of Environment or CCCA donors.

Front cover caption

Mrs. Phov Minh checks on her vegetable garden in Spean village, Khor Krorlor Commune, Battambang Province. She learned about the plastic mulch and drip system she employs to grow vegetables from the Provincial Department of Agriculture and Farmer Livelihood Development, a local non-governmental organization supported by the CCCA.

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1. INTRODUCTION

1.1 About this Practice Note

Today, climate change is an accepted daily reality affecting billions worldwide. While the race is on to stop further damage to the environment, a parallel and equally important race is taking place to prepare, equip, and support those populations most vulnerable to the impacts of climate change now and in the future. For the most vulnerable communities the time to change is now. In order to adapt, individuals and communities must to learn new skills and knowledge, shift their traditional practices, and change their individual and collective behaviors in order to prepare for scenarios untested and conditions not yet experienced. The following practice note explores the factors that can support positive change by drawing upon the experiences of climate change initiatives in Cambodia which are supported by the Cambodia Climate Change Alliance.

There are already a number of development initiatives and interventions by government departments, multilateral donors, non-governmental organizations, the private sector, as well as communities that support rural communities' ability to adapt their lives and livelihoods to climate change in varying degrees. This practice note explores the extent to which particular factors support or hinder the delivery of such climate change adaptation initiatives by drawing from the experiences and lessons learned from projects supported by the Cambodia Climate Change Alliance under the Ministry of Environment.

1.2 Why this Practice Note

CCCA supported projects present a wealth of information and knowledge about climate change interventions. Sharing these with climate change practitioners is a high priority for both the CCCA as well as the Ministry of Environment. Thus, a series of Practice Notes with illustrative case studies have been commissioned. This is the 1st Climate Change Practice Note of the series and is closely linked to the 2ndClimate Change Practice Note – Stakeholder Participation - which discusses the approaches taken to ensure the participation of key stakeholders in climate change initiatives. For a list of additional and future Practice Notes please visit www.camclimate.org.kh.

1.3 Who should read this Practice Note

This practice note is meant for development practitioners, government actors, and policy makers working in contexts affected by climate change.

1.4 The Practice Note will help climate change practitioners to

- Better understand the challenges and opportunities surrounding the participation of various stakeholders vis-à-vis climate change at national, sub-national, and community levels.
- Learn about existing good practices that address the stakeholders participation in climate change projects
- Strengthen the design and implementation of climate change adaptation programs and policy initiatives.

1.5 The methodology for the development of the case studies followed the process outlined below

The overall selection of the theme of this practice note included the recommendations from the CCCA Grants Review of 2013. Furthermore, the selection of the project sites visited was based

on the monitoring reports and reflection of key CCCA staff noting that these projects had made significant and pertinent contributions to the topic of the practice note. A small group discussion was also held to help shape the areas of focus and to frame the overarching questions related to the specific topics of the practice note. An extensive field visit incorporated over 20 conversational interviews with key informants. The methodology followed the appreciative inquiry principles and approaches. Extensive coordination and facilitation of key informant interviews was provided by CCCA staff as well as the staff of the implementing project partners. For each case study, participating beneficiaries and local authorities including commune council members, village chiefs as well as project staff were interviewed. The representation and involvement of women was ensured throughout. Overall, 12 grantee projects were visited including four under the 1st Call for Proposal and eight under the 2nd Call for Proposal. A total of 215 key informants participated in conversational interviews in the Battambang, Prey Veng, Pursat, Sihanouk Ville, Svay Rieng, and Takeo provinces of Cambodia, where CCCA projects were implemented.

1.6 Cambodia Climate Change Context

Cambodia's development challenges are many fold including political, economic, social, and environmental. Climate change is expected to compound and amplify Cambodia's development challenges, stresses, and problems in the future. Like other countries in Southeast Asia, Cambodia is expected to experience higher and more intense rainfall. The effects are likely to include periods of more severe water scarcity as well as more frequent flooding, which may result in crop failures and food shortages. Coastal communities and eco-systems are likely to be affected by rising sea levels. Higher temperatures and humidity will create conditions for increased incidences of malaria and dengue fever. Poor and marginalized communities, particularly women and children, will be the worst affected.

Cambodia has been identified as a country that is one of the most vulnerable to climate change in the Southeast Asia region. The country's high vulnerability is based on a combination of factors that includes a high dependency on rain-fed agriculture - the economic livelihood of some 70% of the population - increasingly unpredictable and intensified weather patterns, expected frequency of climate hazards such as droughts, floods as well as low adoptive capacity to climate change due to availability of information, resources, and technologies to adopt.

During the past decades, Cambodia has enjoyed steady macro-economic growth as reflected in its increased GDP (roughly $1000 USD per capita) and reduction in poverty incidents which currently stands at 19.8%. However, Cambodia has also suffered losses, both human and economic, during the past decade due to erratic weather variations. Weather related natural disasters such as floods, drought, and storms are also intensifying and affecting millions throughout the country and often within a short time span. Rural areas, even those not normally prone to natural disasters, are now commonly experiencing either flooding or drought or both in some instances. Likely climate change scenarios include more precipitation as well as serious water management issues for the country. As a result, people's ability to cope and recover from weather related shocks will be seriously tested.

Fortunately, climate change is not all about a doomsday scenario and certainly Cambodia can turn negative predictions into opportunities for development. While developed countries must deliver on their promises to pay for the damage they have caused, Cambodia cannot simply rely on being a victim of climate change. Its policy makers, academics, engineers, civil society members, and its people in rural and urban areas must invest themselves to collaborate and catalyze together on the opportunities for change. Cambodia's strength lies in efforts already

made to progress the climate change agenda at the national and sub-national levels, which incorporate development paths such as Green Growth, which consider and leverage future potentials. Diversifying and intensifying Cambodia's agricultural production potential, which mainly comes from rice, will help and so will supporting rural communities find income generating opportunities beyond their immediate dwellings/households. Furthermore, climate change will require a cross-sector approach with extensive investment in collaboration and the coordination of efforts by stakeholders at all levels. Climate change stakeholders, especially those in the government, can no longer afford to work in a disconnected and isolated manner.

A vast amount of climate change adaptation and mitigation initiatives have been undertaken. Knowledge, information and communication materials have been generated in Cambodia by various stakeholders including government bodies, academic institutions, civil society actors, and local communities. In 2012, the Royal Government of Cambodia took considerable steps to develop Cambodia's Climate Change Strategic Plan (CCCSP), covering 2014 up to 2023. This addresses the climate change impacts in the National Strategic Development Plan (NSDP).Nine priority line ministries have also been identified and have subsequently prepared their Climate Change Strategies Plans (CCSPs) in support of their Sector Development Plan (SDP). In August 2013, these nine line ministries embarked on a process of defining specific actions on climate change responses. These actions will be articulated in sector specific Climate Change Action Plans (CCAPs). The first CCAPs will cover the period 2014 to 2018 (5 years), but will also include actions that continue into the longer terms.

1.7 The Context of Factors of change

"We simply cannot go on as before. We either change or die."

Farmer in Takeo Province

There are many factors that contribute to the success of climate change interventions in Cambodia and beyond. At the same time, there are many factors that can hinder and undermine initiatives to build communities' resilience. From a programmatic perspective, one has to be mindful of all contexts and circumstances including social and economic conditions, as well as hazards that make communities more vulnerable to climate change. For example, the timeframe of projects and project beneficiary selection can all influence how projects are delivered, to what extent people are engaged, how they participate, own, and internalize learning, and take responsibility for their own actions and lives.

In many instances, development practitioners pay in-depth attention to the opportunities and risks presented by particular interventions and to the contextual factors surrounding them. However, it is often only once implementation has started that reality sets in and assumptions are either validated or contradicted. Numerous factors can influence the scale and depth of adaptation as well as the long term sustainability of efforts to make a lasting difference and bring about long term positive changes.

Specifically, this Practice Note considers to what degree market access plays in supporting communities to uptake climate change adaptation and mitigation initiatives. It also reflects on how community management and ownership of natural resources, such as community forestry and fisheries, play in adaptation projects. A number of climate change initiatives focus on the adaptation of new technologies and therefore this dimension is also addressed in this paper. In addition, factors such as individual ownership of land resources as well as immediate material and financial contributions to participating communities are examined. Finally, this practice note looks at motivation factors such as the financial incentives for government agents at national

and sub-national levels to engage and take leadership for adaptation practices. The following case studies have been selected in order to provide a deeper insight into how various factors influence the success of climate change adaptation projects

2. CASE STUDIES- Climate change project at work: The factors of change

Case Study #1: Market Incentives: Access to markets

"I take my vegetables to the market nearby. I just use my bicycle to get there. It is easier for me to grow vegetables than rice. I am no longer tired and I have more money for my family."

Woman farmer, Battambang province

Finding linkages for small scale farmers to markets has been a popular topic for many years in developing countries and Cambodia is no exception. Development actors have designed a number of poverty reduction initiatives that aim to capture the potential of markets in lifting people out of the cycle of poverty. Many community based responses in Cambodia have built resilience to climate change through new technologies and schemes like household income generation opportunities. Be it raising livestock, aquaculture, rice and seasonal vegetable growing, or post harvest processed products, farmers' and small scale producers' linkages to markets, either as buyers or suppliers, play an important factor to change.

Most Cambodian farmers are small scale farmers with an average ownership of 1.5 hectares of land per household. Their direct access to markets for selling their produce, either individually or as part of a producer group, remains limited given their small scale production ability. In most instances they are unable to fully follow market demands because they either do not have enough produce or the quality does not meet the expectations of consumers. In addition, their produce often goes through an array of traders and middlemen.

CCCA projects engage communities that are comprised of small scale farmers and producers that support household food sufficiency and often use any surplus to generate supplemental income at markets nearby. Farmers and producers generally sell their products at markets within a 2 to 3 kilometer perimeter from their homes, where prices may tend to be more in line with their knowledge and means of influence. Therefore, these small local markets are integral in improving livelihoods and motivating change. For example, in Battambang province where home gardens were introduced by the Provincial Department of Agriculture along with Farmer Livelihood Development, a local NGO, a plastic mulch and drip system used for water management supported the increase of family incomes. When serious financial analysis was done on expenditure of inputs and income from sales and a balance sheet showing clear profits was developed, motivation for up-scaling by the individual family as well as interest amongst other community members intensified. Participants also noted that since expensive and low quality foreign produce dominates their nearby markets, they were able to fetch good prices for their home grown produce. Participants in most CCCA project areas noted that retailing their products at urban market hubs, such as in Battambang town or even Phnom Penh city, offered the most profitable option. They perceived that prices at such hubs were higher. However, such options were almost always out of reach. Thus, home and commercial gardens under CCCA initiatives have demonstrated success when located in close proximity to a local market, when the types of agricultural products could be produced at a lower price than imported products, and when inputs and techniques are made available to reduce the cost of production.

When considering the potential of markets, those engaging in market activities need to have access to information to make informed choices. Lack of access to timely and relevant market information may also hinder adaptation initiatives to take root. Localized, accessible, and easy to use market information continues to be minimal and mainly comes from middlemen or is otherwise non-existent. Thus, communities lack vital and trustworthy information that would allow them to sell their produce at fair prices, especially in times of disaster such as flooding or drought.

Large middlemen who act as brokers for companies and businesses have the most connections to local communities who participate in climate change projects. Middlemen buy local agricultural produce, be it rice or livestock such as cows, pigs, or chickens. Throughout CCCA project sites, community members and local authorities agreed that the unregulated and unchecked behaviors and practices of middlemen largely influenced the benefits or profits that people engaged in climate change adaptation projects receive. They also noted that middlemen's deceptive behaviors, if left unchecked, can deter others in the community to try new agricultural practices, even if these practices could bring substantial benefits to them either through increased yields or as diversified income sources.

In Bokamrek Village, Prekloung Commune in Battambang province, Help Age International implements a climate change adaptation project through the introduction of new rice varieties, raising chickens, and water and sanitation activities. In October 2013, the community experienced prolonged flooding. For the first time, participants in the project not only increased their yield but were also able to harvest their rice crop before the floods inundated their fields. This happened because they introduced a new, short term variety (Chulsa, Sen Pidaor and IR66) of rice for planting. This variety is also on the government's 10 promoted rice varieties and was expected to garner a favorable market price. While being pleased with the initial results, disappointment came when middlemen offered a mere 600Riel per kilogram which represented a 30% reduction from the average price of the same variety of rice. Middlemen noted that an array of conditions contributed to making their price offer so low. These ranged from a lack of access to the village due to the flooding to an increase in transportation costs and even to the quality of the rice itself. In addition, they suggested that the rice variety grown was not the one desired by the market. To make matters worse, the Provincial Transport Authority, fearing damage to the weakened road infrastructure from the flooding, severely limited the weight of trucks (from 20 ton to 5 ton) that could reach the vicinity of the village. In response to pressure from the local communities as well as the Chief of the Commune Council, the restriction limit was increased to 10 Ton but, nevertheless, this did not make a difference towards the price offered. The Chief of the Commune Council also tried his best to bring alternative buyers to the village by alerting the Provincial Department of Agriculture to the situation, but was told that the issue really amounted to Cambodia's practice and belief in a "free market economy". Being left without alternative options or supportive interventions from the government, the communities sold their rice below production price mainly to pay off debts and to secure some financial resources to support their recovery efforts from the floods. Such experiences bring demotivation and demoralization for engaging in future agricultural activities and climate change adaptation initiatives. Unbeknown to the community and just 30 minutes away by road, the community of Samrong srou village, Samroungkrong commune was experiencing drought for the third year in a row and most farmers did not even attempt to plant rice. They had resorted to buying rice at 1,700 Riel per kilogram. Linking these two communities could have helped to build adaptive capacity for both as well as ensuring that the benefits of production remained within the communities.

In addition to being suppliers of products and produce at markets, almost all CCCA project participants are buyers and thus their link to markets for supplies, including agricultural inputs, is vital. Private companies are able to use extensive marketing schemes to sell seeds, fertilizers, and other inputs to gain profits in these local contexts. This is certainly the case in the surrounding areas of Preynob3village in Sihanouk province, where Angkor Beer and Tiger Beer market the byproduct from barley used in beer production as animal feed for pig raising. While this practice was considered in line with the needs and recommended practices of CCCA project implementers, unfortunately no attempt was made to approach these companies to harness the potential collective benefits for those participating in the initiatives. In most climate change projects under CCCA however, inputs supporting adaptation practices were introduced by project implementers and management. While these are often the right inputs for the geography and the local conditions, their availability at nearby markets was lacking, which seriously undermined the potential for replication opportunities. In addition, prices of these products as well as affordable credit provided by micro-finance institutions also played a crucial role in limiting spontaneous uptake.

To address the issue of communities' access to income generating inputs, a community based social enterprise approach where benefits are shared among community members was introduced by WOMEN, a local non-governmental organization in Preyangkhunh village, Samroung commune in Prey Veng province. The village is vulnerable to both flooding and drought so the initiative was built around a community managed fresh water lake as well as community forestry areas. The scheme initially introduced climate change concepts and built the skills and capacity of the selected participants for fingerling raising, including the installation and management of the equipment needed for the hatchery pools, with the condition and clear agreement that WOMEN would receive 30,000 fingerlings for the benefit of other climate change project participants at no cost for three years. These fingerlings were either released into the lake in order to boost fish stocks or raised in household fishponds. After three years, WOMEN and others in the community will continue to receive the inputs needed and at a lower cost. While the project has concluded, its beneficiaries continue to practice and implement the key concepts and technologies introduced.

What can climate change practitioners do?

- Ensure that climate change initiatives aimed at harnessing the benefits of markets have quality market and value chain analyses attached to them. Coordinate community efforts to ensure that they do not oversupply the market and thus reduce prices (i.e. vegetable overproduction).
- Support the establishment of a comprehensive, accessible, user friendly, timely, and reliable market information system for agricultural products and produce as well as inputs.
- Support a regulated mechanism for the purchase of agricultural products such as rice to support communities during disasters (i.e. government buy up programs for reserves).
- Introduce household level financial literacy and management skills to accompany income generating activities. Measuring and understanding expenditures and incomes can support informed decision making, especially when inputs are injected by climate change projects.
- Ensure that the climate change technologies introduced are within the reasonable reach of communities geographically, as well as within people's financial means and purchasing power.

Case Study #2: Local community ownership, access and management of natural resources in fisheries and forestry sectors

"Moving to the land from our floating villages is not an option for us. Here we are recognized as rightful owners of our surrounding areas. If we moved inland we would be landless and just as poor. It is better for me to just stay here and adapt to the changes."

Resident, Tonle Sap Lake, Kampong Prak Community fisheries area.

The Tonle Sap is the largest and most productive freshwater lake and ecosystem in Southeast Asia. Its waters provide ample nutrients, especially protein in the form of fish as well as providing for the livelihoods of millions of Cambodians. Seasonal monsoon rains feed the expansion of the lake and when the rains subside and the water level recedes, it leaves behind fertile grounds for both habitat and agricultural productivity to thrive. In recent years however, serious threats have plagued the Tonle Sap Lake with extensive overfishing, encroachment, and fires devastating the nearby forests. It is understood that climate change will further impact this important natural resource thus making it increasingly difficult for communities to secure a livelihood.

To address the issue, Conservation International has introduced an integrated climate change resilience and floodplain management project with communities living directly on the Tone Sap Lake. The area has been experiencing frequent and more intensified storms. These communities are remote and live some 45 minutes by boat on what are called floating villages in Kampong Prak Commune, in Pursat province. While the area is largely under water for most of the year, when the waters recede during the dry season the nearby flooded forest also supports livelihood opportunities through the gathering of non-timber forest products. The preservation of the forest resource is now a collective priority for the communities.

The basis of the project is the formation, strengthening, and legal recognition of a community fisheries area in the Kampong Prak Fish Sanctuary. The security of the surrounding fisheries and forestry resources has allowed the communities to try new techniques that support alternative livelihood options and to concentrate their efforts on their own community and household improvements. Prior to the interventions, competition with private businesses and concession owners as well as others in nearby communities for the fishing resources was prevalent. In most instances, communities were powerless to hold those causing harm to the surrounding area directly responsible. The project has enabled these communities to learn collectively with local authorities about the causes, impacts, and responses to climate change. As a result, they have adopted clear collective guidelines to manage the resources and take responsibility for resource conservation, including patrolling their community area and alerting local authorities of violations and encroachments. As a result, illegal fishing by those inside as well as outside the community are said to have declined and prohibited fishing techniques, which quickly depleted fishery resources, have stopped. Community peer work and monitoring of compliance is well understood to support the community as a whole.

The sense of ownership is strong and experienced community wide, especially because of the large number of community members (seemingly everybody in the area) who participate. While men are charged with fishing and monitoring and patrolling the fishing grounds, women have also been drawn into the project.

Alternative adaptation technologies such as fish processing and applying quality improvement methods such as hygiene and oven drying, vegetable gardening, as well as pig raising which are complemented by other CCCA resources(all on water) are further introduced though leads

and producer groups that are often for and led by women. Spontaneous innovations and alterations to alternative livelihood options are also taking place by various members of the community. These had a high potential for adaptations by others given their relative low costs. A community based savings led microfinance scheme was also designed with community participation and experimentation. The activities of the savings groups have already started with the main objective of leaving profits in the community rather than transferring them to outside creditors and thus the motivation to change practices is high. As a result of active participation in the management of community fisheries, local commune council members are integrating climate change into their commune development and commune investment plans. Nevertheless, their future financial resourcing from government funding will be put to the test.

Another example where climate change projects leverage community ownership of resources includes the introduction of household biodigesters in Prey Chamkarkom Korki community forestry, in Svay Rieng Province. Biodigesters capture gasses from human and animal waste to generate energy. The energy generated can be used for cooking as well as lighting homes. The project is implemented by the Provincial Department of Agriculture, the National Community Forestry Programme (NCFP) and the National Biodigester Programme. The interventions are delivered through the members of Prey Chamkar Korki Community Forestry and mainly focus on the introduction of climate change concepts, the upkeep and management of the community forest, and the installation of biodigesters as an alternative source of energy in order to reduce the destruction of community forests from the collecting and burning of firewood for cooking. In addition, participants also engage in vegetable gardening enterprises and learn about the natural fertilizer potential of the slurry byproduct of the biodigester.

The community forestry has been established some 10 years, long before CCCA projects were conceptualized and implemented. Despite limited community resources to invest in the activities of the community forestry group, management and ownership of the resource continues to be strong and the project was able to utilize this collective strength. Up keep of the forest is maintained by collection of 200 Riel per household, which communities can recover from the harvesting of mushrooms during the dry season. This can total about 20,000Riel per family. Since the start of the CCCA project a number of community forestry group members who were not initially selected as direct beneficiaries have purchased biodigesters on their own. However, exact numbers are not known nor is it known what threshold levels need to be reached for adoption to maintain a positive and sustainable environmental impact in the area. In addition, the area has seen an increase of garment factories. Women, especially young women, are now finding more formal employment in these factories and adding substantial income to their families' resources. The factories also provide a market for those engaged in vegetable gardening initiatives. However, the impact of these factories on local natural resources and their management by communities (especially given that women are more busy outside of the community), is not yet reflected upon.

Although the biodigesters were valued for their usefulness for cooking by men and women, they were considered more important for the slurry byproduct as it is extremely useful for fertilization of agricultural gardens and fields. Since the potential benefits were shared quickly within the community forestry group, others' interest was sparked further. This is another success factor for practitioners to consider in introducing a new technology as not only the intended effect of a new technology matters, but also the impact from its use can attract additional users. However, unless the majority of households switch from chemical to organic fertilizers, such as the slurry, adoption of a new practice may not minimize the negative impact on neighboring farms and forests. This showcases the need for collective approaches under community forestry or fishery

schemes. Further, biodigesters are still expensive and out of reach for many in the community as a unit can cost a minimum of $300 USD, making spontaneous replication a distant aspiration.

Knowledge building activities regarding climate change in and around the community are a good way of building inclusiveness. In addition, community association links the community members from all economic backgrounds and age groups to work collectively to build climate change resilience. Community fisheries and forestry groups also enable community wide participation and their modalities and governance structures may also serve as good models for future consideration by others.

What can climate change practitioners do?

- Integrate and support community ownership of and access to natural resources in climate change initiatives, e.g. forestry and fisheries by supporting communities' legal rights and access to such resources. Support policies and processes that enable community ownership of natural recourses in a timely and effective manner and ensure that such processes are well understood by all actors.
- Support and strengthen the institutional arrangements of community managed resources. Build capacity of community resource management committees and constantly update skills through training and networking for motivation.
- Ensure that clear gender analysis for climate change projects is undertaken and women's perspectives, roles, and responsibilities vis-à-vis community natural resource ownership and management is well understood and considered.
- Utilize community based savings led microfinance opportunities for credit and savings. These need to be sustainable and refrain from injections of initial capital by outside groups or investors, including project staff and local authorities.
- Ensure the linkage and networking of communities responsible for their own resource management to share and learn from experiences and best practices. Capture and disseminate knowledge of local communities' adaptive practices as well as indigenous knowledge.

Case Study #3: Knowledge Management as a way to access appropriate technologies in the agricultural sector

"I have never grown rice this way. I value the new knowledge that I have learnt especially that my yield has increased."

Mr. Ros Reun, Rice Farmer, Prey Krolanh Thom village, Takeo province

Cambodian farmers participating in the CCCA projects experience and acknowledge changes in the normal weather patterns, especially in seasonal rainfall, which impact their traditional agricultural and farming practices. In many parts of Cambodia, communities are experiencing climate hazards such as drought and floods and sometimes both within a short time. While most Cambodian farmers tend to be risk averse, it is now evident that farmers have no choice but to try new approaches to counter devastating losses as a result of weather induced agricultural damage.

Farmers who participated in CCCA initiatives noted their willingness to participate in climate change projects. This was mainly because these initiatives were available to them without cost and they highly valued the knowledge they gained. Most agreed that the technologies

introduced in their areas were appropriate and easy to follow. However, costs associated with starting new practices as well as the availability of necessary inputs at nearby markets were often the factors that hindered lasting change.

In most project areas, project implementers provided ample opportunities for learning through demonstration and observation of sites as well as more formal farmer field schools. The WOMAN and the Preak Leap National College of Agriculture (PNCA) were key partners in supporting the knowledge creation and management. WOMAN introduced specific short term rice varieties such as (Chul Sa) and a long term variety (Raing Chey) as well as new agricultural rice planting technologies such as SRI or drum seeding in Prey Veng Province. PNCA introduced rice-fish farming in Takeo. Both project initiatives included a number of training activities that have also been designed to coincide with various stages of the growing cycle. This enabled learning about good plant, soil, and water management practices. These played a key role in participation and supported consistent learning about both climate change as an issue and the adaptive technology itself. In areas where such observation and demonstration sites were in clear view of those not participating in the project, significant interest was also generated.

Participants gained knowledge by directly practicing the techniques and then making comparisons to traditional practices. The outcomes were well documented and thus farmers were able to make informed decisions about their future practices and applications. For many, the documentation of results showing substantive increases in yield acted as a factor for change. The change in practices not only added food and protein to diets and additional income to households, but in some cases reduced outmigration enabling families to stay intact. Seeing the results and having limited alternative employment options meant that new agricultural technologies in many instances also raised the interest of local youths.

In some cases, while the new technology introduced was deemed appropriate by communities, inputs required to maintain the knowledge that was introduced were not always available in nearby markets. In Takeo province Mr. Ros Reun learned about various techniques on his demonstration farm, including drum seeding. The comparison at the end of the trial showed that drum seeding worked best compared to direct sowing and traditional transplanting practices. However, the technique was not sustainable because after the conclusion of the project he could not apply the drum seeding technique since the project only distributed the drum seeding tool for the duration of the demonstration period and the tool is only available in Vietnam. Similarly, seeds for cow fodder crops introduced by Preak Leap National College of Agriculture for the demonstration sites came from Thailand and were not available from local markets. Having materials and resources too far from the area reduced people's continued interest in applying the technology and adoption by others proved limited at best or completely impossible.

Integrated farming systems provide communities a chance to effectively and efficiently use their homestead land resources. However, a consistent application of integrated farming approaches is hard to follow for most farmers mainly due to the associated costs and risks involved. In Sihanouk Province, DHI's costal adaptation project supports integrated farm management as well as improved rice production. This is done through high quality seeds, livestock raising incorporating the breed management of pigs, and animal health management for raising chickens. The project is delivered through demonstration sites with a number of training opportunities for communities to understand animal health management. While many members of the communities in general were pleased with the results and the knowledge they have learnt, they were unable to replicate or apply the technology mainly due to cost considerations. For instance, the total cost of the integrated farm system at the demonstration site came close to $1200 USD. Even if only elements of the technique were applied, for example raising

chickens, $300+ USD was needed as an initial input. In addition, farmers like Mr. Pron Bun in Prey nob village encountered serious damage to his first trial of the new rice crop as birds feasted on the immature seeds before the crop could be harvested. In the end his yield totaled 1 ton per hectare. He gave the rice variety a second chance but still encountered damage by birds. Nevertheless, the second crop produced 3.5 Ton per hectare which was similar to his traditional yield return. As a result he is convinced that the practice is not appropriate for his situation and he has since given up on trying.

Those introducing new technologies need to keep in mind that young people are migrating off the land and thus the intensity of labor inputs for a particular practice must be considered. For example, direct sowing of rice rather than transplanting which requires more labor resources is often favored. Massive garment factories are now littering the landscape near the Vietnamese border. There needs to be recognition that these employment opportunities are just as important to consider, especially for the younger generations. Not everybody in the community possesses entrepreneurial skills and factory work may be the only viable option. The point is to diversify income sources and certainly the factories provide an outlet for this. Nevertheless, in Svay Rieng it was evident that women, especially young women, are flocking to these factories and are no longer able to take up their roles in agricultural activities such as rice farming.

Availability of water sources is also a key factor in the implementation and adoption of new technologies. Throughout Cambodia, scarcity and the availability of water is a key issue for most farmers and will be further compounded by climate change. Infrastructure projects supported by the CCCA tend to address water capturing and storing abilities through rehabilitation of household ponds, irrigation channels, and water reservoirs. However, these only reach a small number of community members. Nevertheless, those reached are able to practice multiple growing cycles in one season especially with the application of improved short term seed varieties. Having multiple cycles to grow rice and other produce presented a high chance of adoption. Most rural communities and local authorities put a high value on water management schemes and work to ensure collective ownership and upkeep of such facilities.

What can climate change practitioners do?

- Design and implement climate change agricultural projects that rely on experimental learning through demonstration sites. Support farmers' collective learning and knowledge generation. Foster intercommunity networking opportunities as a key principle to support learning and climate change adaptation.
- Ensure that technologies introduced in climate change agricultural projects have clear a market analysis attached to them and upward and downward linkages to markets clearly identified. They must be cost effective and within reach of farmers
- Provide knowledge management support to academic institutions that could make information useful not only for academic research but also in training the next generation of agricultural practitioners, especially in the climate change context.
- Since it takes time to shift practices on multiple fronts, climate change practitioners must accept that people can only move at a pace at which they are willing to. Be patient and allow time for uptake. Ensure that project cycles are conducive to multiple trials and that people are supported when experiments do not bring successful results.

Case Study #4: Access to land – How land household tenure/ownership supports the uptake of climate change adaptation activities

"This is my land. This land helps me and my family. Because of this land I can stay here rather than migrate to Thailand."

Mr. Chie Son Uen Rice-fish farmer, Phum Tropeng Krdong, Takeo province.

Recent climate change initiatives implemented in Cambodia, including those supported by the CCCA, revolve around improving household income generating opportunities. Most of these activities are linked to and require land for implementation. Overall, CCCA project participants own their land resources and make their own decisions about their usage. Selection criteria of participating communities often includes access to land and other resources such as water, which may not permit participation by the more vulnerable, landless community members. It is estimated that most Cambodians in rural areas own approximately 1.5 hectares of land, while they may be able to survive on much smaller plots of 0.5 hectares per household. Landlessness or near landlessness is an increasing phenomenon noted by many in the country and will certainly need to be factored into climate change adaptation efforts. In addition, communities' ability to secure adequate labor for agricultural practices should not be overlooked when considering climate change adaptation practices.

At this time, CCCA projects do not have specific data to reflect on what way, if any, household land ownership plays in climate change adaptation efforts. However, efforts made in support of gaining community rights over national resources, such as in the case of WOMEN, Conservation International, and the Forestry Administration for forestry and fishery resources, provide anecdotal evidence to reflect that participating communities take a deeper interest in climate change initiatives if their rights and control over vital natural resources are not contested. Nevertheless, experiences from CCCA projects show that selection criteria for beneficiaries of agricultural inputs, aquaculture, livestock raising, and even biodigesters are tilted towards those with access to and ownership of land. This was done mainly to ensure commitment from participants, deepen motivation, as well as to reduce the risk of abrupt departure from the project's activities due to competing household priorities or migration. Also, those with access and ownership of land have easier access to credit that may enable them to make new investments into climate change adaptation efforts.

There are, nevertheless, a number of good examples that also show support for more vulnerable community members to access individual or collective benefits. In Takeo province, Phum Tropeng Krdong village land ownership helped Mr. Chie Son Uen give up on a vicious cycle of illegal migration to Thailand. He volunteered and was selected as a participant to learn a new rice-fish farming technique introduced by Preak Leap National College of Agriculture. Given favorable conditions of his idling agricultural land he was able to quickly implement the technique and the resulting benefits (including financial) are enabling the family to expand a fish pond for income and keep the family together.

CCCA projects also presented opportunities for landless and near landless community members to partake in climate change adaptation initiatives. For example in O Saray commune, among others landless community members were also given an employment opportunity as guardians of the rehabilitated water reservoir nearby. Even so, more can be done by climate change practitioners to support the engagement of landless communities in climate change initiatives. These could include involve the participation of landless segments of the community in learning about new technologies so that they can sell their labor and skill to others who do not have adequate labor resources.

What can climate change practitioners do?

- Build the understanding of the impact of land ownership on climate change initiatives and share learning among relevant actors.
- Know and document issues around land ownership in the area of implementation and support communities in understanding their land and ownership rights (including common resources). Support communities to explore and experiment with alternative use of land and labor resources.
- Ensure that climate change adaptation and mitigation activities offer opportunities for those without land to also participate. Provide learning opportunities for landless or near landless so that they gain skills and improve their employment potential within their communities.

Case Study #5: Immediate project benefits: material contribution as an incentive to participation.

"I received five pigs from the project. I did not have to pay for them. There are others who want to also receive free pigs in the community."

Pig farmer, Sihanouk Province

Most climate change projects provide a wide range of benefits to communities which are immediately felt. These include inputs to agricultural production such as rice and vegetable seeds, livestock, water filters and tanks, roads, channels, money for saving groups, and even biodigesters or the ability to present a demonstration integrated farm. The list goes on. While most of these inputs are given at no cost to farmers, some do require contributions from the communities if not in the form of actual co-payments. Commitment of time and/or contribution of productive or idling agricultural fields are other examples. Immediate benefits gained from climate change projects form a key deciding factor of participation in such projects for many. Nevertheless, decisions to participate are not automatic and often come after gaining more knowledge and understanding of the benefits to the household or the community as a whole. This may be especially so for poorer community members who often tend to be late adapters.

Communities value the knowledge they receive and the ability to try new techniques or improve their old ones above material benefits. In some cases, even though the material benefits received were of high value financially and perhaps out of reach of the participant, there was not always a straight-forward willingness to participate. This is illustrated by the introduction of biodigesters in Prey Chamkar Korki community forestry in Svay Rieng province. Participation was required to find alternative sources of energy and reduce the destruction of community forests for collecting and burning of firewood for cooking. The total cost of a biodigester system including the biodigester as well as a connected toilet totaled ranged between $520 and $1,030 USD and was made available to selected households with a contribution of up to $250 USD per family, while the rest was covered by the Forestry Administration and the CCCA project budget. Despite the clear financial benefit, intensive demonstration and marketing had to be done, including field visits to other areas, in order to convince families to consider participation in the project. Mr. Yin Bona explained that his wife was particularly against installing the biodigester in the vicinity of their house, noting that she was worried about the smell and the time it takes to learn how to operate it. Today, Mr. Yin Bona's wife is an advocate for the biodigester and is pleased with the benefits it has brought to the household, including better hygiene from using the toilet and better health from using a gas powered stove. The slurry byproduct of the

biodigester is used as a fertilizer for her home garden as well as her rice field. There is also a clear understanding by the family of the economic benefit of their biodigester, which both Mr. Yin and his wife explain eagerly to others.

At another CCCA project site in Preynob1 Village in Sihanouk province, DHI implements a pig raising scheme as part of a costal climate change resilience project. The project distributes five fattening pigs or one saw to 15 community members selected by a committee of members including the project staff and the village chief. Each fattening pig costs between $60 or$63 USD and one saw costs $330 USD. The cost input is seen as an immediate interest free credit. Participating families also receive other material support including materials to construct their pigpens as well as animal feed for the first two months along with continued training and support on animal health through animal village health workers. When participants sell their fattened pigs they have to return the initial cost of the piglets given to them, approximately $300 USD, to support a new cycle of participants to join. The fees are forfeited if pigs die before their value is realized. All in all, communities value the instant benefit of getting piglets free of charge as well as the risk free conditions attached. The interest in the project by those not participating remains high. This is despite uncertainty about how the scheme can continue once the project concludes or if most of the pigs are lost due to diseases or other factors.

Immediate contributions support the willingness of people to participate, as these can in many ways ensure the reduction of costs of adaptation practices to the household (i.e. biodigester, seeds and water tanks) as well as transfer the risk of failures outside the household and the community. Nevertheless, careful consideration of injection of inputs and selection of those who receive them is always a dilemma for practitioners as well as communities themselves. While some projects pay extensive attention to ensure fairness and a wide reach of the benefits, it is not always possible to reach those most in need or those who may not have the economic capital – including land, labor, or money – to participate. In addition, building climate change resilience is a long term effort. Practitioners need to ensure that current climate variability is addressed and provides immediate benefits to build momentum for proposed technologies, but careful consideration must also be given in order to not overemphasize short term benefits. Maladaptive practices which initially look good can result in the unintended consequence of further dependency on resources that may not be available. The 2013 CCCA Grants Review report noted that such practices may already be taking place in coastal climate change adaptation initiatives. These include irrigation infrastructure for rice production in unsuitable areas.

While climate change is an urgent issue, those affected most will need the time to allow for adaptation practices to be considered and applied. While short term output based projects may bring about good results, their long term benefits may not be realized. Short, quick return seeking projects may lead to fragmented understanding and skepticism about benefits and can lead to an early exit from participation. CCCA projects at this time only allow 15-22 months for implementation with the only exception being the coastal zone initiative. Implementers across all provinces noted that time constraints were constantly a limitation for implementation. Most CCCA projects, especially those introducing new technologies in the agricultural sector and those requiring behavioral changes, do not have time for failure and are planned with an assumption of a win-win situation. Because of this mindset, participants may prematurely give up trying new technologies for rice production or raising livestock because of low results. Climate change projects need to factor in that farmers need time to try, experiment, time to fail, and time for adjustment of the techniques to fit local contexts. Planning and supporting longer term programs rather than short term projects may lead to more space for communities and practitioners to be more innovative seekers as well as enable them to meet expectations and

realize ambitions. At the same time, if a project stays in the same village for more than one farming season, it may be likely to capture more risk averse, poorer villagers among the second or third cycle of participants. Currently, most of the projects value breadth of reach rather than depth. Even a multi-year project may run only for one season in a target area and move onto a different target area in the following season.

In some project areas, village chiefs, commune council members, and economically well off farmers formed the list of participants receiving immediate benefits. For example, in Preynob commune, Sihanouk province, it was the Chief of Commune as well as the village chiefs who benefited directly either by receiving seeds or hosting chicken raising demonstration sites. This may raise questions about the fairness of the selection process. At the same time, the participation of wealthy community members as well as local authorities can be important when considering factors of change. Their high social status and associated trust in the community makes them likely first implementers and promoters of good adaptive practices. They may also have a higher buffer for absorbing associated risk, available land that can be used for demonstration sites, the ability to influence behaviors, seek additional resources, and consider and negotiate for further development efforts for their communities.

What can climate change practitioners do?

- Carefully consider how immediate benefits could be best utilized and shared by communities. Consider the level of communities' willingness to take responsibility in deciding incentives and the associated risks.
- Carefully consider selection criteria and obligations for those receiving benefits and ways to spread the benefits throughout the community, e.g. key farmers must act as focal points for PDA in return for initial intensive support they will receive in acquiring the benefits.
- Ensure clear financial analysis of benefits and risk of loss including immediate and long term. Introduce household level financial literacy and management skills to accompany income generating activities. Knowing expenditures and incomes can support informed decision making, especially when inputs are injected by climate change projects.
- Provide opportunities for non-beneficiaries to reach products such as seeds in easy and cost effective way (i.e. availability in nearby markets).
- Be realistic about how long climate change project interventions may need in order to take root among participating communities. Planning for long term sustainable climate change programs rather than short term projects may be a key for success.

Case study #6: Financial incentive to motivate government actors at national and sub-national levels:

"It is my duty and role as a commune council chief to help the community develop and I do not get any additional salary or money to participate in climate change projects."

Mr. Kiv Seng, Chief of Village, Bokomrek Village, Prekloung Ekphnrom, Commune, Battambang Province

In most development work including climate change initiatives in Cambodia, government counterparts' participation at national, provincial, district, commune and village levels are key. However, motivating these actors often brings about many challenges, including competing government priorities. There are a number of factors that can influence motivation for delivery of projects in general. Motivation of government actors and local authorities can have a significant

impact on the scale, uptake, and quality of project implementation. Most development actors as well as donors are likely to look unfavorably upon creating incentives that are financial in nature.

Local community based climate change adaptation projects need and actively seek collaboration of local authorities as well as government actors. Without their support and collaboration such initiatives may not be possible and thus their motivation is paramount. Their remuneration for the work is dictated by government policy (Anukret #10). At the local level, village chiefs and commune council members report that they received no financial incentives to partake in outside initiated community development project activities. They know and internalize their roles, investing their time and energy to collectively learn with their communities about climate change causes, effects, and impacts. Their motivation is mainly to support their communities with adaptive capacities, especially through improvement of activities that support income generation and improvement of the quality of daily life.

Most local partner organizations, especially local and international non-governmental actors, developed clear guidelines about providing financial contributions to national and sub-national government actors. These financial incentives however, act more as reimbursement of travel costs to and from workshops and meetings, rather than adding additional resources to either individual salaries or monthly incomes. Most Commune council members and village chiefs receive between 120,000 and 300,000 Riel for their monthly salary and expect no additional financial contribution to participate. This was particularly reflective for village chiefs of CCCA project areas. Nevertheless, some Village Chiefs may become direct recipients of immediate benefits of the project (i.e. demonstration sites or rice seeds).

At national level, motivation of government actors continues to pose many challenges. The CCCA projects provide limited financial contribution to national level government actors. These include mainly a small stipend DSA (daily service allowance) aligned with Anukret 10 which can be accessed for field visits and participation in meetings and workshops outside of their normal place of work. Given low government salaries, most technically capable staff seek alternative secondary employment with private employers or projects that provide for financial incentives, leaving government agencies with limited human resources to deliver the work. Despite the grim outlook, leaders are emerging who, through personal perseverance and belief, push through the climate change agenda for Cambodia.

What can climate change practitioners do?

- Know and apply existing principles and policies around financial incentives for national and sub-national actors. Support incentives that are non-financial in nature, e.g. training programs and cross learning study tours.
- Support the review of appropriate financial incentive policies and practices by documenting experiences, challenges, and opportunities and sharing these with appropriate climate change stakeholders.
- Create internal policies and practices that foster accountable and transparent application of financial incentives for project participants, including national and sub-national actors.

3. CONCLUSION and RECOMMENDATION

Climate change adaptation projects strive for a change in people's traditionally held conceptions and practices. Shifting long held beliefs and preparing for unknown realities is a difficult challenge for climate change practitioners not only in Cambodia, but around the world. For change to be positive, widely felt, and sustainable, many factors need to be considered. The CCCA climate change project experiences show that first and foremost change must be

relevant to the communities where the change is to be introduced. Considering the reasons and factors that lead to acceptance and uptake, the change must have the attention of all those working in a climate change context. This includes policy makers, academics, development practitioners, as well as communities themselves.

In conclusion the following recommendations are offered to support change:

In support of market incentives and access to markets

Access to markets is a key for adaptation practices to take root. Be it livestock raising, aquaculture, rice, seasonal vegetable growing or post-harvest processing of products, farmers' and small scale producers' linkages to markets either as buyers or suppliers plays an important factor for change. For most CCCA projects, small local markets were essential in improving livelihoods and providing motivation for change. However, people lacked the vital information that would make their participation in these markets more meaningful and equitable. Therefore, it is important to design and implement a market information mechanism that is user friendly, timely, and reliable. The behavior of middlemen and traders can also significantly impact on peoples' lives, especially during times of crisis. Mechanisms will need to be established to counter or protect communities from unfair practices. Communities can also take advantage of opportunities to better understand how their income generation activities are supporting improvements to the livelihoods of their families. Climate change practitioners should not only invest in market analysis and value chain research, but should also help households gain valuable financial management skills.

In support of local community ownership and management of natural resources in fisheries and forestry sectors

Promoting communal ownership and management of natural resources serves as a good linkage to sustainable climate change initiatives. A number of CCCA projects have prioritized the legalization and recognition of community forestry and fisheries areas as a backbone of climate change initiatives. Such an approach has not only enabled communities to feel ownership and responsibility for the protection of their resources, but has also provided a good approach to collective learning and trust building which leads to synergy among community members. Nevertheless, more needs to be done to capitalize on the potential that community ownership of natural resources represents for ensuring the success of climate change initiatives. For example, policies and practices that enable community ownership of natural resources must be effective as well as efficiently implemented. A more in-depth gender analysis can also help to better understand contextual implications and possible response strategies. There is also a huge potential for building community networks and efforts must be taken to capitalize on intercommunity learning.

In support of access to appropriate adaptation technologies in the agricultural sectors

Knowledge building is by far the most valued intervention that CCCA projects bring to communities. Activities centered around knowledge building not only enable communities to learn important climate related concepts for the first time, but also allow a wide segment of community members, including those with authority and status, to participate from the same limited knowledge base. Communities can play multiple roles in fostering knowledge generation, capture, and dissemination which may have a significant influence on the spread, replication, and adoption and therefore must be capitalized upon. Experiences gained through first hand reflective practices like demonstration sites are one of the most useful approaches to learning about climate change adaptation best practices. Knowledge generation, capture, and

dissemination should be purposefully and systematically mainstreamed into climate change initiatives by all stakeholders, including government actors. Opportunities to exchange, share, and learn within and between communities must be mainstreamed by all stakeholders through a key knowledge generation and dissemination mechanism at all levels.

In support of land ownership and use

CCCA supported projects link to and require land for implementation. Overall, CCCA project participants own their land resources and make their own decisions about their usage. Given the lack of empirical data on what ways, if any, household land ownership plays in climate change adaptation efforts, further research into this issue may prove to be useful for practitioners. However, anecdotal evidence demonstrates that participating communities take a deeper interest in climate change initiatives if their rights and control over vital natural resources are secured. Ensuring commitment from participants at most projects sites involves land ownership as a prerequisite for participation and this may have ensured access to credits which makes new investments in climate change adaptation efforts possible. More efforts need to be made in order to draw in and motivate other vulnerable segments of communities and build their skills to be adaptive to climate change.

In support of immediate project incentives

Most climate change projects provide a wide range of benefits to communities that are immediately felt. Most of these immediate benefits are material contributions at no cost to the beneficiaries. However, communities often value the knowledge they receive and the ability to collectively implement this knowledge through projects within their community above any material benefits. Nevertheless, careful consideration of the injection of inputs and selection of those receiving them must be carefully considered to ensure equity and fairness. Also, climate change practitioners need to ensure that current climate variability is also addressed and provides immediate benefits in order to build momentum for proposed technologies. At the same time, careful consideration must be given to avoid overemphasis on short term benefits while neglecting the long term climate change impacts that may negate these benefits. Maladaptive practices should be avoided as much as possible. Finally, there needs to be recognition that climate change is an urgent issue and that those affected most will need the time to allow for adaptation practices to be considered and applied.

In support of financial incentives for sub-national and national level actors

National as well as local climate change adaptation projects need to seek the collaboration of national as well as local authorities and government actors. The motivation and commitment on behalf of these actors may determine a project's success. Most government actors in CCCA projects receive only the regulated daily service allowance to partake in project initiatives. While this is an accepted reality at sub-national levels, many national level government actors view financial disincentives as a serious challenge to the prioritization of climate change work. Steps must be taken by practitioners to find creative but perhaps non-financial opportunities to boost the motivation and commitment of these actors.

4. NEXT STEPS

Put people first: The affected communities must be at the center of climate change initiatives. Be it older people, youth, or the landless, it is people's lives and livelihoods that are threatened by climate change. Supporting them in building resiliency is a priority. They are also the ones on the ground who understand and monitor the changes first hand. It is equally important to

remember that women and men are affected by climate change differently and therefore climate change initiatives will need to apply a gender lens. Nevertheless, fostering collaboration between women and men in analyzing their context, environment, and corresponding responses may serve as a good model for addressing the gender paradigm of climate change.

Link, collaborate and network: Climate change cannot be tackled in isolation by different sectors, be it government, donors, civil society, the private sector, or communities themselves. It requires collaborative approaches from different government sectors as well as other practitioners, including the private sector. Supporting and fostering cross sector learning and implementation is therefore a must. Conducting in depth stakeholder analyses will be paramount in determining who is responsible for what roles and why and how linkages, collaboration, and networking could be further enhanced and appropriate strategies designed.

Allow time for adaptation to take root: While climate change is an urgent issue, those affected most will need the time to allow for adaptation practices to be considered and applied. While short term output based climate change projects may bring about good results, their long term benefits may not be realized. Short, quick return seeking projects may lead to fragmented understanding and skepticism about the benefits and can lead to an early exit from participation. Farmers may prematurely give up trying new technologies if they see low results initially. Climate change projects need to factor in that farmers need sufficient time to try, experiment, and time to fail. Most CCCA projects do not have time to allow for failure and are planned with an assumption of a win-win situation. Planning and supporting longer term programs, rather than short term projects, may provide more space for communities and practitioners to be more innovative and enable them to meet their expectations and realize ambitions.

Policy: The Royal Cambodian Government recognizes that climate change is a development issue which, if left unchecked, can have a profound impact on the future of its people. Thus, policies and practices must be conducive to climate change adaptation and mitigation efforts being delivered in the country. These include sector specific strategies as well as delivery plans for priority areas including agriculture, forestry and fisheries, health, education, water, energy, and infrastructure and they must be in line with development strategies and efforts. Given the impact of climate change on women, special consideration of their needs must be addressed and integrated in all policy making efforts. In addition, climate change is not strictly about a negative scenario and Cambodia can take advantage of the opportunities which climate change may present by setting development paths that are sustainable and conducive to green growth principles. However, policies alone will not be enough. There needs to be sustained and collaborative efforts to build a strong knowledge base as well as a capacity to respond to climate change at the national and sub-national levels.

Finance: Climate change adaptation projects can have a significant impact on the daily lives of affected communities. CCCA climate change projects are already a testament to what positive change small financial contributions can bring. As communities build their knowledge about the effects of climate change and identify possible responsive actions, they cannot be left alone to fend for themselves. Many CCCA project areas have already begun integrating climate change in their commune development and investment plans. Financing and resourcing these initiatives will be instrumental in fostering continued motivation, but more importantly in enabling communities to have a say in their own development for the future. The finances made available to communities through climate change interventions must be equitably, effectively, and accountably distributed. The international community plays an important role in ensuring adequate financing for Cambodia's climate adaptation efforts. The government of Cambodia plays an equally important role in ensuring that the financing received is channeled through a transparent and accountable mechanism.

Build scale and depth of climate change initiatives: To date, most climate change adaptation projects reach only a small segment of the population, be it farmers, educators, or policy makers. The real numbers are not known. What is well known is that climate change affects millions in Cambodia and that strategies must be formulated to bring about scale and depth of scope when investing in efforts to reach vulnerable groups. Climate change projects do represent significant potential for capitalizing on mobilizing agents of change at the community as well as leadership levels.