



# CAMBODIA CLIMATE CHANGE ALLIANCE

A

Final Report

CAMBODIA CLIMATE CHANGE ALLIANCE

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## PROJECT INFORMATION

Award ID: 00059036

Duration: 15/2/2010 – 30/6/2014

Total Budget: US\$ 10,849,245.39

Implementing Partners: Ministry of Environment

Country Program Outcome: By 2015, national and local authorities, community and private sector are better able to sustainably manage ecosystem goods and services and response to climate change

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## ACRONYMS AND ABBREVIATIONS

CARP	Coastal Adaptation and Resilience Planning Component
CCA	Climate Change Adaptation
CCCSP	Cambodia Climate Change Strategic Plan
CCD	Climate Change Department
CCE&AS	Climate Change Education and Awareness Strategy
CCPDK	Climate Change Policy Development and Knowledge Management
CCTT	Climate Change Technical Team
CEDAC	Cambodia Centre for Study and Development in Agriculture
CF	Community Forest
CFMC	Community Forest Management Committee
COP	Conference of the Parties (UN)
CPA	Community Protected Area
CPEIR	Climate Public Expenditure and Institutional Review
EU	European Union
FIA	Fisheries Administration, MAFF
FWUC	Farmers Water Users Committee
GIG	Grant Implementation Guideline
ICE	Information, Communication and Education
INC	Initial National Communication
LoCAL	Local Climate Adaptive Living
MAFF	Ministry of Agriculture, Forestry and Fishery
MFAIC	Ministry of Foreign Affairs and International Cooperation
MoE	Ministry of Environment
MoP	Ministry of Economy and Finance
MoWA	Ministry of Women's Affairs
MoWRAM	Ministry of Water Resource and Meteorology
MTR	Mid-Term Review
NCCC	National Climate Change Committee
NCDD-S	National Committee for Democratic Development at sub-national level
NCDM	National Committee for Disaster Management
PBCR	Performance Based Climate Resilience
POC	Priority Operating Cost
PSB	Programme Support Board
RCPAD	Department of Research and Community Protected Area Development
RUA	Royal University of Agriculture
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFCC	United Nations Framework Conventions on Climate Change
VRA	Vulnerability Reduction Assessment
WWF	World Wide Fund for Nature

## EXECUTIVE SUMMARY

CCCA has achieved significant success in strengthening the institutional, policy and planning framework for the climate change response in Cambodia. A highlight of the programme was the official launch by the Prime Minister of the Cambodia Climate Change Strategic Plan (CCCSP) 2014-2023, during the 3<sup>rd</sup> National Forum on Climate Change in November 2013. The CCCSP was approved after an extensive and participatory process, involving key line ministries, development partners, civil society, academia, the private sector as well as national and international peer reviewers. It outlines Cambodia's eight strategic objectives for the next 10 years, and provides guidance on the development of concrete action plans, financing, and monitoring and evaluation.

Ten priority line ministries have adopted their Climate Change Strategic Plans (CCSP) and are currently finalizing the corresponding Climate Change Action Plans (CCAP, 7 of which are already endorsed), with technical and financial support from Ministry of Environment (MoE). The methodology for the development of the action plans takes into account climate vulnerabilities, an analysis of the effectiveness and efficiency of proposed actions, co-benefits (economic, environment and social), and potential implementation challenges. The process included a number of innovations to ensure that Climate Change actions were truly linked to regular planning (avoid a silo approach), that they were realistic (use of financing scenarios), and presented with a truly programmatic approach (rather than a ranking of individual projects). Ministry of Women's Affairs provided support to other ministries to ensure appropriate gender mainstreaming in their CCSPs, as well as in the national CCCSP. Three more CCSPs and CCAPs are under development, and are expected to be completed by end 2014.

In partnership with Ministry of Planning, the Climate Change Department developed guidance for integration of climate change in the sectoral chapters of the National Strategic Development Plan (NSDP) 2014-18, provided training to line ministries, and helped review initial submissions. The final version of the NSDP has now been endorsed by the Government and the National Assembly, including clear language on climate change priorities in key sectors, and for the first time four climate-related indicators.

Work on the national monitoring and evaluation framework for climate change started in 2013, with the identification of potential indicators, including a long list for use at sector and CCCSP level, and a short list for integration in the NSDP. A partnership with the International Institute for Environment and Development (IIED) has been established, in order to benefit from their expertise and other country experiences in establishing M&E systems for climate change adaptation. Following initial consultations with Government and non-Governmental stakeholders in December 2013, five process indicators were agreed in 2014, with baselines and targets established to monitor institutional strengthening for the climate change response. Analytic work has also begun on a climate vulnerability index, using available data sources.

A review of the legal framework for Climate Change has been completed, including recommendations for mainstreaming of climate change in key legal instruments, as well as recommendations for improvement of the institutional framework.

A capacity development plan for CCD, NCCC and CCTT has been developed and priority actions have been implemented, with a focus on planning (in relation to CCCSP/CCSP development), climate finance, international negotiations, legal aspects, and monitoring and evaluation. All members of the Climate Change Technical Team, mid-level and senior managers of CCD, and key members of the National Climate Change Committee have benefitted from international training and exposure to UNFCCC negotiations. In-country consultations have been held to prepare a set of positions for the annual meetings of the Conference of the Parties (COP) to the UNFCCC convention, and the results of the meetings were also presented annually to concerned national stakeholders.

In the area of communication and knowledge-sharing, the programme organized two National Fora on Climate Change, respectively in 2011 and 2013. The 2013 event was presided over by the Prime Minister, and focused on discussing strategies and ongoing initiatives in the various sectors of the climate change response. It brought

together an unprecedented number of national and international participants (700 on opening day and over 300 on days 2 and 3), including senior representatives and decision-makers from Government, civil society, private sector and academia.

The internet-based climate change information platform has been revamped for better performance and user-friendliness. It has received an average of 1,128 visitors per month in the first half of 2014 (numbers have tripled if compared to end 2012), for a total of 6,771 visitors.

The Trust Fund Secretariat (TFS) focused on developing, testing and refining a set of procedures, based on lessons learned from the 2011 and 2012 calls for proposals which attracted over 150 applications from Government and civil society organizations, and resulted in the approval of 19 pilot adaptation projects, covering key sectors of the climate change response as well as cross-cutting issues such as gender or decentralization. The management of these grants was assessed positively in both programme evaluations and also received positive reviews from applicants and project implementers, with over 50% rating TFS performance as “above average” or “best practice”.

A comprehensive set of national procedures have been developed for use by the Climate Change Department / Ministry of Environment, in line with national and international standards. This is a key building block in preparations for accreditation as a National Implementing Agency for the Adaptation Fund and the Green Climate Fund.

A large coastal zone programme was also managed by the TFS and implemented by the consultancy firm DHI in cooperation with Ministry of Environment / Coastal Coordination Unit. Support was provided for the integration of climate change in the development plans of eight pilot coastal communes in Koh Kong and Sihanoukville provinces, and seven demonstration projects have been implemented, including activities related to water management, agriculture, livestock, community fisheries and awareness-raising. Training manuals and guidelines for climate change mainstreaming in commune investment/development plans have been produced and disseminated. Some of the pilot activities under this programme will require continuous support, and this will be provided under a programme funded by LDCF through UNEP.

Demonstrations under the pilot projects cover all key sectors of the climate change response, with over 19,713 direct beneficiaries, and 17.1% of households in target areas adopting demonstration techniques (including direct beneficiaries and replications). 2,443 local government staff have received training on climate change (34% women), and 40,133 community members have participated in training or awareness-raising events (48.5% women or girls). 72.4% of the population in target areas reported a perceived reduction in vulnerability thanks to adaptation activities.

Key lessons learnt from the various projects have been discussed with other stakeholders in two learning events (2013 and 2014), with concrete recommendations to various institutions issued in June 2014. More specific case studies have been compiled in technical factsheets and in two practice notes on cross-cutting issues.

The main challenges were related to initial delays and design issues at the start of the project, which were addressed through the programme support board, including revised staffing and management arrangements. Full transfer of CCCA to a national fund has been postponed, with the climate change financing framework recommending a more gradual approach, with a strengthening of the Government’s coordination functions, support to direct access to multilateral climate funds, and direct budget support as an objective within a 10-year timeframe.

Overall project financial delivery stands at 99.8%.

At the Government’s request and in agreement with existing donors, consultations have been held on the design of a new phase of support to the Cambodia Climate Change Alliance, and a programme document has been submitted for approval.

# I. Implementation Progress

## Final summary of progress

### Progress under Result 1

#### *Climate Change Mainstreaming in the National Strategic Development Plan*

The CCCA programme has been successful in promoting the integration of climate change in the new National Strategic Development Plan (NSDP) for the period 2014-2018. The Climate Change Department (CCD), in partnership with the Department of Planning and Legal Affairs of the Ministry of Environment, worked closely with Ministry of Planning (MOP) to support this process. This included the integration of a section on climate change mainstreaming in the NSDP guidelines sent to line ministries, followed-up with training of the NSDP focal points in line ministries. CCD also briefed and encouraged climate change focal points in the various ministries to engage with the NSDP process in their respective sectors. Finally, CCD provided support in reviewing the climate change elements of initial line ministry submissions to MOP. The NSDP has been approved by the Royal Government of Cambodia and the National Assembly in 2014. Key sectoral chapters take climate change into consideration, and four indicators on climate change have been included in the monitoring framework of the NSDP. In addition, the environment chapter includes a contribution from Ministry of Environment (as chair of the National Climate Change Committee, NCCC) on the coordination and cross-cutting elements of the Climate Change response. Overall this new NSDP provides a high level of visibility for climate change issues, and much improved guidance on how climate change will be integrated in development programmes.

#### *Cambodia Climate Change Strategic Plan 2014-2023, and Climate Change Action Plans*

A landmark achievement for CCCA was the launch by the Prime Minister of the first ever Cambodia Climate Change Strategic Plan (2014-2023), on 5<sup>th</sup> November 2013. This strategic plan, which provides a roadmap for climate change action in Cambodia over the next 10 years, is the result of an extensive process of consultations involving all sectors of society, as well as national and international peer reviewers. It is articulated around eight strategic objectives and provides a framework for more specific strategies and action plans being put in place at ministerial level. The Khmer and English versions of the CCCSP can be downloaded from [www.camclimate.org.kh](http://www.camclimate.org.kh).

Ministerial Climate Change Strategic Plans (CCSPs) have been developed in conjunction with the national strategic plan. Nine priority line ministries endorsed their CCSPs in 2013: (i) Agriculture, Forestry and Fisheries; (ii) Water Resources Management; (iii) Public Works and Transport; (iv) Rural Development; (v) Health; (vi) Education, Youth and Sports; (vii) Industry and Energy; (viii) Women's Affairs; and (ix) National Committee for Disaster Management.

Following the approval of their own Climate Change Strategic Plans, these nine priority ministries have completed Climate Change Action Plans (CCAP), and seven of these CCAPs have already received approval from concerned ministers. This exercise followed an innovative methodology to ensure that climate change actions were i) mainstreamed in regular activities of the ministry (with explicit links to business-as-usual programmes); ii) realistic (use of financing scenarios and feasibility criteria); and iii) developed with a programmatic approach, taking into account inter-connections between actions (rather than a simple listing and ranking of projects). Ministry of Environment has also launched a similar exercise for the Protected Areas and Waste Management sub-sectors, and CCAPs for the ministries of (i) Tourism, (ii) Information, and (iii) Land Management, Urban Planning and



Construction are expected by end 2014. Work on the Climate Change Financing Framework is described under Result 3 below.

At the sub-national level, the approach is to include climate change in the planning and budgeting guidelines for sub-national administrations. CCCA funded an initial pilot project on this issue (see under Result 5), and a CCD staff member has been designated to support the National Committee for sub-national Democratic Development (NCDD-S) with the development of the guidelines, based on experience to date.

### ***Climate Change Mainstreaming in legislation and institutions***

A review of the legal framework for climate change was conducted in 2013 and produced a number of recommendations to better mainstream climate change in existing legal instruments, and to develop new ones where required. The review also made recommendations on potential institutional adjustments. A Climate Change Law will likely be required to put in place a coherent framework, but in the short term some adjustments can be made to existing instruments, and climate change inputs could be provided in relevant laws currently being drafted (such as the law on Environmental Impact Assessments or the Investment Law).

All nine priority ministries have established inter-departmental working groups to develop their CCAPs, including representation from their planning departments. It is foreseen that these groups can act as promoters of climate change mainstreaming in their respective departments. In addition, the CCAPs identify specific entry points for mainstreaming of climate change in the planning and budgeting process of each ministry.

At the national level, institutional adjustments are under consideration, in particular to consolidate the structures in charges of climate change and green growth, and ensure better synergies. CCCA provided some advisory support for this and a decision from the Government is expected by end 2014.

### ***National Monitoring and Evaluation Framework for Climate Change***

CCD has established a partnership with the international Institute for Environment and Development (IIED), in order to benefit from their experience in establishing the TAMD framework (Tracking Adaptation Measuring Development) in other developing countries. Monitoring of adaptation results is a particularly complex area and ongoing support will be required to develop and test the required tools, e.g. vulnerability index, in the Cambodian context. An initial consultation on the proposed national M&E framework for climate change was held in December 2013 with all concerned stakeholders, and a concept note was produced, presenting the proposed architecture for this framework. It is proposed that the framework be based on two sets of indicators: i) process indicators to measure institutional changes and mainstreaming of climate change in national systems; and ii) results indicators to measure impact in various sectors.

A set of five process indicators have been defined in 2014, using customized scales (of 1 to 10 steps) to measure the progress Cambodia is making towards mainstreaming climate change in its national systems.

On the results indicators side, analytic work started in 2014 to design a suitable climate vulnerability index, using available data from the Commune Database. This is planned for completion by end 2014 (under CCCA Phase 2), and recommendations will also be made to collect additional data where necessary.

As mentioned above, a set of four core climate indicators have been included for monitoring at the NSDP level.



### **Capacity development**

A capacity development plan was developed for CCD and the Climate Change Technical Team (CCTT). Priority activities have been implemented, in particular activities related to the CCCSP process, action planning and financing framework process, monitoring and evaluation of climate change, and legal framework.

CCCA has contributed to significant improvements in national capacities during the period 2010-14, particularly in relation to policy and planning of the climate change response, through the process of development of the Cambodia Climate Change Strategic Plan (CCCSP) and related sector Climate Change Strategic Plans and Action Plans. The process was highly participatory and line ministries have been in the lead to establish their priorities, with technical support from the Climate Change Department. Members of the Climate Change Technical Team have participated both in this strategic level work, and in the selection of grant projects for CCCA funding. They have benefitted from training and mentoring in relation to these tasks, including vulnerability assessment tools, planning and prioritization of climate change actions, monitoring and evaluation, financing mechanisms, and legal/institutional issues. There is however a need to deepen the expertise of climate change focal points in the ministries through more advanced training support, which should be linked to the concrete actions that their respective ministries will implement under the CCCSP framework. As ministries move into a full-scale implementation phase, more technical support will be required to define e.g. screening methods and design standards for climate-related projects, identify indicators, define working arrangements for cross-ministry cooperation and programming, and to conduct sector specific vulnerability assessments. Planning departments in concerned ministries, and central institutions such as Ministry of Economy and Finance, NCDD-S, Ministry of Planning, and the Council for the Development of Cambodia have been involved in the work on the Climate Change Financing Framework (CCFF) and trained accordingly. These initial efforts have been focused on a few focal points and there is a need to extend support to more staff (particularly in Ministry of Economy and Finance), to support the actual implementation of the CCFF. This includes capacities to conduct cost-benefit analysis in the context of climate change, to estimate climate change impacts on various sectors of the economy, to cost climate change actions and track climate change expenditures and impacts through the budget and M&E systems. These orientations have been included in the proposal for a second phase of CCCA.

Decision makers at the political level (NCCC) have gained a good level of understanding of UNFCCC processes through preparations and participation in COP-related negotiations, and have also been involved in the CCCSP development and approval process, and in CCSP/CCAP development for the nine priority ministries.

At CCD level, staff has been engaged in all aspects of CCCA work. The approach to capacity development was similar to the approach used for CCTT and NCCC members, i.e. mentoring and training were directly related to concrete tasks assigned to staff, so that acquired skills could be immediately applied. As the CCCSP implementations starts, additional skills will need to be developed so that CCD staff can provide effective services to the ministries. This includes the areas mentioned above for line ministries (vulnerability assessments, technology assessments, standards, screening tools), but also additional technical skills related to mitigation, which has a higher profile in the CCCSP (e.g. GHG inventory, assessment of mitigation potential), and for synergistic actions between adaptation and mitigation. As CCD starts to play its role to coordinate the implementation of the CCCSP, capacity for these coordination functions will also need to be developed, both at the institutional and individual level (e.g. programme-based approach management, M&E framework, advisory role to ministries and donors on financing modalities, etc.). Institutional adjustments are planned by MoE to address this, and will be complemented by dedicated capacity support from CCCA and other partners. CCD's

organizational capacity has significantly improved over the course of the project (work planning, reporting, management practices and procedures, communications, management of the grant facility) and project audits have been satisfactory, but additional inputs will be required in some areas in order to meet accreditation criteria for the Adaptation Fund and Green Climate Fund.

CCD staff and a number of CCTT members have also benefitted from learning opportunities related to the grants funded by the CCCA Trust Fund, either through field trips, participation in specific events, or through participation in the CCCA learning events in January 2013 and June 2014.

Detailed figures on participation in the various capacity development activities are included in the logframe below.

### ***COP negotiations***

The Climate Change Department, with CCCA support, took the lead for the definition of Cambodia's positions for the annual Conferences of the Parties to UNFCCC. Draft positions were discussed with all stakeholders prior to each round of negotiations. CCCA supported the participation of NCCC, CCTT and CCD staff based on their mandates. A debriefing on CoP results was organized after each for Cambodian stakeholders, and key outcome documents have been translated into Khmer and disseminated.

### ***Institutional framework for mitigation***

The Greenhouse Gas Inventory Office has begun work on the establishment of a GHG inventory management team in the ministry. A concept note has been prepared to organize required consultations and data collection.

## **Progress under Result 2**

### ***2<sup>nd</sup> and 3<sup>rd</sup> National Fora on Climate Change***

CCCA has successfully supported the organization of two National Fora on Climate Change, respectively in 2011 and 2013. The organization of the 3<sup>rd</sup> National Forum on Climate Change from 5 to 7 November 2013 was managed entirely by MoE/CCD, and reflected the growing visibility and convening power of the National Climate Change Committee. The event was presided over by the Prime Minister, and focused on discussing strategies and ongoing initiatives in the various sectors of the climate change response. The opening ceremony was attended by most of the deputy prime ministers and ministers, as well as ambassadors, making it a very high profile event. The Prime Minister's speech included a number of key messages on institutional arrangements for climate change, including a request for NCCC to move towards accreditation as a National Implementing Entity for the Adaptation Fund and Green Climate Fund. The latest information on climate science, climate change response in Cambodia and international climate negotiations was shared with participants. All priority ministries and agencies got an opportunity to present their climate change strategies and draft actions plans in their sectors, and to learn about ongoing initiatives from other participants. High profile sessions included a discussion on the integration of climate change in sub-national planning, chaired by the head of the NCDD Secretariat, and a session on climate change financing, chaired by the Minister Attached to the Prime Minister, Secretary General of the Council for the Development of Cambodia.

The 3<sup>rd</sup> forum brought together an unprecedented number of national and international participants (700 on opening day and over 300 on days 2 and 3), including senior representatives and decision-makers from Government, civil society, private sector and academia.

***Knowledge platform***

Following the launch of a revamped website at the end of 2012, the online Climate Change platform has grown continuously. News articles have been regularly posted on the website (3 per month on average). The website url is [www.camclimate.org.kh](http://www.camclimate.org.kh). Regular updates from the platform are also cross-posted on the new social media page of the Ministry of Environment. The Khmer version of the website was put online in 2014, and four Government officials have been trained on website administration.

3,087 visitors (63% new) accessed the online platform in the final quarter of the project, representing a 27% increase on average 2013 figures. In order to improve outreach, links have been created to key social media such as Facebook, Google+, Twitter, LinkedIn, Pinterest and Digg.

Library corners in the three partner universities (Royal University of Agriculture, Royal University of Phnom Penh and Pannasastra University) and in Ministry of Environment have attracted a total of 533 visitors (213 female) in the final quarter of the project, a 56% increase compared to the previous year. Close to 3,700 climate-related documents are now uploaded on the e-library or available in library corners.

A climate change advocacy video in Khmer, “No Second Chance” was finalized in 2014 and uploaded on the website.

***Knowledge emerging from the grants and linkages with policy-makers***

In 2013 and 2014, the knowledge management team in CCCA also cooperated with the Trust Fund Secretariat to extract, analyse and disseminate lessons learned and recommendations from the grant projects coming to completion. Two major learning events were organized respectively in January 2013 and June 2014, bringing together CCCA-funded projects and representatives of other climate change initiatives in Cambodia to share methodologies and experiences, and formulate concrete technical recommendations for the climate change response. Policy-level officials from concerned line ministries and members of the Climate Change Technical Team also participated in these events, and had an opportunity to review and discuss findings emerging from the various pilot approaches in their respective sectors. Some of the pilot projects have already led to the integration of scaled-up initiatives in the five-year programming of the ministries. The corresponding reports have been produced and widely disseminated. More information on specific knowledge products produced by the Trust Fund Secretariat is included under Result 3 below.

***Climate change awareness and outreach***

A media training was jointly conducted with the Ministry of Information in March 2013. 15 journalists from 10 provinces in Cambodia were selected to participate in the training. After receiving basic knowledge on climate change issues, each journalist was assigned to go back to the field during a three-month period to write at least one climate change article per month, with coaching from national and international consultants of the Ministry of Information. The Reference Guide Book on Understanding Climate Change, originally developed under the support of Plan International, was reviewed, re-printed and distributed to participants. Overall coverage of climate change in the media has significantly improved over the course of the project, with a peak of 192 articles recorded in the mass media in 2013 (many at the time of the national forum).

A total of six sub-national awareness-raising events were held from 2012 to 2014. A total of 258 sub-national officials from all provinces attended the trainings, and have been tasked to act as climate change resource persons in their respective provinces.

In addition, CCCSP dissemination workshops were held for sub-national officials in 17 provinces, with a total of 376 participants, including 76 women.

A number of communication materials have been developed and disseminated under CCCA. This includes the updated version of the guidebook on “Understanding Climate Change”, which has been shared widely with the media, provincial departments and Ministry of Education, and the development of a glossary of climate change terms in Khmer. Publications related to the grant projects are further discussed under Result 3 below. Publication of a quarterly newsletter began in 2013, and leaflets and calendars have been printed and disseminated with all climate change stakeholders to increase CCCA visibility. CCCA is now recognized as a major player on climate change in Cambodia, and has become a familiar name for all climate change stakeholders.

A 21-minute Climate Change advocacy video has been produced, covering key CCCA achievements in supporting the government and communities in responding to climate change. It is foreseen that this video can be used to increase CCCA visibility in national and international fora.

CCCA supported the production of 6 TV shows on CTN, and two youth TV shows on TVK. The team also joined 5 radio talk show programs to raise climate change awareness, and contributed to the annual World Environment Day outreach activities.

Specific activities targeted school children and students, e.g. a drawing contest for the official MoE/CCD calendars, or Climate Change learning sessions for a total of 1,000 students and lecturers in three universities.

### ***Development and implementation of Climate Change Education and Awareness Guidelines***

The Climate Change Education and Awareness Raising (CCE&AS) Guidelines were launched in November 2012, and have served as a reference for inclusion of these activities in climate change strategies and plans.

Communication, education and awareness elements have been introduced in the Climate Change Action Plans of priority ministries and agencies, with support from a dedicated consultant. Climate change focal points in these ministries have received an initial orientation on how to include these elements.

Regular communication meetings with a broad range of governmental and non-governmental organizations involved in climate change have been initiated by MOE/CCD in 2013. The objective is to improve sharing of information and lessons learnt, avoid duplication, coordinate messages and improve joint work on key initiatives, such as the national Fora on Climate Change, Environment Day, or KAP studies (Knowledge, Attitudes and Perceptions).

## **Progress under Result 3**

### ***Trust Fund Secretariat***

Despite initial delays in the first two years of the project, the Trust Fund Secretariat (TFS) was fully established and capacitated in 2012, with twinning arrangements between Government staff and national consultants. The TFS has been fully functional since then. A total of 21 projects were managed by the TFS, including two calls for proposals (in 2011 and 2012). A full set of procedures have been developed for grant selection and implementation. Feedback received on the performance of the TFS has been very positive, both from applicants and grant recipients, with over 50% of applicants rating the TFS performance as “above average” or “best practice”, and 75% indicating that they would reapply for future calls for proposals. Annual audit reports have been rated as satisfactory.

### **Grant management**

The TFS managed up to 21 projects simultaneously (beginning of 2013). All eight projects from the first call for proposals were financially and operationally closed in 2013. These projects required no-cost extensions of between two and six months for a smooth completion of their operations. All 11 projects from the second call for proposals were completed in time for the end of the first phase of CCCA, by end June 2014.

The final grant review of the first call projects was conducted in March and April 2013 and has been shared with CCCA partners. Two practice notes have been produced, building on key cross-cutting findings from the review and dealing respectively with external success factors of climate change pilots, and stakeholder engagement strategies. These practice notes integrate a number of case studies. Factsheets on forestry and fisheries pilots, including cost-benefit analysis, have also been produced. The review of the second call projects was conducted concurrently with the final review of CCCA. Its recommendations and the management response are integrated in the lessons learned section of this report.

Grantees have shared their experiences in a number of fora, including two CCCA lessons learnt workshops in January 2013 and June 2014, the 3<sup>rd</sup> National Forum on Climate Change in November 2013, and more specific meetings such as the NAPA Follow-Up learning event. Stories on pilot projects have been featured on the website on a regular basis throughout the year, and included in the CCCA newsletter. Some key links to these documents are included under the relevant project summaries below (Result 5).

Regular support and monitoring of grantee activities has been conducted, with 4 spot-check visits and 13 monitoring visits in 2012, 12 spot-check visits and 16 monitoring visits in 2013, and 1 spot check and 5 monitoring visits in early 2014. Based on weaknesses identified, ongoing guidance and mentoring has been provided to grantee staff, both on technical and management aspects. This package of support has helped improve reporting performance (79% of projects submitting timely and complete quarterly reports in the first quarter of 2014, as opposed to 57% in the first quarter of 2013). While several projects from the first call for proposals struggled to complete their activities and had to request no-cost extensions, all projects from the second call for proposals managed to complete their activities in time or with minor delays. This probably reflects the improved guidance and support received from the TFS, based on experience from the first batch of projects.

### **PSB support**

The Trust Fund Secretariat provided support for CCCA PSB meetings throughout the programme period (8 meetings), including meeting preparation and reporting. The efficiency and effectiveness of the PSB meetings were highlighted in the final evaluation of CCCA as a key strength of the programme.

### **Climate Change Financing Framework**

The Trust Fund Secretariat has been actively involved in the work for the definition of a Climate Change Financing Framework (CCFF), including a scoping mission in March 2013 and the main phase of the exercise from July to December 2013, in connection with the work on Climate Change Action Plans (under result 1). Consultations on the first full draft of the report have been held in January 2014, and a summary of key findings and recommendations is ready for submission to the next NCCC meeting.

The report includes:

- a refined analysis of existing climate change public expenditure;
- financing scenarios;
- a costing of the proposed climate change response for the next five years;
- an initial cost-benefit analysis and estimation of the impacts of climate change on the economy;

- recommendations on financing modalities and institutional arrangements.

### **Capacity Development**

The Trust Fund Secretariat has operated on the basis of joint teams between government staff and project staff, allowing for day-to-day sharing of experiences and skills transfer. Government staff have gradually taken a more active role in the management of the secretariat, and the contract management function for grants to Government entities has been fully transferred from UNDP to Ministry of Environment in 2012. An operational manual for CCD as the Secretariat of NCCC has been developed, based on experiences over the past two years as well as international and national standards. This will be an important building block in Cambodia's efforts to gain direct access to the Adaptation Fund and Green Climate Fund, through accreditation of a National Implementing Entity.

### **Progress under Result 4: Coastal Zone (CARP)**

The overall objective of the Coastal Adaptation component has been to increase resilience of coastal communities and ecosystems to climate change through local adaptation planning, demonstrated targeted local interventions and provision of practical learning experience in adaptation planning to the National Climate Change Committee and Climate Change Department.

To contribute to this above overall objective, the following two outcomes were formulated:

1. Improved climate change knowledge integrated into land use and coastal development plans; and
2. Increased resilience of coastal communities and coastal ecosystem buffers to climate change and improved livelihoods.

The project was implemented by the consultancy firm DHI, in cooperation with the Coastal Coordination Unit in Ministry of Environment.

### **Capacity Development and Integration of Climate Change in Commune Development Planning**

The Coastal Coordination Unit in MoE has now improved its capacity to support coordination of climate change adaptation between the National Committee for Coastal Development and Management and the provincial departments and commune councils, although Government officials still require support from project staff.

At the provincial level departments have developed capacity by participating in Technical Working Groups with focused training sessions on climate change awareness, land use planning, vulnerability assessment, public participation, and monitoring of indicators. This capacity has been further developed by using these capacities in actual work in the coastal area.

Substantial capacity development has also taken place in the coastal communes and communities where more than 2000 villagers have been trained in climate resilient integrated farming systems, veterinarian assistance, livestock production, production of rice varieties and development of fishery community for community based natural resources management. All the capacity development activities at the commune and community levels were further supported by tangible inputs such as livestock, fruit trees, investment in water harvesting and water resources infrastructure and establishment of funds and saving groups.



Besides including climate change awareness overall in the activities a separate comprehensive programme was also targeting climate change awareness in the 31 villages in the coastal area reaching out to around 3000 households.

A major effort has been on integration climate change into commune development plans and this activity has included several training sessions and consultations with the Technical Working Groups and with the commune councils in the eight selected communes in Prey Nob and Mondul Seima districts. The outputs produced should provide a basis for the future CDP's and CIP's to include climate change considerations in the planning process. In combination with the report describing the process applied by CARP for mainstreaming climate change into sub-national planning, the CIPs prepared for the demonstration activities in each commune, the template prepared for climate change screening, and the output report of the workshop together provide a tool for the communes and districts to include climate change in the sub-national planning process.

The process used will be presented and discussed with NCDD-S working group through the LDCF project, and activities under LDCF will apply a similar approach and monitor that the target communes continue this and use the processes applied in future preparation of CDPs and CIPs.

In relation to outcome 2 six demonstration activities were identified and implemented. The results of the activities are shortly summarised below. The initially planned mangrove replanting activity under the fishery pilot was not carried out under CARP, and has been funded by the LDCF project instead. CARP provided support for related awareness-raising activities. Funds corresponding to this activity have been deducted from the final payment to DHI.

#### **Activity 1: Farmer Training Programme in climate resilient integrated farming in 8 communes including demonstration on water conservation, water harvesting and small-scale irrigation**

The results and outputs from January 2013 to March 2014 included the conduct of 31 Farmer Field Schools (FFS) on integrated farming systems and climate change in coastal conditions. A total of 1,452 farmers including 716 women were direct beneficiaries, who participated in both FFSs (852 farmers including 393 women) and 20 on-farm demonstrations (600 farmers including 323 women) on farm production such as rice and vegetable productions, pig and chicken raising, and fish production during 2013. Also they have formed self-help groups or saving groups for follow up and use as models for replicating and upscaling to other areas in coastal zones. A total of 858 farmers including 584 women benefit from the operations of saving groups. A special facility has been established for 155 poor households who have participated in the training so that they receive support for rain water harvesting and investment in IFS production.

The demonstration activity Integrated Farming and Climate Change Adaptation in the Coastal Area has been adopted as a model by the Provincial Department of Agriculture (PDA) of Preah Sihanouk and Koh Kong provinces and sub-national level agencies and local communities for use in increasing the resilience of agriculture and food production and related livelihoods to short and long term effect of climate change. The model of Climate Resilient Integrated Farming has been adopted and integrated in Commune Development and Commune Investment Plans by commune councils and strongly supported by PDA. The model of Climate Resilient Integrated Farming has also been adopted and put in the Climate Change Action Plan for Agriculture, Forestry and Fisheries 2014-2018 for building up the resilience of farmers and farming communities in the coastal area to climate adaption in agriculture and livelihoods.

The costs of initial inputs for full IFS implementation remain too high for self-replication (1,100 USD per household), but the elements of IFS could be introduced gradually but the CARP project team recommends to spread initial investment costs over several years.



**Activity 2: Community Fisheries project for Peam Krasaob, Koh Kong;**

The main objective was to establish a Community Fisheries at Peam Krasaob; especially in terms of strengthening regulatory measures and their enforcement. This should improve general fishing developments and its regulatory measures, including improvement of fish stocks. This was likely to be required to adjust to climate change and increase long-term livelihood possibilities for the fishery communities at Peam Krasaob.

Peam Krasoab coastal area is one of the rich natural fisheries resources. To increase livelihood options in the area the local community requested assistance in establishing the Community Fisheries (CFi). The main purpose of having CFi in the fishing areas in Peam Krasoab commune is to co-manage the natural resources at the sea and coastal areas in order to manage, conserve and use the fisheries resources in a sustainable manner, which could contribute to address the issues of climate changes in a sufficient and effective way, complementary to each other and work together between CPA and CFi as a natural resources co-management approach by the local people. CARP funding have facilitated the formal establishment of the Community Fishery with all documents prepared, agreed and signed. A management plan has been prepared for the area which has been demarcated and also the conservation zone has been demarcated. Training has been provided in management of community fishery. All nine steps included in the establishment of the CFi have been completed. Monitoring of activities inside the area is established and active. Fish catch monitoring has been established and is continuously carried out. A crab bank has been established and stocked. Ten women have been trained on improved processes for producing and packaging dried shrimps as a commercial product. However, it is too early to assess the impact of this activity on livelihoods. The LDCF project will ensure continuous monitoring.

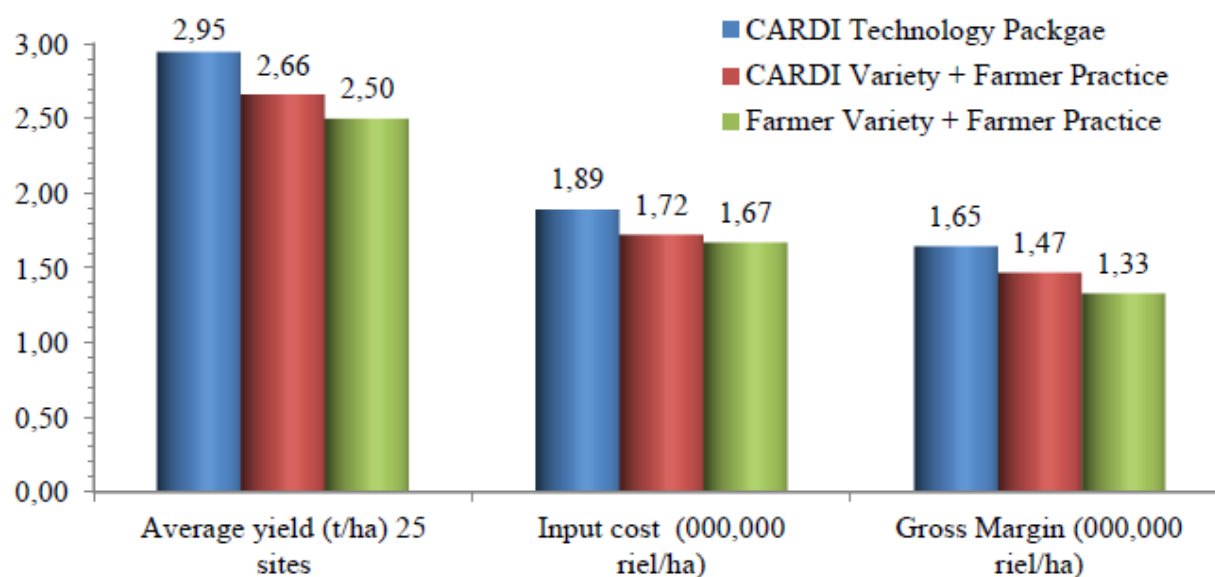
**Activity 3: On Farm Field Trials for Seed Varieties, demonstration and training in seed selection in 8 communes**

The objective of this activity was to develop and implement on-farm field trials for the promotion and increased availability of shorter term rice crops compared to farmer varieties, particularly for main wet season rice to enable harvest before onset of heavy flooding and sea water surges at the target communes.

The demonstration activity was implemented in 8 communes, 6 communes in Prey Nob district, Preah Sihanouk province, and 2 communes in Mondul Seima district, Koh Kong province. The purpose of this activity was to increase adoption by farmers of improved short duration rice variety in the target area, ensure food security and increase household income and as an adaptation measure to climate change. The activities were implemented by Cambodian Agricultural Research and Development Institute (CARDI) in cooperation with provincial Department of Agriculture (PDA) and collaborative farmers. These activities were undertaken from February 2013 to March 2014 as follows: (i) on- farm rice field demonstration, (ii) growing mung bean after rice, (iii) farmer training course, and (iv) farmer field days.

The analyses of the results of the on-farm field trials of different rice varieties showed that the tested varieties gave higher yields and especially gross income compared to current farmer practice as the varieties grown provide a higher price than the normal farmer variety. These varieties were: Phka rumdoul, Phka rumdeng and Phka Romeat for both Prey Nob and Peam Krasoap areas. Tests with the rice varieties in saline soils showed a good tolerance for the above varieties indicated by CARDI and similar to varieties received from IRRI.

The field trials with mung beans showed that a profit could be obtained by growing these in the dry season but dependent on water availability.



Variety	Site	1. CARDI Package technology (t ha <sup>-1</sup> )	2. CARDI variety+ Farmer Practice (t ha <sup>-1</sup> )	3. Farmer Variety + Farmer Practice (t ha <sup>-1</sup> )	Differences 1 and 3 (%)	Differences 2 and 3 (%)
Phka Rumduol	13	3.21 ± 0.96	2.90 ± 0.95	2.76 ± 0.83	16	5
Phka Romeat	12	2.68 ± 0.76	2.42 ± 0.79	2.3 ± 0.63	20	8
<b>Mean</b>		<b>2.95</b>	<b>2.66</b>	<b>2.50</b>	<b>18</b>	<b>6.5</b>

#### Activity 4: Livestock Revolving Stock Scheme in 8 communes

The farmer field school training programs have been completed successfully with ten sessions in each of the villages. Beneficiaries have participated in bi-weekly FFS on care, feeding and management of animals. The knowledge level was measured before and after the training. In the pre-test 18% got good scores, 36% just passed the test and 46% failed and the post-test conducted at the end of the FFS sessions showed that 68% passed with good scores, 20% passed with medium scores and 12% failed the test.

A total of 300 beneficiaries (51.3% women) have received inputs such as animals and small amount of starter feed (20 kg). Among all beneficiaries, 57 beneficiaries got gilts, 234 beneficiaries received piglets, 3 beneficiaries received goats, 2 beneficiaries received laying ducks and 4 beneficiaries received chicken. In term of animal distribution, there were 1,170 piglets for fattening, 57 gilts for breeding, 400 chickens, 200 laying ducks and 9 goats distributed to beneficiaries.

A Gross Margin Analysis was carried out and it showed that including the labor cost, each beneficiary can make a net profit of US\$245 per year keeping 5 fattening pigs per cycle and three cycles per year. Techniques included

changing from traditional pig keeping (free range), using local breeds, improved production system keeping them in pen, providing care and feed to crossbred pigs, minimizing time per production cycle.

A total of 93,000 USD was provided for the fund. Around 9,700 USD has been lost due to livestock death. Until end of project 51,000 USD has been paid back and around 32,000 USD have been used for funding of 2<sup>nd</sup> and 3<sup>rd</sup> cycles. It is expected that around 83,000 USD will be available for continued funding. The procedures and rules for funding have been strengthened and the continued funding will be supervised by CelAgrid and monitored through the LDCF activities.

Mortality among piglets would have to be further reduced to improve profit margins and make the scheme fully sustainable.

#### **Activity 5: Climate change awareness raising and training in climate change resilient irrigation**

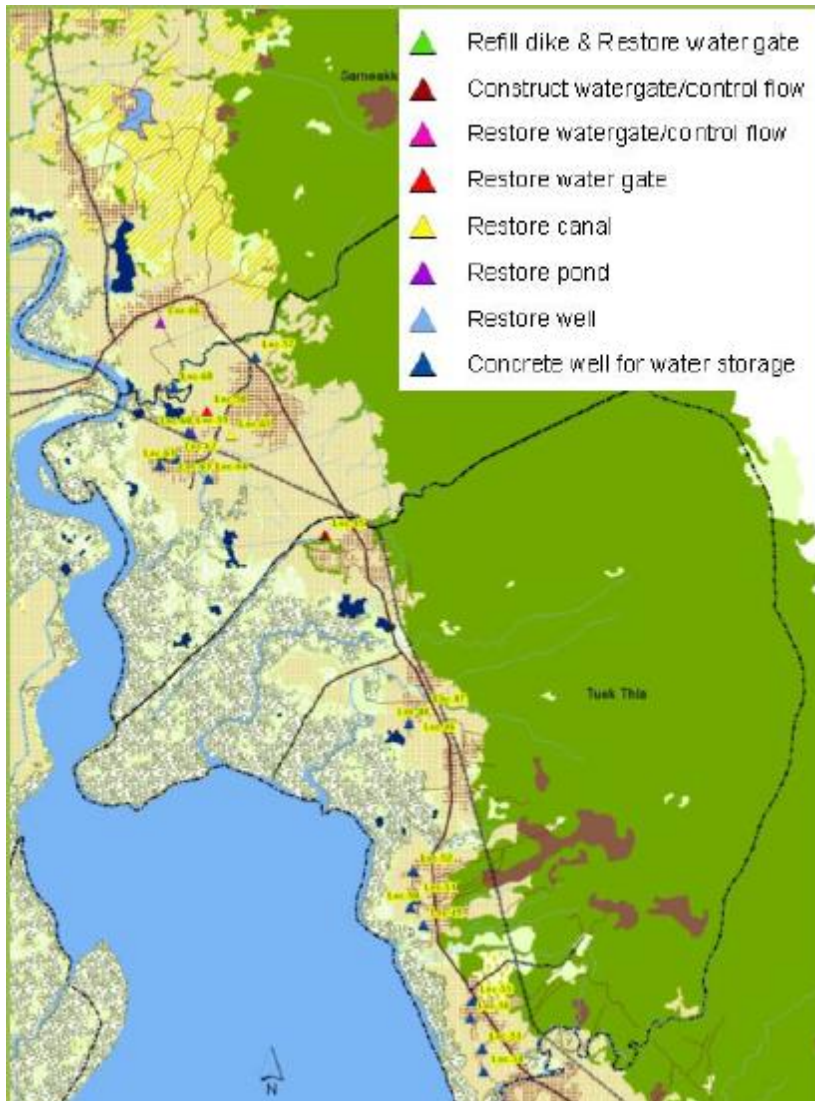
Training has been carried out during two rounds in 31 villages and the climate change awareness booklet has been distributed to the participants. In each training session up to 30 persons participated. A total of approx. 2780 persons have participated in the training, of which approx. 50% were women. The evaluation shows that women are becoming more active and willing to learn to get knowledge on climate change and related issues.

A video documentary has been produced to be shown on national TV. The video provides information on climate change adaptation and regarding the demonstration activities conducted in the two target areas.

Three training sessions in Climate Resilient Irrigation have also been conducted including a study tour to Cantho in Vietnam. The training sessions aimed to involve members of the polder community and to assess the potential for renovating the water reservoirs in the Prey Nob area.

#### **Activity 6: Adaptation measures integrated in Commune Development Plans in 8 communes and linked to commune investment plans.**

Eleven projects have been finalized in the selected communes. The implemented projects mainly focus on the provision of water either through rehabilitation of wells/reservoirs or through establishment of rain water harvesting and renovation of water gates. All the projects have been included in the Commune Investment Plans and a specific description has been prepared for each of the projects. A total of approx. 650 households have benefitted from these investments either by getting access to drinking water during the dry season or by having access to water for crop production.



**FIGURE 1: OVERVIEW OF PROPOSED PRIORITY PROJECTS IN MONDUL SEIMA PRIORITY COMMUNES**

### Sustainability Issues and Exit Strategy

Considering the short implementation period of 2.5 year of CARP the main concern is the sustainability of the activities implemented and their replication and expansion to other areas. Presently only the UNEP LDCF project will be working with climate change implementation in the coastal area and with very limited resources for on the ground implementation. Exit strategies have been developed for each of the demonstration activities for activities which could be carried out through LDCF to improve the sustainability situation.

The climate resilient integrated farming activities showed a 3-14 times increase in household income compared to baseline and this should by itself be a clear incentive for the farmers to replicate and continue these activities. However, the initial investment costs remain high for some activities such as IFS, and would require the availability of microfinance, and gradual investments. It would also be expected that other farmers who have received training would be interested to adopt these methods after witnessing the results. The replication would depend on potential access to funds for initial investments and for the local departments of agriculture to provide

support during implementation. It is expected that the established saving groups could provide start-up financing for interested farmers but this process could be accelerated if the key ministries could provide a funding source.

The tests of rice varieties showed generally a very significant potential for an income increase (around 4 times) and also a big demand for the aromatic rice varieties. There should be a clear potential for replication as the actual investment by the farmer would be relatively limited and thereby a clear potential long-term sustainability.

Through the livestock fund also a potential for long-term sustainability exist but the profit margin is smaller compared to the above activities and a very important factor would be that the mortality rate can be significantly reduced to make pig fattening profitable. Another factor that could help in this was if the farmers could sell the pigs together in bigger lots instead of the procedure used in the first cycle where the pigs were sold in small lots and through middlemen.

## Observations and Lessons Learned

A technical note has been prepared on lessons learned from the demonstration activities implemented. This includes an overview of activities and provides additional details for some of the demonstrations implemented.

Additionally a synthesis report was finalized in December 2013. This report also elaborate on the challenges and lessons learned under the identification and preparation of the demonstration and investment projects.

## Progress under Result 5 (grant projects)

### 1<sup>st</sup> Call for Proposals

### Summary of progress for grant projects

#### 1. CEDAC

The project focused on addressing issues related to drought in Ratanakiri province, and building the capacity of farmers to adapt to climate change and climate hazards. In total, 447 of community members including 137 women were trained by project on climate change adaptation while 7 staff of the Provincial Department of Agriculture and 74 other staff of government line departments gained knowledge and capacity on climate change adaptation, through their involvement in the project.

The project's interventions focused on the promotion of climate-smart agriculture techniques and incorporation of climate change policies into local government frameworks.

208 farmers applied climate-smart agricultural techniques, with the specific techniques summarized as follows:

1. Adoption of large jars (5 per household) for storing rainwater during the rainy season, for domestic use during dry periods. 100 farmer families received 500 big jars in 20 villages across 6 communes of the 3 target districts;
2. Training of Trainers for 100 farmer representatives including 26 women (from the 20 target villages) on climate smart agricultural techniques, with a role to transfer and disseminate this knowledge to their community members. 60 training sessions for farmer learning groups covering 377 farmers (121 women) were then organized by farmer representatives.
3. 134 farmers applied the circle garden technique, 45 farmers chose fish-raising in plastic covered ponds, 22 farmers set up multi-propose farms, 92 farmers made compost and 25 farmers adopted the rice seed purification.
4. 2 canals and 1 dike were constructed under cooperation with the Provincial Department of Water Resources to provide water supply to vulnerable households.
5. The project facilitated the establishment of three community water user groups in 3 districts. In total, 110 members have joined these groups. The project provided guidance on the development of internal rules and regulations, selection of management committee members, roles and responsibilities of the management committee members, etc.

Local officials in the target districts have benefited from various capacity development activities, including exposure visits, training on disaster risk management, and involvement in extension services for beneficiaries.

Priority activities have been identified for inclusion the commune development plans of the target areas, with a strong focus on the dissemination of climate-smart agriculture techniques, rehabilitation/construction of water management infrastructures.

#### **Lessons Learnt:**

1. In working with ethnic minorities, use of the local language and tailored visual tools was essential in delivering the training on Climate Smart Agricultural Techniques to farmers and commune councilors;
2. Provision of individual follow-up visits and ongoing advice to farmers has been crucial to increase the numbers of farmers interested in the agricultural techniques introduced by the project. Learning by doing has been the most efficient approach for adoption of the proposed techniques. The use of the first trained farmers as coaches for their peers is also an effective approach, as they can provide ongoing support in their community;
3. The involvement of commune councilors and district governors is important for the construction and rehabilitation of natural lakes and dams, due to staffing constraints in the Provincial Department of Water Resources. Local officials have a crucial role to play in the design and management of these projects, as well as in the mobilization of co-financing from commune and district budgets. However, technical leadership is still required from the Provincial Department (construction standards, location, etc.), and capacities in this are limited

#### **Recommendations:**

1. Ensure appropriate representation of local authorities in the management of adaptation activities;
2. Farmer representatives should be supported to organize farmer groups and provide ongoing peer to peer training for members of these groups on climate-smart agriculture techniques;
3. Appropriate technical expertise from the concerned provincial department must be secured for the design and quality assurance of infrastructures, taking into account climate hazards.

## **2. Forestry Administration**

The focus of the project was on building adaptive capacity within the community forestry sector through supporting effective participation of community forestry management committees and communal councils in newly established cantonment level community forestry planning and co-ordination committees, and supporting local communities to adopt bio-digesters in order to reduce pressure on forests and contribute to alternative income generation activities.

The project supported capacity development and awareness raising related to climate change impacts and options for climate change adaption to key stakeholders such as commune council, village headmen, Community Forestry Management Committee (CFMC) and Community Forestry (CF) members of all five CF target sites located in Svay Rieng, Kampot, Kampong Thom, Siem Reap, and Pursat provinces. 568 community members participated (169 women) and there level of understanding, based on post-training tests, ranges from 51% to 90%.

The project provided co-financing to CF members to install 76 bio-digesters (1 per household), linked to latrines. The bio-digesters have led to a reduction of almost 100% in the firewood consumption of concerned households. This represents savings of 50,000 to 230,000 Riels per family per year (3 to 8 carts of firewood). The produce of the biodigester used as fertilizers also allowed for savings of 260,000 to 1,040,000 Riels per year per households (2 to 8 sacks of chemical fertilizer).



Poorer CF members who did not have sufficient assets to adopt the biodigester have been supported to setup home gardens and microcredit groups have been established. 40 families have benefitted from this programme, resulting in an additional yearly income of 170,000 to 720,000 Riels per family per year.

Overall, target communities have seen a change from high levels of forest dependency to integrated agro-farming systems and reduced firewood consumption. Some social co-benefits have also been identified, especially for women and children who free up time (cooking, collecting firewood) for other business and studies.

Community Forestry management Committees have strengthened the management of community forests and included alternative livelihood activities in their Management Plan and in Commune Development Plans.

The concept has shown potential for replication with support from NGOs and Forestry Administration, and is also reflected in the strategic plan of the Forestry Administration under the National Strategic Development Plan.

### Lessons Learnt

Referred the implementation and achievement of the project CF-CCCA project, we have learned as below:

- 1) Importance of combining trainings with hands on support and mentoring;
- 2) The participation and support of local stakeholders (local authorities, technical departments) is key to the success of the approach;
- 3) The request for an in-kind or cash contribution to the project from beneficiaries contributes to a higher level of involvement from their side;

### Sustainability

The initial investment costs are relatively high and it is important for beneficiaries to see that adopting the biodigester as an element of an integrated farming system provides economic benefits to them, and reduces their dependency on forests. Once this is demonstrated, the levels of sustainability are relatively high. For poorer households, alternative options requiring less assets (e.g. home gardens) can be a solution.

### Recommendations

- 1) Well managed Community Forestry combined with livelihood alternatives can have significant adaptation and mitigation benefits;
- 2) Specific attention must be paid to poorer families who have less assets and abilities to adapt to climate change;
- 3) The duration of pilot adaptation projects should be at least two years in order to demonstrate benefits allow enough time for capacity development, and create momentum for change.

A case study on this project can be accessed here: <http://www.camclimate.org.kh/en/documents-and-media/library/category/68-first-call-projects.html?download=265:case-study-fa-final-04-04-2013-s-tp>

## 3. Fisheries Administration

The Fisheries Sector is vital for the future well-being of Cambodia, both in securing sufficient food for the population and to ensure the livelihoods of those who depend on it for their income. Although studies have indicated that Cambodia's Fisheries are vulnerable to the effects of climate change, planning for the climate change response in this sector was still in its early stages when this pilot project started in late 2011.



The Fisheries Administration (FiA), with technical assistance from WorldFish, implemented the project “Building Capacity for Integrating Climate Change Adaptation in Fisheries Sector in Cambodia”. This project aimed to prepare key fisheries stakeholders to respond to the potential impacts of climate change, through increasing their awareness of the issues and building their capacity to respond with the main 3 objectives: (1) to raise general awareness of cause and effect of climate change impacts on aquatic eco-systems and fisheries-dependent communities of the need for response at National, Sub-national and Community levels; (2) to build institutional capacity of fisheries authorities, local resource managers and development practitioners to respond through integrating climate change into policies, plans and guidelines; and (3) to demonstrate appropriate responses in the fisheries sector.

The project helped to develop and disseminate a clearer understanding of expected Climate Change impacts on the various sub-sectors in fisheries, and how they should be addressed. This was done through a series of workshops and meetings but also through engagement of selected staff and local stakeholders in implementation of the project and in field piloting. In addition, the project findings supported the development of a climate change strategic plan and action plan for the fisheries sector, as part of the development of the overall plan of the Ministry of Agriculture, Forestry and Fisheries.

Information, communication and education tools have been developed and tested for all identified stakeholders. This was done in response to the results from awareness and capacity building needs assessments engaging various stakeholders in the fisheries sector including local fishers and community members at large, local authorities and fisheries officials.

Selected adaptation measures were piloted by local people with guidance provided by fisheries officials, and potential for wider implementation in the future was also assessed. As part of the piloting, four small-scale CC adaptation pilot projects, covering four technical departments of the FiA. The pilots focused on improved fish processing (Kompong Thom, fish conservation during floods and drought (Pursat), community fisheries and early warning (Kratie), and flood and drought resilient aquaculture (Siem Reap). They were implemented between September 2012 and June 2013. These projects were developed using a participatory approach, with the FiA working closely with local communities across four provinces in order to develop and implement the testing. The projects were meant to test adaptation strategies that can address the CC impacts facing local communities, and produced encouraging results.

More information on the climate resilient aquaculture pilot can be found here: <http://camclimate.org.kh.cp-27.webhostbox.net/en/documents-and-media/library/category/43-ccca-trust-fund.html?download=485:climate-change-adaptation-flood-and-drought-resilient-aquaculture>

### Lessons Learnt

- Climate change training material was found suitable for FiA officials but required simplification for community people. Visual material is particularly important at this level;
- There is scope to improve the design of ovens for fish processing to minimize charcoal use and maximize efficiency depending on the volume of fish being processed. Renewable energy sources could also be considered;
- As Cambodia is expected to experience longer and drier dry seasons and unpredictable floods, the tested aquaculture pilot is a good adaptation option. It would be less costly and more practical if the tank/filter could be built for a group of households with fish ponds next to each other.

- Careful attention to design, including use of local materials, is required to ensure cost effectiveness and replicability.

### Recommendations

- It is important to conduct climate change awareness and capacity development needs assessment before starting climate change intervention on the ground;
- There is a need to scale up climate changes awareness for FiA officials and fisheries stakeholders throughout the country, as this is very new to most of them;
- Community-based intervention approaches are good starting points in dealing with CC as rural communities are the most vulnerable to CC impacts. Future projects should continue to work closely with community members, incorporate capacity-building components of the projects (e.g. training courses), and projects should be designed to build off of local knowledge and expertise;
- Selection of participants with relevant occupation/business and commitment for piloting is essential, so that they can promote innovations in the community;
- Consistent data collection and communication of results with other farmers and project staff is important to understand the constraints, document the benefits and discuss required improvements;
- Even when the pilots are successful during the project, careful attention must be paid to minimize their costs, through improved design and use of local material, so that replication can happen;
- Opportunity for collaboration and building off of previous projects should be created and promoted. An intervention should not be separated from any existing project in the area and should instead work to enhance it. For instance, there might be an existing project on community fishpond conservation. If this community is chosen to work with, designed projects should give added value and synergy to the current project. This is because the issues of CC impacts on fisheries cannot be easily separated from the other issues (e.g. overfishing, the use of illegal fishing gears, protection of community fish pond to increase fish population, etc.).

## 4. Local Governments and Climate Change (NCDD-S)

The Local Governments and Climate Change Project was designed by NCDD and UNCDF with the intention of applying the worldwide expertise of UNCDF in supporting local development within the framework of the planning, financing and implementation systems of sub-national governments, and the experience of UNCDF support to decentralization policy development in Cambodia, to the emerging challenge of climate change adaptation. As such, LGCC became one of the first two pilots (the other is in Bhutan) of the global Local Climate Adaptive Living (LoCAL) initiative of UNCDF. The fundamental problem addressed by LGCC was that while sub-national governments are responsive to local needs for climate change adaptive investments, and climate change impacts on the mandates of sub-national governments for local development and service delivery, earmarked climate change financing is normally allocated at national level or through project arrangements that bypass the permanent institutions and systems of sub-national governance. LGCC and LoCAL were designed to address this problem by designing and implementing a system of specific purpose grants for climate change adaptation, integrated with the overall financial architecture of inter-governmental fiscal transfers. The specific financing instrument chosen for this purpose was the Performance Based Grant.

LGCC was designed as an initial pilot of limited scale and duration. The objectives of the project was stated as follows: To demonstrate the role of Local Governments in fostering climate change resilience and to identify practical ways to mainstream CC resilience into Sub-National planning and finance systems. An important focus is

thus on how to strengthen institutions and systems at both National and Sub-National levels. The entry points are provided by the recently introduced Sub-National planning and Sub-National finance systems.

Three expected results were defined:

1. Analysis of awareness to climate change at local levels and how this is expressed within Provincial, Municipal, District and Commune decision making, planning and budgeting processes, together with proposals for raising that awareness and identification of appropriate national and local partners for this.
2. Design and operation of practical systems for mainstreaming climate resilience in a fiscally sustainable manner and within existing local government financing systems, including the piloting of fiscal grants that support climate resilience.
3. Proposals for amendments to Sub-National planning Guidelines and entry points for climate change financing into Cambodia's nascent Sub-National Finance system, including advocacy at National level to disseminate and discuss the results of the project with National authorities and representatives from all Cambodian Provinces.

### **Overall achievements and adaptation outcomes**

Result 1 was effectively achieved through review of existing sub-national planning guidelines, actual plans produced, and discussions with sub-national officials from Provincial, District and Commune levels in a variety of forums, leading to a work plan for awareness raising activities integrated with LGCC implementation.

The systems developed and piloted for implementation of the Performance Based Climate Resilience Grants constitute the achievement of Result 2. The innovative elements of these systems comprise:

- Integration of the Vulnerability Reduction Assessment methodology previously developed in Cambodia by UNDP- NAPA Follow Up Project into a district-level Climate Change Adaptation Strategy;
- Identification by the sub-national administrations themselves of clear criteria for allocating investment funds in response to the Climate Change Adaptation Strategy;
- Allocation of funds earmarked for climate resilience in proportion to the general development allocations of the sub-national administrations, thus ensuring that the climate resilience funds do not "crowd out" the discretionary funds;
- Adoption of eligibility criteria for expenditure of the climate resilience funds that permitted the sub-national administrations a high degree of local initiative and discretion while ensuring that expenditures were relevant to climate change. Eligibility criteria encouraged a mix of investment types including non-infrastructure activities and also encouraged sub-national administrations to co-finance climate resilience investments from their general development resources;
- A sub-project selection process carried out jointly by the District and Commune level authorities, identifying the highest priority investments for climate resilience on a District perspective;
- Implementation arrangements using the existing procurement, implementation and financial management arrangements of the sub-national administrations and allowing either District / Municipality or Commune/Sangkat administrations to receive funds and implement activities;
- Strengthening of technical support for sub-project implementation by contracting a Technical Service Contractor (TSC) using a model already piloted by NCCDS in other provinces;
- A participatory evaluation exercise involving the sub-project beneficiaries in evaluating their sub-projects and reporting results to a reflection workshop;
- A pilot Performance Evaluation exercise based on performance in executing LGCC1 and used in allocating performance based climate resilience grants funded through the follow-up LGCC2 project.

Result 3 has not been fully achieved. NCDDS has held discussions with Ministry of Planning and with other stakeholders on a process designed to result in mainstreaming of climate change adaptation in the sub-national planning guidelines. A number of other donor-funded climate change adaptation initiatives have similar results listed in their project frameworks and there is a need for coordination on the donor side. On the government side, both NCDDS and Ministry of Planning have responsibilities for development of sub-national planning guidelines under the National Programme for Sub-National Democratic Development (NP-SNDD) and its 3 Year Implementation Plan (IP-3). Implementation of Sub-Programme 5 (Planning) of IP3, led by Ministry of Planning, appears to be slow. It is expected that NCDDS will submit a proposed revision to sub-national planning guidelines to NCDD later in 2013 and it is hoped that this will include an integrated approach to climate change adaptation planning.

### **Reduction in Climate Change Vulnerability at Community Level**

Through the Performance Based Climate Resilience (PBCR) Grants, LGCC provided \$US 120,000 of financing for building climate resilient communities in the target areas. The sub-national administrations provided \$US 90,562.85 of co-financing for these sub-projects. A total of 15 sub-projects were implemented and supported climate proofing of rural roads in flood-vulnerable areas as well as irrigation infrastructure, domestic water supplies, improved drainage, demonstration of resilient rice seed varieties, water and hygiene education and environment and climate change awareness. \$US 29,437.15 of total PBCRG were allocated for carrying out CCA mainstreaming planning and strategy, hiring engineer (TSC), admin and operation at provincial and district levels.

Climate proofing of infrastructure is expected to reduce vulnerability to damage particularly from floods, while the irrigation, water supplies and resilient rice seed activities will assist local communities to cope better with direct climate shocks including drought damage to crops and domestic water shortages. Improved understanding of the challenge of climate change will contribute to improved adaptive capacity in the long term.

However it is important to keep the scale of the challenge posed by climate change and the investment effort supported by LGCC in perspective. Climate change adaptation is a long-term process and depends on changes in institutions and human resource capacity at all levels as well as on specific investments. As a relatively small project implemented in three sub-national administration areas over one year, LGCC was not in a position to have a major direct impact on climate change vulnerability. Rather, the purpose of the project was to demonstrate an approach to building climate change resilient local communities that can be scaled up.

### **Behavioral Change**

LGCC supported activities to promote behavior change through demonstration of resilient rice seeds, training on water and hygiene and through environment and climate change awareness raising, but these sub-projects represented a relatively minor part of the overall project expenditure. Beneficiaries of these activities took part in the participatory evaluations (see Participatory Evaluation Report, Annex 1) and affirmed the value of the training they had received. However, sustained behavior change requires long-term support. These limited duration activities can best be considered as contributing to incremental behavior change.

The investments in irrigation will provide farmers with the opportunity to modify their farming systems to take advantage of better or more reliable water availability, but as the first growing season since the construction works were completed, is only now under way, it is too early to have firm evidence of these impacts.

## Capacity Development

LGCC adopted a strategy of “learning and doing” in which capacity development is driven by the experience of implementing activities for climate change adaptation, particularly vulnerability reduction analysis; formulation of district level climate change adaptation strategies; and identification, selection and implementation of investments for climate resilience. LGCC developed capacity directly through training and technical support designed to enable the sub-national administrations to complete these activities successfully.

Capacity development is a long term process and the improvements in systems and human resources needed to develop capacity for climate change adaptation are complex. In this context the achievements of LGCC during a one-year cycle of activities in Takeo province are considerable. Sub-national administrations at Provincial, District and Commune level have an improved understanding of the challenge of climate change and of adaptation measures suitable to their local areas. The administrations learned and gained confidence in planning for climate change adaptation and in managing specific purpose grants through their regular financial management systems. One year is a short time to produce a sustained impact through this approach but the sub-national administrations will have the opportunity to use and develop these improved skills through two further planning and budget cycles supported by LGCC2.

## Policy Development

LGCC was specifically designed to influence policy development through demonstrating the important role of sub-national governments in climate change adaptation as well as through mainstreaming climate change adaptation in to the sub-national public expenditure management (planning, budgeting, financing, procurement and implementation) systems.

The demonstration objective is considered to be well achieved with considerable interest on the part of Government and key donors in supporting climate change adaptation investments through modalities that are influenced at least in part by LGCC.

LGCC has succeeded in developing and field-testing modalities for mainstreaming climate change adaptation but has not as yet fully succeeded in having these modalities incorporated into the national regulations and guidelines for sub-national public expenditure management.

At the local level, LGCC has succeeded in developing climate change adaptation strategies and identifying climate change adaptation investment through the sub-national planning institutions at Provincial, District and Commune levels.

## Lessons learnt

- 1. Local communities and sub-national governments do not easily distinguish between long-term climate change threats and natural disaster risks.**

There is a broad general awareness of the concept of climate change in Cambodia, including at sub-national government level and in local communities. However the perceived risks associated with climate change are generally limited to increased frequency or severity of familiar phenomena: principally floods and droughts but also damage due to wind storms and lightning strikes. Hence there is limited distinction between “disaster preparedness” and “climate change adaptation.” Slow, gradual changes in average temperatures, frequency of very hot days, changes in the amount and distribution of rainfall and – for communities in very low-lying or coastal areas – sea level rise may ultimately have more profound

consequences for local communities and particularly the agricultural economy. Some of these trends may create opportunities as well as threats. Adaptation responses may include changes in the type or design of local water supply installations as well as introduction of climate adapted crops or seed varieties and changed cropping patterns. It is important that technical assistance for climate change awareness assists in improving understanding of the implications of long-term climate change trends.

**2. Local communities and sub-national governments have the capacity to develop simple but appropriate strategies for climate change adaptation.**

The project has successfully demonstrated that, given assistance in understanding climate change trends, communities and sub-national governments have the capacity to identify local vulnerabilities including types of impact, vulnerable groups and vulnerable locations, and to develop simple but appropriate strategies for adaptation including identifying activities to build climate resilience and simple criteria for prioritizing investments. Most of the climate change adaptation responses identified by non-specialist local planners are broadly similar to those likely to be recommended by external “experts.” However two areas in which expert advice may be valuable at the planning stage are (1) awareness of available technologies for climate change adaptation – for example, the availability of resilient seed varieties; and (2) advice on the technical and economic limitations of adaptive infrastructure investments – for example, the limited potential of irrigation to solve general water shortage problems or the high costs of constructing flood defenses relative to the likely benefits.

**3. The capacity to use the strategies and associated prioritization criteria to select the highest-value investments for climate change adaptation is weak.**

Local planners in sub-national governments have very limited understanding of how to apply general plans and strategies to selection and prioritization of investments. Sub-national planning procedures are generally weak in this area. “Plans” and “investment programmes” traditionally contain long lists of desirable sub-projects with costs far in excess of the available resources. The final selection of investments for financing is often by executive decision. LGCC attempted to strengthen the link between planning and budgeting by introducing a set of prioritization criteria into the district climate change adaptation strategy, and a process in which representatives of the District and Commune administrations scored each candidate sub-project against each criterion. This method proved only partially successful – the scoring process was time-consuming and cumbersome, the information available on each sub-project was not sufficient for informed decision making and in consequence the scores awarded tended to be rather arbitrary or influenced by factors other than the quality of the proposals. More work is needed to develop and effective methodology for this important step in the process.

**4. There is very limited technical capacity to design complex climate change adaptive sub-projects.**

Under the LGCC project, District administrations were obliged to allocate part of the PBCR grant funding for hire of an engineer for feasibility study, design and construction supervision of infrastructure. This approach was adopted because of the known weakness of the teams of technical support officials that provide support to Commune/Sangkat Fund projects, and built on an approach successfully piloted by NCCDS in other provinces. However the participatory evaluations (see Annex 1) identified a number of technical weaknesses in design and construction of the sub-projects. Further strengthening is needed in this area.

The non-infrastructure sub-projects proposed for funding by the District technical departments were generally limited to dissemination of regulations and raising of awareness on various matters. The non-



infrastructure sub-projects that were actually implemented were developed through discussions with the NCDDS and UNCDF and 12 combined awareness raising and educational activities with demonstration of climate adaptive technologies (resilient seeds, water filters). Still the technical approach of these sub-projects was quite basic. For effective non-infrastructure investments a higher level of technical support is likely to be needed, as discussed further in the next section.

#### **5. The range of sub-projects types likely to be proposed for funding in any area is quite limited**

Although the menu of eligible investments to be funded by the PBCR grants was very large, in practice the range of investments proposed for funding was quite small: roads, irrigation and water supplies amongst infrastructure sub-projects and water supplies and agriculture support related non-infrastructure interventions. The small range and predictability of the investment types creates the possibility to focus support on improving technical quality of the most important investments. This could be done without limiting the discretion of the sub-national administrations to choose the investments most suited to their local circumstances, within the limits of the investment menu. For example higher level government technical agencies and / or NGOs could be engaged to develop “investment packages” that could be customized to local needs, for example in support to development of climate resilient agriculture.

#### **6. Opportunities Identified**

There is considerable interest amongst development partners in funding for climate change adaptation through sub-national governments. To some extent this interest has been stimulated or increased by the demonstrated success of LGCC. Ministry of Environment has also shown support for this approach. Therefore there is an opportunity to scale up funding and to do so in a coordinated manner so as to achieve economies of scale and achieve mainstreaming of a unified approach to climate change adaptation in the sub-national public expenditure management systems. NCDDS should take the lead in establishing a coordinated approach and development partners should actively seek opportunities for cooperation and partnership, rather than simply developing a set of projects with similar objectives but different implementation approaches.

### **Sustainability and proposed follow up actions after the project completion**

As the purpose of LGCC is to demonstrate the role of sub-national governments in climate change adaptation, sustainability at the level of the project purpose will be achieved through the recognition of this role by government and development partners, through mainstreaming climate change adaptation in sub-national financing and public expenditure management systems and through mobilization of resources for the climate change adaptation investments of sub-national governments.

In this sense good progress has been made towards sustainability. LGCC has encouraged government and development partner interest in funding climate change adaptation through local governments and in mainstreaming climate change adaptation in sub-national planning. LGCC itself is succeeded by a larger follow-on initiative, LGCC2, funded by SIDA and providing two years of PBCR grant funding to the same three local governments in Takeo and to five Districts in Battambang.

However, the sustainability of the gains made in mainstreaming climate change adaptation at sub-national level could be threatened if development partners focus excessively on the sub-national level as a modality for delivering “similar but different” projects that are not founded on a single, government owned and institutionalized approach. To avoid this risk, development partner should see their projects as a means to support the long term capacity development of the sub-national administrations. NCDDS has been approached by three



or four different development partners wishing to support projects that are “similar but different” from LGCC. Harmonization around a single model would be more productive – this does not mean “harmonization around the UNCDF model” but rather, that NCDD should take the lead in determining the basic framework for donor support to sub-national climate change adaptation and require donors to design projects that support that framework.

Sub-national administrations and the communities that have participated in implementing LGCC will be able to sustain and further develop the gains in understanding of the challenge posed by climate change in capacity for planning and implementing activities to build climate resilience, provided that a formal framework for sub-national climate change adaptation is established. This requires mainstreaming of climate change adaptation in PEM systems and availability of earmarked resources to complement the general resources of the sub-national administrations. In the short term, LGCC2 will provide finance and support for continued climate change adaptation action in the local governments supported by LGCC.

Sustainability of the sub-project outputs supported by the PBCR grants depends on the level of need for operation and maintenance and on the ability of the community and local administrations to meet those needs. Operation and maintenance capacity at local level is generally rather weak. Most communities are aware of the general type of maintenance activities needed but in the participatory evaluations, only one community described a plan for specific action (see Annex 3).

## Recommendations

1. NCDD to lead the large number of interested stakeholders in developing a unified approach to climate change adaptation in sub-national planning and to ensure that the approach is mainstreamed in planning guidelines. This activity has already begun with agreement to form a working group led by Ministry of Planning as chair of the NCDD planning sub-committee and implementing agency of sub-program 5 of the IP3. However, progress has been slow and initiative has come mainly from the development partners. Meanwhile there are separate efforts under way to revise the general sub-national planning guidelines. Without effective coordination there is a risk that the revised planning guidelines could be adopted by NCDD without adequate attention to mainstreaming of climate change adaptation.
2. Climate change adaptation plans and strategies at sub-national level to be clearly linked to investment decisions (i.e. the format and content of the plans should facilitate selecting the highest priority investments). As discussed in the Lessons Learned section above, it is actually less difficult to develop plans and strategies for climate change adaptation at sub-national level than it is to ensure that the plans and strategies effectively determine the priority allocation of scarce resources to investments for climate resilience. This matter should receive careful attention during preparation of the guidelines for sub-national climate change adaptation planning.
3. Scale up finance for climate change adaptation through sub-national budgets while providing sufficient technical support to assist sub-national administrations to make effective use of the funds. LGCC has demonstrated that local governments can make effective use of earmarked funds for climate change adaptation, including by co-financing investments with their general resources for development. Government and development partners should make efforts to scale up the financing available for this purpose, including considering whether some funds that are presently managed through centralized implementation systems, but which finance small and medium scale, localized investments, would not be more efficiently or effectively used if channeled through the budgets of the sub-national governments. Government and development partners should provide complementary technical assistance to assist sub-national governments to develop capacity and to ensure the quality of sub-projects implemented.

## 5. Research and Community Protected Areas Department, Ministry of Environment

The Community Protected Areas (CPA) targeted by the project are among the most at-risk in Cambodia to the adverse impacts of climate change. Local people are very poor and located in remote community protected areas. The population is directly reliant on local forest products e.g. non-timber forest products (NTFP) and forest services for their livelihoods. The area is prone to natural disasters such as flooding, drought, and storms. The project focused on five main objectives:

- Building community capacities on climate change vulnerabilities and adaptation options;
- Developing adaptive actions and strategies for building pilot climate-resilient communities in the Boeung Per Wildlife Sanctuary;
- Integrating community-level adaptive actions in CPA regulations and plan;
- Encouraging the participation of local marginalized groups (such as women and indigenous groups) in biodiversity conservation to address the problems occurring due to climate change (and demonstrating a practical model of community-based adaptation for national extension and scaling up); and
- Developing essential capacities for staff and demonstrating an institutional model for the Department of Research and Community Protected Area Development (RCPAD) under the Ministry of Environment, and Provincial Departments of Environment of Kampong Thom, Siem Reap and Preah Vihear in supporting community-based climate change adaptation planning processes.

The project started with a Training Needs Assessment (TNA) for project staff which suggested that three Training of Trainers (ToT) needed to be done in order to disseminate climate change adaptation knowledge to the 19 local communities in Boeungper Wildlife Sanctuary. The three ToT courses namely 1) Concept of Community Protected Areas Development; 2) Community Protected Area for Adaptation to Climate Change: Vulnerability Analysis; and 3) Agroforestry Based Home gardens & Community Based Adaptation Learning Network were successfully carried out for project staff. At the end of each ToT, the three project teams were required to provide subsequent field training activities to the 19 local CPA communities. In total, the three project teams have conducted 9 trainings to those 19 CPAs, and integrated lessons learnt.

The project teams and community members also conducted climate change vulnerability assessments which assessed and collected information on climate change vulnerability from the 19 target CPAs. Based on the results of vulnerability analysis, three targets CPAs were selected for which climate change adaptation activities were to be piloted;

- Choam Mrech CPA: water management/flood protection. Renovate and build a 180 meter long dam in Salavisay commune, Prasat Balang district, Kampong Thom province
- Prey Thom CPA: access to water in the dry season. Dig 8 wells in Pungrou Leu commune, Chikreng district, Siem Reap province; and
- Chroppy Rongroeng CPA: access to water in the dry season. Connect a 772 meter long water tube for clean water supply and a storing facility in Rongroeng commune, Roveang district, Preah Vihear province.

As a result of the ToT course on Agroforestry Based Home Gardens, the three project teams identified potential households for home-gardens activities. Eight (8) families were selected in Choam Mrech CPA of Kampong Thom; 12 families were selected in Chroppy Rongroeng CPA of Preah Vihear and 14 families were selected in Prey Thom CPA of Siem Reap. The training for improved home-gardens using agroforestry techniques and principles were then conducted in the three CPAs respectively.

Overall the management capacity for the CPAs improved through capacity development support from the project, and specific measures were included to reduce climate change vulnerabilities and ensure sustainable use of forest resources.

Nineteen (19) big signboards for awareness-raising were installed at visible areas of each CPA site and the 1330 (70 per CPA) small signboards were installed around the CPAs borders and CPA forest area to serve as CPA demarcation.

### **Lessons learned**

The lessons that have been learnt throughout the project are summarized below:

- Vulnerability Assessments, based on the existing VRA methodology in Cambodia, were a very useful tool in the development of adaptation strategies that address climate change impacts specific to the use of local knowledge, skills and the practical experiences of local people;
- To demonstrate climate change adaptation, activities need to take into account the local geographical context, allow sufficient time (both for demonstration actions as well as stakeholders mobilization), and consider the specific knowledge, skills and needs of local communities. This requires a careful inception phase and flexibility to adapt proposed outputs and approaches to local needs;
- Participation of different key stakeholders (NGOs, local authorities, technical departments) in the implementation of the project was found to be very useful in providing follow up support to local communities and contributing to the sustainability after the project end;
- Building capacity by applying the principle of “Training for Action” through hands-on coaching, and extension should be a continuing cross-cutting activity (and should not be a one-time activity) throughout the CPA development process;

### **Sustainability and proposed follow up actions after the project completion**

Based on experiences and lessons learnt from the project implementation, networking and monitoring funding should be made available for future implementation of adaptation strategies in CPA communities and other project extension and scale up.

Adaptation mechanisms in CPA communities should include improving community infrastructure that may be necessary to ensuring the success of any adaptation strategies introduced into CPAs. Existing active networks for CPA communities should also be used to disseminate and exchange information on climate change adaptation.

Climate Change Vulnerability Assessments for all CPAs in Cambodia should be prioritized and developed into suitable adaptation strategies, considering infrastructure development and training programs on adaptation strategies for water, agriculture and agroforestry.

### **Recommendations**

*Adaptation in CPA communities: Improving livelihoods through improved infrastructure and adaptation strategies.*

Through the vulnerability assessment, it was found that the CPA communities were vulnerable to climate change as they lacked access to livelihood options and food due to the effects of a changing climate and other non-climate related causes.

Late rainfall and drought had decreased the yield of rice causing food shortages. Communities also suffered from a lack of water due to poor infrastructure. Some of the CPAs communities had access to water but there was either no connecting infrastructure (i.e. families have to walk far from their village to get water) or previous infrastructure put in place such as a reservoirs had now stopped functioning. The lack of access to water for irrigation and livestock reduced the ability of families to diversify and supplement their livelihoods through alternative sources such as home gardens.

Therefore, in order to reduce CPA communities' vulnerability to climate change relating to livelihood, both direct improvements may have to be made towards improving water infrastructure and adaptation strategies have to be introduced that enable communities to supplement their livelihood and/or improve the current sources of their livelihood.

**Recommendation 1:**

Community adaptation to climate change in CPAs should take on an approach of improving community infrastructure that may be necessary to ensuring the success of any adaption strategies introduced into CPAs.

*Adaptation in CPA communities: Use of existing networks*

Some villages in the CPAs are already starting to adapt to the impacts of climate change without the initial outside support from government agencies or NGOs on adaptation strategies. Through encouraging the use of existing networks, both current adaptation strategies being implemented by villagers and any new adaptation strategies introduced through government or other stakeholders initiatives can be shared to all CPA communities. In practice, the more knowledge on adaptation that is shared, the more able communities and families will be able to cope with climate change, as knowledge on what strategies work, don't work, or how they can be improved and adapt can be exchanged, also locally resilient seed varieties can be shared and exchanged.

**Recommendation2:**

Use existing active networks for CPA communities to disseminate and exchange information on climate change adaptation.

*Extension & Scale up: Training of Government staff and planning of improved CPA infrastructure.*

Capacity of government staff at national and sub-national levels should be improved so that they are able to conduct Vulnerability Assessments within all CPAs in Cambodia. From the Vulnerability Assessments, staff should then be able to determine how to improve the related community infrastructure (water, roads etc...) and the adaptation strategies to be implemented together with CPA communities.

**Recommendation3:**

Conduct Vulnerability Assessments in all CPAs in Cambodia and based on the results, develop a training program on suitable adaptation strategies that need to be implemented in the CPA communities, including agroforestry, etc. Parallel and complementary plans for improved community infrastructure should be developed and prioritized relating to the adaptation strategies being implemented.

*Extension & Scale up: Protected Area Law and Guidelines*

Since the sustainability of CPAs, and the timber and non-timber forest products within, are integrally related to communities' livelihoods which are both facing increased pressure due to changes in the climate, how communities' livelihoods are addressed in Protected Area Law and guidelines should be reviewed. For example Article 42 of Protected Area Law states that "Processing natural resources products and by-products, and fisheries, establishing and operating sawmill bases for wood processing, timber process plants, shops to process natural resources products and by-products, fisheries and all kinds of kilns in the protected areas are strictly prohibited." This law may decrease the ability for communities to gain any potential livelihood from NTFPs.

**Policy Recommendation 4:**

Review how communities' livelihoods and climate change adaptation strategies are addressed in Protected Area Law and guidelines including CPA management plans.

**6. Royal University of Agriculture**

Prey Veng is one of the most disaster-prone provinces in Cambodia, suffering from cycles of both flooding and drought, chronic food insecurity, minimum infrastructure, poverty related migration, and rain dependent mono-cropping agriculture. The poor and chronically food-insecure populations in the target areas of the project, generally do not have adequate reserves (food and financial) to see them through the period between the harvest of successive rice crops. One of the major contributing factors to food insecurity is related to the damage and uncertainties related to weather related factors, which are often accentuated in areas of chronic poor soil fertility, such as prevail in much of Prey Veng Province.

As acknowledged by many researchers and policy makers, the impact of climate change is long-term (both in terms of the changes in climate, as well as the impact that the changes can potentially have on agricultural production systems). In this context, where studies are undertaken to assess the potential of improved adaptation technologies, these assessments need to be undertaken over a period of time that is sufficiently representative of the variability in climate in areas where technology innovations are to be evaluated. In this context, a one year project such as this project, would normally regarded as being of insufficient duration to be able to adequately assess potential technologies for areas affected by climate variability, such as floods and droughts. On-farm studies would normally be needed to be conducted for at least 2 to 3 years before firm conclusions and recommendations can be formulated. However, despite this time constraint, there were significant achievements by the project.

Data from surveys of farmer groups selected for developing and validating agricultural technologies has shown that farmers in the project area have a reasonable understanding of the changes in local climate variability and weather patterns that are affecting rice yields and agricultural production practices. Reflecting this, in some areas there have been changes in some rice production practices. Among these changes has been the widespread move from traditional transplanting of rice crops to broadcast seeding, the adoption of new short maturing cultivars (IR66 and the low quality variety IR504), and the planting of rice crops before and after flooding in areas with a history of regular (annual) flooding. There has also generally been an increase in the use of chemical fertilizer to maintain yields.

The improved Cambodian rice varieties, Chul'Sa and Riang Chey, demonstrated (with acknowledgement by farmers) that they have significant potential in the project area, when grown in accordance with recommended

management practices (particularly fertilizer management), when compared with current rice cultivation practices. The results of the on-farm demonstrations indicated that there is considerable potential particularly for the variety Chul'Sa, as a replacement for IR504 which was initially introduced into the area by rice traders from Vietnam. Chul'Sa has a maturity time of between 95 and 105 days and is regarded as reasonably drought tolerant, while IR504 is a variety of shorter maturity, between 75 and 85 days.

Grain yield and net income of the Chul'Sa variety significantly increased by 27% and 124% respectively for pre-flooding rice crops and by 22% and 99% respectively for flood recession rice crops.

The adoption of the recommended fertilizer package resulted in an income return approximately 160% higher than for conventional practices for pre-flooding rice crops; however there was no apparent yield benefit for post flooding (recession) rice crops. With regard to seeding rate, rice yields generally did not reflect differences in seeding rates. However, the net income showed a significant increase of between 90% and 165% for the Chul'Sa variety, when planted using a seeding rate of 100 kg/ha, relative to the use of higher seeding rates and traditional varieties.

Of particular significance was that the improved technologies for rice cultivation were not based on a requirement for supplementary irrigation.

One significant constraint for the wider adoption and sustainability of the recommended practices is access to markets. Farmers do not currently have easy access to the proposed varieties, and it remains easier to sell traditional varieties through traders linked to the Vietnamese markets. Strong government support would be required to promote improved Cambodian varieties, make the seeds available locally, and ensure the whole value chain supports these changes.

Many advantages were acknowledged by farmers regarding the growth of cassava and peanut as cover crops on their fallow land. It was reported by 50% of the respondents that growing cassava and peanut helped farmers in improving their incomes, when compared with the usual practice of planting single rice crops. Many farmers (53%) in Pa Phnom district also acknowledged the potential of peanut crops helping to improve the soil fertility, in their capacity of being a legume crop. This was despite the fact that peanut cropping is very dependent on the availability of good seed and good land preparation, and the fact that peanuts are more affected by drought conditions than perhaps other crops. In the districts of Pa Phnom and Kamchaymear, 83% and 75% of farmer survey respondents, respectively, acknowledged the combination of cassava and peanut cropping would be suited to drought prone areas.

Even though the potential economic benefits of the introduction and utilization of improved forage crops (grasses and the legume, Ubon Stylo), could not be quantified within the restricted time from of the project, farmers in the project target areas recognized the potential economic benefits from improving cattle production, based on the improved nutrition of their cattle. More than 90% of survey respondents in the project districts reported potential positive perspectives from the introduction and utilization of improved forages, while 80% of survey respondents indicated that the cost of feeding their cattle will likely drop relative to their traditional practices of harvesting grasses and crop residues to provide feed for their cattle (and potentially other ruminant animals). The positive perception of the potential benefits from the introduction and use of improved forages were greater in Pea Reang district than in the districts of Pa Phnom or Kamchaymear. In addition, there were recognized significant positive perceptions from the introduced forages in terms of reduced time and labor commitments for producing feed for livestock (and this was a recognized as a particularly positive impact for the women in rural households).

## Lessons learned

One of the key lessons from the projects was the clear definition of responsibilities in the project, based on the capacity of the institutions. The modeling and academic studies related to climate change were managed through the Royal University of Agriculture (RUA), while the on-farm activities were managed and coordinated by Chea Sim University in Kamchaymear, (CSUK) which is located in the project target area and which had the required agricultural capacity to coordinate the program of on-farm activities, while at the same time, having good relationships with the provincial and commune levels of the relevant government agencies (responsible for extension). This clear definition of responsibilities, together with regular information exchange and meetings between CSUK and RUA, minimized the potential for misinformation or misunderstanding.

## Sustainability and proposed follow up actions after the project completion

At the time the project commenced, a constraint was acknowledged by CCCA, that studies on the evaluation of technologies related to adaptation to climate change (and particularly climate variability) in areas subject to climate based extreme events (such as flooding and drought), need to be conducted over a period of at least 2-3 years. This project was implemented over an approximately 15 month period. The real benefits of the adoption of the technologies on a wider scale need to come from the extension to the wider farming communities in areas prone to climate extreme events. This was not possible within the time frame approved for this project. Follow-up support in this area is strongly recommended for consideration by the donor agency(s).

## Recommendations

The single most significant recommendation is for consideration to be given to providing further donor financial support to extending the technologies to appropriate areas of Prey Veng province, and if possible, in nearby provinces, such as Svay Rieng, which face similar climate based production constraints and challenges.

Government action would be required to ensure local availability of seeds for climate-resilient varieties, and access to markets.

## 7. Sihanoukville Provincial Hall

The Sustainable Sihanoukville through Climate Change Planning and Adaptation project aimed to develop capacity among government staff and local communities in order to better understand climate change through pilot project implementation in Sihanoukville Municipality.

The SS-CCPA project focused on the following results:

- Reduction in the long-term vulnerability of communities in Sihanoukville through better infrastructure, information and governance arrangements.
- Adaptive capacity created within the provincial government and to mainstream climate change into all provincial level plans and policies.
- Institutional capacity and coordination strengthened and a city-level master plan created which means urban development in Sihanoukville will consider climate change.

Under the first results area, activities included the establishment of an Automatic Weather Station (AWS), analysis of its information by Ministry of Water Resources and Meteorology (MoWRAM), and broadcasting of weather bulletins / alerts for local communities. A Disaster Risk Preparedness Plan has been adopted by the Municipality DRM Committee following consultations with local communities. The level of awareness, and reliance on weather



forecast broadcast through radio and TV has increased (in particular to anticipate storms for fishermen). Fish catch has increased by 8.15% in 2012, while the number of commercial boats has been maintained (1,650 units).

A solid waste management system has been established in the vulnerable commune of Tomnop Rolok, with 80.90% of total households having access to community-based solid waste management. Initial storage facilities for the waste management system have been provided including transfer-points, trash bins, push cart, and other materials for community clean-up activities and information campaigns. Two locations in Tomnop Rolok, in community and Sakura School were identified to establish segregation bins, with another two schools nearby the Material Recovery Facility (MRF) center joining at a later stage. The MRF center has been set up including machine and facilities. Segregation garbage is collected for recycling while plastic is shredded for making paving blocks and kitchen waste is processed for composting. Through training provided, local people and students have changed their habit to put garbage in trash-bins.

A planned activity of planting a new mangrove area at the southern end of Ochheauteal Beach could not be completed due to conflicts on land use in the area which couldn't be addressed during the project period. An assessment on beach erosion caused by sea level rise was conducted both in Ochheauteal and O'tress Beaches and with the committee in charge of coastal zone management. At the same, the national government has issued Circular no. 1 on the development of coastal areas in the Kingdom of Cambodia dated 03 February 2012, which will provide a framework for erosion prevention and beach utilization in the long term. The local Business Forum has signed a Sihanoukville declaration on partnership for sustainable coastal tourism development, and establishment of a Clean City Foundation (CCF). This Foundation will be a fund source for environment and sanitation initiatives in the city.

**Under result area 2,** provincial departments of Environment, Fisheries Administration, Tourism, Land Management, and Planning, as well as officials at the municipality level have been involved in the planning process, consultations and decision making on climate change and coastal zone management.

A new Coastal Management and Development Committee has been established in line with Government's Decision No. 152 dated 13 July 2012. This coordination body oversees coastal development and management, climate change and other environmental issues. Climate change related activities have been integrated in the municipality investment plan for 2014.

Through assistance from UN Habitat, the Cambodia National Scoping Study on Climate Change has been finalized, giving information on the relationship between urban development and policies and programming on climate change.

**Under result area 3,** the joint activity with JICA and Department of Land Management to update the City Master Plan could not be implemented due to timing and coordination constraints. However, capacity development among local planners on planning for climate change has been conducted, together with activities on climate change actions mainstreaming into the municipality plan. 48 participants (including 3 women) from different key-provincial departments and local planners from Municipality, Districts, and Sangkats attended the training. The Planning for Climate Change Training is expected to show full results in 2014 when the Municipality Investment Plan is completed and Approved. The work done under this project will ensure that the Municipal Investment Plan is the first district or municipal investment plan in Cambodia which fully integrates climate change considerations, and aims to make climate smart investments. The trainees act as resource persons and have received a quick guide on Planning for Climate Change.

A total of 507 people (including 315 women) have been trained under the project on techniques and tools of climate change adaptation and mitigation.

### Lessons learned

1. Stakeholder commitment across provincial departments and local authorities is very important for the effective delivery of the project. This is because climate change is a cross-cutting issue and technical skills, management support and leadership are needed in order to implement the project effectively.
2. Capacity support is required from outside on technical issues, such as the beach erosion study under this project.
3. Public-Private Partnerships (PPP) can be a very effective way of delivering services to people because it engages stakeholders and creates a sense of ownership among stakeholders. We found that there is interest to explore using the PPPs more in the future, including activities for coral reef conservation and the clean city foundation.

### Recommendations

Local planners and officials require specific training materials and tools on to support integration of climate change in their regular development work. This is a new area and the needs for capacity development support are significant.

## 8. WOMEN

The “Together Addressing Climate Change Initiative – Prey Veng (TACCI-PV)” project aims to build a multi-sectoral approach to climate change adaptation in Prey Veng Province involving Government and Community- through strengthening capacity and coordination of sub-national authorities; enhancing National/sub-national relationships and dialogue; and enhancing all stakeholders awareness, participation and management of natural resources and climate change adaptation processes. The project also has three specific objectives: (1). to strengthen capacity of sub-national authorities through stronger coordination mechanisms, training and study exchanges; and support for demonstrating CCA initiatives; (2). Strengthen relationships and policy dialogue between national and sub-national authorities in CCA through involvement of focal points from key national department; (3). Strengthen community awareness about CCA through outreach and awareness activities, and support for mechanisms that promote community participation and management of national resources and climate change adaptation.

The project focuses on supporting communities around the Boeng Snae lake.

In order to support a multi-sectoral response to climate change in the target communities, the Project has initiated the establishment of a Provincial Climate Change Adaptation Committee for Prey Veng Province as an inter-departmental mechanism chaired by the provincial governor. This mechanism facilitated cooperation between local governments (communes) and the providers of technical assistance in provincial departments of the line ministries.

Following a vulnerability analysis, adaptation activities included (1) support for improved wet and dry season rice cultivation techniques (in partnership with the Provincial Department of Agriculture); (2) fish raising and conservation in community fish ponds and the Boeng Snae lake; (3) tree planting in home gardens and flooded forests; (4) related capacity development and awareness-raising activities in 21 villages, with a strong focus on sustainable management of community natural resources (use of peer facilitators).

The activities were focused both on community land and resources, and on 42 vulnerable households.

The results have been significant, in particular in relation to the restoration of fish stocks, which have attracted additional animal species (birds) back to the lake. A previously degraded flooded forest has now been restored and is effectively protected by concerned communities. Behavior change is noticeable, with local authorities and community members now well aware of the benefits of sustainable management of natural resources. The Poun Taley Forestry and Boeng Snae Lake Fishery Committee has been formed and members have benefited for training and mentoring. The project facilitated linkages with local authorities (to include activities in commune budget), and with the local police to support the enforcement of the committee's rules.

### **Lessons learned**

There is potential for such a multi-disciplinary, community based approach, which has allowed local communities to jointly put in place sustainable, adaptive practices, particularly in the management of community natural resources. Engagement and support from the various provincial departments and local authorities was also crucial. Illegal fishing remains an issue, but prevention and awareness-raising efforts, together with better cooperation with the police, should help reduce these activities.

WOMEN has a long term engagement with the concerned communities and authorities, and this has greatly facilitated project implementation, through strong local partnerships.

Community based measures for climate change adaptation need to begin at the most basic level. Most of participants, and the Government staff from the Provincial Departments, were well aware of climate change after attending the workshop and sharing messages. Prior to the training they did not understand the greenhouse gas and greenhouse effect, or the connection between climate change and deforestation and the burning of fossil fuels. They have shown a lot of interest in the topic and have become resource-persons for their community to spread information and knowledge on climate change and adaption.

The Provincial Technical Working Group plays a very important role in coordinating support to the communities, and also has responsibility for disaster management activities in the province.

### **Recommendations:**

- Education and awareness efforts need to be backed up by opportunities to put this new knowledge in practice, through small pilots. This is the most effective way to generate behavior change, based on concrete evidence.

## 2<sup>nd</sup> Call for Proposals

## Summary of progress for grant projects

### 1. Royal University of Phnom Penh (RUPP)

The project focused on developing capacities to integrate climate change in the planning and design of rural water and sanitation infrastructures, with pilots in two flood-prone provinces, Kompong Cham and Battambang.

Key achievements included the development, testing and publication of a climate change training manual in English and Khmer. 78 officials from relevant provincial departments and local NGOs have been trained on the basics of climate change as well as adaptation in the water and sanitation sector. Many have been involved in the implementation of the pilots, thereby gaining valuable experience for the implementation of such programmes in the future. The Ministry of Rural Development has expressed interest to scale-up such programmes in the future.

Five flood proof wells and ten sanitation infrastructures (latrines) have been set up at seven flood vulnerable schools in the two target provinces, benefitting almost 2,000 school children and teachers, as well as the broader communities during floods.



**FIGURE 2: FLOOD-PROOF (RAISED) WELL IN BAK AMREK PRIMARY SCHOOL, BATTAMBANG PROVINCE, © CCCA, 2013**

#### Lessons learned

- Curriculum development is a lengthy process and required more time than expected. As it targets practitioners, the curriculum must be interactive and include a connection to field work. The initial needs assessment provided a useful picture of real needs and the capacity gaps of relevant officials;
- The engagement of local partners, including the provincial departments of rural development and local authorities has helped better understand local needs and constraints, and follow-up on implementation.
- Fund mobilization from the community should be included to create a sense of ownership and responsibility for the infrastructure.

#### Sustainability and proposed follow up actions after the project completion

WASH teams have been set up in each target school, and will be responsible for maintenance of the system during and after the completion of the project. Another important role of this team will be fund raising and allocation for the operation and maintenance of the system. Government budget (priority budget) is also available in each school for day-to-day maintenance of equipment, and could be used for well and toilet maintenance.

A monitoring template has been developed, but this will require the commitment and involvement of the provincial departments of rural development.

## Recommendations

A fifteen months implementation cycle is too short to fully demonstrate the quality of the infrastructures, and ensure sustainable capacity development. Continuation and scaling-up of the activities were highly recommended by all stakeholders.

A research study on the cost benefit analysis between flood proof and non-flood proof WASH infrastructure should be conducted to see the effectiveness and the importance of budget allocation for WASH infrastructure with climate risk inclusion in the planning process. This is planned by the CCCA team.

Awareness raising to the communities regarding water and health related issues should be integrated with the infrastructure programme, to ensure local practices generate full benefits from the infrastructures.

### 2. Provincial Department of Agriculture, Battambang (PDA-Battambang)

The project aimed to strengthen the drought and flood resilience of farmers in three pilot districts of Battambang province with high levels of poverty and climate vulnerability, through the introduction of climate resilient agriculture practices.

Awareness of climate change has been embedded in the community, with model farmers able to articulate the basic definition of climate change and its impacts on their daily livelihood activities, and how to cope with these impacts. Farmers have been trained on how to adapt to climate change in their crop production and how to reduce the impacts through selection of climate change resilient seeds and techniques.

Water Management Committees have been strengthened within the target communities to provide related services to the people and are better equipped and recognized by relevant authorities up to the provincial level. In the baseline survey, their functions seemed to concentrate on a few members, but have now expanded among more members.

- One agriculture community was established in each target commune, and the level of involvement of the members has gradually increased (en of irrigation systems, collection of contributions), even though these new communities still require support before they are fully mature. AC members have been trained in cash crop growing and fish culture. However, additional skills are required like chicken raising, pig raising and rice production. 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 livelihoods such as vegetable growing and rice production, and ultimately result in food insecurity. The main coping mechanisms identified by the members include: canal construction, pond digging, safety hill, climate-adapted crop seeds and growing techniques and reforestation. 73% of AC members (662 persons) have been trained on climate change adaptation.
- One existing water source in each district was selected for improvement following a feasibility study, with joint financial contribution from villagers and the project. Three canals and one dam were restored by the project and have been used year round for agriculture activities such as short term rice production, animal raising and crop planting. Corresponding water management committees have been established or strengthened. 1716 farming families have increased their short term rice production from 1 to 2 times per year, improving their living condition by selling their extra product for additional income. The dam at Moung Ressei district has made the transportation easier for the local people. It has become a road for children from a sub-village called Tuol Prum to go to school in both dry and rainy seasons.

- 118 households have been able to apply climate change resilient rice planting techniques, 104 able to apply home gardening skills using the drip systems and plastic pouching, 33 able to apply commercial gardening using the same skill and drip systems and plastic pouching and 7 able to apply fish culture. Significant replication has already happened, with 48 households adopting the proposed techniques on their own.

### Lessons learned

- The project model combining technical assistance from an NGO (FLD) and the Provincial Department of Agriculture has shown positive results. Cooperation with local authorities was also crucial;
- The project team introduced cost and benefit analysis to selected beneficiaries prior to their establishment of home and commercial gardens and household fish culture. It did work for gaining commitment of beneficiaries.
- Selecting the right farmers (available water source, adequate size of land, available labor in the family, and other necessary resources) is a determinant factor for sustainability and reliability of the introduced commercial gardens with drip systems.
- While the consequences of drought have been largely mitigated for concerned households, damages from floods are still significant.

### Sustainability and proposed follow up actions after the project completion

- The provision of agriculture techniques and improved seeds to selected beneficiaries is effective for sustainability, i.e. all commercial gardens and most home gardens have been continued after the project life; and rice seeds have been stored for the next production cycle. Proposed techniques have shown good cost-benefit ratios and potential for replication;
- 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.

### Recommendations

Some farmers have been observed having dependence on the project team to supply their seeds, although they were informed on available sources of supply in Battambang Town, therefore development of local suppliers and experts in district level is crucial to provide continuous support to the target communities.

## 3. Mlup Baitong (MB)

The project “Promotion of Adaptive Farming to Climate Change” (PAFCC) has been implemented from 1st Jan 2013 to 31st March 2014. During the implementation, the project provided a series of trainings on causes and impacts of climate changes new agricultural techniques and management to 485 trainees including District Offices of Agriculture (DoA), Provincial Department of Agriculture, District Councils, local authorities, and farmers from 14 villages of 7 communes of Somrong Tong and Phnom Sruoch districts, Kompong Speu province. 5 scripts on climate change and agriculture in Cambodia, on impact of climate change, on impact of climate change on agriculture, knowledge of community on climate change, and gender and climate change were broadcasted 164 times and 5 live talk shows were held on Mohanokor radio FM 93.5 MHZ, which covered 19 provinces and reached a total audience of around 9,500,000.

The 20 model farmers of Farmer Field Schools (FFS) practiced successfully different kinds of drought resilient farming activities including 10 farmers focusing on System of Rice Intensification (SRI), 5 farmers on crop diversification (CD), and the other 5 farmers on integrated farming systems (IFS). In order to ensure the success



of the agricultural activities in times of drought and water shortage, small scale irrigation systems such as 10 ponds and 9 wells were constructed to support the activities and some other materials and equipment were provided. Moreover, 111 compost pits were constructed and farmers trained to produce and apply organic composts for agriculture.

The drought resilient pilot projects of the model farmers had positive impacts on Farmer Field School members and non-farmer-field school-members. 97 other FFS members replicated the new agricultural techniques.

79% of households in the target areas reported a reduction in their vulnerability to CC as a result of project activities, thanks to increased income and enhanced food security.

None of the model farmers were affected by water shortage or drought. The SRI method requires less water than other rice varieties and traditional rice planting techniques and therefore is less vulnerable to water shortage and drought. Furthermore, in times of drought SRI rice plants can survive longer than traditional rice varieties because the paddy field does not have to be covered by water all the time. The application of compost contributed to the increase of yield. The SRI technique was the most popular among the farmers. 10 of the 20 FFS choose SRI for their pilot project and 106 farmers (57 females) participated. The 10 SRI model farmers planted a second crop after their rice harvest, such as vegetable, pumpkin, ash gourd and watermelon on the same field. This crop is also contributing to the reduction of drought vulnerability. The crop diversification technique in connection with small-scale irrigation allowed farmers to plant a crop on higher upland, which had not previously been used because of lack of water and techniques. The farmers planted a combination of beans, cucumbers, bitter gourd etc. for own consumption and sale. The trials were very successful and this method has had a big impact on reduced drought vulnerability during times when the traditional rice crop might fail because of drought. IFS systems were applied at the housing plots of the poor farmers in connection with a water pump and a compost pit. This system is environmentally friendly, by integrating and combining animal production, fish raising and vegetable planting, using synergies between them. It provides income to the household all year round and food for the family. Farmers were particularly positive about the results of the new fish raising projects.

The 20 pilot farmers achieved more than 10% higher income and better food security from resilient systems. Each of the 10 SRI pilot farmers increased their income from an average amount of US\$ 666 (baseline) to US\$ 1,506 (end-line) per year. Each crop diversification pilot farmer increased his/her average income from US\$ 43 to US\$ 594. The remaining farmers participated as model farmers in the IFS pilot project. One of them increased his income from US\$498 to US\$ 5,275 and the other three farmers who planted nothing before, gained income in between US\$ 1,025 and US\$ 2,051 each.

132 farmers of 140 FFS farmers (94%) planned to apply SRI, 122 (87%) of 140 farmers planned to apply IFS, and 86 (61%) of 140 farmers planned to apply CD on their own land. Most FFS farmers planned to apply at least 2 projects (SRI and IFS) for the next season. But doing this without small scale irrigation systems may be difficult.



**FIGURE 3: DEMONSTRATION OF THE ROUND HOME GARDEN TECHNIQUE TO MODEL FARMERS IN KOMPONG SPEU PROVINCE, © CCCA, 2013**

## Lessons learned

### Lessons learned on Rice Farming by using drum seeder

The use of a simple drum seeder for rice planting (around 100 USD investment cost) instead of planting by hand saves costs and time. For example, one hectare of manual rice planting takes 20 persons for one day which costs 400,000 Riels cost (100USD). The same by drum seeder takes only one person for 2 to 3 hours. Farmers found the use of the drum seeder very attractive, particularly in villages

with labour shortages caused by migration. Furthermore, one drum seeder could be shared by many rice farmers to save more costs.

### Lessons learned on System of Rice Intensification

The SRI practice could save time because the production of seedlings in nurseries takes only 15 to 18 days (long term rice variety takes 1 month). It saves costs for seedlings and time for replanting because it uses a smaller amount of seedlings with higher quality (1-2 seedlings per clump and 30 cm spacing, one seedling produces 30-40 shoots). Because of the planting in rows, weed can be easily controlled and taken out before it develops flowers. There is no need for pesticide and chemical fertilizer because of the use of traditional biological pesticides and compost. SRI plants grow well and adapt easily to climate change. They need less water because there are fewer plants and the roots can grow deeper to get nutrition and water from deeper soil, and produce higher yields. This method gives higher yield and increase income, but it does require labour.

### Lessons learned on fish raising in ponds lined with plastic sheets

Fish raising as an integrated component of IFS systems were very successful producing fish for consumption and for sale. There is a high demand for fish because the rivers and paddy fields do not contain as much fish as they used to.

The project selected poor households with suitable land on the housing plot, who were interested in raising fish and helped these farmers to prepare household farming map and plans. The fishponds are lined with plastic sheets to avoid that the water leaks into the sandy soil. Farmers construct and maintain the clean water of fishponds. They use locally available ingredients to produce fish feed.

### Lessons learned on Crop diversification

Supplementary crops need less water than rice and are less vulnerable to drought. Therefore, CD provides food and income to farmers in times when rice crops might fail because of drought and reduces the dependency on rain-fed rice. However, CD on higher, not formerly used land covered with bushes, is very labor intensive. It needs

a lot of efforts to clear the bush land for cultivation, to dig ponds for irrigation and for cultivation. This is a problem in poor families with labour shortages because of migration. On the other hand, it might provide an opportunity for young people to return to their villages to become farmers. Up-land farming is also only suitable for families who have such land.

### **Lessons learned on importance of small-scale irrigation systems for reducing drought vulnerability and improving livelihoods**

Small-scale irrigation systems such as ponds and deep wells are very important to ensure there is sufficient water for SRI, CD and IFS cultivation in times of droughts and water shortages and allow cultivation in areas and times without sufficient water. The project provided mobile pumps to enable the farmers to distribute the water to their fields. These low-cost systems are economically feasible, when they are used by groups of farmers (FFS members). They can be easily constructed, maintained, and operated by the farmers. Motor pump management groups are managing the water pumps effectively and decide and prepare operational plans for its use to ensure that all members are benefitting. However these systems need to be carefully planned and set up in the right locations.

### **Sustainability and proposed follow upon actions after the project completion**

The project used the FFS concept to empower its members, the vulnerable farmers, and build up their organizational capacity to use agricultural technologies adapted to climate change, such as SRI, CD, IFS and small-irrigation schemes, so that they can replicate the pilot project of the FFSs on their own land plots. Based on end-line survey, 132 farmers of 140 farmers (94%) planned to do so.

It is expected that the members of FFS will continue to use the small-scale irrigation systems for the replication on their land to ensure that they have sufficient water. Furthermore, it is envisaged the trained staff of the DOA will continue to support the farmers to provide advice and training and that members of FFSs will continue to share their experiences and knowledge.

Farmers in most villages of the project area have Self Help Groups, which were organized by Mlup Baitong with support of the EU. These SHGs operate revolving funds in order to provide micro credits to their members. It is expected that the farmers will use such micro credits to purchase inputs for their agricultural projects, such as seeds, equipment etc.

On the other hand, it is difficult to change traditional farming systems within 15 months. There is a need to provide follow-up training for farmers to strengthen their capacity and to provide more inputs for small-scale irrigation systems to allow more farmers, which are not benefitting from the provided systems, to replicate the new drought resilient agricultural techniques.

Furthermore there is a need to provide capacity building in marketing, which has not been done in this project, to ensure that farmers find new markets and better prices for their products. E.g. Farmer Cooperatives/Farmer Producer Groups could be organized for common marketing and Value Chain Analysis could be conducted to analyze the market chains and to identify new opportunities for better marketing.

### **Recommendations**

While the farmers in the short period (15 months) of the project improved their capacities to adapt their traditional farming systems to climate change and started to reduce their vulnerability, a continuation should be considered to continue the capacity building process by providing more training and support to strengthen their capacities to make them fully sustainable. The second phase should include activities about improving marketing

of the agricultural crops so that farmers get better prices. Furthermore, it should include more support for the construction of small-scale irrigation systems to allow more farmers to replicate lessons learned from the demonstration plots of the FFS, who are not able to benefit from the existing small-irrigation systems.

It is recommended that the trained staff of the Government support the trained staff of the DOA so that they are able to use their knowledge to continue to provide an agricultural extension service to interested farmers to use the new drought resilient farming systems.

#### 4. Ministry of Women's Affairs (MOWA)

The project delivered clean water and other knowledge and skills for improving rural livelihoods in two remote province of Cambodia (Stung Treng and Oddar Meanchey), with a particular focus on women groups. In Stung Treng, problems are mostly associated with river floods, and in Oddar Meanchey with flash floods from the Dongrek Mountains range and storms during the rainy season. Both areas are affected by drought during the dry season.

The following key activities were implemented:

- Skills-development through related to home gardening and food processing to upgrade traditional knowledge, for family consumption and sale.
- Water user groups were formed in each village to ensure effective and long term utilization of wells and water storage containers. The group can also help to facilitate or resolve any conflict occurring from the access and use of the water by the villagers.
- Trainings were developed and delivered for beneficiaries and staff of the Ministry of Women's Affairs at the national and provincial levels on gender, water sanitation, and climate change/ disaster preparedness.

Profits from the home gardening activity amounted to an average of \$270 per season per household, after own consumption. The techniques have been adopted by 25 % of communities in the target villages. The women groups and water user groups have also strengthened solidarity and peer-to-peer support in the concerned villages.

The project also supported local authorities to integrate climate change in their commune development plans

Lessons learnt from the project have been integrated in Neary Rattanak IV (2014-2018), which is the five-year strategic plan of the Ministry of Women's Affairs. Gender and climate change is one of the pillars.

#### Lessons learned

Home gardens make a significant contribution to nutrition in the remote areas targeted by the project.

The learning by doing approach has been useful not only at the field level but also for MoWA staff, who had an opportunity to apply their newly acquired skills by providing support to local communities.

#### Sustainability and proposed follow up actions after the project completion

- Linking prospective trainees from villages to Women Development Center (WDC) within the Provincial Department of Women's Affairs would help the process of women empowerment and development of their lifetime career because Women Development Center have additional existing projects supported by

Government funds for women vocational skills (weaving, tailor, hair and beauty salon, food processing, etc.,).

- Government officials at the national level should be responsible to train sub-national level staff to be trainers and let them with the target beneficiaries. That method could promote the capacity of sub-national government staff, increase efficiency and reduce dependency on national level support.
- Transform women groups (50 households in each village especially in Stung Treng province) into potential women entrepreneur groups on home garden and food processing (addressing vegetables and fruits supply business).

### Recommendations

- Agriculture techniques, especially on home garden should be given longer than 15 months, to be able to follow up the cycle and coaching on soil management, seed selections and pest control.
- Conducting orientation workshops for bidders or contractors in terms of standard & quality of the tube wells and water storage containers would be helpful. The Provincial Department of Rural Development is well placed to do this.
- Additional study tours to see other good practice in agriculture/ home garden are useful to motivate model farmers to be more successful.
- Other options of water supply using wind power, solar power, and water supply at the community/village level linked with payment schemes could also be helpful, but studies on the purchasing capacity and capacity to manage of the community must be conducted.
- For training design/course curriculum, there should also be an integrated course on concept of rural enterprise, rural market strategy for fruits and vegetables products to those local groups (such as women groups).

## 5. National Centre for Parasitology, Entomology and Malaria Control (CNM-MOH)

The impacts of climate change on human health are predicted to be unfavorable, varied, and disproportionately affect the most vulnerable population groups who are most exposed and least able to adapt. Likely impacts in many countries include those associated with extreme weather events and natural disasters, lack of sufficient quantities and quality of fresh water, impacts of compromised food security, and increased incidence of communicable diseases including vectorborne diseases. Vectorborne diseases (VBDs) such as dengue, malaria, tick-borne diseases and plague are particularly susceptible for a number of reasons: the geographical distribution and behaviour of vectors and their hosts are intimately associated with environmental determinants and transmission dynamics tend favour warmer, wetter environments. Human responses to climate change, such as increased urbanization and storage of water for household use, may also place populations at risk of vectorborne diseases.

The project “Strengthened Capacity for Climate Change Adaptation in Health: Integrated Response to Climate Sensitive Vector Borne Diseases in Cambodia” had the objective to build capacity in country to minimize consequences of VBDs to populations in areas that are prone to CC and included three expected outcomes:

- Strengthened national institutional capacity to conduct integrated, climate-based weather, vector and epidemiological surveillance of climate-sensitive diseases and respond to outbreaks for climate change health adaptation;



- Strengthened awareness of vectorborne disease risks of climate change and knowledge of appropriate protective behaviours and responses in identified high-risk populations;
- Strengthened evidence of the relationship between climate change and vectorborne disease determinants and burden.

The following activities were conducted in order to reach these above outcomes:

- Improving the sensitivity and timeliness of dengue surveillance in order to respond to outbreaks and implement timely response capacity;
- Climate data, provided by MOWRAM, has been incorporated into these routine surveillance reports to allow prospective monitoring of impacts of climate determinants on VBD incidence and prevention and control as climate change health adaptation strategies;
- Mosquito surveillance in the vicinity of outbreaks to provide additional data on responsible vectors and appropriate control in different environmental and ecological foci;
- Awareness raising campaigns to inform vulnerable communities and populations of vectorborne disease risks and preventive behaviours;
- Research into climatic determinants of outbreaks, aiming to build research capacity and inform future climate change and health adaptation policy;
- Training seminars and courses, led by international climate change and health experts to build local institutional capacity particularly in prospective monitoring and association of climate and disease incidence data and other identified needs.
- A TV spot was developed and shown before the dengue season to raise public awareness on dengue prevention. It was screened at 3 different times of the day targeting garment factory workers (12-12.30pm), people interested in drama (7-7.30pm) and prime time news (8-8.30pm).

The project was implemented by the CNM, with support from WHO.

Key achievements included:

- Awareness of the impacts of climate change on vectorborne diseases and methods for adapting to these risks was raised considerably. 85% of survey participants were aware of these impacts;
- Surveillance systems were strengthened including through provision of training, procurement of necessary supplies and concurrent collection of climate and epidemiological data. These are the first steps in the development of climate-based disease early warning systems;
- Health adaptation to improve resilience was achieved through staff capacity building and procurement of medical supplies in vulnerable target areas;
- Research was conducted to further understand the climatic determinants of VBD epidemiology. Encouraging studies will be developed for publication in peer-reviewed journals.



**Result and Conclusions:**

- The work being done on climate change and health (CC&H) in Cambodia through three related (water-related diseases and dengue) projects are important, not just for Cambodia, but throughout the region.
- The project helped to build up useful data to guide the work in discovering the relationships between climate and health in both the areas of water-related diseases and dengue.
- Donors have shown great interest when their support has yielded outcomes that other donor have then taken up to fund further.
- Opportunities exist for climate sensitive diseases (CSD's) early warning systems and disease prevention by cooperation among CNM and Department of Preventive Medicine, linked to the National Action Plan on CC&Health, and the next five-year CC&Health action plan (\$49M) .
- There are various gaps in the National Dengue Control Programme that need to be strengthened. This will help Cambodia to strengthen their adaptation capability in addressing climate change. This capability can also be used for other vector-borne diseases management when the needs arise.
- MOWRAM and the Ministry of Environment should consider the needs they may have in collecting the weather data and developing climate projections that the CC&Health research and initiatives would need.
- Meteorological data was incomplete, especially for humidity, followed by temperature. Rainfall was the most complete data set. Currently, MOWRAM is acquiring more equipment to be deployed at the provinces to ensure more complete data set for future climate change projects.
- Externally sourced specialised research guidance and technical support such as the UN University in Malaysia should be kept in mind including for curriculum development.
- Correlation between dengue incidences and temperature: 4 weeks lag in dengue cases was observed in Banteay Meanchey after an increase in temperature; 12-13 weeks lag in Siem Reap and Kampong Thom. Correlation was observed with the number of rainy days. However, rainfall can be a confounder and needs to be investigated further. Analysis should be conducted when humidity data is available. The project showed that more refined analysis can be conducted when more complete meteorological data is made available. There is potential to use meteorological data to develop an early warning system for dengue outbreaks.
- During the rainy season, tyres, discarded receptacles were positive with breeding. However, water-jars were treated with larvicides and lesser breeding was detected. *Aedes albopictus* was significantly higher during rainy season compared to dry season & vice versa for *Aedes aegypti*. Overall, *Aedes albopictus* population is not a significant species in the 4 provinces.
- Both temperature and rainfall have significant effect on *Aedes* pupae in Banteay Meanchey and Siem Reap.



**FIGURE 4: MINISTRY OF HEALTH SURVEILLANCE ACTIVITIES FOR CLIMATE SENSITIVE VECTOR-BORNE DISEASES, SIEM REAP PROVINCE © CCCA/NATIONAL CENTER FOR PARASITOLOGY, ENTOMOLOGY AND MALARIA CONTROL, 2013.**

#### Recommendations:

- Monitor sample collection and testing for dengue serology, explore possibility of increasing sample proportion to compensate for delayed start to reach planned 500 samples by December.
- Outbreak response capacity at CNM should be strengthened through procurement of essential supplies and equipment using earmarked project funds.
- Accelerate the development of the webpage for the Dengue Control Program within the CNM Website, show partnership of stakeholders in dengue control and joint efforts through links to CCCA, MOE, MOF, MOWRAM etc.
- Efforts to strengthen meteorological data collection at provincial level should be supported for more refined climate change studies.

- Continued efforts to confirm outbreak risks for dengue based on meteorological data should be pursued and correlations established for each province.
- Accelerate implementation of planned IEC related activities. Explore possibility of using savings to provide DVDs containing related health messages and necessary equipment (TV Screen/DVD) to selected hospitals for educating patients and caregivers.
- Explore possibility of using available IEC funds or savings to include IEC messages on early treatment seeking. Current IEC materials mainly focus on preventing vector breeding in rural environments. Explore possibility of including urban settings in IEC materials (posters).
- Strengthen climate surveillance in selected provinces, especially in Mondulkiri Province, from where adequate data is not available. Suggest exploring the possibility of relocating an existing weather station (procured under KOICA project) to Mondulkiri Province if available. If not available explore possibility of using budget savings to procure a weather station for Mondulkiri Province.
- Joint papers should be published to ensure that findings and outcomes from both water-related diseases and dengue projects are well-documented and disseminated.
- A climate change 'vulnerability index' should be considered. The combining of layers of risk factors by mapping total risk for geographical areas may be useful to prioritize actions with limited resources.
- Proposals should broaden the vector borne diseases beyond dengue, for example to include the possible impacts and benefits from considering chikungunya and zika virus threats.

#### Sustainability and proposed follow up actions after the project completion

Encouraging studies will be developed for publication in peer-reviewed journals and the project will be presented in the International Society for Environmental Epidemiology Conference (ISEE), Seattle, Washington State, USA, in August 2014.

Follow-up work has been integrated in the CC&Health Action and further funding will be sought from both the health pooled fund and specific donors interested in this topic. There is a need to continue and expand research to other provinces.

## 6. World Wide Fund for Nature (WWF)

WWF-Cambodia has implemented a project focused on ecosystem-based adaptation to climate change along the Mekong River in partnership with Kratie Forestry Administration Cantonment (FAC). The project also engaged relevant community forestry (CF) NGOs in Kratie, local communities, village chiefs, and commune councils.

The project experienced some initial delays due to the elections period and the 2013 floods, but planned activities have been completed, namely 1) Building capacity within communities and commune councils through: training on Forestry Law, CF development, forest management, and the links between forest protection and climate change adaptation, 2) Developing and providing both technical and financial support to complete the registration of six CFs in the Mekong Flooded Forest, 3) Monitoring progress and finalization of all CFs, 4) Developing an NGO network for all organizations working on CF issues within the Mekong Flooded Forest, to build capacity across these organizations and increase the climate change adaptation knowledge base, 5) Conducting regular meetings among the Community Forestry Management Committee (CFMC) to allow communities to develop their networks, 6) Creating signage for CFs to promote awareness of CF areas and provide educational messages to local people, and district and provincial authorities, 7) Identifying specific areas to restore forest with local communities and commune councils, 8) Developing maps of restoration areas. Seedlings have been procured for restoration of the flooded forest and FAC officially agreed that they will take care of planting the seedlings in restoration sites.

The objective of the project was to reduce the vulnerability of communities along the Mekong River to the adverse impacts of climate change by protecting and restoring Community Forests.

- The project built capacity within communities and commune councils and FAC staff through training on forestry law, CF development, forest management, forest inventory, agro-forestry, seed production, ecosystem-based adaptation and climate change. Communities and commune councils gained some knowledge and actively participated in project implementation. Concrete activities following the trainings included CF demarcation, CF boundary posting, seed production, forest inventory and management of seedlings. Community Forestry Management Committees (CFMC) also disseminated their knowledge to community members on forestry law and climate change through community meetings. In addition, communities also gained capacities to conduct patrolling activities in the CF to stop illegal logging.
- The CF management structures were reviewed and strengthened with clear roles and responsibilities. One CF reached a CF agreement between CFMC and Kratie FAC, and 5 CFs have reached step 6 of CF development, which is the step to draft CF agreement. Communities have improved their capacities in forest management. They have arranged their own plan to conduct patrolling in forest areas and they can record and report illegal logging activities to commune council and local FA. CFs now have a clear boundary. The communities themselves are committed to continue the project activities in the forest even local FA can only provide limited support.
- Forest restoration is a new concept for communities, but it was strongly supported in the 6 target CFs. A nursery was established and equipped with seedlings. Communities understand that forest conservation and restoration are adaptation and mitigation approaches for climate change, so they will take the seedling to plant in their farm and home land. However, the restoration areas have not yet been planted because the project missed the appropriate planning season (rainy season), but local FA committed to be responsible to plant the seedlings in the restoration areas in mid-2014 with participation from local communities.

## Lessons learned

- Capacity building on climate change adaptation is essential for all stakeholders, especially commune council, CFMC, and village chief. However, since this topic is new to them, follow up and ongoing support is necessary;
- Experience of the project has shown that the involvement of local FA from the beginning of project implementation provides a higher chance for project sustainability;
- Observing project impacts in a short period, especially in ecosystem-based adaptation, is not possible. Long term monitoring should be considered;
- Preventing forest fire in the dry season for the forest areas freely accessed by all people (local villagers and outsiders) is complicated, especially within deciduous forest like in O’Krasang and Puntchea communities. This prevents an improvement in the biodiversity situation;
- Forest restoration using seedling of species (from seed to planting out and monitoring their survival) that are suitable with site condition and people preference was difficult during the short timeframe of the project, due to the time required to collect the appropriate seeds and develop nurseries.



**FIGURE 5: WAY POINT AND DEMARCATION OF COMMUNITY FOREST BOUNDARIES, KRATIE PROVINCE, © CCA, 2013**

### **Sustainability and proposed follow up actions after the project completion**

WWF has a long term engagement in the area and will use some funding from other sources to continue supporting enforcement activities by supporting local FA and local communities, and commune council to conduct patrolling activities in the landscape. Furthermore, WWF will also continue to monitor restoration activities (plant seedlings) and survival of the plants in restoration areas in order to ensure that the project is completed successfully, and the demonstration of forest restoration will be able to use as a model in the landscape.

## Recommendations

- **Livelihood activities:** It was reported that people participation in the beginning of CF establishment were very active, however, if there is no direct benefit to the improvement of their livelihood, their willingness to participate may be reduced. Hence, balancing between protection/conservation and livelihood improvement should be taken into account. The main livelihood improvement can be contributed by agro-forestry, livestock production, and NTFPs collection;
- **Project timeframe:** The project is considered short with only 15 months including all administrative procedures; especially for reforestation activities, and for CF establishment, which does require time to complete the 11 mandated steps;



- More practice: Many training courses have been carried out by the project. However, translating the theory from the course in to action is the most important. Follow up activities need to be implemented so that local communities fully integrate what they have learned.

## 7. Help Age International (HAI)

In the recent years, many provinces of Cambodia including Battambang experienced frequent and significant flooding in 2011 and during October 2013. Aek Phnom district was among the most flood affected areas. Help Age International implemented a project to increase adaptive capacities in two affected communes (five villages), working through community-based networks, namely the Older People Associations (OPA).

The communities involved in the project have improved their understanding of climate change adaptation and disaster risk reduction from 72% at baseline to 93% in the end line monitoring. In addition, the score from the Vulnerability Reduction Assessment (VRA) showed an encouraging improvement from 4.38 to 3.001.

Communities in Aek Phnom covered by the project were assessed as better prepared as a result of the dissemination of information, trainings and climate-resilient agriculture techniques, application of simple tools for flood early warning and of basic preparation to minimize the effect of floods.

Though the project has ended, the communities and specifically the members of the Older People Associations are maintaining good practices gained from the project inputs. HelpAge Cambodia and relevant stakeholders keep extending ongoing support to consolidate the lessons learned.

### **Most important achievements:**

- Establishment of sub-committee leaders on CC/Disaster Risk Reduction (DRR) in each Older People's Associations (OPAs) in the five project villages. Each sub-committee consists of 3 elected members (with gender diversity). All subcommittee members were trained on general management, leadership, climate change basic concepts, planning, and in developing community applications for the local funds as part of the commune investment plan. The sub-committee leaders following their trainings have collaborated with commune councilors to integrate CC/DRR in the commune investment plan and in accessing social development funds. The sub-committee leaders have also succeeded to develop good relationships with Provincial Planning and Investment Division (PPID) and Provincial Committee of Disaster Management (PCDM) officials which facilitated access to information and improved collaboration;
- 121 farmer beneficiary households have been equipped with agriculture training, tools and seeds for growing homesteads and crops adaptive to climate change. Initial cost-benefit analysis indicates that these practices are highly cost-efficient and replicable;
- Increased access to clean and safe water and limited health risks through the provision of 525 water ceramic filters and 38 child and age friendly earth tanks, resistant to flood and drought in 5 project villages, and through water and sanitation trainings delivered by the Provincial Department of Rural Development (PDRD) and Bareebo Organization;

- OPAs are aware of the possibility of integrating DRR/CC oriented activities in the commune investment plan following a series of trainings on effective participation in the commune investment plan delivered by PPID and PCDM;
- Rapid humanitarian response for 670 households with older people affected by the 2013 flood from Aek Phnom and Mong Russey districts through the distribution of 670 emergency kits;
- A risks recovery mechanism was put in place for 20 most vulnerable villages of Aek Phnum through a DRR/CC recovery fund totaling the amount of 12,000 USD;
- 93% of people in the target areas are aware of CCCA project and activities through participation in trainings, meetings, and project visibility materials.

#### **Lessons Learnt:**

The OPA model of managing project actions is a good mechanism and it ensures project sustainability, as it is based on the personal commitment of community members to improve their own livelihoods, and strengthen solidarity within the community. The OPA sub-committee leaders on climate change will stay with the OPAs. The engagement of the OPAs with PPID and PCDM has also proved successful for effective community participation in integrated climate change adaptation/disaster risk reduction into the social development fund of commune investment plans.

Age and child friendly water ceramic filter and rain roof water harvesting cistern (earth tanks) are most practical and beneficial for the project beneficiaries who are situated in the flooded area.

Project staff also found it important to engage with other networks focusing on CC/DRR such as the Cambodian Climate Change Network (CCCN), Caritas and ForumSyd for experiences sharing and learning knowledge on DRR and climate change.

#### **Sustainability and proposed follow up actions after the project completion**

The OPAs have the capacity to manage community development activities and they have built up solid relationships with the local and provincial authorities. The OPAs now have experience in developing climate change adaptation activities and integrating their actions into the commune investment plan for funding support. The sub-committees were trained and coached by PPID and can call on PPID for further support beyond the project life.

Even though the project was completed, the OPA structure keeps functioning and HelpAge has a long term commitment to supporting them.

#### **Recommendations:**

Support would be required to scale-up this successful approach in other communities / provinces, including financial resources and promotion of the approach with relevant ministries (such as Social Affairs).

## **8. Conservation International (CI)**

This project successfully implemented the top four recommendations from the Climate Change Vulnerability Reduction Assessment (VRA) for Kampong Prak, Ou Ta Prok and Kampong Lor community fisheries on the Tonle Sap lake: 1) Raised awareness about ecosystem-based adaptation through two trainings held with the Fisheries Administration, the Ministry of Environment and local authorities, as well as setting up a train-the-trainers



program for communities; 2) Reforested ten hectares of flooded forest through community replanting projects; 3) Strengthened three community fisheries and developed management plans while securing 400 dollars a year to fund plan implementation; and 4). Established five savings groups and reduced debt by 37% (initial target 10% target) for 70 households. Loans from savings groups were invested in improving fish product quality and market access, which increased income by 25-35%. A monitoring and evaluation system was developed to track biodiversity, fish yields and other socio-economic information working with CI's partner Ifredl and relying on community researchers to gather data. The VRA score pre-CCCA project was nearly 5/5 on average across CI's target communities and as the four recommendations have been applied the score has been improved to 3.3/5. The results are a initial indication that the project has reached its goals of improved fisheries management and enhanced climate change resilience and ecosystem service delivery for Kampong Prak and Boeung Chhmar communities.

### **Strengthened CFCs and Developed Management Plans**

Through establishing stronger CFCs in CI's target areas, communities are now better able to manage their fisheries and the flooded forests surrounding them, ensuring greater resilience to climate change. The CFC's learned how to elect their own members, developed and implemented workplans, and managed funds to implement those workplans—transitioning into strong CFCis with community, Fisheries Administration and local authority buy-in and support. Sustainable financing also now exists for CFC activities thanks to two \$5,000 trust funds, which each yield 400 dollars of interest per year. Entrance fees are also being charged to support on-going management of one of the CFCs. CFCs also learned how to develop proposals to fund activities within their workplans, obtaining funding from CI to replant flooded forest.

In addition to these results in building capacity, CI also noted several significant behavior changes. Illegal fishing activities reduced over the past year in the conservation areas largely due to increased enforcement. It also helped that the fisheries yields in community fisheries increased by as much as 30% since last year based on interviews with community members which reduces the incentive to fish in the conservation areas. The Fisheries Administration (FiA) increased its level of financial support for rangers and patrols to help better protect conservation areas based on its renewed faith in CI's model that links better management of community fisheries and conservation areas. CI also witnessed villagers helping FiA rangers to remove illegal fishing gear found in one of the community fisheries—building an alliance between the two and enforcing ownership over resources in that area. Some villagers also contributed their own funds to help support CFC activities for the first time. Community members have an increased appreciation of what it means to have responsibility over managing their fisheries, trusting the CFCs in their new found capability to manage them. They can already see for themselves the kinds of benefits that can be provided. The word has spread about increased yields inside community fisheries so that outsiders are now willing to pay CFCis to enter them to ensure better catches. One fishery has already collected 100 USD in entrance fees over the past few months.

Management plans for the community fisheries have now been integrated into commune investment plans. This means that they are now recognized within broader government planning and funding priorities. It also means that they have legitimacy within the government as CFCs, so they are fully trusted to manage their resources which are what the government intended, when setting up this system in the first place. The ultimate aim of the government is to increase management effectiveness for all of the 400 plus community fisheries in Cambodia. The ways in which CI built capacity, changed behaviors, and set up management systems can now be replicated across other CFCs. Communications across the community fisheries and with local districts have also improved making it

much easier for FiA and the Commune Councils to better crack down on illegal fishing activities. Shared enforcement is also part of Fisheries Administration's management plans for the Tonle Sap Lake.

### **Established Savings Groups and Reduced Debt**

The VRA revealed that CI's target communities relied almost entirely on fish and fish-product yields for income, but that they lacked financial savings back up when yields were low, heightening their vulnerability to income loss. Communities reported being frequently trapped into increased borrowing and debt cycles, with high borrowing interest rates, and increasingly unreliable fish yields driven by changes in temperature and flooding timing and duration, making debts problems even worse. Through this CCCA project CI built capacity of women living on the lake, contributing to a learning and appreciation for the importance of savings. They also gained knowledge on how to use loans from savings groups to invest in their businesses to decrease the risk from negative income shocks driven by climate change. The saving groups set their own member contribution fees and manage loan allocations. The results so far have been promising in that no member has defaulted on their loans.

### **Increased Awareness about Climate Change and Ecosystem-Based Adaptation**

Ecosystem-Based Adaptation understanding has been increased by the project resulting in better protection of flooded forest, dry season ponds and fish sanctuaries. Behavior changes evident within target areas include a reduction in illegal fishing activities, increased flooded forest cover, increased investment in patrolling of dry season ponds and the Kampong Prak fish sanctuary, and community members providing free labor for flooded forest replanting—which has never happened before in all of CI's years doing flooded forest replanting. Capacity to manage ecosystems as part of climate resilience has also increased through these activities, which is expected to be shared continuously through the train-the-trainers approach. CI trained community trainers to act as facilitators, engaging them in active listening and encouraging participatory decision-making to further share EbA information. Pre and post testing for trainings revealed increased understanding about EbA, climate change, weather and climate, Green-House Gases (GHGs), global warming, Climate Change vulnerability, and adaptation and mitigation.

### **Set up of Monitoring and Evaluation System**

CI worked with their local partner Ifredi to set up a monitoring guideline and protocol to track ecology and socio-economic information over time as part of an adaptive management approach. Capacity was built for eight community researchers who gathered and entered this data. This information, when the analysis of the data is complete, will tell us about changes and trends in weather, as well as catch per unit effort and trends in biodiversity. This information is being sought by the government to examine the implications of the Deep Fisheries Reform policy and to track indicators for Tonle Sap management developed by the Fisheries Administration. Information about weather such as rainfall, temperature, wind speed, and moisture will be used to detect climate related information. This data and other aspects linked to temperature such as water quality, helps establish climate change related trends driving flooded forest cover change.

### **Lessons learned**

Most of the lessons learned have been reported above as related to how to scale up and replicate this work across the lake. More general lessons of interest to the Trust Fund and its partners are as follows:

- Climate change adaptation is a difficult concept to understand, and in particular EbA within that, requiring a series of trainings engaging multiple partners and for multiple follow-up trainings to reinforce such complex messages. And this training needs to be on-going to ensure that messages stick over time.
- Communities have the greatest impact on their own climate resiliency through direct actions taken to manage their ecosystems. So Government and donors may want to replicate CI's approach in other areas on the lake and elsewhere to reverse current trends of ecosystem degradation and loss as a critical component of overall climate change adaptation for Cambodia.
- It is possible to build relationships between local communities and government authorities that did not previously exist through joint activities to better manage resources. By helping the government resolve challenges such as being able to hand over management of fisheries to capable CFCs, trust and respect can be developed for communities and for government.
- Sustainable financing can be secured through multiple sources, including charging fees for entry even among the poorest of the poor as long as there is a willingness to pay.

### **Sustainability and proposed follow-up actions after the project completion**

CI is committed to the project target areas for the longer term, working in them for the past six years thus far. Our intent is to build sufficient capacity in community fisheries and in government to appropriately and sustainably manage the resources the lake provides to the communities. This would happen once ecosystem management and EbA approaches are fully adopted and able to be self-sustaining. CI will continue to pursue this project's joint approach of setting up resource management institutions and plans (on-going support to CFCs). CI is also working with communities and governments to develop additional sustainable financing mechanisms to support the work beyond the trust funds. CI will also continue to support monitoring and evaluating results using the framework established in this project to allow for adaptive management.

Other follow up actions proposed include mentoring for CFCs and savings groups and additional train-the-trainers sessions. CI also plans to replicate the overall project model implemented through CCCA funds to an adjacent area named Koh Keak if funding can be secured, and is already replicating savings group and fish processing product improvement work in three new villages on the other side of Kampong Luang with funding leveraged thanks to CCCA's support.

### **Recommendations**

The following recommendations are proposed:

- Replicate CCCA project activities in other community fisheries and conservation areas to allow this work to be implemented at an ecosystem-wide scale, which is most appropriate for decreasing climate change vulnerability for the communities living on the lake.
- Support the establishment of new savings groups and continue follow up with existing ones to increase household resilience to negative income shocks.
- Diversify income options, explore activities such as ecotourism to further reduce dependency on fisheries production related income.
- Further embed Environment-based Adaption approaches into lake management using the train-the-trainers approach.
- Analyze the monitoring data gathered by community researchers and use it to improve fisheries and ecosystem management and establish a clear baseline to detect climate related changes and needs for implementing EbA approaches.

## 9. Department of Animal Health and Production (DAHP)

The project focused on strengthening resilience to climate change of livestock-raising farmers in four pilot areas (two affected mostly by drought and two affected mostly by floods), in two provinces: Takeo and Pursat. Impacts of flood and drought was particularly high on poultry, followed by pig and cattle production.

The understanding of climate change-related impacts and adaptation options for livestock production has reached 91% and 77% for farmers and government staff respectively, based on final surveys. This has been achieved through direct training programs, awareness raising events and campaigns which delivered important key messages and information to beneficiaries, especially livestock farmers.

35% of farmers in target areas chose to apply the demonstrated measures, including vaccination program, fodder planting, animal feed formulation, and delivery of animal health services. The adoption rate is expected to increase when pilot farmers demonstrate their success and the livestock farmer committees/groups are fully functioning with support of local Offices of Animal Health and Production.

Reduction of morbidity and mortality during drought and flood periods is 60%, against an initial target of 30%. The outcome has been assessed through end-line survey at the end of the project. This would need to be confirmed over a longer period, with different levels of flood and drought severity.

Understanding of climate change and animal production is a new topic for farmers and some government staff. Technical manuals on animal raising techniques and diseases, and their relation to climate change, were provided to farmers. Changes in farmer behavior have also been noticed during the project period, including simple changes such as putting livestock in the shade of trees or nearby the house and keeping chicks in a case above the ground to reduce heat reflection from the ground, buying livestock during the proper season, vaccination before the coming rainy season, selling of poultry and pig before drought, and consideration of market demands.

A training program was specifically provided to Village Animal Health Workers (VAHW), who were encouraged by the project to deliver veterinary services to farmers through the course of the project. The capacity of VAHWs was refreshed through daily service and farmers realized the usefulness of treatment and advice from VAHWs.

The program supported a vaccination campaign on 2000 cattle and poultry in target areas before the rainy season started. Normally, the Foot and Mouth disease (FMD) is a viral disease which transmits very fast and occurs just before the rainy season, which causes animal sickness and hampers rice field plowing of the farmers during rice planting season. There were several outbreaks of FMD in many villages around the target areas (hundreds of cases), but target areas have remained largely unaffected, which helped increase local support for timely vaccination campaigns.

Provision of fodder stems and seeds and related training to farmers has also been successful. Traditionally, farmers leave their cattle on pasture or on the rice field and take back the animals to keep at home in the evening. Recently, access to pasture and public land for animal grazing has been more limited so farmers faced difficulty in finding feed. Securing the support of farmers for fodder planting was a difficult task as they perceived it to be labour intensive and not profitable. Demonstrations of high yield fodder planting such as King Grass, have generated some changes in behavior, however, lack of water resources remains one of the constraints for this activity in the areas most affected by drought.

Animal feed formulation was introduced for the first time in the area. The project provided grinding machine and feed raw materials to livestock farmer committees to produce feed concentration and supplementation for farmers with a cheaper price than the market. Initial training required an intensive approach to ensure a good understanding of the techniques, with some initial skepticism from farmers. Demonstrations were useful in proving the effectiveness of the approach and farmers in target communities have started to adapt this technique and purchase chicken and pig feed from the committees, or produced cattle feed by themselves.

The project also included an component to develop capacities of central and provincial institutions to deal with the impacts of climate change on livestock. Key interventions include a training program on understanding of climate change and livestock production, support for the improvement of animal health services, provision of enough animal feed during flood and drought, and establishment of livestock committees. These important elements have been included in the Commune Development Plans and in the climate change strategies of Departments of Agriculture and the Ministry of Agriculture, Forestry and Fisheries.

### **Lessons learned**

- Close involvement of local government institutions and village workers specialized in animal health and production is the key to involve farmers and service providers, and warrants long-term sustainability of the project activities after the project end.
- Farmers need to see concrete evidence of the cost-efficiency of the new techniques before adopting them. This applies to vaccination, fodder plantation and feed formulation.
- Livestock raising committees are important for project sustainability but are not easy to sustain unless there is a strong commitment from office of animal health and production and local authority, as well as a dedicated committee leader, and income generation options.

### **Sustainability and proposed follow up actions after the project completion**

- This was the first intervention ever on climate change-related animal production under the new structure giving full responsibility to the provincial institutions dealing with animal health and production. Commitment from the offices of animal health and production has been secured but they will need to identify resources to support their operations/extension services;
- Animal health services provided by VAHWs, who are closest to farmers for animal production and health, achieved a high rate of replication (up to 1008 households in target areas) with the support of district vets and staff of offices of animal health and production. Further support for VAHWs is needed in terms of regular refresher training, provision of inputs, and official recognition of the government through formation of VAHWs groups/associations;
- Food distribution and planting and simple feed formulation have shown good levels of cost efficiency and have potential for replication, with adequate extensions services;
- Vaccination against preventable diseases such as FMD, HS, ND and other diseases has demonstrated its effectiveness and generated a lot of demand. However, the quality of vaccines needs to improve and the price of some vaccines such as FMD is still unaffordable for farmers. This is an area for the Government to look into (production of cheaper, quality vaccines).
- Livestock raising committees will need at least two years of full capacity development support to reach maturity, as well as identification of potential sources of income

### **Recommendations**

- Continued support is required for livestock raising committees and farmers (recommended 3-5 years), more particularly on capacity building in livestock raising techniques, business plan, operation and

management, marketing, networking, proposal writing and fundraising. OAHPs and livestock raising committees should cooperate to have their activities included in 3-5 year commune investment plans and in the annual operational plan of OAHPs from 2014 onward.

## 10. Provincial Department of Environment, Kampot (DOE-Kampot)

The project entitled Water for Community Climate Change Adaptation in Kampot was implemented between by the Department of Environment of Kampot Province (DOE-Kampot) with the Cambodian Research Centre for Development (CRCD-Camdev) as its partner. The main objective of the project has been to strengthen local government institutions to assist vulnerable communities to adapt to climate change in the water sector. The project has addressed lack of access to safe water, weak institutional capacity to assist local communities to adapt to climate change, and low awareness of climate change in the general population of the province.

The key achievements of the project are:

1. Capacity building and institutional strengthening of the Kampot technical departments of the line ministries in climate change adaptation through the training of 42 staff members (on average two representatives by line ministry), including 20% of women, over a succession of four weekly training workshops in climate change science, climate change vulnerability, impacts and adaptation;
2. Awareness raising of 295 staff of all district and commune authorities (including 30% of women) in climate change adaptation and vulnerability of water resources to climate change;
3. Mapping of vulnerability to climate change in the water sector with field surveys of drought, flood, storm, salination and arsenic contamination at the commune level for the whole of Kampot Province;
4. Construction of 18 community water infrastructures for adaptation demonstration (2 reservoirs, 4 ponds, 7 wells, and 5 rainwater harvesting systems) to provide water to more than 3000 people, managed by water user associations established, trained and supported by local authorities and villages;
5. Design and broadcast of a radio spot to raise public awareness of climate change reaching 500,000 listeners in Kampot Province.

### **Climate change adaptation in vulnerable communities**

Each district of Kampot has benefited from the construction of water infrastructures for the demonstration of simple, cost effective and proven technologies for community adaptation to climate change (reservoirs, ponds, wells and rainwater harvesting). The focus has been on areas with the highest vulnerabilities to climate change as shown by the mapping of communes most prone to flood, drought, storm, salination and arsenic contamination, the lowest access to safe water supply and the highest levels of poverty. A total of 669 households are registered as members of the water user associations that have stewardship over the management of the water infrastructures constructed by the project. More than 3069 people now have access to safe water supply in the demonstration sites, which are located in some of the communes most vulnerable to climate change.

### **Capacity building activities and evidence of changes in capacities**

The main capacity building focus of the project has been on strengthening the management capacity in climate change adaptation of the provincial departments of the line ministries. Prior to capacity building activities, an assessment of training needs was conducted to give the participants of the training modules the opportunity to provide input on their professional interests with regards to tailored climate change adaptation training. It was also on this occasion that project partners discussed the existing gaps in staff knowledge and technical skills.



The general level of education of the participants was assessed as a high school degree, with some university training, and generally no science background in physics, biology or environmental sciences. The training participants were not initially familiar with basic scientific concepts such as the carbon cycle, the water cycle, photosynthesis, weather measurements (temperature, precipitation, humidity, atmospheric pressure), light and electromagnetic radiation, atmospheric composition etc. The training participants generally had little prior knowledge and experience of climate change and were confused about its causes. The concepts of mitigation and adaptation were not properly understood.

Following the needs assessment and gaps analysis, the training was divided into four modules. The modules increased in gradual difficulty, starting at the beginner's level (assuming very little prior knowledge of physics and biology), and moving on gradually to more complex aspects of adaptation and development. Each of the training modules answers a basic question: (1) what is climate change, (2) what are the impacts of climate change, (3) what is climate change adaptation, (4) how can we adapt to climate change.

After each session, participants were asked to take a quiz consisting of questions summarizing the knowledge they had just acquired. Module 1 records the lowest scores, which increased gradually throughout the training to Module 4.

### **Lessons learned**

Clear and simple communication and capacity building with local stakeholders is essential when working with cross disciplinary and complex issues such as climate change adaptation. The inception workshop used simplified Khmer and English terms and vocabulary to make the presentations accessible to people with limited technical background and knowledge of climate change. While climate change concepts were used by the presenters, it was more important to get the message across that the dry and wet seasons are likely to be more intense in the coming years, with more frequent and intense flood and drought.

Once capacity building of the staff of the provincial departments of the line ministries was successfully completed, the project proceeded to raise awareness of climate change adaptation of district and commune authorities in Kampot Province. The general communication approach was similar in terms of relevance, practicality and hands-on knowledge, but with the crucial difference that the more technical aspects of climate change adaptation was not discussed with local people. Unlike technical staff, district personnel did not generally have any specialized technical background, and commune staff in rural areas are often less educated. Climate awareness will need to be expanded to the general population, in particular to local schools, so that climate change is not limited to administrators in district and commune offices.

By the beginning of March 2014, the construction of all demonstration sites had been finished. The semi-open wells and the community ponds were the earliest infrastructures to be completed and were generally available by January 2014. The two-hectare multiple use reservoir took the longest time to rehabilitate because of its size. As the infrastructures were completed well within the planned schedule, this gave the project more opportunities to provide support to water user associations and time for local communities to familiarize themselves with planning, operations and maintenance. Construction proceeded smoothly because of the selection of an experienced contractor with previous projects in Kampot and in rural settings. Local stakeholders were consulted by DOE-Kampot and CRCDD at each step of planning and construction, which allowed for suggestions and modifications to be taken into account early. This also ensured local ownership of water infrastructures.

### **Sustainability and proposed follow up actions after the project completion**

The project has built the institutional capacity of DOE-Kampot and the other provincial technical departments of the line ministries to better assist provincial administration and local communities in planning and implementing climate change adaptation activities. However, beyond the completion of the project, the individual competences of the staff of DOE-Kampot will need to be updated periodically, as climate change science and the policy context are in constant evolution. DOE-Kampot has included in its annual workplan climate change training for its own staff as well as for other technical departments. In addition, climate change has been fully integrated to the advisory and technical support provided by DOE-Kampot to the districts and communes of the province.

The participants of the capacity building activities of the project consider that a good number of their colleagues would benefit from similar training or have shown interest in climate change adaptation and mitigation. By their own estimates, the training could be expanded to at least another 80 staff in Kampot, which would provide a minimum of 3-4 staff knowledgeable in climate change adaptation in each relevant institution. The question was also raised about the possibility of institutionalizing the climate change training the project has initiated all future new recruits of the provincial institutions.

DOE-Kampot will also continue to provide institutional and technical support to the water user associations at the demonstration sites beyond the completion of the project, in coordination with commune and district offices. This will ensure that local people are given adequate assistance in managing and maintaining water infrastructure for longer term sustainability. CRCD also has ongoing small-scale water for life activities which include construction of semi-open wells beyond the project completion.

## **11. Prek Leap National College of Agriculture (PNCA)**

Prek Leap National College of Agriculture (PNCA) received funding for implementing a project on Building climate change Resilient Food System: Integrating Reservoir and Rice-Fish System, Takeo Province, Cambodia. The overall objective of the project was to develop a climate resilient food system based on linking terrestrial (rice agronomy) and aquatic (rice field fisheries) systems through a process of adaptive learning.

The 5 key interventions were conducted as follows:

1. Educating beneficiaries on climate change issues and climate change adaptation practice;
2. Building capacity of the water management committee through integrated water resource management (IWRM);
3. Building capacity of farmers for rice fish farming adapted to climate change;
4. Enhancing fish stock for more food accessibly and availability year round;
5. Sharing best management practice on climate change adaption.

Before the project, farmers implemented routine rice farming that is based on seasonal rain, and collected small amounts of fish in rice fields, irrigation canals and the reservoir. During the project, farmers learnt to plan their farming around the available water supply from the reservoir which is the bigger water resource (maximum of 33 million cubic meters) in the community. Farmers planned for two rice crops per year with adequate care of the water supply of the reservoir. Farmers also planned for rice fish integration in the rice fields along with the two cropping system. Additional vegetable and cash crop farming were also implemented. Adaptive farming

techniques were tested such as new rice varieties, rice transplanting methods, fish raising, timing of the crops, pest control and fertilizer in the context of the climate change.

The main achievements of the project are:

1. Management of reservoir water through Integrated Water Resources Management (IWRM) approaches and co-management strategies for rice farming, local rice-fish farming and rice field fisheries
2. Management plan and implementation strategy for Krob Trabek reservoir based on establishing a culture-based capture fishery based on indigenous species
3. Detailed Better Management Practices for integrated rice fish farming and reservoir management adapted to climate variability.
4. Expansion of PNCA curricula to include climate resilience, social learning and capacity development for government staff and resource managers.

The water management committee has capacity to organize collection of water through the year to store at full capacity of the reservoir for 33 million cubic meters, and to take appropriate decisions (such as release of water during floods) to protect the infrastructure when needed). As a result, this can supply a first rice crop for 850 ha in 2014 compared to 650 ha in 2013 when the project started.

The available water can also allow community and farmers to plan for fish culture and rice farming with high productivity. Fish grown in rice field increased in yield by about 60% and rice yield from the rice fish system increased by about 10-20%. Rice yield increased through the introduction of adaptation techniques such as new rice variety, new transplanting methods, new timeline for farming in line with availability of water.

Farmers around the reservoir can access it to fish for food year round, in addition to fish culture. Stock of fish in reservoir has been enhanced through the release of fingerlings and broods. During wet season, fish migrate from the reservoir to rice fields where the farmers can catch them. Landless households can also catch fish in rice fields or canals. During the dry season, farmers and landless people can fish in reservoir. In April 2014, fish catch from reservoir accounted for 1-2 kg per catch compared to 0.5 - 0.8 kg per catch in 2013 when the project started.

During the dry season, farmers can grow cash crops such as peanuts, maize, mung bean, sweet potatoes and non-seasonal vegetables such as salad, chili, cucumber, water melon, morning glory.

The official registration and land title of the catchment is being supported by responsible government line agencies. This will allow full operation of the reservoir management for more climate change adaptation, including fee collection and green field operation around the reservoir.

The management of the reservoir has also benefitted from the full attention of relevant line agency for repair and maintenance programmes. In 2014, JICA funded small maintenance of irrigation systems near reservoir and in the short future, the reservoir will undergo a million dollar rehabilitation for the catchment, inflow and outflow system with joint funding support from the Cambodian government and Japan.



**FIGURE 6: FINGERLING RELEASE IN KHBOP TRABEK RESERVOIR, TAKEO PROVINCE, © CCCA, 2013**

### Lessons learned

The integration of reservoir management and rice fish farming for climate change adaptation in the context of drought and seasonal water shortage is a valid adaptation option, which should be explored in other areas. A water body like large lake and reservoir should be managed well to store water for specific purpose mainly rice production and fish culture. The use of water should be well informed and scheduled for irrigation in order to reduce dependency on rain. The coverage of irrigation should be clearly communicated so that the farmers are sure of the services they can expect. This scheme allows farmers to plan their rice production and fish culture and ensure high productivity.

Demonstration of the model has been key to obtain cooperation from the community and local authorities. Economic benefits are high enough to provide incentives for the local authority and farmers to support the required changes.

### Sustainability and proposed follow up actions after the project completion

Water management should be regulated in a participatory manner with an understanding of reservoir stocking capacity and the demand side. Farmers should be well informed of the schedule of water supply.

Management of the water body and water irrigation require some funds for maintenance and therefore, collection of a fee from water users is important. In the context of Khbop Trabek Reservoir, fees for water use had not been collected for few years due to low rice productivity caused by drought and low water supply to the rice. Fees for fishing in the catchment could also be collected.

### Recommendations

In the context of Khbop Trabek Reservoir, establishing a green field would provide additional opportunities for farming. This allows another livelihood activity that contributes to adaptation, as farmers could practice farming in three key periods: dry season, early rice season and wet rice season.

Systematic collection of the user fees should be enforced.

2014

## Progress Towards Project Outcomes and Outputs

<b>OUTCOME 1: Improved capacity to coordinate national policy making, capacity development, outreach/ advocacy efforts, and to monitor the implementation of national climate change strategy, policy and plans</b>			
<b>Outcome Indicators (from the Log frame)</b>	<b>Baseline (2010)</b>	<b>Target (Mid-2014)</b>	<b>Final status</b>
(1) CCD as the Secretariat of NCCC formally established and functional	CCD sub-decree	NCCC Secretariat fully staffed and functioning	<ul style="list-style-type: none"> <li>- CCD established as Secretariat through ministerial Prakas</li> <li>- CCD effectively supported NCCC and CCTT members roles in reviewing/ adopting the CCCSP, networking and capacity building through trainings, workshops and conferences</li> <li>- All concerned ministries have (re)appointed senior officers as NCCC members, following the 2013 elections</li> </ul>
(2) Establishment of full functioning National Inter-ministerial technical team (CCTT)	First Draft of the CCTT TOR	Appointed Inter-ministerial technical team and functioning in accordance with approved TOR.	<ul style="list-style-type: none"> <li>- Continued capacity building for CCTT members through participation in CCCA activities</li> <li>- Building on the basic description of tasks, full CCTT TORs have been drafted and agreed at technical level. Finalization is expected following the approval of institutional reforms in NCCC and MOE (end 2014).</li> <li>- Climate Change Action Plan Working Groups have been formed by ten ministries to develop their action plan (three more ministries are in the pipeline).</li> </ul>
(3) # of NCCC member institutions with CC focal point	2 ministries	At least 8 ministries	<ul style="list-style-type: none"> <li>- Ten ministries involved in developing sectoral CCSPs have developed CC action plans. Their working groups are CC focal points in their respective institutions. Three additional ministries are in the pipeline for 2014.</li> </ul>
(4) Establishment of a national M&E framework	None	National M&E framework established to support CCCSP	<ul style="list-style-type: none"> <li>- A draft M&amp;E framework has been presented to all stakeholders. Four key climate change indicators are reflected in the new NSDP. Five national process indicators agreed (including methodology and baselines). Analytic work ongoing on a national vulnerability index.</li> </ul>

**OUTPUT 1.1: National climate change policy and legislation that reflect national development priorities**

<b>Output Indicators (copy from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
Draft documentation on CC policy	Speech by PM during 1st CC Forum	CC policy drafted and proposed for approval by the council of ministers	CCCSP approved and launched by the Prime Minister (November 2013) CC mainstreamed as a cross-cutting issue in 2014-18 NSDP

Compilation and review of relevant laws and provision of recommendations for CC legislation	UNEP-supported assessment of V&A legislation	CC Legislation recommendations agreed by NCCC	CC legislation recommendations formulated for NCCC consideration
# of Policy recommendations emerging from the grantees projects	Nil	At least 3	Two practices notes have been finalized including a number of cross-cutting policy recommendations. In addition, a full set of recommendations to various institutions was produced and disseminated in June 2014 following the final CCCA learning event. In addition, lessons learnt from grantee projects are leading to sector specific policy recommendations (e.g. NCDD-S work on CC mainstreaming guidelines for sub-national institutions, based on experience from the pilot project).
<input type="checkbox"/> delivery exceeds plan	<input checked="" type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 1.2: National buy-in and ownership of the Cambodia CC Strategic Plan (CCCSP) and other key outputs of INC, SNC, NAPA, etc.**

<b>Output Indicators (from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
CCCSP endorsed by NCCC members	No CCCSP	CCCSP endorsed	CCCSP has been approved by the NCCC and the Prime Minister, and launched on 5 <sup>th</sup> November 2013
Climate Change Financing Framework prepared	None	CC Financing Framework prepared	Consultations on the first draft held in January 2014. A final version of the report is available and a summary of findings and recommendations has been prepared for review and approval by the NCCC at its next meeting.
# of line ministries' sector plans that have integrated CC	None	At least 5 sectors have CC action plans	Ten ministerial action plans have been completed and seven formally approved. Three more have started work in 2014.
# of CC projects implemented by priority sectors aligned with CCCSP priorities	Two projects defined	Six projects	Two of the CCCA pilot projects have led to scaled-up projects: one on CC and local Governments (NCDD-S and UNCDF, funded by Sida), and one on CC and Protected Areas Management (MoE and UNEP, funded by Adaptation Fund). In addition at least nine CCCSP aligned projects are being implemented or in pipeline, e.g. under ADB/SPCR (7) and UNDP (2).
Gender mainstreamed in the CCCSP and sectoral CCSPs	None	Gender mainstreamed within CCCSP and sectoral CCSPs	With technical assistance from MoWA, all sectoral CCSPs and the CCCSP have integrated gender as a cross-cutting issue.
<input type="checkbox"/> delivery exceeds plan	<input checked="" type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 1.3: The NCCC, CCTT and CCD are enabled to deliver on their mandated role**

<b>Output Indicators (from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
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% of capacity gaps identified in the Capacity Development Plan addressed through CCCA support	None	25%	Estimated 20% as of end June 2014. Institutional reforms in MoE are a key element for sustainable capacity development, and are currently in the final stage (approval by the Government scheduled for the last quarter of 2014).
% of NCCC, CCTT and CCD members participate in learning and training	None	80% of members of the CCD, NCCC and CCTT benefited from capacity development training	11 NCCC members (55%), 21 CCTT members (100%) and all CCD staff have benefitted from capacity development activities related to CCCSP, COP19 negotiations, 3 <sup>rd</sup> National Forum on CC, national M&E framework on CC, climate finance, and CC legislation, among others.
Capacity development plan for NCCC, CCTT, CCD and grantees	None	CD plan for NCCC, CCTT, CCD and grantees developed and implemented	For grantees, this is done through individual capacity assessments prior to the beginning of the grants, which are then followed up with mentoring where needed. The individual capacity assessments for CCD and CCTT staff have been conducted and priority activities delivered. A training plan has been submitted to CCD management.
<input type="checkbox"/> delivery exceeds plan	<input checked="" type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 1.4: Cambodia's negotiation capacity on CC matters and ability to comply with UNFCCC obligations/COP decisions is strengthened**

<i>Output Indicators (from the Logframe)</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
# of official negotiators with more than 3 years' experience of negotiations, participating in international CC negotiation meetings	5	At least 8 government staff able to articulate COP decisions	<ul style="list-style-type: none"> <li>- 6 CCD officers and 5 CCTT members have regularly participated in international negotiation meetings.</li> <li>- All CCD officers (20) and CCTT members are able to articulate COP decisions (participation in preparations and debriefings)</li> </ul>
# of Inter-ministerial technical team involved in at least one key international UNFCCC meeting	0	At least 6 CCTT members attend UNFCCC related meetings	All CCTT members (21) attended UNFCCC-related meetings.
# of regular CC negotiation related events (e.g. meetings, forums, field trips) held in Cambodia.	1- pre-COP meeting	2 events are organized per year	2 events organized per year (preparation session and debriefing), with an additional event in 2013 (dedicated session at the 3 <sup>rd</sup> National Forum).
<input type="checkbox"/> delivery exceeds plan	<input checked="" type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 1.5: Institutional arrangements to support CC mainstreaming in key ministries are in place**

<b>Output Indicators (from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Current status (31 December 2013)</b>
# of ministries and government agencies with CC focal points appointed or CC functional units identified and participating in CC mainstreaming	5	At least 8 ministries and government agencies	Ten line ministries have formed climate change action plan working groups. Three more are in process.
# of consultations between ministries or government agencies and CSOs related to CCSP, CC policy, CC legislation etc.	2	At least 4 consultation meetings per year	<i>(this indicator was introduced mid-2012)</i> 2 events in 2012 6 events in 2013 2 events in the first half of 2014 (consultations on CCFF and COP19 debrief)
<input checked="" type="checkbox"/> delivery exceeds plan	<input type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 1.6: Multi-Stakeholder CC mainstreaming guidelines prepared for progressive integration into sector activities at national and sub-national level**

<b>Output Indicators (from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
CC mainstreaming guidelines for NSDP, sectoral plans, sub-national development plans and NGO development plans are relevant and used by the NCCC	None	Draft CC mainstreaming guidelines into the NSDP used by the CCTT members of line ministries.	Guidelines developed in cooperation with MoP, training provided and line ministry submissions reviewed. Ten line ministries including MoE have mainstreamed CC in their submissions.
# of government institutions at the subnational level and CSO which have integrated CC in their development activities	None	6 sub-national government institutions and 4 CSOs have integrated CC into their development plans	This is being achieved through Results 4 and 5. The LGCC project has piloted mainstreaming in 3 districts and 9 communes in Takeo province, the CARP project in 8 communes, and Sihanoukville Provincial Hall has also integrated CC in its planning. CEDAC, WOMEN, MlupBaitong and HAI /Older People Associations have integrated CC in their portfolios.
<input checked="" type="checkbox"/> delivery exceeds plan	<input type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTCOME 2: Improved access to updated CC information, knowledge and learning opportunities at all levels**

<b>Outcome Indicators</b>	<b>Baseline (2010)</b>	<b>Target (2014)</b>	<b>Final status</b>
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# of annual CC events with various knowledge sharing and learning opportunities	Unknown	At least 2 annual events (with at least 1 of them with gender focus)	1 event in 2011 (with a gender component) 3 events in 2012 2 events in 2013 (both with a gender component) 1 event in first half of 2014 (learning event, with gender component)
% of population who can describe the main causes and impacts of climate change	48% (KAP Study data)	55%	<i>Repeat KAP study could not be conducted due to funding constraints. Additional funding has been mobilized and the study has been launched in September 2014 (after completion of this phase of CCCA). Final results are expected by February 2015. Awareness-raising activities are described under Result 2 and the target is expected to be met.</i>
# of government institutions that incorporate CC communication in their sectoral plans	1 (MoE)	At least 6 government institutions that incorporate CC communication in their sectoral plans	Integrated into CCAPs of 10 ministries
<input type="checkbox"/> delivery exceeds plan	<input checked="" type="checkbox"/> delivery in line with plan		<input type="checkbox"/> delivery below plan

**OUTPUT 2.1: Multi-stakeholder CC information sharing and knowledge management platform at national and sub-national levels established**

<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of line ministries implementing the National CC Education and Awareness Strategy (CCEAS)	None	At least 5 line ministries implement the CCEAS	- Ten ministries have integrated E&AS into their sectoral CCSP and Climate Change Action Plan
Knowledge management platform established	None	2 physical library corners and 1 e-based platform established	- Four Climate Change libraries corners have been established in CCD, PUC, RUA, RUPP, as well as the e-platform <a href="http://www.camclimate.org.kh">www.camclimate.org.kh</a>
# of documents downloaded from e-platform per month	None	More than 50 documents downloaded from the platform per month	- 1,500 per month. Over 9,000 documents downloaded from the CCD website database in the first six months of 2014 (mostly the CCCSP)
# of visits to the e-platform	None	More than 100 visitors to the platform per month	- Average of 1,128 visitors per month. Total number of 6,771 visitors in the first six months of 2014.
# of climate change knowledge products disseminated	1 (INC)	At least 5 knowledge products	- 8 main products: Climate Change Newsletter (every quarter); 21 project factsheets (500 copies each); 2013 and 2014 learning event reports (250 copies

			each); case study on forestry/biogas project (500); 2 practice notes (500); CC Monitoring and Evaluation Framework Report (online). - CCCA also contributed to two IIED briefing notes, on climate change planning and M&E of climate change.
<input checked="" type="checkbox"/> delivery <i>exceeds</i> plan	<input type="checkbox"/> delivery <i>in line with</i> plan	<input type="checkbox"/> delivery <i>below</i> plan	
<b>OUTPUT 2.2: A National CC Information and Knowledge Management and Learning Centre that acts as a clearing house for CC data, information resources, and learning services</b>			
<b>Output Indicators (copy from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of visitors to the Centre segregated by sex, age group, and sector	None	2,000	9,690 total visitors (3876 women) in 2013 for the e-platform and 1,367 visitors (546 women) for the four library corners. The trend is similar in 2014 with 533 visitors for the library corners (213 women), and 6,771 visitors for the e-library.
# of CC reading materials compiled in learning centre database segregated by languages (English and Khmer)	None	300 entries in Khmer and 1,000 entries in English	3,627 documents related to climate change in English and Khmer are available in CCD libraries, 3 CC libraries corners and CCD website
# of accesses to documents on website and database	None	50 access/ day	60 per day in first six months of 2014 (27 per day in 2013)
<input checked="" type="checkbox"/> delivery <i>exceeds</i> plan	<input type="checkbox"/> delivery <i>in line with</i> plan	<input type="checkbox"/> delivery <i>below</i> plan	
<b>OUTPUT 2.3: A CC outreach and learning campaign targeting all regions and vulnerable groups conducted</b>			
<b>Output Indicators (copy from the Logframe)</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of events organized, # of provinces covered, # of beneficiaries covered by outreach events, segregated by sex and age groups	Unknown	2 events per year, 2 provinces covered, 3000 beneficiaries	This has been done (1) through training of trainers and provision of documentation at sub-national level (7 sessions, see last indicator below); and (2) through outreach sessions targeting students and lecturers (3 sessions, 3 provinces covered, 1,000 beneficiaries).
# of media coverage focusing on CC	50 per year	50% increase	284% increase. 192 articles about climate change related information were published in mass media in 2013 (many linked to the 3 <sup>rd</sup> National Forum on Climate Change).

			27 articles in first half of 2014 (but data for the full year would be needed to compare to the baseline, as most CC-related articles are typically published during the second half of the year – rainy season).
% of ToT targeted in CC adaptation and mitigation education able to explain climate change adaptation and mitigation and DRR concepts.	47% (based on pre-training tests)	70% of the ToTs	72% (based on post-training tests).
# sessions on CC mitigation and adaption delivered at the sub-national levels	None	At least 7 regional sessions	Seven. A total of six sessions for sub-national officials, covering all provinces of Cambodia, and an additional session for disaster management officials (NCDM) at the national and sub-national levels.
<input type="checkbox"/> delivery <i>exceeds</i> plan	<input checked="" type="checkbox"/> delivery <i>in line with</i> plan		<input type="checkbox"/> delivery <i>below</i> plan

**OUTCOME 3; Strengthened capacity within the NCCC to mobilise and to effectively administer climate change funds and to prepare for a nationally owned trust fund**

<i>Outcome Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
Continued donor support to CCCA Trust Fund	US\$8.9 million	US\$11 million	US\$ 10.85 million mobilised, as well as USD 300,000 in parallel regional funding for the climate change financing framework (UNDP/SIDA)

**OUTPUT 3.1: Mechanism for providing financial resources from the CCCA Trust Fund is established**

<i>Output Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
Relevant guidelines developed and approved	No Guideline	3 guidelines approved (1 Operational Manual for CCCA Trust Fund, 2. Grant Guidelines for Applicants, 3. Implementation Guideline for grantees)	Revision of the Grant Application Guidelines, Grant Appraisal Guidelines and Grant Implementation Guidelines completed. Guidelines have served as a basis for the development of an operational manual for the Secretariat of NCCC.
TF Secretariat established and fully functioning	No TF Secretariat	TF Secretariat fulfils its role as per TORs	All staff recruited/assigned in 2012 and functional. Monitoring visits and spot-checks regularly conducted. Feedback on TFS performance is positive both from applicants and evaluators.
Grant proposal appraisal mechanism established and fully functioning	No formal appraisal mechanism	CCTT and the PSB participate in a timely manner to appraise project proposals	19 projects selected and approved through two calls for proposals in 2011 and 2012, including CCTT inputs and PSB review and approval.

# of CC priority areas supported through the CCCA TF	None	At least 4 CC priority sectors	12 projects ongoing and 8 completed, covering at least 8 priority sectors (agriculture, forestry, fisheries, environment, disaster management, water resources/meteorology, health, gender), as well as local governance and coastal zone adaptation.
Delivery of this output is above plan.			
<b>OUTPUT 3.2: Conduct grant selection process for each defined Grant Window that aligns with national CC priorities</b>			
<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of projects implemented under the CCCA grant programme	None	At least 15 projects implemented under the CCCA Trust Fund	21 projects: 8 projects under 1CFP, 11 under 2CFP, 1 under CCCA result 4 and 1 under results 1&2. All projects are now operationally closed.
Delivery of this output exceeds plan.			
<b>OUTPUT 3.3: CCCA Trust Fund becomes a key mechanism to provide financial support to CC initiatives in Cambodia</b>			
<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
\$ of additional contribution to Trust Fund or parallel funding mobilised for financial support	None	US\$4M	3.5 MUSD in cash, plus in-kind contributions (e.g. partnership with IIED on M&E of climate change, funded by DFID). An additional SEK 15 million has been approved by Sida (estimated 2.2 MUSD) in 2012. 300,000 USD mobilized in parallel funding for the work on CCFF (UNDP/Sida regional programme and NAPA follow-up project); and 987,000 USD to strengthen integration of Climate Change in sub-national planning (UNDP)
Delivery of this output is in line with plan.			
<b>OUTPUT 3.4: Monitoring and Evaluation of CCCA Trust Fund done in accordance with agreed rules</b>			
<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
% of deviation between approved budget and expenditure	None	Expenditure is between 70% and 110% of original budget	Cumulative expenditure represents 99.8% of the total budget.
# of fiduciary issues raised, which resulted in disciplinary action or compensation	None	Less than 1 case in 12 months	None.
% of periodical reports received/prepared on time (including grant project reports)	None	More than 80%	79%. For the first quarter of 2014, 12 out of 13 narrative reports were received on time and 7 out of 11 financial reports.
# of events organized to share lessons learned and best practices emerging from grant projects	None	3	The first experience sharing event for grantees was held on 28-30 January 2013, and the second one on 4-6 June 2014. Grantees have also shared their experiences at the 3 <sup>rd</sup> National Forum in November 2014.



# of knowledge products developed for disseminating lessons and recommendations	None	At least 4	Six. A first case study on the forestry administration project has been completed and published. Two practice notes (on engagement of stakeholders and factors of change) and a factsheet on a fishery pilot have also been produced. The reports on the two CCCA learning events also include lessons learnt and recommendations for each priority sector of the climate change response.
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Delivery of this output is in line with plan.

#### OUTPUT 3.5: An appropriate CC financing mechanism identified and proposed to the NCCC

<i>Output Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
CC financing mechanism proposal submitted to NCCC	None	CC financing mechanism proposal submitted to NCCC	A summary policy paper for a national funding facility for climate change has been produced on the basis of the climate change financing framework report (finalized early 2014), and is ready for submission to the next NCCC meeting.

Delivery of this output is in line with plan.

#### RESULT 4. Increased resilience of coastal communities and ecosystems to climate change through adaptation planning, demonstrated targeted local interventions and provision of practical learning experience in adaptation planning to the NCCC/CCD

<i>Outcome Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
<p>1. Number of coastal plans considering CC risk approved</p> <p>2. Number of the government staff trained on climate change on technical adaptation themes</p> <p>3. % of targeted population in coastal communities aware of climate change risks and appropriate adaptation measures</p> <p>4. Perceived change in livelihood of vulnerable coastal communities due to component interventions.</p> <p>5. % of mangrove forests in target areas restored and in good health.</p>	<p>1. No climate change adaptation plans exist for the coastal zone</p> <p>2. Very limited capacity available at national and provincial departments in relation to climate change</p> <p>3. No or very limited awareness in coastal communities on CC risk</p> <p>4. No interventions in the targeted areas so no</p>	<p>1. At least 2 coastal plans include consideration of climate change impacts by the end of the project.</p> <p>2. At least 50% of the technical staff in the key ministry departments and institutions trained by the mid-term of the coastal component</p> <p>3. At least 30 % of demonstration coastal communities well aware of climate change risks by the end of the coastal component</p> <p>4. At least 30% of targeted households show</p>	<p>1. Eight Commune Investment Plans include climate change actions to increase community resilience to climate change. The plans have been presented and included in District Integration Workshops. Guideline for integrating climate change in commune development plans has been finalized and used in training.</p> <p>2. Training of Trainers of Provincial staff included 75 persons (41 Preah Sihanouk and 31 Koh Kong), from provincial departments of Environment, Agriculture, Forestry and Fisheries, Land Management, Water Resources and Meteorology, as well as district staff and commune clerks.</p> <p>3. Two rounds of training have been conducted in 31 villages with 1850 participants (5% of the population, representing more than half of the households). Leaflets have been distributed for further dissemination within the concerned households (10,850 people).</p> <p>4. 572 households (32%) out of approx. 1790 households targeted by livelihood activities received direct support and increased their livelihood. All households receiving integrated farming support (237 households), livestock (305), and rice</p>

6. Capacity developed for identification of climate change impacts and adaptation measures in key provincial departments	change in livelihoods  5. No rehabilitation interventions are taking place recently in the targeted areas.  6. Limited or no capacity on climate change impacts and adaptation in provincial departments	increased livelihood as a result of alternative livelihood activities  5. At least 60% of the destroyed mangrove forests are restored in the targeted areas and show good health conditions by the end of the coastal component.  6. Provincial interdepartmental units capacitated to implement climate change measures	varieties (30) showed increased livelihood due to the conducted activities. The income for these farmers/community members increased significantly in both areas resulting in approx. a four times increase in income for integrated farming, new rice varieties would provide almost 4 times more net profit. The impacts of the fishery community require more time and will be evaluated as part of the LDCF activities. The M&E framework for measuring impact on the household livelihood is finalized and will be used in the continued monitoring.  5. 0% under CARP. As mangrove re-planting was a specific demonstration under the LDCF the actual mangrove replanting has been funded by LDCF (a total of 60 ha have been replanted). The main support from CARP has been directed towards awareness raising of the role of mangroves in coastal protection and as an ecosystem based approach to adaptation  6. The Technical working groups have been trained to establish capacity in the provinces to provide technical assistance in relation to climate change to districts and commune councils. In Preah Sihanouk Province 25 persons have been trained and in Koh Kong Province 18 persons have been trained. The trained persons have capacity for identifying, ranking and shortlisting proposed actions in relation to climate change. Their direct involvement in the work has significantly strengthened their capacity and ownership.
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**OUTPUT 4.1: Improved climate change knowledge integrated into land use and coastal development plans**

<i>Output Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
Number of plans, norms to take into account losses from CC and integrate climate change adaptation measures	None	At least one plan for each component targeted area is developed to integrate CC risk	Eight Commune Investment Plans include actions identified to increase and build resilience inside the target communes. The Climate Change Guideline for Commune Development Planning has been used in training sessions with the target groups to build capacity for the future continued integration of climate change measures into the Commune Development Plans. The manual has been revised for application in other provinces.
Coastal land use planning guide incl. climate change used in local planning	None	Commune plans developed considering climate change impacts in other vulnerable areas along the coast	The identified climate change actions have been included directly in the Commune Investment Plans for the eight communes. The CIP's were presented at the DIW's in November/December 2013.
Understanding and awareness of climate change in local government system	None	In targeted communities local government well aware and reacting in relation to climate change	Training programmes have been conducted for Technical working groups and commune council chiefs including commune clerks in all 8 targeted communes. Through these continued sessions with commune councils and provincial working groups understanding of climate change impacts and coping strategies have been established.

Delivery of this output is in line with plan.

**OUTPUT 4.2: Increased resilience of coastal communities and coastal ecosystem buffers to climate change and improved livelihoods**

<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
% of households in the coastal communities with access to coastal agricultural practices adapted to CC.	None	At least 30% of targeted households participate in innovative sustainable and climate resilient coastal livelihood activities	75% of the 769 households directly targeted by the project actively participate in climate resilient livelihood activities.
Number of people (male/female) from targeted coastal communities trained on coastal agriculture practices adapted to CC	None	At least 30% of people (male/female) living in the targeted areas are aware of climate change and climate resilient agriculture practices	No data provided by DHI on actual level of awareness. 10,850 people were engaged either through face-to-face trainings or leaflet distribution.
Perceived reduction of loss in agricultural production in targeted area.	N/A	At least 30 % of households show reduction of agricultural production loss	32% of targeted households. All households participating in IFS, livestock and rice pilots have seen their income increase significantly.
Ha of mangrove rehabilitated in target area	None	At least 60% of mangrove rehabilitated in identified target areas	0% under CARP. Maps have been produced and have been used for identification of areas for mangrove rehabilitation. The LDCF project supported the rehabilitation of 60 ha of mangrove. Results indicate that mangrove rehabilitation reaches 70% (under LDCF not CARP)
% increase of the length of ecosystem-based protected coastline in target areas.	N/A	At least 20% increase in ecosystem-based coastal protection	0% under CARP. Maps have been produced and have been used for identification of areas for mangrove rehabilitation. The LDCF project supported the rehabilitation of 60 ha of mangrove. Results indicate that mangrove rehabilitation reaches 70% (under LDCF not CARP)
% of coastal communities households in mangrove areas with improved livelihood due to access to alternative livelihood options.	N/A	At least 20% of households in mangrove areas adopt alternative livelihood options and have increased livelihood	Through the implemented activities 28% of the total households in mangrove areas adopted the livelihood options. 50 households in IFS, 30 households CFi activities, 24 livestock activities, and 10 household rice varieties.
Number of people (female/male numbers) from targeted mangrove areas trained on climate	None	At least 40% of people (female/women) living in targeted communities are	Overall 45% of total population from mangrove areas of 2520 persons have been trained in climate change and alternative livelihood. Total persons trained was 1123 and 557 were women (49.6%).

change and alternative livelihoods		aware of climate change and alternative livelihood and show increased resilience through capacity established	
% of women participating in training on climate change and alternative livelihoods	N/A	At least 30% of participants in community training courses are women	Based on data from climate resilient IFS 791 out of 1452 participants are female amounting to 54% of all participants. In the saving groups women amounted to 68%.
% of female led household participating in training activities	N/A	At least 20% of female participants represents female led households	21%.
Number of demonstration locations implemented in the coastal area	None	A minimum of two to four demonstration sites identified and adaptation measures implemented. Two sites have been pre-identified but some additional sensitive sites might be included if funds are available.	Two sites have been identified for demonstration activities and these sites include eight communes. In each commune up to six demonstration projects have been implemented and integrated into the Commune Investment Plans.
Capacity developed for identification of climate change impacts and adaptation measures in key provincial departments	None	Interdepartmental units capacitated to implement climate change measures.	The Technical working groups have been trained to establish capacity in the provinces to provide technical assistance in relation to climate change to districts and commune councils. In Preah Sihanouk Province 25 persons have been trained and in Koh Kong Province 18 persons have been trained. The trained persons have capacity for identifying, ranking and shortlisting proposed actions in relation to climate change. Their direct involvement in the work has significantly strengthened their capacity and ownership.
Reporting structure established for climate change impacts in coastal area	None	12 Reporting structure established to NCCC and other relevant committees on climate change impacts in coastal area and measures implemented.	Not fully achieved. A network structure has been proposed where sub-national structures in the coastal area should report through CCU to the National Committee for Coastal Management and Development and NCCC. Also a proposal for mainstreaming CC into the overall sub-national planning has been prepared.  The results of the demonstration activities have been recommended for replication in other areas both by stakeholders as recorded from the annual seminar or directly as activities included in CC Action Plans by key ministries. An

		12a The results of at least one demonstration site is considered by the NCCC for potential replication in other areas of the country.	example is the Climate Change Action Plan for Agriculture, Forestry and Fisheries 2014-18
Delivery of this output is in line with plan.			
<b>RESULT 5: Strengthened capacity in RGC agencies and civil society organisations for implementing CC response initiatives in line with agreed national CC priorities, independently or in partnerships, through access to new financial and technical resources</b>			
<b>Outcome Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of CC priority sectors supported through the CCCA TF and other funding sources	None	At least 4 CC priority sectors addressed through CCCA TF	8 priority sectors covered: agriculture, forestry, fisheries, water and sanitation, protected area management, health, disaster management, renewable energy, waste management. As well as local development and gender as cross-cutting issues.
% of CCCA funds allocated for projects implemented through government and CSOs partnerships.	None	At least 50%	57.2% (covering the 2 calls for proposals)
% of households in target areas reporting a reduction in their vulnerability to CC as a result of adaptation projects.	None	At least 15%	72.4% (covering the 2 calls for proposals)
<b>OUTPUT 5.1: Capacities of RGC agencies and civil society organisations in project proposal development, implementation and M&amp;E strengthened</b>			
<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# RGC agencies and civil society organisations participating in trainings on CCCA proposal development and implementation	None	At least 40	74 organizations (18 Government agencies and 56 NGOs). Grantees have received on-going support through mentoring on project management functions, on a case-by-case basis.
Delivery of this output is in line with plan			
<b>OUTPUT 5.2: Awareness of climate change and capacities for adaptation planning of sub- national authorities are strengthened.</b>			
<b>Output Indicators</b>	<b>Baseline (2010)</b>	<b>Target (Mid 2014)</b>	<b>Final status</b>
# of provincial and local government staff trained in CC adaptation	None	At least 900; at least 30% of trained staff are women.	2,243 staff trained (34% female)

Delivery of this output exceeds initial plans

**OUTPUT 5.3: The resilience to climate change of vulnerable communities is improved**

<i>Output Indicators</i>	<i>Baseline (2010)</i>	<i>Target (Mid 2014)</i>	<i>Final status</i>
# of community members trained on CC or participating in CC awareness raising events (by gender)	None	At least 25,000	40,133 trainees (48.5% female)
Type of field CCA demonstration activities and number of demonstration sites	None	Demonstrations to cover all of the following sectors: agriculture, water and sanitation, fisheries, forestry, health, disaster risk reduction, livelihood diversification, renewable energy, ecosystem restoration and management	<p><b>Agriculture:</b> 3 disseminations of resilient rice seeds and distribution of rice seeds to 345 households; 278 rice varieties demonstration sites; 1 compost fertilizer making site; 250 forage crops sites; 22 cassava and peanut sites; 539 home gardens; 22 Multi-Purpose Farming (MPF); and 3 rice seed producer groups with 25 members, 5 crop diversification sites, 5 integrated Farming Systems sites; 80 animal food / feed formulation sites, vaccination and treatment of 2,000 livestock.</p> <p><b>Water and Sanitation:</b> 1 reservoir; 20 wells; 13 ponds; 500 big jars; 76 latrines (some linked to biodigester, some flood-proof), 1055 water filters, 772m water conduits, 1 water gate, 14 water pumps.</p> <p><b>Fisheries:</b> 12 fish hatcheries; 54 fish raising ponds; 9 fish protection zones; 1 community-based fishery and water management site; 1 culture-based fishery site, 25 rice-fish farming sites and 3 community conservation areas, 1 drought-resilient aquaculture site, 1 community fish refuge and 5 fish processing products sites.</p> <p><b>Forestry:</b> 7,800 forest trees planted; 2,100 fruit trees planted; 7 community nurseries; 2 forest restoration sites (50 ha); 3 community forest protection areas.</p> <p><b>Health:</b> 203 test kits for dengue, 4 pilot sites for incorporating climate data into disease surveillance system</p> <p><b>Disaster Risk Reduction:</b> 23 rain gauges; 3 sub-weather stations; 1 Automatic Weather Station (AWS); 1 commune-level early warning system (flood markers and early warning network with 500 members) and response mechanisms (boats).</p> <p><b>Livelihood Diversification:</b> provision of micro grants to 42 vulnerable households; and 6 saving groups.</p> <p><b>Renewable Energy:</b> 76 bio-digesters.</p> <p><b>Ecosystem Restoration:</b> 1 zoning for coral conservation</p> <p><b>Waste Management:</b> Community-based solid waste management and 1 Material Recovery Facility (MRF)</p> <p><b>Small infrastructures:</b> 3 dams rehabilitated ; 5 canals ; 1 dike ; 4 restored rural laterite roads ; 2 water drainage/culvert ; 2 community ponds.</p>
# of households directly benefiting from	None	At least 10,000	19,713 beneficiary households



CCA demonstration activities			
% of households in target areas applying adaptation measures demonstrated	None	At least 4%	17.1% in target villages
Delivery of this output exceeds initial plans			

## II. Project Implementation Challenges

The programme encountered some initial delays in 2010 and early 2011, due to delays in recruitment of key project staff, insufficient staffing, and required adjustments to the management arrangements. This was dealt with through consultations between PSB members and dedicated missions (such as the EU ROM mission), which led to PB decisions to revamp the management structure and recruit a dedicated Trust Fund Administrator. The programme then picked up pace with the development of TFS procedures, successful of two calls for proposals, and active work on the deliverables under Results 1 and 2. The PSB's responsiveness and guidance during this initial period was crucial for the success of the programme.

The coastal zone component was only launched in November 2011, following a lengthy process of consultations on appropriate arrangements, taking into account the required coordination with the other part of the coastal zone programme, funded by the Least Developed Country Fund through UNEP.

Due to uncertainties on the future location of the Ministry of Environment (which in 2012 and 2013 was scheduled to move outside of the city), plans for a learning center on climate change had to be adjusted, with a stronger focus on cooperation with universities (establishment of CC learning corners), and on the e-platform.

The very low level of government per diems for field trips (regulated by Sub-Decree#10, from 2001) has created challenges for the commitment of government staff in grant projects, once UNDP decided to fully align with Government rates. The rates have been revised by Government in 2014 and are now more in line with actual costs of living.

The ban on capacity development activities for Government officials during the general election period has delayed some activities in the second and third quarter of 2013. The formation of the new Government has led to a change in leadership at Ministry of Environment and required a number of NCCC members to be replaced. The National Project Director has also changed. This transition has been managed relatively smoothly.

Some grant projects have faced capacity challenges, particularly under the first call. This has been addressed through increased monitoring and coaching from TFS staff, and a strengthened capacity assessment procedure has been implemented for the second call.

The full risks and issues logs for the programme are attached in Annex 1.

### III. Key Lessons Learnt

Lessons learnt from CCCA implementation fall into three broad categories:

#### 1. Lessons learnt at the level of the grants

Key lessons learnt are reported for each grant in the above progress reporting. At this level, lessons learnt are related to the specific approaches, geographic areas or implementation mechanisms used by grant projects. Some experiences have been documented in factsheets, and are also referenced above under the relevant project. Following the completion of this first phase of CCCA, Ministry of Environment is developing additional factsheets on projects closed in 2014, which will be released by end 2014.

#### 2. Lessons learnt at the sectoral or thematic level

These lessons may come from grants in the field or from the experience of the CCCA programme team in managing national level activities. They have been discussed during the Climate Change Adaptation Learning Event in June 2014, and documented in a separate report, which can be accessed here:

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/222-climate-change-adaptation-learning-event-for-practitioners.html>

The report includes concrete recommendations for various climate change stakeholders, per sector and per theme.

#### 3. Lessons learnt at the CCCA programme level and recommendations from the final evaluation

The box below presents the CCCA programme management response to the final evaluation findings and recommendations. Many of the recommendations have already been included in the design of the Phase 2 of CCCA.

One additional lesson learnt not mentioned below but included in the findings of the evaluation and in the recommendations of many grant projects relates to the duration of adaptation pilot. The period of 15 to 18 months under CCCA was found to be too short to allow for the full testing of proposed adaptation options. A period of 2 to 3 years was recommended, in order to allow for piloting during at least two annual cycles. This recommendation has been included in the project document for the second phase of CCCA.

#### Recommendations from CCCA final evaluation and management response

1. Additional capacity building support should be provided over the next 18 months to the savings/micro-lending groups and user groups (water, fisheries, forestry) established by CCCA and LDCF/CARP to strengthen their potential for sustainability. A cross-sectoral team and a microfinance advisor should be appointed, coinciding with the remaining CARP period, to rapidly assess the current organisational status of these groups and the short term capacity strengthening needs, and to draw out specific lessons learned regarding savings/user groups and relevant policy recommendations across the portfolio of projects.

*Response: Partially agreed. The recommendation to follow-up with these groups makes sense but it should be the responsibility of the Coastal Coordination Unit to provide this continuous support in the coastal zone during the remaining period of the coastal zone project (under LDCF project).*

2. CCCA should engage the relevant stakeholders in the 19 grant projects and CARP to extract policy lessons and implications, and to propose appropriate policy level follow-up actions that can assist CCCSP implementation. The framework for this wrap-up analysis should consider results of the 1st call workshop and strengthen follow-up action where appropriate.

*Response: Agreed and implemented. This has been done through the Climate Change Adaptation Learning Event in June 2014. A report including policy recommendations per sector and theme.*

3. CARP/UNEP should provide the CCCA Project Support Board with a project exit strategy that specifically addresses the application and utilization of relevant technical outputs for the evolving coastal planning processes in Cambodia and any related capacity development needs for effective use of these outputs.

*Response: Agreed and implemented. The final CARP progress reports includes an exit strategy as well as indications on follow-up support to be provided with LDCF funding.*

4. MoUs should be established between CCCA and SPCR/ADB, NCDD and NCDM specifying the areas of collaboration, responsibilities, budgets and the working relationships aimed at enhancing cross-sectoral climate resilience. The objective is more effective cross-sectoral cooperation and partnerships on key issues of mutual concern.

*Response: Partially agreed. The MoU approach would be quite complex to implement. A less formal approach (such as regular meetings with these programmes/institutions) would be more appropriate.*

5. CCCA should assist further elaboration of the climate financing operational strategies, including CCCSP investment plans at a sector/subsector or landscape scale, and provide flexibility for integrated adaptation/mitigation (combined vulnerability reduction and low emissions development) within longer term national and subnational initiatives and partnerships. Multiple types of investors and implementing partners (government, civil society, private sector) should be accommodated under the CCCSP financing plans.

*Response: Agreed and implemented. Continuous support for the refinement of the Cambodia Climate Change Financing Framework and Climate Change Action Plans, including both mitigation and adaptation, has been included in the design and results framework of the second phase of CCCA.*

6. The CCCA Knowledge Management programme should consider actions to further compile, assess and disseminate information on the technical, financial and social viability of livelihood adaptation measures demonstrated in the CCCA projects to date, extending the practice notes to more detailed best practice guidelines for implementation strategies under the CCCSP action plans. This could usefully include collaboration with the climate change component of IFAD's ASPIRE programme.

*Response: Agreed and under implementation. Following the learning event in June, additional knowledge documents have been identified and are currently under development, with support for CCCA phase 2. A strengthened focus on knowledge management has been included in the design of this next phase, and initial discussions have been held with the IFAD team on potential to link the knowledge management work of CCCA (in the agriculture sector) and ASPIRE.*

7. The next phase of CCCA should have clear outcome statements and tested indicators that reflect the end results expected from CCCA. The implementation strategies and outputs should be designed as necessary and sufficient to achieve these specified ends. A results-based approach will improve clarity of the overall CCCA approach and facilitate annual work planning and monitoring.

*Response: Agreed and implemented. The CCCA Phase 2 results framework is explicitly linked to the national M&E framework of the Climate Change Strategic Plan.*

8. Formal authorization through government sub-decree, terms of reference and annual workplans should be prepared for CCTT in conjunction with the next phase of CCCA programming. The workplans should set out the milestones in the CCCSP implementation and financing road map process where CCTT is expected to provide coordination and decision making functions. This will enhance communications and understanding with CCTT members and CCD staff.

*Response: Agreed and under implementation. Relevant legal documents are currently being drafted as part of the institutional reform of Ministry of Environment (sub-decree). Full TORs for the CCTT have been agreed at technical level and will be processed for approval once the reformed institutional framework is in place.*

9. The sector climate change Focal Points should be given more prominent roles and training in monitoring, oversight and reporting on progress in CCCSP action plans implementation and impacts on climate resilience and GHG emissions.

*Response: Agreed and under implementation. The strengthened role of sector climate change focal points has been included in the revised TORs for the CCTT.*

10. CCD should take a leadership role in enhancing climate data sets that serve multiple interests, including UNFCCC Third National Communication and climate modelling purposes. For example, customized early warning systems in agricultural extension and health surveillance programmes will depend upon coordinated access to better local data. Climate data needs linked to implementation of CCCSP could be considered in conjunction with the new LDCF/MoWRAM project: *Strengthening climate information and early warning systems in Cambodia to support climate resilient development and adaptation to climate change.*

*Response: Agreed and implemented. The development of a national knowledge system on climate change, including a national database, has been integrated in the next phase of CCCA, and agreement has been reached with ADB/SPCR to fund further downscaling and vulnerability mapping for inclusion in this database.*

11. CCCA and NCDD and LDCF/UNEP (CARP) project should refine and institutionalize the subnational climate change mainstreaming tools, including Participatory Performance Evaluation and Reporting method, and facilitate their use by local authorities.

*Response: Agreed and implemented. All three stakeholders mentioned above will participate in the work of the committee set up by NCDD to develop climate change mainstreaming tools for sub-national governments.*

12. NCCC, NCDD, NCDM, UNDP/SGP, MRC and NGOs should work together to standardize the Vulnerability Reduction Assessment (VRA) methods including global climate model downscaling, and to utilize the technical analyses in the selection of subnational adaptation investments. This requires coordination support from CCCA.

*Response: Partially agreed. This would require commitment from these other partners beyond CCCA, but CCCA Phase 2 will include this issue for discussion under the planned climate change coordination mechanism.*

13. Alternatives should be considered to enhance coordination, communications and learning opportunities with civil society organisations and bilateral programmes involved in climate change (e.g., CCC Network, JCCI) and to expand civil society alliances with CCCA in conjunction with CCCSP implementation (and potential private sector development of emerging adaptation/low emissions technologies).

*Response: Agreed and under implementation. CCCA Phase 2 includes a major component on development of a knowledge management system on climate change, including civil society. A specific engagement strategy is also included for the private sector.*

14. CCCA should facilitate experiences-exchange and cooperation between FiA, CI, and CARP/UNEP to assess the effectiveness of the community fisheries that have recently been developed by the projects and to examine the opportunities for FiA fisheries climate change adaptation methods within the context of the CI Tonle Sap and CARP coastal area.

*Response: Agreed and implemented. CCCA has facilitated an initial exchange between these three stakeholders at the learning event in June 2014. CI and FiA have developed a good working relationship on these issues.*

A list of all major documents produced under the programme is attached as Annex 2.



## IV. Provisional Financial Status

Table 1: Contribution Overview (as of 9 December 2014)

	Donors	Committed	Received		Balance
			Original Currency	USD *	
1	EUROPEAN UNION	EUR 2,205,816.06	EUR 2,052,493.00	2,670,465.37	EUR 153,323.06
2	DANIDA	DKK 3,000,000.00	DKK 3,000,000.00	564,616.76	0
3	SIDA	SEK 30,000,000.00	SEK 30,000,000.00	4,438,702.02	0
4	UNDP	USD 3,000,000.00	USD 3,000,000.00	3,000,000.00	0
	<b>TOTAL</b>	<b>USD 10,848,783.71 **</b>		<b>10,673,784.15</b>	<b>USD 174,999.56 **</b>

\* Based on the exchange rate on the day the contributions were collected.

\*\* May change based on the exchange rate when receiving the balance contribution(s)

Table 2: Annual Expenditure by Result [1 January – 30 June 2014]

RESULT	2014 Approved Budget	2014 Expenditure (Jan-Jun)	Balance	Delivery (%)
RESULT 1: Improved capacity to coordinate national policy making, capacity development, outreach / advocacy, efforts, and to monitor the implementation of national climate change strategy, policy and plans	258,434.02	296,686.08	-38,252.06	114.8%
RESULT 2: Improved accesses to updated CC information, knowledge and learning opportunities at levels	160,993.72	91,106.81	69,886.91	56.6%
RESULT 3: Strengthened capacity within the NCCC to mobilise and to effectively administer climate change funds and to prepare for a nationally owned trust fund	235,425.33	261,847.50	-26,422.17	111.2%
RESULT 4: Increased resilience of coastal communities and ecosystems to climate change through adaptation planning, demonstrated targeted local	235,000.00	213,850.00	21,150.00	91.0%
RESULT 5: Strengthened capacity in RGC agencies and civil society organisations for developing and implementing CC response initiatives in line with agreed national CC priorities, independently or in partnerships, through access to new financial and technical resources	384,112.97	385,419.94	-1,306.97	100.3%
<b>Total</b>	<b>1,273,966.04</b>	<b>1,248,910.33</b>	<b>25,055.71</b>	<b>98.0%</b>

**Table 3: Cumulative Expenditure by Result [15 February 2010 – 30 June 2014]**

<b>RESULT</b>	<b>Total Project Budget</b>	<b>Cumulative Expenditure</b>	<b>Balance</b>	<b>Delivery (%)</b>
RESULT 1: Improved capacity to coordinate national policy making, capacity development, outreach / advocacy, efforts, and to monitor the implementation of national climate change strategy, policy and plans.	1,960,439.58	1,998,691.64	-38,252.06	102.0%
RESULT 2: Improved accesses to updated CC information, knowledge and learning opportunities at levels.	932,280.61	862,393.70	69,886.91	92.5%
RESULT 3: Strengthened capacity within the NCCC to mobilise and to effectively administer climate change funds and to prepare for a nationally owned trust fund.	1,776,441.59	1,802,863.76	-26,422.17	101.5%
RESULT 4: Increased resilience of coastal communities and ecosystems to climate change through adaptation planning, demonstrated targeted local.	2,265,050.54	2,243,900.54	21,150.00	99.1%
RESULT 5: Strengthened capacity in RGC agencies and civil society organisations for developing and implementing CC response initiatives in line with agreed national CC priorities, independently or in partnerships, through access to new financial and technical resources.	3,914,410.50	3,915,717.47	-1,306.97	100.0%
<b>Total</b>	<b>10,848,622.82</b>	<b>10,823,567.11</b>	<b>25,055.71</b>	<b>99.8%</b>

Note: These are provisional financial data as the 2014 financial report is expected to be finalized in the UNDP financial system by April 2015.

## ANNEX 1: Issues and risks logs

### Risk log

#	Description	Date Identified	Type <sup>2</sup>	Impact <sup>3</sup> &Probability <sup>4</sup> <i>Note: 1=low, 5=high</i>	Counter measures / Management response	Owner	Submitted / updated by	Last Update	Status
1	The Ministry of Environment's and NCCC's leadership to coordinate the government's efforts to address the Climate Change adaptation challenges is not nationally recognized	NA	Strategic	Probability: 2 Impact: 4	Align future donor Climate Change adaptation support to the Cambodia Climate Change Strategic Plan (CCCSP)	NPC	NA	Upon ProDoc signature	Reduced
2	The programme fails to fully engage the civil society in programme development and implementation	NA	Operational	Probability: 2 Impact: 3	Support the establishment of a voluntary, multi-stakeholder Technical Advisory Panel (TAP) attached to the PSB and NCCC	NPC	NA	30/9/12	Reduced. TAP has been replaced by a team of independent experts while CCTT and CSO participate in the grants review process on a voluntary basis. CSOs can apply for CCCA grants, and are engaged in consultation meetings e.g. on national position for COP. CSOs have been consulted for their inputs on the CCCSP
3	The Knowledge Management and Learning Platform is not able to deliver given the manpower,	NA	Operational	Probability: 2 Impact: 2	Anchor the Knowledge Management Platform in a prestige national entity which has sufficient human and	NPC	NA	30/9/12	Reduced. The online platform is now operational. Learning corners have been setup in the libraries of universities. This area could be strengthened in a

<sup>2</sup>Environmental, Financial, Operational, Organizational, Political, Regulatory, Security, Strategic or Other

<sup>3</sup>1: Adverse effect is marginal, 2: Adverse effect is moderate, 3: Adverse effect is substantial, 4: Project result is severely damaged, 5: Kill the project

<sup>4</sup>1: Very unlikely, 2: Unlikely, 3: Possibly, 4: Likely, 5: Almost certain

#	Description	Date Identified	Type <sup>2</sup>	Impact <sup>3</sup> &Probability <sup>4</sup> Note: 1=low, 5=high	Counter measures / Management response	Owner	Submitted / updated by	Last Update	Status
	financial resources and access to information resources made available				financial resources to sustain its activities				future phase of CCCA.
4	Decentralisation reform will lead to power struggles and lack of clarity regarding climate change adaptation, mitigation and disaster risk reduction mandates	NA	Political	Probability: 3 Impact: 4	Institutionalise climate change mainstreaming into sub-national level via the CCCSP process", enhance funding support for climate change activities at sub-national level.	NPC	NA	30/9/12	Reduced. Engagement of NCDD both through a pilot project on CC mainstreaming at sub-national level and through the CCCSP process.
5	Government staff capacity is not fully available for programme implementation due to other tasks other than CCCA	NA	Organizational	Probability: 4 Impact: 4	Commitments from Government will be sought to make available sufficient Government staff for programme implementation. Note: The CCD within the MoE will need to have greater autonomy in terms of staff planning.	NPC	NA	30/6/13	Unchanged. Additional staff, including short-term consultants have been recruited. Capacity development programme has been developed but will require additional funding for implementation, and a revision of the institutional framework (in particular for NCCC Secretariat)
6	Suspension of salary supplement and consultant contract to Government officers creates difficulty to engage	Feb. 2010	Political and Operational	Probability: 3 Impact: 4	Clear principles in each engagement option will be developed. CCCA will follow the Government/ DP group policy for	NPC	PSB CTA	30/09/12	POC were suspended as of July 2012. Some projects have been authorized by MEF to apply an alternative scheme. Non-salary incentives provide an alternative option, which does

#	Description	Date Identified	Type <sup>2</sup>	Impact <sup>3</sup> &Probability <sup>4</sup> <i>Note: 1=low, 5=high</i>	Counter measures / Management response	Owner	Submitted / updated by	Last Update	Status
	competent human resources to CCCA, and to achieve programme sustain-ability and capacity building aims, due to reliance on external short-term consultants and long-term advisers;				incentive system and apply it as soon as finalized.				not fully compensate for absence of POC. Unlikely to be solved without DP/Gvt decision at high political level
7	Support from external consultants remain inadequate	May 2011	Political and Operational	Probability: 4 Impact: 4	Request UNDP to look for qualified consultants	NPC	CCD	<u>30/09/12</u>	Closed . Advisors are operational
8	Delay in the recruitment of Climate Change Specialist	Feb 2012	Political and Operational	Probability: 4 Impact: 4	Request UNDP to speed up the recruitment process	NPC	CCD	30/09/12	Closed. CC specialist is operational
9	Formation of the new Government and changes in MoE and NCCC membership may lead to delays in decision-making in the initial months, including for designation of NPD and PSB meetings.	Sep 2013	Political	Probability: 3 Impact: 2	CCD to ensure that requests are promptly sent to ministries to designate new NCCC members; briefings to the new MoE minister and NCCC members; request to designate a new NPD, and technical level meetings with PSB members	NPC	CCD	30/09/13	Closed. A MoE SoS has been designated to lead on CC issues. Appointment of PSB Chair and CCCA Director have been made. NCCC/PSB is fully formed.

**Issue log**

#	Description	Date Identified	Type <sup>5</sup>	Impact & Probability <i>Note: 1=low, 5=high</i>	Countermeasures / Management response	Owner	Submitted, updated by	Last Update	Status
1	SNC/Danida joint work plan has outstanding activities to be completed but the project team is disbanded by E/Mar.	NA	Request for change	Probability: 5 Impact: 1	Some activities have been integrated into the CCCA work plan under result 1 & 2 such as support on the Cambodia delegations to UNFCCC or CC related negotiations or conferences, on the dissemination of the SNC report and organization of Annual Forums. The activities were already supported under the joint work plan and have been reflected under the CCCA work plan.	UNDP	SMA	20/03/10	Closed
2	Grand design of CCCA grant component is not described in the ProDoc. The strategic direction, e.g. grant size, sector focus, linkage to other	15/03/10	Other	Probability: 4 Impact: 3	Board will give strategic direction. Outline will be submitted to the Board for review.	UNDP	SMA	30 June 2011	CCCA Trust Fund Operational Manual approved at the 4PSB. Closed.

<sup>5</sup>Request for Change, Problem or Other



#	Description	Date Identified	Type <sup>5</sup>	Impact & Probability <i>Note: 1=low, 5=high</i>	Countermeasures / Management response	Owner	Submitted, updated by	Last Update	Status
	programme will help detailed design.								
3	The appraisal process of the Grant Component 1 is not clearly spelled out in ProDoc. Since the Grant management structure and manuals have not been developed, the specific direction from Board is needed.	NA	Request for change	Probability: 5 Impact: 4	Board will give direction for the grant management arrangement. UNDP rule (Project Appraisal Committee) will be applied for the Component 1. This is an ad hoc arrangement until proper procedures are in place	UNDP	SMA	19/05/10	Closed
4	Ambiguity and inconsistency in ProDoc	10/02/10	Request for Change	Probability: 5 Impact: 4	The inconsistency will be reconciled through ProDoc revision process through the inception phase.	UNDP	SMA	31 March 2012	Closed. ProDoc revised and endorsed by the DPs.
5	PPCR Phase 1 can be channelled through UN system that may be fed into CCCA trust fund to benefit programmatic approach.	19/05/10	Other	Probability: 2 Impact: positive	CCD to take a lead role in promoting the synergies and harmonization of implementation arrangements and programming between CCCA and PPCR and to move towards a	CCD	PSB	11/08/10	Closed

#	Description	Date Identified	Type <sup>5</sup>	Impact & Probability <i>Note: 1=low, 5=high</i>	Countermeasures / Management response	Owner	Submitted, updated by	Last Update	Status
					programmatic approach; CCCA programme team to provide regular updates to the PSB on PPCR progress; Chair to invite one PPCR representative from World Bank or ADB to attend CCCA PSB meetings as observer				
6	Director of CCD has multiple tasks in the department and he cannot work for the CCCA in full time basis.	NA	Problem	Probability: 5 Impact: 4	Assistant to NPC will be hired externally	CCD	SMA	25/04/12	Closed
7	Delay in recruiting the CTA and TFA by UNDP	01/06/10	Problem	Probability: 4 Impact: 4	UNDP is engaging a staff from Nepal office to back stopping for a 2- week mission; and UNDP is also releasing the Climate Change Advisor to provide more support	UNDP	NPC	31/12/10	TA recruitment completed. Closed
8	No operation handbook to enable CCD recruiting supporting staff and procure	01/4/10	Problem	Probability: 4 Impact: 5	MoE and UNDP will agree chapter by chapter of the draft Operation Handbook.	CCD	NPC	31/12/11	The issue is being addressed by CCD by using operations manual in line with NIM standards. Closed.

#	Description	Date Identified	Type <sup>5</sup>	Impact & Probability <i>Note: 1=low, 5=high</i>	Countermeasures / Management response	Owner	Submitted, updated by	Last Update	Status
	equipment for office								
9	MoE will be (most likely) relocated to another location in one year's time and investing office renovation is not an efficient use of money.	19/05/10	Request for Change	Probability: 5 Impact: 3	The temporary solution is that CCD will get one additional room nearby the current office space to accommodate additional staff and the advisors under the CCCA.	CCD	SMA	31/12/10	2 new offices allocated to CCD. Closed
10	HACT assessment became the precondition of operation fund disbursement to MOE	29/06/10	Problem	Probability: 5 Impact: 3	MOE will receive the operational fund tranche by tranche (\$70,000) until HACT micro-assessment has been completed.	UNDP	SMA and NPC	31/12/10	HACT conducted. Closed
11	EU ROM mission recommends major re-formulation of CCCA structure	30/09/10	Other	Probability: 5 Impact: 4		UNDP	SMA	31/12/10	Revised structure approved by PSB 3. Closed
12	Coast component start delayed due to structure and legal gaps could cause delivery drop 2011;	Jan 2011	Financial, Operational, Organizational	Probability: 3 Impact: 4	UNDP to lead on establishing a sound implementation basis;	UNDP	CTA	31/03/12	Contract signed with DHI in Nov 2011. Closed
13	Office space for Trust Fund Secretariat	16 Feb 2011	Request for Change	Probability: 5 Impact: 3	CCD will get one more room for secretariat. CCD has requested MoE Senior	CCD	NPC	30 June 2011	Office space allocated. Closed

#	Description	Date Identified	Type <sup>5</sup>	Impact & Probability <i>Note: 1=low, 5=high</i>	Countermeasures / Management response	Owner	Submitted, updated by	Last Update	Status
					Management extending the balcony (add new room)				
14	Technical support from CTA remains insubstantial	May 2011	Change	Probability:4 Impact: 4	Request UNDP to conduct performance evaluation based on ToR and further action to be taken.	CCD	NPC	30 June 2011	Closed.
15	Delay in recruiting CC Specialist	Jan 2012	Operational	Probability:4 Impact: 5	UNDP needs to urgently finalize the recruitment	CCD	NPC	30/09/12	Recruitment completed. Closed

## ANNEX 2: LIST OF KEY KNOWLEDGE PRODUCTS DEVELOPED WITH CCCA SUPPORT

Climate Change Department website and knowledge platform [www.camclimate.org.kh](http://www.camclimate.org.kh)

### 1. Strategic and legal documents

CCCSP 2014-2023 (Khmer and English):

<http://www.camclimate.org.kh/index.php/policies/nccc-news/197-cccsp-2014-2023-kh-fiinal.html>

File name: [Cambodia Climate Change Strategic Plan 2014-2023-Kh-FINAL](#); [Cambodia Climate Change Strategic Plan 2014-2023-En-FINAL](#)

Sectoral Climate Change Strategic Plans (English):

<http://www.camclimate.org.kh/en/documents-and-media/library/category/117-sectoral-ccsp-english.html>

Sectoral Climate Change Strategic Plans (Khmer):

<http://www.camclimate.org.kh/en/documents-and-media/library/category/116-sectoral-ccsp-khmer.html>

Education and Awareness Strategy brief

<http://camclimate.org.kh/en/documents-and-media/library/category/15-education-and-awareness.html>

File name: [Education and Awareness Strategy Brief](#)

CoP 19 documents, 2013

<http://camclimate.org.kh/en/documents-and-media/library/category/107-cop-19-dissemination-warsaw-poland.html>

Cambodia's position for CoP 18 (Kh/En), 2012

<http://camclimate.org.kh/en/documents-and-media/library/category/21-global-policies.html>

File name: [cambodian positions for cop 18 kh approval letter 1](#); [cambodian positions for cop18-eng](#)

CoP 18 participation report to Prime Minister, 2012

<http://camclimate.org.kh/en/documents-and-media/library/category/79-cop.html>

Cambodia's position for CoP 17, 2011

<http://camclimate.org.kh/en/documents-and-media/library/category/21-global-policies.html>

File name: [3-5 Oct 2011 - SB FCC - COP17 - Towards Durban, South Africa: Draft Cambodia's Positions](#)

### 2. Reports

Cambodia National M&E workshop report, Dec 2013:

<http://camclimate.org.kh/en/ccd/ccd-news/208-publication-of-cambodia-national-climate-change-m-e-framework-workshop-report.html>

File name: [Cambodia CC M&E Framework Workshop Report-FINAL](#)

Learning adaptation event report, Jun 2014

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/222-climate-change-adaptation-learning-event-for-practitioners.html>

Adaptation experience sharing workshop report, 2013

<http://www.camclimate.org.kh/en/documents-and-media/library/category/68-first-call-projects.html>

File name: [Experience Sharing Workshop TF Report 2013](#)

Country report on mainstreaming climate change resilience into development planning in Cambodia, Apr 2013

<http://camclimate.org.kh/en/documents-and-media/library/category/12-national-policies.html>

File name: [Mainstreaming climate change resilience into development planning in Cambodia](#)

Or: <http://pubs.iied.org/10047IIED>

Cambodia Human Development Report, 2012

<http://camclimate.org.kh/en/documents-and-media/library/category/55-general.html>

File name: [Cambodian Human Development Report](#)

### 3. Fact sheet

CCCSP factsheets (4 sets), Mar 2014

<http://camclimate.org.kh/en/documents-and-media/library/category/12-national-policies.html>

File name: [CCCSP fact sheet 1, Overall](#); [CCCSP fact sheet 2, Reduce Vulnerability](#); [CCCSP fact sheet 3, Shifting Toward a Green Development](#); [CCCSP fact sheet 4, Promote Public Awareness](#)

1<sup>st</sup> CFP grantee project factsheet

<http://www.camclimate.org.kh/en/documents-and-media/library/category/68-first-call-projects.html>

2nd CFP grantee project factsheet

<http://www.camclimate.org.kh/en/documents-and-media/library/category/69-second-call-projects.html>

### 4. Learning materials

Climate change reference guide book for secondary school, 2013

<http://www.camclimate.org.kh/en/documents-and-media/library/category/51-cross-cutting-materials.html>

Practices notes on factors of change and stakeholder participation, Jan 2014

<http://camclimate.org.kh/en/documents-and-media/library/category/108-climate-change-practice-notes.html>

Adaptation learning event poster (20 posters), June 2014

<http://www.camclimate.org.kh/en/documents-and-media/library/category/115-ccca-s-grantee-posters-on-cc-adaptation-best-practices.html>

Climate change posters (cause, impacts, mitigation), Mar 2014

<http://www.camclimate.org.kh/en/documents-and-media/library/category/112-poster.html>

File name: [Poster on Cause and Impact of Climate Change-Kh](#); [Poster on Mitigation and Adaptation-Kh](#)

Poster on CCCA profile (Kh/En), June 2014



<http://camclimate.org.kh/en/documents-and-media/library/category/112-poster.html>

File name: [Poster on CCCA Profile-Kh](#); [Poster on CCCA Profile-En](#)

CCD newsletter, issue 1&2 (Kh/En)

<http://www.camclimate.org.kh/en/documents-and-media/library/category/113-newsletter.html>

CCCA leaflet (Kh/En), Apr 2014

<http://www.camclimate.org.kh/en/documents-and-media/library/category/114-leaflet.html>

File name: [Leaflet CCCA Jan 2014-Kh-FINAL](#); [CCCA leaflet, April 2014, En-FINAL](#)

CDM brochure (Kh/En)

<http://www.camclimate.org.kh/en/documents-and-media/library/category/45-clean-development-mechanisms.html>

File name: [cdm in cambodia brochure en](#); [cdm in cambodia brochure khmer](#)

Media training tools

<http://camclimate.org.kh/en/documents-and-media/library/category/85-media-training-tools.html>

Mitigation tools

<http://camclimate.org.kh/en/documents-and-media/library/category/49-mitigation-tools.html>

Post forum flyer: Cambodia getting ready for a full scale climate change response

<http://camclimate.org.kh/en/documents-and-media/library/category/86-3rd-national-forum.html>

File name: [Cambodia Getting Ready for a Full-Scale Climate Change Response](#)

## 5. Research and Development

1<sup>st</sup> KAP study result, 2012

<http://www.camclimate.org.kh/en/documents-and-media/library/category/15-education-and-awareness.html>

File name: [kap brief research briefing eng](#); [kap brief research briefing kh](#)

Survey of rural Cambodian households on vulnerability and adaptation

<http://camclimate.org.kh/en/documents-and-media/library/category/29-vulnerability-and-adaptation.html> (

File name: [a survey of rural cambodian households vulnerability and adaptation march 05](#)

## 6. Video

No second chance video, Jan 2014

<http://camclimate.org.kh/en/ccd/ccd-news/210-no-second-chance-video-released.html>

Others video

<http://camclimate.org.kh/en/documents-and-media/videos.html>

## 7. Others

3rd National Forum on Climate Change documents, Nov 2013

<http://www.camclimate.org.kh/en/documents-and-media/library/category/86-3rd-national-forum.html>

1<sup>st</sup> Forum on Climate change proceedings

<http://camclimate.org.kh/en/documents-and-media/library/category/53-events.html>

File name: [The First National Forum on Climate Change](#)

1<sup>st</sup> call for proposal announcement (En)

<http://www.camclimate.org.kh/en/documents-and-media/library/category/74-first-call-for-proposals.html>

File name: [ccca tf full call for proposal eng-01-3-2011](#)

2<sup>nd</sup> call for proposal announcement (Kh/En)

<http://www.camclimate.org.kh/en/documents-and-media/library/category/75-second-call-for-proposals.html>

1<sup>st</sup> grantee guideline application

<http://www.camclimate.org.kh/en/documents-and-media/library/category/72-first-call-guidelines.html>

2<sup>nd</sup> grantee guideline application

<http://www.camclimate.org.kh/en/documents-and-media/library/category/73-second-call-guidelines.html>

Operational guidelines for the approval of proposed CDM projects

<http://www.camclimate.org.kh/en/documents-and-media/library/category/45-clean-development-mechanisms.html>

File name: [operational guidelines for the approval of proposed clean development mechanism projects](#)

CoP 19 press release related article

<http://camclimate.org.kh/en/documents-and-media/library/category/105-cop-19-warsaw-poland-nov2013.html>

All press releases

<http://camclimate.org.kh/en/documents-and-media/library/category/52-press-releases.html>

## 8. Case studies of CC adaption projects:

Climate Change Adaptation: Flood and Drought-Resilient Aquaculture

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/215-climate-change-adaptation-flood-and-drought-resilient-aquaculture.html>

Adaptation Projects Contribute to Flood Preparedness and Response

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/202-adaptation-projects-contribute-to-flood-preparedness-and-response.html>

Farmers benefit from Bio Digester Establishment

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/112-farmers-benefit-from-bio-digester-establishment.html>

182 families to benefit from dam rehabilitation

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/101-182-families-have-benefited-from-dam-rehabilitation-project-cccatf-second-call.html>

Grant Recipients Trained about Vulnerability Reduction Assessment

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/93-grant-recipients-were-trained-about-vulnerability-reduction-assessment.html>

CCCA Beneficiaries Feel Optimistic About New Agricultural Technology to Adapt to Climate Change

<http://www.camclimate.org.kh/en/trust-fund/trust-fund-news/76-ccca-beneficiaries-feel-optimistic-about-new-agricultural-technology-to-adapt-to-climate-change.html>

## 9. Other documents available from the Climate Change Department:

1. Newsletter - Vol. 10, No. 37\_1QT Jan-Mar 2013 (EN & KH)
2. Leaflets for HDR 2013 (EN)
3. Poster for HDR 2013 (EN)
4. Newsletter Vol. 10, No. 38\_2QT Apr-Jun 2013 (EN & KH)
5. Toward Realizing Industrial Development In Cambodia: "An Academic Perspective"
6. Technical Report: "Building Capacity of Institutions to Help Farmers Better Adapt to CC and Variability in Cambodia" – RUA
7. Workshop Proceedings: "Building Capacity of Institutions to Help Farmers Better Adapt to CC and Variability in Cambodia" (EN & KH) – RUA
8. Assessment Report: "Farmer Perception and Cost-Benefit Analysis on Field Based Demonstration Technologies for Disaster and CC Adaptation in Prey Veng Province" – RUA
9. Assessment of Coping Strategies in the Coastal Zone of Cambodia – DHI
10. Assessment of Community Vulnerability and Risks from CC in the Coastal Zone of Cambodia – DHI
11. Implementation Capacity of Demonstration Activities – DHI
12. Vulnerability of Existing Agricultural Practices – DHI
13. CC Awareness and Capacity Building for Fisheries Sector in Cambodia: Needs Assessment – FiA
14. Assessing Vulnerability to CC and Building Adaptive Capacity in Cambodia's Fisheries Sector – FiA
15. Report on the Performance Assessment System for Allocation of Performance Based-Climate Resilience Grants of LGCC Project – NCDD-S
16. A Roadmap for National Monitoring and Evaluation Framework Development
17. Concept Note of Cambodia national framework for M&E of climate change response
18. Fisheries Administration Climate Change Strategy
19. Review of Climate Modeling and Climate Change Adaptation in Cambodia, 2012, Royal University of Agriculture (English version)
20. Impact of Climate Change Variability and Adaptation on Agricultural Sector in Prey Veng Province, 2012, Royal University of Agriculture (English Version)
21. Sub-Weather Analysis of Pa Phnom, Kamchaymear and Pea Reang Districts, Prey Veng Province, 2013, Royal University of Agriculture (English Version)
22. Climate Change Training Needs Assessment for the Agriculture Sector, Royal University of Agriculture
23. Assessment of Coping Strategies in the Coastal Zone of Cambodia (English and Khmer) – DHI
24. Assessment of Community Vulnerability and Risks from CC in the Coastal Zone of Cambodia – DHI (English and Khmer)
25. Implementation Capacity of Demonstration Activities (English)– DHI
26. Vulnerability of Existing Agricultural Practices (English)– DHI

27. Support to CC education, awareness-building and FWUC strengthening (English) – DHI
28. Analysis of Costs & Benefits of modifying Agricultural Practices for Climate Change at the Coast (English and Khmer) – DHI
29. Detailed Implementation Plan for Demonstration Activities at the Coast (English) – DHI
30. Climate-Resilient Irrigation - Guidance Paper (English and Khmer) – DHI
31. Monitoring and Evaluation Framework for Demonstration Activities (English) – DHI
32. Training Materials for Scaling-up Climate Change Adaptation and Modified Procedures (English)
33. Effective Mechanisms for Climate Change Mainstreaming in Sub-National Planning (English and Khmer) – DHI
34. Guidelines for Integrating Climate Change Considerations into Commune Development Planning- Target Areas (English and Khmer) – DHI
35. Guidelines for Integrating Climate Change Considerations into Commune Development Planning (English and Khmer) – DHI
36. Mainstreaming of Climate Change into the Sub-National Development Planning in Cambodia (English and Khmer) – DHI
37. Outputs from Training Programme on Integrating Climate Change Considerations into Commune Development Planning (English) – DHI
38. Training materials – DHI:
  - Climate Change Awareness Training Booklet (Khmer)
  - Climate Change Awareness Flip Chart (Khmer)
  - Training Manual – Climate Change Awareness (English and Khmer)
  - Climate Resilient Integrated Farming -Chicken husbandry at the family level (Khmer)
  - Climate Resilient Integrated (Khmer)
  - Climate Resilient Integrated Farming - Sustainable fisheries (Khmer)
  - Climate Resilient Integrated Farming - Introduction to the System of Rice Intensification (SRI) (Khmer)
  - Climate Resilient Integrated Farming - Vegetable cultivation (Khmer)
  - Climate Resilient Integrated Farming - Fruit tree cultivation (Khmer)
  - Climate Resilient Integrated Farming - Rice cultivation (Khmer)
  - Climate Resilient Integrated Farming - Soil fertility management (Khmer)
  - Climate Resilient Integrated Farming - Post-harvest technology (Khmer)
  - Livestock - Improving chicken raising in rural areas to control bird flu (Khmer)
  - Livestock - Technique for raising chicken, pigs and cattle by smallholders (Khmer)
  - Livestock - Technique for raising pigs by smallholders (Khmer)
  - Livestock - Technique for raising cattle by smallholders (Khmer)
  - Livestock - Care and feed of pregnant and lactating sows and piglets 1-35 days (Khmer)
  - Climate-Resilient Irrigation - Guidance Paper (English and Khmer)