



Workshop for Countries of the Asia-Pacific region: Advancing National Adaptation Planning and Implementation of Adaptation Actions in Asia-Pacific
15-16 February 2017, Radisson Blu Plaza Hotel, Bangkok

Community Based Adaptation Programs in Cambodia

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Outline

1. National Strategic Development Plan (NSDP)
2. Strategic Objectives of CCCSP
3. CCCSP scale up of the implementation of CC response
4. Climate Adaptation livelihood Agriculture Community (CALAC)
5. Posters for Knowledge Sharing Event: Cambodia's Response to Climate Change

1. National Strategic Development Plan (NSDP)

- NSDP 2014-2018 that is the road map for the implementation of the Rectangular Strategy Phase III in providing a development framework, which will be implemented through the next five-year period.
- Ministry of Environment (MOE) developed approach toward environmental management and mainstreaming into NSDP:

1. Sustainable management of natural resources.

2. Intensifying efforts to reduce the impact of climate change by strengthening the adaptation capacity and resiliency to climate change, by implementing the "Cambodia Climate Change Strategic Plan (CCCSP) 2014-2023", "National Policy on Green Development" and the "National Strategic Plan on Green Development 2013-2030".

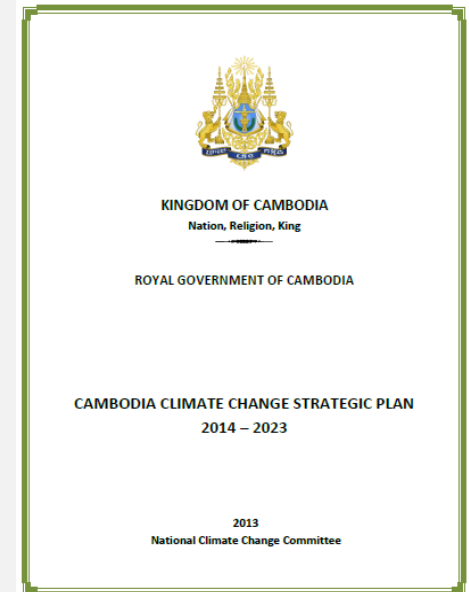
3. Strengthening technical and institutional capacity to promote the mainstreaming of climate change responses into the policies, laws and plans at national and sub-national levels.

4. Introducing measures to control environment and ecosystems



2. Strategic Objectives of CCCSP

- 1) Promote climate resilience through improving food, water and energy security
- 2) Reduce vulnerability of sectors, regions, gender and health to CC impacts
- 3) Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands etc.), biodiversity, protected areas and cultural heritage sites
- 4) Promote low-carbon planning and technologies to support sustainable development of the country
- 5) Improve capacities, knowledge and awareness for CC responses
- 6) Promote adaptive social protection and participatory approaches in reducing loss and damage
- 7) Strengthen institutions and coordination frameworks for national CC responses
- 8) Strengthen collaboration and active participation in regional and global climate change processes.



3. CCCSP scale up of the implementation of CC response

- There are two programs of Cambodia Climate Change Alliance (CCCA) and Strategic Program for Climate Resilience (SPCR)
- **National level:** scaling up implementation of the sectoral CCAPs
- **Sub-national level:** *scaling up support to awareness raising and capacity development of provincial and local authorities for CC mainstreaming*
- **Community Based Adaptation:** *scaling up adaptation project under program*

4. Climate Adaptation Livelihood Agriculture Community (CALAC)

- **ORGANISATION:** Provincial Department of Agriculture (PDA)
- **REPORTING PERIOD:** [31 March 2014]
- **The Project duration:** [01, January 2013 – 31, March 2014]
 - The project will extend this activity by PDA and local community when project ended.
- **Total Approved Budget:** US\$ 163,004.40
- **Total Expenditure to date:** US\$ 163,004.40
- **The Project partners:** Famer Livelihood Development (FLD)
- **Project location:** Thma Koul, Moung Ruessei, and Koas Krala districts, Battambang province.

4.1 Overall achievements and adaptation outcomes

- Awareness of climate change has been embedded in the community, as some of them are able to articulate basic definition of climate change and its impacts on their daily livelihood activities and how to cope with it.
- Water Management Committees are widely available in the communities to provide related services to the people and are better equipped and recognized by relevant authorities up to the provincial level.

- The existence of AC has raised sharply, a lot more community people reported that all AC members are active in the management and maintenance of the irrigation systems and in fund raising.
- With the new skills trained to them by the project, people reported increased income from their more options of livelihood activities.
- Overall, AC members' awareness of the main hazards of climate such as drought, flood, storm, warming and lightning has increased. They also understood that when climate change happened it could affect their livelihood activities such as vegetable growing and rice production.

4.2 Capacity building activities discuss evidence of changes in capacities

- 1716 farming families have increased their rice short term production from 1 to 2 times per year, improving their living condition by selling their extra product for additional income.
- **262 community members** have been aware on impacts of climate change and adaptation and been exposed to demonstrated adaptive agriculture techniques
 - ***118 apply CC resilient rice planting techniques***
 - ***104 apply home gardening skills using the drip systems and plastic pouching,***
 - ***33 apply commercial gardening using the same skill and drip systems and plastic pouching and***
 - ***7 able to apply fish culture.***

By supported from PDA:

- 262 AC members were attended the monthly meeting and understood on climate change adaptation
- 60 AC committees' members were trained on climate change adaptation and able to transfer their knowledge to community members by AC monthly meeting.
- AC members have been able to apply adaptable skills to drought on agriculture activities to sustain their regular income as a result of improved resistant crops growing techniques and increased awareness on adaptation measures.

4.3 Assessment of adaptation demonstration activities

Adaptation Demonstration Activity	Number of villages where demonstration sites have been established	Total number of HH beneficiaries	Total number of Households Replicating the activity
Home garden	30	104	20
Commercial garden	30	33	3
Fish culture	7	7	13
SRI (System of Rice Intensification)	30	118	45
Total	97	262	81

The five most important achievements:

- 1) Four existing water sources have been renovated to adequately supply water for irrigating activities,
- 2) Twelve **Agriculture Community** (AC) has been formed and functioning, 4 AC in each district.
- 3) Facilitated and setup 104 demonstration home gardens ,applying drip system
- 4) Facilitated and setup 33 demonstration commercial gardens, applying drip system
- 5) Thirty eight of PDA staffs have been trained on a series of course in relating to climate change and adaptation and 20 staff attended study tour.



The five most important lessons learned:

- 1) Cooperation between FLD and PDA has been positive in every stage of project implementation.
- 2) The project engaged local authorities and built-in ownership toward implementation of the project.
- 3) Skill training in promoting agriculture activities and an improved basic infrastructure – small scale irrigation is well balanced for the communities.
- 4) The project team introduced cost and benefit analysis exercise to selected beneficiaries prior their establishment of home and commercial gardens and household fish culture, and gaining beneficiaries.
- 5) Selecting the right farmers, sustainability and reliability of the introduced dripping systems.



The three most important recommendations:

- 1) Farmers showed hesitation to participate with the project when agricultural techniques were found new to them. This had consequently caused to delay a selection of beneficiaries.
- 2) Different profile of CALAC project beneficiaries from existing AC members have made difficulty to integrate. Practically, previous ACs in the localities has been gone through this practice with financing of World Vision, and other NGOs and PDA.
- 3) Some farmers rely on FLD or CALAC project team to supply their seeds. A development of local suppliers and experts in district level is crucial to encourage a sustainability of both materials and skill.



5. Posters for Knowledge Sharing Event: Cambodia's Response to Climate Change



Provincial Department of Agriculture, Battambang Province



Photo: CEDAC

PURPOSE OF PROJECT

The project aims to improve sustainable livelihood options of target farmers by enhancing adaptation and resilience to drought and flood in vulnerable villages in Thma Kou, Moug Russel, and Koas Krala districts, Battambang province.

KEY RESULTS

- ➔ Target farmers have increased farming activities, particularly on subsistence and cash crops growing and livestock production through improved small irrigation systems with adequate water supply and sustainable management
- ➔ farmers have adaptable skills to drought and flood on agriculture activities to sustain their regular income as a result of improved resistant crops growing techniques and increased awareness on adaptation measures
- ➔ Competent community based mechanism (AC) is in place to develop mitigation and adaptation measures to climate change
- ➔ Coping mechanism at provincial level is in place as evidenced by an integration of adaptation to climate change into district, commune, and provincial level planning

BACKGROUND

Battambang province has been identified by NAPA as the area most prone to droughts and floods. The poverty rate is higher in Thma Kou, Moug Russel, and Koas Krala amongst all 14 districts which ranged between 29.3% and 82.5% according to ID Poor 2010. These areas are most prone to floods and droughts. As revealed by the field assessment, existing irrigation systems in some

communes in these districts have been deteriorated and most of them are idle. Generally, villagers have limited awareness on climate change adaptation and limited skills on climate resilient agriculture activities. This has an impact on livelihoods and rural employment opportunities of farmers who are highly dependent on agriculture activities.

Water user/management committees exist but all have little or no functions because of shortage of water supply in the past recent years, poor leadership and limited capacity and demotivation of villagers to financially contribute. Communities therefore have weak coping mechanisms to address impacts on climate change in this area.

This project is designed to improve sustainable livelihood options of target farmers by enhancing adaptation and resilience to drought and flood in vulnerable villages in Thma Kou, Moug Russel, and Koas Krala districts, Battambang province.

PROJECT INFORMATION

DURATION	15 months Jan. 2013- Mar. 2014	PROJECT PARTNERS	Farmer Livelihoods Development (FLD)
TOTAL BUDGET	\$265,716.90	LOCATION	Thma Kou, Moug Russel, and Koas Krala district, Battambang province
CCCA-TF CONTRIBUTION	\$163,004.40	CONTACT Counterpart Contact: Mr. Long Phom, Deputy of Agriculture Department, Provincial Hall of Battambang, Cambodia Tel: (855-12) 769 637 Email: long.phom@cedac.org.kh	
CO-FINANCING	\$102,712.5		
PROJECT DELIVERY	N/A		
PROJECT STATUS	New project		
LEVEL OF INTERVENTION	Sub-national		




Photo: CEDAC

GENERAL INQUIRIES

Cambodia Climate Change Alliance Trust Fund Secretariat, Ministry of Environment
#48, Preah Sihanouk Blvd, Chamkarmon, Phnom Penh, Cambodia
Tel: (855-23) 6 408 833 | Email: secretariat@camclimate.org.kh | Website: www.camclimate.org.kh

5. Posters for Knowledge Sharing Event: Cambodia's Response to Climate Change


 National Council for Sustainable Development



LOCAL CHICKEN FARMING TECHNIQUE TO ADAPT TO CLIMATE CHANGE

• A local chicken farming technique adopted by the communities on Koulen mountain, Koulen commune, Svay Leu District, Siem Reap Province has become the third most important source of income for villagers after rice and cashew nut farming.

• Almost 60% of households who joined the project earned additional income from the local chicken farming practice. Each household can collect their chicken for sale at 3-4 times per year at average income of 62-75US\$ per time. There is a good market for local chicken. Middle men come to buy at village at 3-3.5US\$/kg for supplying to markets in Siem Reap town.

• Under this technique, local chickens are grown and fed in cage. The cages for keeping chickens are 2x3m. In addition, a closed in area for chickens to walk and feed is built with a minimum size of 10x10m. Cages are placed in a appropriate area such as the backyard or under trees. Cages are made from small pieces of wood from the community forest with a height of 1.5-2.0m.

• With this technique, chickens grow faster being ready for sale after 3-4 months only, depending on the care given (such as vaccinating) and giving the right amount of food and water.

Forest protected community on Koulen mountain in Koulen commune, Svay Leu District, Siem Reap Province.

60% of families as project beneficiaries practice this adaptation with technique with support from a project.

Changing of rainfall, higher temperatures, and drought associated with climate change has reduced production from conventional local cropping and livestock, including conventional local chicken raising.

Chicken diseases normally happen during the hot months of March and April and at the start of the rainy months in late May and June.

Based on projected climate change trends, raising local chicken in open spaces will become increasingly risky especially during March to June when disease incidence is higher.

Raising local chickens using techniques that reduce risks from heat and disease:

- Placing in cages in shaded areas
- Using proper vaccination
- Ensuring regular feeding and access to water

The technique is also dependent on good forest and tree conservation to provide shade for the chicken pens.



Chicken farming has become a good alternative source of income for villagers to supplement rice and taro that are highly vulnerable to dry conditions.

The average annual income per household from selling chicken is 225-300US\$.

This technique requires some extraction of small trees from the community forest. A stable or sustainable level of extraction of these small trees is needed to mitigate this risk of over-exploitation.

This practice needs support from agriculture specialists and local authorities to ensure villagers understand the importance of keeping the chickens in pens, using proper feed, and other techniques to reduce disease risk.

The average expense for this local chicken farming technique is about 100US\$.

ChanHoan Fishery Community is located in Kampot province. It is composed of around 10 families.

ASSIST ASIA Phone: +855 (0) 10 690 498 Email: Mathieu@assistasia.org

ChanHoan Fishery Community is led by a woman, Ms Chey Sopha. She is managing the Solar dryer by herself with the help of her family. She provides a service to other families to dry shrimps and fishes. Around 10 families from the neighborhood are using this technology.

She has been using this drier since 2013. Such driers are rare in Cambodia - only 4 other solar dryers have been found in the whole country.

Climate change has affected both fishing and farming activities, essential to ChanHoan Fishery Community as they are mostly drying shrimps and fishes.

Frequent heavy rain and storms but also long drought periods in recent years have led to difficulties using the ancient technique of open sun drying.

Thanks to the Solar Dryer, the community can tackle Climate Change issues, increase product's quality and limit post-harvest losses.

The pilot solar drier improves performance of drying and the quality of the product by drying more quickly and in more hygienic conditions than conventional open sun drying.

Successful implementation of the project encourages the installation of solar dryers for SMEs at the community level. This practice also aims at empowering women as this community is led by women.

By improving the process and preventing post-harvest loss, this initiative helps the community to reduce costs, generate more earnings, and eventually grow as businesses.

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It enhances the quality and global marketability of the dried products, providing the local industry great opportunities for export. In the long-term, this kind of practice could create more jobs and help uplift the lives of people in the community.


It creates a venue for collaboration and women empowerment, within the community and between the small investors and cooperatives, moving towards more sustainable growth.

To extend these benefits to other communities, ChanHoan Fishery Community could act as an ambassador to demonstrate to other communities that the solar drier is efficient both environmentally and economically.

Initial financial investment is the main limitation of such a solar drier.

ChanHoan Fishery Community was equipped with their solar drier as part of a funded project, a Public Private Partnership between the German Government and Bayer, a Global enterprise with core competencies in the fields of health care, nutrition and high-tech materials. This project was implemented by the capacity building organization, ASSIST.

Higher than 10,000 US\$




 National Council for Sustainable Development

SUSTAINABLE, HYGIENIC, AND RESOURCE EFFICIENT SOLAR DRYERS FOR CHANHOAN FISHERY COMMUNITY IN KAMPOT PROVINCE

• Fisheries and agriculture are two industries known to contribute the most to the Gross Domestic Product and balance of trade.

• One of the oldest techniques employed for processing dried agricultural and fish products is open sun drying.

• However, it is considered the least efficient in terms of processing time and weight loss of the end-product, and the least safe as the products are exposed to various contaminants.

• ASSIST seek to improve the practice of drying agricultural produce and fish products by the installation of a pilot solar dryer in ChanHoan Fishery Community, Kampot province.




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Higher than 10,000 US\$


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CONSERVING BAMBOO FOREST AND THATCH MEADOWS FOR INDIGENOUS PEOPLE (BUNONG) TO ADAPT TO CLIMATE CHANGE

• The Bunong are an aboriginal Cambodian minority ethnic group, living primarily in Monduliri province. They are the largest indigenous highland ethnic group in Cambodia with their own language called Pnong.

• Bunong people traditionally build turtle shell-shaped house made with a bamboo structure and thatch roofing although there is plenty of hardwood available.

• Often, the settlements are on upper slopes far from their farming areas and gardens which are on the lowest slopes of the hills and close to streams, for convenience of watering crops and animals. Traditionally, they also build a farm-house which is made of a stronger wood structure, completely different from village turtle shell-shaped house.

• Bunong are traditionally mobile people due to their farming practices, and bamboo and thatch are ideal materials for house building because they are of light construction and with easy access of bamboo and thatch they can rebuild in fast way.

• Traditionally most of the Bunong villages are located near to bamboo forests.

• Their wooden farm houses on lower slopes near water-stream, are often swept away by flash-floods, and this experience of disasters has led to the traditional practice it is more adaptive to build a light-structure house.

• The use of bamboo and thatch is an adaptation to the local environment giving them greater resilience to climate change and disaster risk reduction

• Bamboo forest and thatch meadow are important for Bunong people and they traditionally see the value and the need to manage the resource sustainably and protect it.




Monduliri province

Name: Kat Bun Heng Sex: Male Phone: 012 974228 Email: kat.bunheng@gmail.com

The conservation of bamboo forest and meadows has never been formal but has relied on traditional practice from ancient times.

The Bunong people understand how to extract bamboo stalks and bamboo shoots in a sustainable way and thatch is harvested at certain times of the year.

The sustainable use involves the whole community. Elderly people would have a say on how and how much bamboo stalks can be harvested while women know what is the best time to harvest thatch for roofing their houses.

Currently, bamboo forest conservation may be part of Community Forests or CPA for protected forest under the law, but because of its importance to indigenous peoples, the conservation of bamboo forest and meadows should be reflected as a separate ecosystem at the formal and legal level.

So far, there is no formal research or study on how meadows or fallow hilly land benefits indigenous people or their ecosystem. Meadows play a vital role in the context of climate change. Local indigenous knowledge shows that meadows (long thatch) can protect slopes from erosion and land slide.

Bamboo forest and meadows are one of the traditional resources for indigenous people to adapt to their environment and the increased risks of disaster due to climate change.

Indigenous people in Monduliri choose their farm where bamboo forest can be a natural fence protecting their crops from storm or strong wind.

The knowledge of sustainable management of bamboo forest and meadow protection is in decline due to expansion of commercial farming, even among indigenous people.

The degradation of bamboo forests and meadows will eventually lead to more frequent disasters such as soil erosion and land slides in the future.

Formal conservation measures will allow bamboo forest and meadows to regenerate naturally.

This can provide indigenous people with bamboo and thatch for housing and other daily use. These are critical resources for them to adapt to climate change.

Loss of bamboo and thatch resources dramatically reduces their capacity to adapt to climate change.

Formal conservation of bamboo forest and thatch meadows can assist indigenous people including women to be able to adapt to climate change and disaster.

Bamboo shoots are also collected from the forest as a food-sources for indigenous people.

There are no legally designated bamboo forest areas or protected bamboo forest and meadows areas.

Higher than 10,000 US\$


 National Council for Sustainable Development

ADAPTATION OF TRADITIONAL RAISING OF GREEN MUSSELS IN COASTAL COMMUNITIES IN KOH KONG PROVINCE

• Green mussel (*Perna viridis*) farming in Koh Kong Province has emerged as a sustainable income alternative after the collapse of shrimp farming.

• About 80% of households in the commune raise green mussels in the rich mangrove area due to its high potential for this activity.

• This activity alone accounts for almost 80% of the fishing household's annual income

• Production area: 0.5-1 ha of the mangrove areas salty creeks. Fishers plant trees throughout the areas with a spacing of about 5m between pillars.

• Cultivation period: 12 months Yields around 10-15 tons/ha.

• Market: Thailand Price: 2,000 Riel (about 0.5US\$) per kg.




Peam Krasop - a coastal commune in Koh Kong Province, comprising 3 villages.

330 households in Peam Krasop that depend mainly on fishing with some farming, animal raising, small trade and working as labourers.

In the last few years, fishermen have noticed a dramatic decrease in green mussels harvesting compared with earlier years.

Some problems in production during the rainy season from June to August but increasingly in the last few years, green mussels started to die in November, when there is no rain.

Reason for this fall in production is not know but, some fishermen reported that monsoon rains in recent years have been longer than normal, accompanied by higher temperatures.

Innovative ways fishers coped with climate variability, and seasonal changes in temperature and rainfall: started to grow green mussel in deeper areas so the cultivars can be protected from high temperatures and freshwater intrusion.

Some local producers have been trying to find places with 10-15 meters depth to raise green mussels, in order to reduce risk associated with any environmental variability.

Allows fishermen to earn more income; annual income from green mussel raising for fishermen with one hectare of mussel pillars is about 6-8,000 US\$ a year.

Provides alternatives to fishing and farming

Based on local knowledge and so adaptation can be easily made by those in the local area.

Most of fishermen do not have ownership rights over the areas where they are growing mussels.

Increased population and development in the area is likely to increase competition for creek areas.

Solution: local and provincial government need to work with local community to ensure continued access to this livelihood activity.

1001 to 10,000 US\$

Thank you for your attention!

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