

CAMBODIA CLIMATE CHANGE ALLIANCE

Farmers Benefit from Bio Digester Establishment Project:

Adaptation to climate change through alternative livelihoods in community forestry Forestry Administration, MAFF, Cambodia

CCCA-Trust Fund, 2013

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CASE STUDY #1

CHALLENGES

Svay Rieng Province is located in the south-east of Cambodia and covered by lowlands. This province has 2,966.40 Km² in which 67% can be used for agriculture cultivation and 13% is forest area. Forest management knowledge is limited, and most families use firewood to cook their meals due to the lack of alternative technologies to tap other sources of energy. Some children skip school in order to collect the necessary firewood. Due to limited knowledge and information, most rural households hesitate to invest their money in improved energy inputs and their time in improved technical skills and practices. In traditional practice, many households own animals such as pigs or cattle, but are

unaware of the potential use of animal manure for energy production.

The demand of local communities for timber and non-timber forest products has increased in recent years. The current understanding of climate change and its potential impact on food security is low. These communities are particularly at risk due to their high dependency on unsustainable forest management practices, and lack of alternative income generation opportunities.

The bio-digester technology is one of the available options in Cambodia to reduce the demand of local communities for timber and non-timber forest products. The Community Forestry Office

(CFO) of Forestry Administration, Ministry of Agriculture, Forestry and Fisheries (MAFF), with support from the Cambodia Climate Change Alliance (CCCA) Trust Fund, aims to demonstrate the benefits of integrating the use of bio-digesters with improved management of community forestry areas. This approach has potential to

bring both mitigation benefits (through forest conservation and clean energy production), and adaptation benefits through diversification of sources of income, improvement of health, energy security and freeing up some time for other activities, including children's education.

BIO-DIGESTER CONTRIBUTES TO INCREASED ADAPTIVE CAPACITY IN ANGSALA VILLAGE



Photo: Chuon Et/CCCA-TFS

Mr. Men Tith and his wife Ms. Sam Sambo, both 52, live in Angsala village in Svay Rieng province. They have 7 children five daughters and two sons and one son among them is studying in grade 6 at Angsala primary school in Svay Rieng and the rests are working at garment factory and stay at home. Prior to the project intervention, they spent 150,000 riel (around 38 USD) to purchase one cart of firewood per year and family members had to collect 2 or 3 sacks of firewood in the community forest every day. This firewood was used for making pig food and preventing mosquitoes from biting buffaloes. Animal feces were dispersed next to his house and on the road. *"My family members and I were affected by exhaustion, fever, and flu"*, he said. The family also has a paddy-field and raises livestock including chickens, ducks, buffaloes, and pigs.

In 2012, Mr Tith joined a study tour organized by the project to visit bio-digesters, home gardens and livestock raising to learn bio-digester benefits and the techniques to establish home garden. The

study tour was coordinated by representatives from the Provincial Department of Agriculture (PDA) and took place in Prey Chamkar Korki community forest. He also received trainings on sustainable forest management techniques, forest inventory, and trees nursery.

The study tour convinced him of the benefits of the technology and he decided to establish a bio digester connected to a latrine. For the establishment of the bio-digester, the family contributed 130 USD, the project provided 250 USD, and the PDA contributed 150 USD. For the construction of a latrine, the family contributed 120 USD, while 230 USD came from the project and 150 USD from PDA, making a total cost of 500 USD. The children started collecting the animal's feces on the road every day as supplementary inputs for the bio-digester. The family now enjoys an access to cleaner energy for cooking, uses slurry for farming and benefits from a cleaner environment around the house. The family also increased livestock raising, including chickens and ducks, to produce more animal manure for the bio-digester.

The oldest child also has more time to study, as he does not need to spend time collecting firewood in the forest. For their paddy-field, the family used to buy 13 sacks of chemical fertilizer per season, but this has now decreased to 7 sacks per season, after being replaced partially with natural fertilizer from the bio-digester. Excess natural fertilizer from the bio-digester can also be sold to households who have established a home garden. In 2012, 3

sacks of natural fertilizers costing 30,000 riel each (7.5 USD).

After installing the bio-digester, the electricity spending was also reduced from 3,600 riel to 2,600 riel per month and household costs were reduced from 20,000 riel to 17,000 riel a month, mainly due to better health.

“Overall, my livelihood has improved thanks to the installment of the bio-digester which has had a positive impact on time availability for my children, cleaner environment, increased livestock, reduced chemical fertilizers for my paddy-field, scaled down electricity spending, and lower household costs as well as increasing revenue (by 250\$ to 300\$ a month)”

This intervention, while it is still in its early stages, shows that it is possible to significantly improve the livelihoods and adaptive capacity of poor farmers in Cambodia through the introduction of bio-digesters and training on the various associated techniques and benefits. Experience in Angsala village and in the ten other target villages in Svay Rieng, Kampot, Pursat, Kampong Thom, and Siem Reap provinces has generated a lot of interest from other community members and

LESSONS LEARNT

A key lesson learnt from this project is the relevance of the demonstration approach to bridge the knowledge gap in rural communities. The initial study tour has been key in convincing initial beneficiaries to adopt the proposed approach, and their own demonstrations have then generated a very good level of buy-in from the community, and potential for replication. Initial beneficiaries have become advocates for the improved techniques within their community. Initial adaptation and mitigation

many are now seeking to learn and apply these new techniques related to the bio-digester system. Early signs are that this is starting to happen in concerned communities. As a result, the local demand of timber and non-timber has been reduced, incomes have increased and are generated from various sources (home gardening, fish raising, reduced use of chemical fertilizers, reduced electricity and household costs).

The project was also successful in supporting the registration of the Prey Chomka Kon Koki community forest, which covers Angsala village and four other villages.



benefits are considerable but will need to be monitored in the medium and long term. A key challenge to ensure sustainability and replication is to find ways for the poorest households to have access to the minimal capital investment required for this technology. Collaboration with established microfinance institutions may be an option.

ABOUT THE CAMBODIA CLIMATE CHANGE ALLIANCE (CCCA)

CCCA is a comprehensive and innovative approach to address climate change and disaster risks in Cambodia. It is a multi-donor initiative led by Ministry of Environment and funded by the European Union, Sweden, Denmark and UNDP. It is anchored on the Government's National Climate Change Committee (NCCC), a mandated Government coordinating and support entity for all aspects of climate change. The CCCA Trust Fund has been established within CCCA as a unified engagement point for development partners and a multi-donor financial facility to provide resources for climate change capacity development through demonstration projects at national and local levels.

Since 2011, the CCCA Trust Fund has conducted calls for proposals covering a wide range climate change-related issues, such as forestry, agriculture, fisheries, irrigation, coastal zone adaptation, ecosystem-based adaptation, livestock management, climate sensitive diseases, gender an climate change, and local governments and climate change.

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