Coastal Adaptation and Resilience Planning Component

Detailed Implementation Plan for Demonstration Activities at the Coast

Cambodia Climate Change Alliance (CCCA)

Implemented by: Supported by:

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Coastal Adaptation and Resilience Planning Component (CARP)

Draft Final

Detailed Implementation Plan for Demonstration Activitiesat the Coast

Abbreviations and Acronyms

AEA	Agro-Ecological Systems Analysis
CARDI	Cambodian Agricultural Research and Development Institute
CARP	Coastal Adaptation and Resilience Planning Component
CBO	Community Based Organisation
CCCA	Cambodia Climate Change Alliance
CDP	Commune Development Plan
CF	Community Fisheries
DAE	Department of Agricultural Extension, MAFF
DAHP	Department of Animal Health and Production
Danida	Danish International Development Assistance
EU	European Union
FFD	Farmer Field Day
FFS	Farmer Field Schools
FiA	Fisheries Administration
FO	Farmer Organisation
HH	Household
IPM	Integrated Pest Management
IRR	Internal Rate of Return
KK	Koh Kong
MAFF	Ministry of Agriculture, Forestry and Fisheries
MCS	Monitoring, Control and Surveillance
MoE	Ministry of Environment
MoWRAM	Ministry of Water Resources and Meteorology

NAPA	National Adaptation Program of Actions to Climate Change
NCCC	National Climate Change Committee
NGO	Non-Governmental Organisation
NPV	Net Present Values
NRM	Natural Resource management
OFAT	On-Farm Adaptive Trials
PDA	Provincial Directorates of Agriculture
PDWRAM	Provincial Department of Water Resources and Meteorology
PFiA	Provincial Fisheries Administration
PIP	Project Implementation Plan
PRA	Participatory Rural Appraisal
RGC	Royal Government of Cambodia
RRA	Rapid Rural Appraisal
SHV	PreahSihanouk Province
SIDA	Swedish International Development Agency
SLR	Sea Level Rise
ST	Short Term
TOT	Training of Trainers

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A smooth formal collaboration and informal dialogue has been maintained with CCCA, sharing information, ideas and findings.

The Team sincerely thanks everyone who shared their time and knowledge, and looks forward with enthusiasm and confidence to a continued fruitful dialogue.

This Planhas been developed based on a number of on-going activities conducted in 2012 and a number of persons have been involved in this or part of this work.

In addition, the following persons (listed by order of alphabet) kindly shared their information and provided data and ideas:

In Sihanouk Province

Mr. Chea Saly, Chief of Agronomy Office, DOA; ms. Chim Kalyan, Deputy Director, DOE; mr. Chum Chanthol, Chief of Agricultural Extension Office, DOA; mr. Chun Sun Heng, Vice Chief, Tuek L'ak Commune; mr. Eng Samnang, Chief of Planning Office, DOP; mr. Heng Sophornrith, Deputy Director, DOWRAM; mr. Khuy Khay, council member, Tuek L'ak Commune; ms. Nay Saly, ICM-Assistant, SHV Municipality; mr. Ngoy Peng Chiv, Deputy Director, DORD; mr. Nos Orn, Vice Chief, Tuek Thla Commune; mr. Nu Ramy, Executive Director, Prey Nob FWUC; mr. Ork Song Horn, Deputy Director, Prey Nob District; mr. Oun Em, Officer, Prey Nob District; mr. Prack Sarim, Chief, Sameakki Commune; mr. Prak Visal, ICM-Coordinator, SHV Municipality; and mr. Yim Boy, Chief, Prey Nob FWUC.

In Koh Kong Province

Mr. Ben Vanna, Deputy Governor, Mondul Sema District; mr. Chey Yoen, community member, Peam Krasaob Commune; mr. Chhiv Reth, Vice Chief, Fisheries Office; mr. Chut Tit, Commune Chief and Community Chief, Peam Krasaob Commune; mr. Eat Vanna, Deputy Director, DOP; mr. Em Yoen, community member, Peam Krasaob Commune; mr. Ev Vanna, Deputy Director, DOWRAM; mr. Hun Marady, Deputy Director, DOE; mr. Khoem Sanith, First Vice Chief, Toul Kokir Commune; mr. Leng Chan Sokthear, Officer, Agronomy Office; mr. Moun Phala, Acting Director, DOE; ms. Neang Kun, First Vice Chief, Peam Krasaob Commune; mr. Phong Livireak, Director, DOA; mr. Prark Dina, Commune Secretary, Toul Kokir Commune; ms. San Sany, Provincial Programme Management Adviser, Koh Kong Municipality; mr. Sek Sam Ol, Director of Planning, Koh Kong Municipality; mr. Seng Bunna, Officer, Fisheries Office; mr. Siak Samoun, Vice Community Chief, Peam Krasaob Commune; mr. Som Chea, Deputy Director, DRD; mr. Soun Noun, Chief of Veterinary Office, DOA;

mr. Ty Vech, Commune Secretary, Peam Krasaob Commune; and mr. Yem Yan, Vice Chief, Peam Krasaob Commune.

The combined team would like to express their appreciation to the Ministry of Environment for a constructive dialogue and support throughout the making of this plan.

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1.Introduction

This document contains implementation plans for six demonstration activities proposed to be implemented. The sixdemonstration activities are as follows:

1. Integrated Farming Training Programme for (a) agricultural extension staff and (b) households / families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, and water) at 8 target communes[1]. This is preceded by agro ecological analysis as an integral part and includes demonstration in on-farm water management measures. The demonstration activity is proposed implemented under contract with Department of Agricultural Extension, MAFF.

2. Community Fisheries project at PeamKrasaobCommune; especially in terms of strengthening regulatory measures and their enforcement. The relation of community fisheries to climate change adaptation is that general fishing developments and its regulatory measures are likely to be required to adjust the livelihood of fishing communities. The demonstration activity is proposed implemented under contract with the Fisheries Administration, MAFF.

3. Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy possibly enabling harvest before onset of heavy flooding and sea water surges at target communes.Such varieties will need to be tested (at no cost to farmers) in specific localities, where they are likely to be effective.The demonstration activity is proposed implemented under contract with Cambodia Agricultural Research and Development Institute, MAFF.

4. Promotion of increased livestock keeping at seven or eight communes - by using a revolving scheme for improved breeds – as tested successfully in Cambodia, Laos and elsewhere. This is in response to increased flooding problems as livestock are moveable.The demonstration activity is proposed implemented under contract with the Center for Livestock and Agriculture Development (CelAgrid) in collaboration with the Project Management Unit, Ministry of Agriculture, Forestry and Fisheries.

5. Climate change awareness raising and training on climate change resistant irrigation in the target communes. A comprehensive training and awareness activity in relation to climate change impacts will be implemented applying experience from previous work in Cambodia. The work training will be done in all 8 selected communes. The

[1]The communes are: TuekThla, TuekL'ak, Sameakki, Prey Nob, ToulTortoeng, O OknhaHengCommunes, Prey Nob District, Sihanoukville Province. PeamKrasaob and TuolKokir Communes, MondulSeima District Krasaob), Koh Kong Province

demonstration activity is proposed for implementation through cooperation with a NGO and the established provincial working groups, who will be responsible for the implementation.

6. Adaptation measures integrated in Commune Development Plans in 8 communes. Concrete demonstration actions will be done in each of the target communes based on the planned activities in the 2013 commune investment plans and implementing actions that will make the communes more resilient to climate change impacts. The demonstration actions will be conducted in cooperation with the commune councils, districts and the provincial working groups.

Most activities are to be implemented during 2013, but activity 4 will take about 3 years to implement, but the main part is to be implemented during 2013. It will, in addition, be necessary to have follow-up activities during 2014-15. It is proposed that such follow-up activities may take place under the LDCF-GEF part of the Coastal Adaptation Project, if feasible.

The background and basis for the demonstration activities are available in the following documents:

- "Coastal Adaptation and Resilience Planning Component", Cambodia Climate Change Alliance, Feb. 2011.
- "Assessment of Coping Strategies", CARP Feb. 2012
- "Assessment of Vulnerability and Risks of Community Livelihoods", CARP, July 2012
- "Review of the vulnerability of existing agricultural practises", CARP, July 2012
- "Analysis of Economic and Social Costs & Benefits of options for modified agricultural practises that are less vulnerable to impacts of climate variability and climate change", CARP, November 2012.
- Support to CC education, awareness-building and FWUC strengthening, CARP, December 2012.

These six documents are required reading for the managers and implementers of all CARP demonstration activities.

The draft implementation plans and draft contracts was formulated during 1-15 December 2012 and finalised in the beginning of 2013 by the project team in consultation with the mentioned implementing agencies (DAE, FiA, CARDI and CelAgrid), and based on several consultations with the involved communes and working groups.

2.Prioritiesfor demonstration activities of communes

In the period September-November 2012, CARP held community stakeholder meetings to establish demonstration action priorities for the selected communes in MondolSeima and PreyNobdistricts. These meetingsincluded discussions with the Provincial Working Groups, including the commune chiefs of the eight target communes.

Prior to the stakeholder meetings, the CARP had studied data and on the basis of needs assessment composed a list of potential demonstration activities. These potential demonstration activities for CARP build on direct consultations with concerned communities and officials as well as on the CARP draft reports on “Coping strategies” and “Vulnerability of Coastal Cultivation Systems”.Through an informal questionnaire, data was obtained via facilitated group discussions with community members, i.e. representatives of community council and community committee. Information was gathered on the following themes.

- The most serious climate impacts
- The household’s sources of income
- Recommendations for changed agricultural practices
- Recommendations for future demonstration activities

After all the data was collected and analyzed, the CARP identified twenty potential demonstration activities. The demonstration activities were:

1. Raising and extension of existing protective dyke systems as well as consideration of drainage and pumping requirements for the polder areas
2. Planting of mangrove forest and protective trees for the dyke systems
3. Development of Eco- and/or Agro-tourism.
4. Integrated Farming Training Programme for (a) agricultural /fisheries extension staff and (b) households / families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, water).
5. Digging of a fresh-water reservoir for household water supply and dry-season irrigation of 90 ha (particularly for TuolKokir Commune)
6. Development of salt-tolerant paddy varieties and possibly other crop varieties as well.
7. Occupational Change Support Programme; possibly including vocational training, when effective.
8. Development of new and/or support to existing micro-credit schemes for respective commune member's investments in *sustainable* agricultural, fisheries, livestock, processing, marketing or other enterprises.
9. Development of community-based storm/floods insurance schemes for crops, livestock and possibly others items (e.g. houses, boats), if feasible.
10. Small-scale local (possibly mobile) weather forecasting of storms and other weather events.
11. Community Forestry projects in cooperation with the Forestry Administration, where possibilities exist. May include livestock grazing rights for livestock in forest areas.
12. Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement.
13. Reinforcement of community dyke maintenance, drainage and irrigation systems management in cooperation with MoWRAM – for Prey Nob and TuolKokir.
14. Development of cooperative produce marketing, processing and / or input purchasing - or the same in cooperation with private commercial enterprises.
15. Promotion of Integrated Pest Management (IPM) – a well-established method of controlling multiple pests (in particular insect attacks) in crop production by using eco-friendly methods.
16. Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season. Such varieties will need to be tested (at no cost to farmers) in specific localities, where they are likely to be effective.
17. On-farm water conservation method and rain harvesting. This in response to underground seepage of salt water into the water table.
18. Promotion of increased livestock keeping - possibly by using a revolving scheme for improved breeds.
19. Promotion of mari-culture (e.g. crab ponds, shrimp fields, fattening cages, etc).
20. Fuel wood production of *Lucana sp*. However, these species require well-drained and non-acidic soils in order to thrive properly. This would, therefore, only be a potential where higher grounds would be available.

In September-November 2012, an overview of the options (the potential demonstration activities) was presented to community stakeholders, i.e. the Provincial Workings Groups, including the commune chiefs of the eight target communes. During these meetings, stakeholders were asked to rate and rank each of the twenty potential demonstration activities. The respective commune chiefs of the target communes based their ranking upon the priorities of their respective communes. A worksheet was provided to assist in the ranking. A ranked order was assigned from 1 to 5, where the number 5 indicates the highest priority potential demonstration activity while number 1 was the

lowest. Each of the aforementioned twenty potential demonstration activities was to be given a ranking on the basis of this scheme.

The ranking of the different communes in relation to the 20 demonstration actions is provided in table 2.1 for the two districts.

Table 2.1 Ranking of proposed demonstration actions by the communes.

Potential Actions	**Ranking: 5: very important; 1: minor effect**										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulTotEng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
Off-farm Changes											
1. Raising and extension of existing protective dyke systems as well as consideration of drainage and pumping requirements for the polder areas. A technical and financial feasibility study by MoWRAM or others may be indicated.	5	5	4	1	4	4	4	4	5.0	3.5	Included in demonstration activity 6.
2. Planting of mangrove forest and protective trees for dyke systems	3	1	1	3	1	4	1	2	2.0	2.0	Low rank
3. Development of Eco- and/or Agro-tourism.	4	4	2	3	2	2	1	3	4.0	2.2	Partly covered in activity 2
4. Integrated Farming Training Programme for (a) agricultural /fisheries extension staff and (b) households / families in multi-scale climate change adaptation strategies and integrated farming (integration of crops,	2	2	4	1	4	3	4	3	2.0	3.2	Included in activity 1

Potential Actions	Ranking: 5: very important; 1: minor effect										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulToteng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
livestock, fish, water). Preceded by Agro-Systems analysis (PRA methodology in use by MAFF), if required.											
5. Digging of a fresh-water reservoir for household water supply and dry-season irrigation of 90 ha (particular for TuolKokir Commune	5	5	4	2	4	5	5	5	5.0	4.2	Included under activity 1 and 6
6. Development of salt-tolerant paddy varieties and possibly other crop varieties as well.	1	1	5	2	5	3	3	2	1.0	3.3	Included under activity 3
7. Occupational Change Support Programme; possibly including vocational training, when effective. This "change" is not strictly a change to agricultural practises – except in the sense of scaling down to part-time farming/fishing - or NO farming /fishing at all.	1	2	4	1	4	1	2	2	1.5	2.3	Low rank
8. Development of new and/or support to existing micro-credit schemes for respective commune member's investments in	1	4	2	4	2	2	1	1	2.5	2.0	Low rank

Potential Actions	**Ranking: 5: very important; 1: minor effect**										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulToteng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
*sustainable*agricultural, fisheries, livestock, processing, marketing or other enterprises. Criteria for climate change adaptation to be developed in this context											
9. Development of community-based storm/floods insurance schemes for crops, livestock and possibly others items (e.g. houses, boats), if feasible.	1	1	1	1	1	3	1	4	1.0	1.8	Low rank
10. Small-scale local (possibly mobile) weather forecasting of storms and other weather events; e.g. based on piloting of equipment and systems under the first NAPA climate change adaptation project under GEF- UNDP-IFAD funding.	3	1	4	2	4	4	1	3	2.0	3.0	Relatively low rank
11. Community Forestry projects in cooperation with the Forestry Administration, where possibilities exist. May include livestock grazing	2	1	2	1	2	1	1	4	1.5	1.8	Low Rank

Potential Actions	Ranking: 5: very important; 1: minor effect										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulToteng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
rights for livestock in forest areas.											
12. Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement.	3 (4.2 PWG)	2	1	1	1	3	1	3	2.5	1.7	This project relates to PeamKrasoab and has been included as Activity 2
13. Reinforcement of community dyke maintenance, drainage and irrigation systems management in cooperation with MoWRAM – for Prey Nob and TuolKokir.	3	1	1	3	1	2	1	5	2.0	2.2	Low rank
14. Development of cooperative produce marketing, processing and / or input purchasing - or the same in cooperation with private commercial enterprises.This potential demonstration activity would require several years of active presence by the project. It is therefore not seen as a feasible option	3	2	2	-	2	4	-	3	2.5	2.8	Relative low rank

Potential Actions	**Ranking: 5: very important; 1: minor effect**										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulToteng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
as present.											
Potential On-Farm Changes	Please rank from 1 to 5. 5: very important 1: minor effect										
15. Promotion of Integrated Pest Management (IPM) – a well established method of controlling multiple pests (in particular insect attacks) in crop production by using eco-friendly methods. This is particularly in response to the climate change of increased temperature, which is likely to increase such pest attacks.	1	4	5	1	5	3	3	4	2.5	3.5	Included under activity 1
16. Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy possibly enabling harvest before onset of heavy flooding and sea water surges. Such varieties will	3	4	5	4	5	4	4	5	3.5	4.5	Included in activity 3

Potential Actions	Ranking: 5: very important; 1: minor effect										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulToteng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
need to be tested (at no cost to farmers) in specific localities, where they are likely be effective.											
17. On-farm water conservation method, and rain harvesting. This in response to underground seepage of salt water into the water table – thereby to some extent possibly reinforcing the fresh groundwater table.	2	-	2	5	5	2	4	2	2	3.3	Included inactivity 1
18. Promotion of increased livestock keeping - possibly by using a revolving scheme for improved breeds – tested successfully in Cambodia, Laos and elsewhere. This is in response to increased flooding problems as livestock are moveable. And although livestock also need water and fodder in the dry season the quantities of water involved are much less than for e.g. a ha of paddy; while fodder conservation	4	1	4	4	4	2	-	3	2.5	3.4	Included in activity 4

Potential Actions	**Ranking: 5: very important; 1: minor effect**										
Districts	**MondulSeima, Koh Kong**		**Prey Nob, Sihanouk**						**Average**		**Response**
Communes/	**PeamKrasoab**	**ToulKokir**	**Touk Laak**	**Samaki**	**ToekThla**	**Prey Nob**	**ToulTotEng**	**O'Okna Heng**	**Mondul Seima**	**Prey Nob**	
makes it possible to manage dry periods.											
19. Promotion of mari-culture (e.g. crab ponds, shrimp fields, fattening cages, etc). This is in response to increased salinity as these marine cultures live in or tolerate salt water.	2	2	3	2	3	4	-	1	2	2.6	Relative low rank
20. Fuel wood production of *Lucana sp*. However, these species require well-drained and non-acidic soils in order to thrive properly. This would, therefore, only be a potential where higher grounds would be available.	3	1	1	-	1	2	-	2	2	1.5	Low rank

The commune chiefs indicated the top potential demonstration activities as:

Option 1. Raising and extension of existing protective dyke systems as well as consideration of drainage and pumping requirements for the polder areas. This has partly been Included in demonstration activity 6.

Option 3. Development of Eco- and/or Agro-tourism. This was primarily a priority in MondolSeima District and is partly covered in activity 2.

Option 4. Integrated Farming Training Programme for (a) agricultural /fisheries extension staff and (b) households / families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, water). This was primarily a priority in Prey Nob District and has been included as activity 1.

Option 5. Digging of a fresh-water reservoir for household water supply and dry-season irrigation of 90 ha (particulary for TuolKokir Commune). This has been included under activity 1 and 6.

Option 6. Development of salt-tolerant paddy varieties and possibly other crop varieties as well. This was primarily a priority for Prey Nob District and has been included under activity 3.

Option 12. Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement. This project relates to PeamKrasaob only and has been included as Activity 2.

Option 15. Promotion of Integrated Pest Management (IPM) – a well-established method of controlling multiple pests (in particular insect attacks) in crop production by using eco-friendly methods. This was primarily a priority in Prey Nob and has been included in activity 1.

Option 16. Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy. Such varieties will need to be tested (at no cost to farmers) in specific localities, where they are likely to be effective. This has been included as activity 3

Option 17. On-farm water conservation methods and rain harvesting. This was primarily a priority in Prey Nob and has been included in Activity 1

Option 18. Promotion of increased livestock keeping - possibly by using a revolving scheme for improved breeds. This was primarily a priority in Prey Nob and has been included under activity 4

It has been considered to be better to address these actions in an integrated way. Moreover, if external bodies are responsible for prioritizing the issues, the priorities may not reflect community concerns and there may be a more limited sense of community ownership of a project. Thus, on the

basis of the community priorities and an in-depth analysis by CARP the following demonstration activities have been finally formulated for implementation:

1. Integrated Farming Training Programme for (a) agricultural extension staff and (b) households / families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, and water) at 8 target communes[2]. This is preceded by agro ecological analysis as an integral part and includes demonstration in on-farm water management measures. The demonstration activity is proposed implemented under contract with Department of Agricultural Extension, MAFF.

2. Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement. The relation of community fisheries to climate change adaptation is that general fishing developments and its regulatory measures are likely to be required to adjust the livelihood of fishing communities. The demonstration activity is proposed implemented under contract with the Fisheries Administration, MAFF.

3. Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy possibly enabling harvest before onset of heavy flooding and sea water surges at target communes. Such varieties will need to be tested (at no cost to farmers) in specific localities, where they are likely to be effective. The demonstration activity is proposed implemented under contract with Cambodia Agricultural Research and Development Institute, MAFF.

4. Promotion of increased livestock keeping at seven or eight communes - by using a revolving scheme for improved breeds – as tested successfully in Cambodia, Laos and elsewhere. This is in response to increased flooding problems as livestock are moveable. The demonstration activity is proposed implemented under contract with the Center for Livestock and Agriculture Development (CelAgrid) in collaboration with the Project Management Unit, Ministry of Agriculture, Forestry and Fisheries.

5. Climate change awareness raising and training on climate change resistant irrigation in the target communes. A comprehensive training and awareness activity in relation to climate change impacts will be implemented applying experience from previous work in Cambodia. The work training will be done in all 8 selected communes. The demonstration activity is proposed for implementation through cooperation with a NGO and the established provincial working groups, who will be responsible for the implementation.

[2] The communes are: TuekThla, TuekL'ak, Sameakki, Prey Nob, ToulTortoeng, O OknhaHengCommunes, Prey Nob District, Sihanoukville Province. PeamKrasaob and TuolKokir Communes, MondulSeima District Krasaob), Koh Kong Province

6. Adaptation measures integrated in Commune Development Plans in 8 communes. Concrete demonstration actions will be done in each of the target communes based on the planned activities in the 2013 commune investment plans and implementing actions that will make the communes more resilient to climate change impacts. The demonstration actions will be conducted in cooperation with the commune councils, districts and the provincial working groups.

3.TheImplementation Plans

The different Project Implementation Plans for the six demonstration activities follow in the next section. Some of them follow a critical path,thereby certain sub-activities must be implemented before others can start because of inherent dependencies between them.

This is especially the case for Demonstration Activity 1: Integrated Farming Training, which is quite intensive due to project closure already during the first quarter of 2014. It therefore follows a critical path through four steps (see section 2.1.1). The first of these steps or sub-activities are the Agro-Ecological Analysis (AEA) for each of the 8 communes. The AEA is a Participative Rural Appraisal methodology employed by the DAE by now in several hundred communes of Cambodia.

The AEA is critical not only for demo activity 1, but also the other demo activities, as the participative process focus on agro-ecological aspects is expected to initially clarify stakeholder potential and interest in these other activities.

The AEA took place in January 2013, to allow for that notably the Farmer Field Schools, and some other sub-activities, can start in time for the main crop season from 1 May 2013 – before the onset of the wet season.

3.1 Project Implementation Plan (PIP) for Demonstration Activity 1:

Climate Change Adaptation using Integrated Farming and IPM Approaches in cooperation with DAE, MAFF.

Integrated Farming Training Programme for (a) agricultural/fisheries extension staff and (b) households/families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, water) at 8 target communes. Preceded by Agro-Systems analysis (PRA methodology in use by MAFF) during January 2013.

Title	Integrated Farming Training Programme
Project Start	02-01-2013
Project Finish	28-01-2014

Project Implementation Plan: The critical path

This PIP for the integrated farming training programme is quite intensive due to project closure already during the first quarter of 2014. It thererfore follows a critical path though the following four steps:

1. Conduct of Agro-Systems Analysis in 8 communes – must be completed in January 2013
2. Adaptation of training modules and curricula to coastal conditions – must be completed by Mid-March 2013.
3. Implementation of Training of Trainers programme – must be completed by late April 2013.
4. Implementation of Farmers/Fishers training programme using the Farmer Field Schools concept - must start before the onset of the wet season – here assumed to be not latter than 1 May 2013.

The critical path is mainly conditioned by the necessesity to start the Farmer Field School (FFS) programme before the start of the main crop season at the Coast; a.i. before the onset of the wet seson. This again because the FFS concept by definition is season-long and therefore cannot miss the start of and the preparations for the main crop season. It is here assumed that for the concerned coastal communes this means that the FFS must start not later than 1st of May 2013. Planning of the FFS programme must therefore be done much earlier – during February 2013 – for it to start in time.

The above, in turn, imply that Activity 1.3 Training of Trainers (= FFS Facilitators) must be completed at least one week before 1st of May 2013 – in order to provide a little time for preparing the FFS upstart. The TOT is absolutly necessary as the success of the FFS to a high degree depends on the quality of the facilitators. It is therfore necessary to actually start the TOT by late February in order to complete it in time.

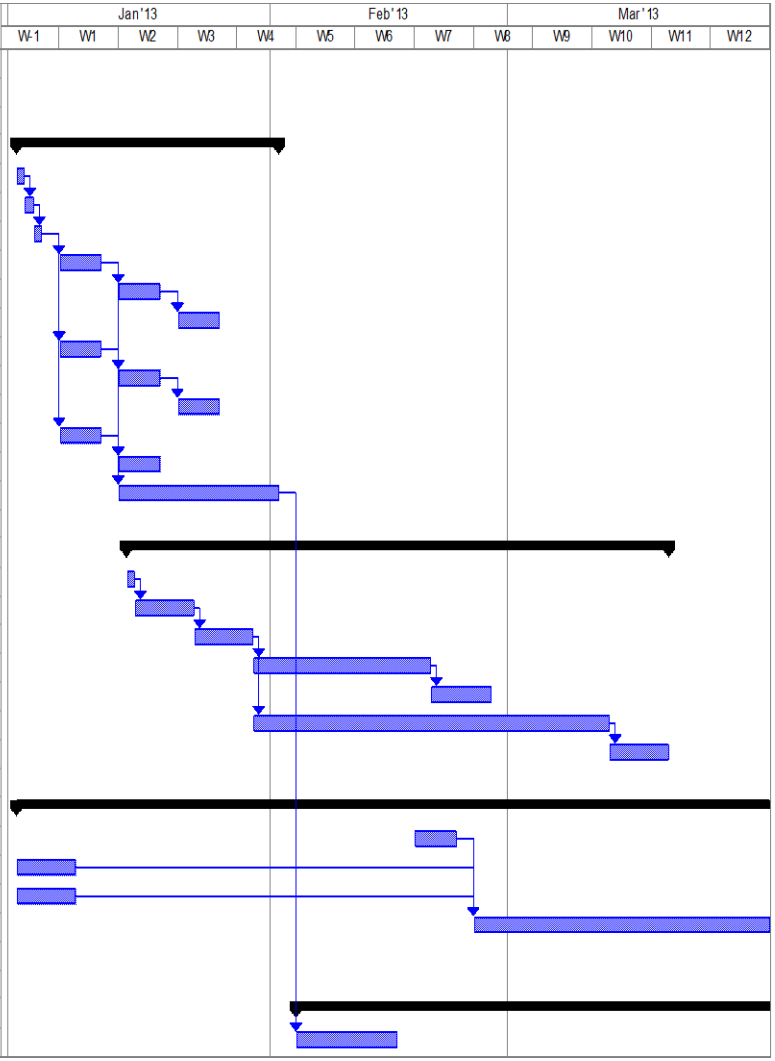
Both the FFS and the TOT, in turn, depends on the development and availability of relevant modules and curricula adapted to coastal conditions and the circumstances of the concerend communities. These developments much therfore precede the TOT and for that part be completed by late February .

Finnally Activity 1.1: the AEA analysis therefore has to be completed during January 2013, because the Adaptation of training modules and curricular will depend on the information and consultations of the AEA Analysis.

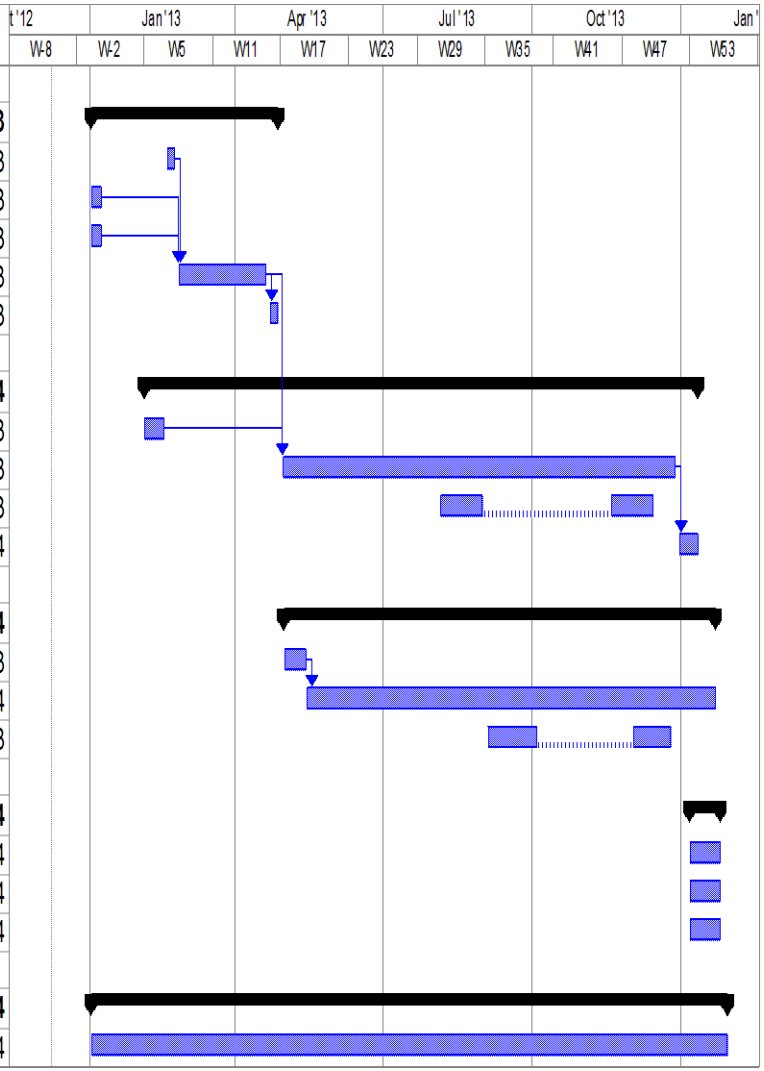
The strict adherence to the PIP timetable is, therfore, very essential for the successful outcome of the entire project.

1st Quarter:

ID	Task Name	Weeks	Start	Finish
1	**Outcome: Doubling of Household income / adaptation to climate change for 75%**	0 days	Thu 1/2/14	Thu 1/2/14
2	**Output: Climate Change Adaptation Farmer Training Programme**	0 days	Thu 1/2/14	Thu 1/2/14
3				
4	**Activity 1.1: Agro-Ecological Analysis(AEA) in 8 communes**	**23 days**	**Wed 1/2/13**	**Fri 2/1/13**
5	1.1.1: Mobilisation, Assembly and briefing of 3 multi-teams at SHV	1 day	Wed 1/2/13	Wed 1/2/13
6	1.1.2: Introduction, Orientation and Collection of commune data at SHV and KK	1 day	Thu 1/3/13	Thu 1/3/13
7	1.1.3: Preliminary analysis of respective communes	1 day	Fri 1/4/13	Fri 1/4/13
8	1.1.4: AEA Appraisal and Systems Analysis at Tuek Thla Commune, Prey Nob	1 wk	Mon 1/7/13	Fri 1/11/13
9	1.1.5: AEA Appraisal and Systems Analysis at Tuek L'ak Commune, Prey Nob	1 wk	Mon 1/14/13	Fri 1/18/13
10	1.1.6: AEA Appraisal and Systems Analysis at Sameaki Commune, Prey Nob	1 wk	Mon 1/21/13	Fri 1/25/13
11	1.1.7: AEA Appraisal and Systems Analysis at Prey Nob Commune, Prey Nob	1 wk	Mon 1/7/13	Fri 1/11/13
12	1.1.8: AEA Appraisal and Systems Analysis at Toul Toteung Commune, Prey Nob	1 wk	Mon 1/14/13	Fri 1/18/13
13	1.1.9: AEA Appraisal and Systems Analysis at Oknha Heng Commune, Prey Nob	1 wk	Mon 1/21/13	Fri 1/25/13
14	1.1.10: AEA Appraisal and Systems Analysis at Tuol Kokir Commune, Koh Kong	1 wk	Mon 1/7/13	Fri 1/11/13
15	1.1.11: AEA Appraisal and Systems Analysis at Peam Krasaob Commune, Koh Kong	1 wk	Mon 1/14/13	Fri 1/18/13
16	1.1.12: Drafting and submission of AEA Reports for each commune	3 wks	Mon 1/14/13	Fri 2/1/13
17				
18	**Activity 1.2: Adapting training modules and curricula to coastal conditions**	**46 days**	**Tue 1/15/13**	**Tue 3/19/13**
19	1.2.1: Appoint person to be in charge of the activity	1 day	Tue 1/15/13	Tue 1/15/13
20	1.2.2: Establish connection to AEA teams and their results	1 wk	Wed 1/16/13	Tue 1/22/13
21	1.2.3: Identify modules and curricular to be revised or new ly developed	1 wk	Wed 1/23/13	Tue 1/29/13
22	1.2.4: Develop and revise present modules / curricular for TOT Training	3 wks	Wed 1/30/13	Tue 2/19/13
23	1.2.5: Draft and submit TOT report and materials developed	1 wk	Wed 2/20/13	Tue 2/26/13
24	1.2.6: Develop / Revise modules / curricular for Farmer Field Schools (FFS)	6 wks	Wed 1/30/13	Tue 3/12/13
25	1.2.7: Draft and submit FFS report and materials developed	1 wk	Wed 3/13/13	Tue 3/19/13
26				
27	**Activity 1.3: Implementation of TOT Programme**	**83 days**	**Wed 1/2/13**	**Fri 4/26/13**
28	1.3.1: Ascertain and assemble master trainers, modules, curricular etc as planned	1 wk	Mon 2/18/13	Fri 2/22/13
29	1.3.2: Draft TOT program, and organise venues, master trainers and resources	1 wk	Wed 1/2/13	Tue 1/8/13
30	1.3.3.: Identify and invite TOT trainees	1 wk	Wed 1/2/13	Tue 1/8/13
31	1.3.4: Conduct TOT training programme	8 wks	Mon 2/25/13	Fri 4/19/13
32	1.4.5: Evaluation and submission of TOT programme report	1 wk	Mon 4/22/13	Fri 4/26/13
33				
34	**Activity 1.4: Implementation of Farmer Training Programme**	**245 days**	**Mon 2/4/13**	**Fri 1/10/14**
35	1.4.1: Planning and all arrangements for the Farmer Field School Programme	2 wks	Mon 2/4/13	Fri 2/15/13

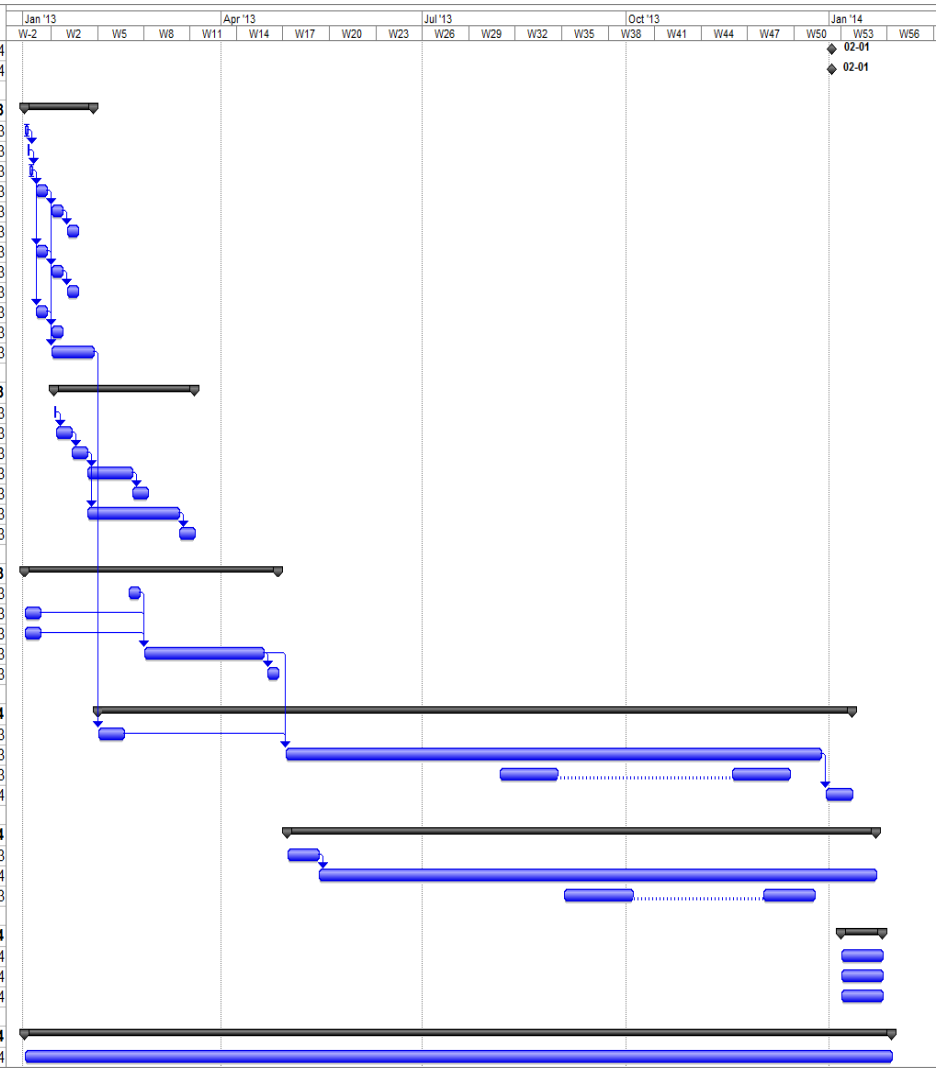


ID	Task Name	Weeks	Start	Finish
26				
27	**Activity 1.3: Implementation of TOT Programme**	**83 days**	**Wed 1/2/13**	**Fri 4/26/13**
28	1.3.1: Ascertain and assemble master trainers, modules, curricular etc as planned	1 wk	Mon 2/18/13	Fri 2/22/13
29	1.3.2: Draft TOT program, and organise venues, master trainers and resources	1 wk	Wed 1/2/13	Tue 1/8/13
30	1.3.3.: Identify and invite TOT trainees	1 wk	Wed 1/2/13	Tue 1/8/13
31	1.3.4: Conduct TOT training programme	8 wks	Mon 2/25/13	Fri 4/19/13
32	1.4.5: Evaluation and submission of TOT programme report	1 wk	Mon 4/22/13	Fri 4/26/13
33				
34	**Activity 1.4: Implementation of Farmer Training Programme**	**245 days**	**Mon 2/4/13**	**Fri 1/10/14**
35	1.4.1: Planning and all arrangements for the Farmer Field School Programme	2 wks	Mon 2/4/13	Fri 2/15/13
36	1.4.2 Conduct Farmer Field School Programme simultaneously at 8 communes	34.8 wks	Tue 4/30/13	Fri 12/27/13
37	1.4.3: Conduct Farmer Field Days	8 wks	Mon 8/5/13	Fri 12/13/13
38	1.4.3 Evaluation of Farmer Farmer Field School Programme	2 wks	Mon 12/30/13	Fri 1/10/14
39				
40	**Activity 1.5: On-farm demo activities in water conservation, rain harvesting and a**	**190 days**	**Wed 5/1/13**	**Tue 1/21/14**
41	1.5.1: Establishment of the demonstration activities	2 wks	Wed 5/1/13	Tue 5/14/13
42	1.5.2: Management and operation of the demonstration activites	36 wks	Wed 5/15/13	Tue 1/21/14
43	1.5.3: Conduct Farmer Field Days for this particular activity 1 FFD per commune	8 wks	Tue 9/3/13	Tue 12/24/13
44				
45	**Activity 1.6: Establishment of a sustainable continuation basis for re-fresher tra**	**15 days**	**Mon 1/6/14**	**Fri 1/24/14**
46	1.5.1: Establishment of re-fresher training of extension staff	3 wks	Mon 1/6/14	Fri 1/24/14
47	1.5.2: Establishment of re-fresher training of Farmers	3 wks	Mon 1/6/14	Fri 1/24/14
48	1.5.3: Other types of extension support	3 wks	Mon 1/6/14	Fri 1/24/14
49				
50	**Activity 1.7: Monitoring**	**280 days**	**Wed 1/2/13**	**Tue 1/28/14**
51	1.6.1: Monitoring and documentation of impact and experiences	56 wks	Wed 1/2/13	Tue 1/28/14



PIP for all activities and the full project period:

ID	Task Name	Weeks	Start	Finish
1	**Outcome: Doubling of Household income / adaptation to climate change for 75% of**	0 days	Thu 02-01-14	Thu 02-01-14
2	**Output: Climate Change Adaptation Farmer Training Programme**	0 days	Thu 02-01-14	Thu 02-01-14
3				
4	**Activity 1.1: Agro-Ecological Analysis(AEA) in 8 communes**	**23 days**	**Wed 02-01-13**	**Fri 01-02-13**
5	1.1.1: Mobilisation, Assembly and briefing of 3 multi-teams at SHV	1 day	Wed 02-01-13	Wed 02-01-13
6	1.1.2: Introduction, Orientation and Collection of commune data at SHV and KK	1 day	Thu 03-01-13	Thu 03-01-13
7	1.1.3: Preliminary analysis of respective communes	1 day	Fri 04-01-13	Fri 04-01-13
8	1.1.4: AEA Appraisal and Systems Analysis at Tuek Thla Commune, Prey Nob	1 wk	Mon 07-01-13	Fri 11-01-13
9	1.1.5: AEA Appraisal and Systems Analysis at Tuek L'ak Commune, Prey Nob	1 wk	Mon 14-01-13	Fri 18-01-13
10	1.1.6: AEA Appraisal and Systems Analysis at Sameaki Commune, Prey Nob	1 wk	Mon 21-01-13	Fri 25-01-13
11	1.1.7: AEA Appraisal and Systems Analysis at Prey Nob Commune, Prey Nob	1 wk	Mon 07-01-13	Fri 11-01-13
12	1.1.8: AEA Appraisal and Systems Analysis at Toul Toteung Commune, Prey Nob	1 wk	Mon 14-01-13	Fri 18-01-13
13	1.1.9: AEA Appraisal and Systems Analysis at Oknha Heng Commune, Prey Nob	1 wk	Mon 21-01-13	Fri 25-01-13
14	1.1.10: AEA Appraisal and Systems Analysis at Tuol Kokir Commune, Koh Kong	1 wk	Mon 07-01-13	Fri 11-01-13
15	1.1.11: AEA Appraisal and Systems Analysis at Peam Krasaob Commune, Koh Kong	1 wk	Mon 14-01-13	Fri 18-01-13
16	1.1.12: Drafting and submission of AEA Reports for each commune	3 wks	Mon 14-01-13	Fri 01-02-13
17				
18	**Activity 1.2: Adapting training modules and curricula to coastal conditions**	**46 days**	**Tue 15-01-13**	**Tue 19-03-13**
19	1.2.1: Appoint person to be in charge of the activity	1 day	Tue 15-01-13	Tue 15-01-13
20	1.2.2: Establish connection to AEA teams and their results	1 wk	Wed 16-01-13	Tue 22-01-13
21	1.2.3: Identify modules and curricular to be revised or newly developed	1 wk	Wed 23-01-13	Tue 29-01-13
22	1.2.4: Develop and revise present modules / curricular for TOT Training	3 wks	Wed 30-01-13	Tue 19-02-13
23	1.2.5: Draft and submit TOT report and materials developed	1 wk	Wed 20-02-13	Tue 26-02-13
24	1.2.6: Develop / Revise modules / curricular for Farmer Field Schools (FFS)	6 wks	Wed 30-01-13	Tue 12-03-13
25	1.2.7: Draft and submit FFS report and materials developed	1 wk	Wed 13-03-13	Tue 19-03-13
26				
27	**Activity 1.3: Implementation of TOT Programme**	**83 days**	**Wed 02-01-13**	**Fri 26-04-13**
28	1.3.1: Ascertain and assemble master trainers, modules, curricular etc as planned	1 wk	Mon 18-02-13	Fri 22-02-13
29	1.3.2: Draft TOT program, and organise venues, master trainers and resources	1 wk	Wed 02-01-13	Tue 08-01-13
30	1.3.3.: Identify and invite TOT trainees	1 wk	Wed 02-01-13	Tue 08-01-13
31	1.3.4: Conduct TOT training programme	8 wks	Mon 25-02-13	Fri 19-04-13
32	1.4.5: Evaluation and submission of TOT programme report	1 wk	Mon 22-04-13	Fri 26-04-13
33				
34	**Activity 1.4: Implementation of Farmer Training Programme**	**245 days**	**Mon 04-02-13**	**Fri 10-01-14**
35	1.4.1: Planning and all arrangements for the Farmer Field School Programme	2 wks	Mon 04-02-13	Fri 15-02-13
36	1.4.2 Conduct Farmer Field School Programme simultaneously at 8 communes	34,8 wks	Tue 30-04-13	Fri 27-12-13
37	1.4.3: Conduct Farmer Field Days	8 wks	Mon 05-08-13	Fri 13-12-13
38	1.4.3 Evaluation of Farmer Farmer Field School Programme	2 wks	Mon 30-12-13	Fri 10-01-14
39				
40	**Activity 1.5: On-farm demo activities in water conservation, rain harvesting and app**	**190 days**	**Wed 01-05-13**	**Tue 21-01-14**
41	1.5.1: Establishment of the demonstration activities	2 wks	Wed 01-05-13	Tue 14-05-13
42	1.5.2: Management and operation of the demonstration activites	36 wks	Wed 15-05-13	Tue 21-01-14
43	1.5.3: Conduct Farmer Field Days for this particular activity 1 FFD per commune	8 wks	Tue 03-09-13	Tue 24-12-13
44				
45	**Activity 1.6: Establishment of a sustainable continuation basis for re-fresher trainin**	**15 days**	**Mon 06-01-14**	**Fri 24-01-14**
46	1.5.1: Establishment of re-fresher training of extension staff	3 wks	Mon 06-01-14	Fri 24-01-14
47	1.5.2: Establishment of re-fresher training of Farmers	3 wks	Mon 06-01-14	Fri 24-01-14
48	1.5.3: Other types of extension support	3 wks	Mon 06-01-14	Fri 24-01-14
49				
50	**Activity 1.7: Monitoring**	**280 days**	**Wed 02-01-13**	**Tue 28-01-14**
51	1.6.1: Monitoring and documentation of impact and experiences	56 wks	Wed 02-01-13	Tue 28-01-14



Project Implementation Plan Notes

On Activity 1.1: Agro-Ecological Analysis (AEA) in 8 communes

Re. sub-activity 1.1.1: Mobilisation, Assembly and briefing of 3 multi-teams at Sihanoukville Province

- Mobilisation of 3 multi-teams: One for Prey Nob East, One for Prey Nob West, and One for Koh Kong.
- The 3 Teams being led by the Deputy Director, Farming Systems, DAE, who will be full-time, engaged on this during January 2013.
- Each Team otherwise consisting of competent specialists on: 1 agronomist / crop husbandry, 1 livestock, 1 water & irrigation, 1 environment / climate change, 1 fisheries, with 1 farming system / extensions specialist as team leader. Possibly also a forestry officer, where relevant. All should and the 3 team leaders must have previous experience in conducting AEA.
- Possibly about 4-5 resource persons from DAE, Phnom Penh; 3 from PDA, SHV; 2 from PDA, KK; 3-4 from DAO, Prey Nob; 2 from DAO, KK; + 3 fisheries cantonment officers and 3 PDWRAM officers, 1-2 forestry officers, 3 MoE officers. 22-26 staff in all.
- In addition, 2 commune councillors and 5 local villages will participate full time for each commune during the week of AEA in their respective communes.

Re. sub-activity 1.1.2: Introduction, Orientation and Collection of commune data at SHV and KK

- The AEA for each commune must include assessment of farming techniques, soil and water quality, and farm production potential in particular in view of fresh water availability.

On Activity 1.2: Adapting training modules and curricula to coastal conditions

Re. sub-activity 1.2.1: Appoint person to be in charge of activity 1.2

- The person in charge is a deputy director of DAE.

Re. sub-activity 1.2.2: Establish connection to AEA teams and their results

- This implies a tour of the 'training materials team' to the 8 coastal communes during the AEA activity during January 2013.

Re. Sub-activity 1.2.4: Develop and revise present modules / curricular for TOT Training

- It is assumed that the already developed training modules for extension staff on climate change adaptation will be used as basis, but adapted to coastal conditions. It presently consists of 6 training modules each of 8-17 hours duration - equivalent to about 10 8-hour sessions.
- It is already identified that 2 additional modules may need to be developed: 1 on fisheries and 1 on livestock - but both emphasising their roles in integrated farming.
- In addition, 1 module on conduct of Farmer Field Schools and 1 module on Integrated Pest Management (if not already available).

- In addition, a module on dyke maintenance, polder management measures, and on-farm water management measures and rain harvesting methods may need to be developed.
- The number of modules required may be determined during the AEA.

Re. sub-activity 1.2.6: Develop / revise modules / curricular for Farmer Field Schools (FFS)

- The budget estimate is for 48 season-long Farmer Field Schools (FFS) with 1200 participants (25 each) on climate change adaptation and integrated farming in 8 communes. The exact number to be implemented will, however, be determined in the field in consultation with the concerned communities.
- The 48 FFS may be of two types: (i) Integrated farming FFS - in principle 1 per village (or part of a village for larger villages); and (ii) specialised FFS on paddy, vegetable or other productions. Both types of FFS may be used in the 8 target communes. The AEA and other community visits should determine the interest of farmers for these different types of FFS.

- Sessions are to be planned in cooperation with concerned villages and communes - expected 1 half-day session per FFS every second week, but this is flexible and must fit into the respective production cycles at each locality. Average maybe 4 FFS pr commune - but this may vary and can best be finally determined during the AEA.
- 48 Farmer Field Days (FFD) with neighbours participating (6000 participants expected) towards the end of each FFS.
- A model farm to be established as part of each FFS.
- In addition, study tours for selected FFS participants to other relevant areas of Cambodia.
- At least 2-3 external facilitators are required per individual FFS. Each facilitator can cover several FFS (about 4) - a plan for this needs to be developed.

<u>On Activity 1.3: Implementation of TOT Programme</u>

Re. sub-activity 1.3.3.: Identify and invite TOT trainees

- TOT training of at least 28 extension agents from SHV and KK provinces are expected. This will include all trainers and facilitators expected to be engaged in activity 1.4: the Farmer Field School (FFS) programme.
- The thus trained FFS facilitators are expected to start up the FFS programme immediately upon closure of the TOT training.

Re. sub-activity 1.3.4: Conduct TOT training programme

- Assumed to consist of about 10 + 5 = 15 formal sessions (max 2 per week) + practical field work (about 1- 2 days per week) related to the mentioned sessions.
- Initial FFS planning and introductory visits to respective communes are expected during the mentioned 'practical field work'.

On Activity 1.4: Implementation of Farmer Training Programme

Re. sub-activity 1.4.1: Planning and all arrangements for the Farmer Field School Programme

- The plan is for 48 season-long Farmer Field Schools (FFS) with 1200 participants (25 each) on climate change adaptation and integrated farming in 8 communes. In principle one FFS per village, but a very large village (like Prey Nob) could have more. However, the number of FFS required for each commune will be determined by the respective AEA in consultation with the concerned communities and could be less than 48.
- The 48 FFS may be of two types: (i) Integrated farming FFS - in principle 1 per village or part of a village for larger villages; and (ii) specialised FFS on paddy, vegetable or other productions. Both types of FFS may be used in the 8 target communes. The AEA and other community visits should determine the interest of farmers for these different types of FFS.

- FFS sessions is to be planned in cooperation with concerned villages and communes - expected 1 half-day session per FFS every second week, but this is flexible and must fit into the respective production cycles at each locality. Average 4 FFS per commune - but this may vary and can best be finally determined during the AEA.
- 48 Farmer Field Days (FFD) with neighbours participating (6000 participants expected) towards the end of each FFS.
- A model farm is to be established as part of each FFS.
- In addition, study tours for selected FFS participants to other relevant areas of Cambodia.
- At least 2-3 external facilitators are required per individual FFS. Each facilitator can cover several FFS (about 4) - a plan for this needs to be developed.
- In addition, local farmer facilitators can be used for particular local FFS or for a commune.

Re. sub-activity 1.4.2 Conduct Farmer Field School Programme simultaneously at 8 communes

- Each FFS must include training sessions on water conservation, rainwater harvesting techniques, and appropriate irrigation.
- Each FFS must also include application of Integrated Pest Management techniques and measures.
- Expected 16-20 sessions per Farmer Field School (FFS) distributed over the period May-December 2013. The number of sessions and their timing will be determined in consultation with each group of FFS participants, and may thus vary among them.

Management

The Director, Department of Agricultural Extension (DAE), MAFF, Phnom Penh, will be overall in charge of the demonstration activity, and as such refer to the CARP Management in all matters related to the demonstration activity. The CARP Provincial Working Groups for Sihanoukville and Koh Kong respectively will in this context be monitoring the demonstration activity.

Under the overall direction of the Director, DAE, the following senior officers is in day-to-day charge of the separate activities as follows:

1. The Deputy Director, in charge of Farming Systems Analysis, DAE, will be responsible for the day-to-day implementation of Activity 1.1 (Agro-Ecological Analysis); refer to PIP in Appendix

3. And will in this context be engaged on activity 1.1 on a full-time basis during January 2013.

2. The Deputy Director, in charge of media and extension materials, DAE, will be responsible for the day-to-day implementation of Activity 1.2 (Adapting training modules and curricula to coastal conditions); refer to PIP in Appendix 2. And will in this context be engaged Activity 1.2 for about 6 weeks during mid-January – end of February 2013.
3. The Deputy Director, in charge Training and Extension, DAE, in cooperation with the Directors, Provincial Directorates of Agriculture, Sihanoukville and Koh Kong, will be responsible for the day-to-day implementation of Activity 1.3 (implementation of the TOT programme for extension staff); refer to PIP in Appendix 2. And will in this context be engaged on activity 1.3 for 4 months during January – April 2013.
4. The Directors, Provincial Directorates of Agriculture, Sihanoukville and Koh Kong, respectively, will be responsible for the day-to-day implementation of Activity 1.4 – 1.7 (implementation of the Farmer Field School programme as well as on-farm demonstration activities, follow- up and monitoring); refer to PIP in Appendix 2. And will in this context be engaged during all of 2013.

   The two Directors will in this context cooperate directly with the respective Directors, Provincial Departments of Environment and with the CARP Provincial Working Groups, in all matters related to the implementation of the demonstration activity.

Reporting

The formal reporting requirements are as follows:

i. Quarterly Progress Reports giving overview of both progress to date and plans for the next quarter. The report must highlight any impediments or constraints for implementation. The first report is due on 31 March 2013.

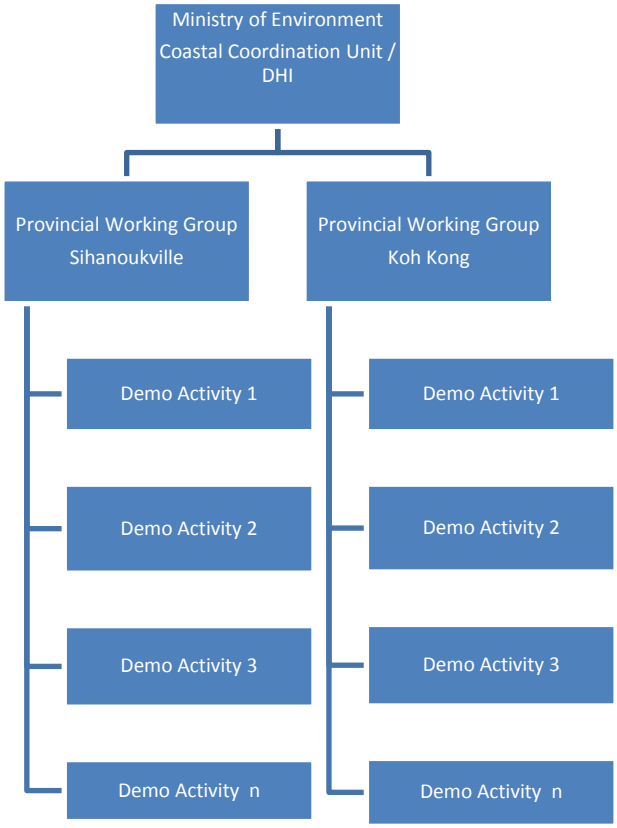
ii. Quarterly Financial Reports giving details of amount spend to date and budget plan for next quarter. The first report is due on 31 March 2013.

iii. Final Reports, including final financial report and accounts, giving overview of progress and objectives achieved, and recommendations for follow-up activities.

These reports will be submitted directly to the Coastal Coordination Unit, Ministry of Environment, Phnom Penh, with copy to the Provincial Working Groups for Sihanoukville and Koh Kong and with copies to the concerned Commune Chiefs.

Participation in regular meeting with the provincial working groups and monitoring activities is part of the activities.

An overview of the CARP reporting structure is illustrated in the following diagram; while the composition of the provincial working groups is attached in Appendix a:


Ministry of Environment
Coastal Coordination Unit / DHI
Provincial Working Group Sihanoukville
Provincial Working Group Koh Kong
Demo Activity 1
Demo Activity 2
Demo Activity 3
Demo Activity n
Demo Activity 1
Demo Activity 2
Demo Activity 3
Demo Activity n

Appendix a: Composition of the Provincial Technical Working Groups

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Preah Sihanouk	***PhayPhan***	Provincial Hall	Provincial Deputy Governor	Chief
	Hem SaRoeun	DoE	Director	Vice Chief
	TithVuthy	Prey Nub District	District Governor	Vice Chief
	ChimKalyany	DoE	Deputy Director	Secretary
	Duong SamAth	Fishery Contonment	Director	Member
	Kev Pha	DAFF	Director	Member
	Sou Sok	DLMUC	Director	Member
	AngChanDara	DWRAM	Director	Member
	EmPheap	Provincial Development Unit	Director	Member
	PrakVisal	Provincial Admin Unit	Deputy Director	Member
	Pen SamBou	Prey Nub Commune	Chief	Member
	PrakSaRoem	Sammaky Commune	Chief	Member
	Hak San	ToeLaork Commune	Chief	Member
	Phoeun Nam	ToekThla Commune	Chief	Member
	Kea Vou	O OuknhaHeng commune	Chief	Member
	SoengSaReth	TuolTorToeng Commune	Chief	Member

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Koh Kong				
	Say SuCheat	Provincial Hall	Provincial Deputy Governor	Chief
	Mon Phalla	DoE	Acting Director	Permanent vice chief
	Sao SinThuon	Provincial Adminstration Unit	Deputy Director	Vice Chief
	Chuon BunTHoeut	DAFF	Agronomy vice chief office	Member
	Lung KoemTha	DLMUC	Vice Chief office of LMUC	Member
	Irv Vannara	DWRAM	Deputy Director	Member
	Pen Vanna	MondulSeyma District	Deputy District Governor	Member
	Yem Yan	PeamKrasaop commune	Chief	Member
	KhoemSaNeth	TuolKorki commune	Chief	Member
	Hun Marady	DoE	Deputy director and CRC coordinator	Secretary
	Ul Ran	PeamKrasaop wildlife Sanctuary	Director	Member
	NeiBroHorsSaRith	DoE	vice Chief office of conservation	Member
	NouNguy	Fishery Division PeamKrasoap	vice Chief	Member

Appendix b: Budget and Schedule of Payments

Steps	Budget Estimate	Amounts ($)	Payment schedule
Activity 1.1	Agro-Ecological Analysis(AEA) in 8 communes: $ 2500 per Commune x 8 communes:	20,000	Upon contract signature
Activity 1.2	Adapting training modules and curricula to coastal conditions: Development Workshop : 4,000 logistics and materials = 4,000 Contingencies: = 2,000	10,000	Upon contract signature
Activity 1.3	Implementation of TOT programme for agricultural extension staff of Sihanoukville and Koh Kong provinces: 28 participants x 30 days x$25= $21,000 4 Permanent Trainers xx30 days x $ 30=3,600 16 Subject matter specialists x $100 = $1,600 Logistics: 4,800 Contingencies: 3,000	34,000	Upon contract signature
Activity 1.4	Implementation of Farmer Field School (FFS)Training Programme: 48 FFS x $1000 = $ 48,000 48 FFD x$ 250 $ 12,000 Study Tours and demo farm: 10,000 Contingencies: 5,000	75,000	By 1 March 2013 depending on progress of activities.
Activity 1.5	On-farm demo activities in water conservation, rain harvesting and appropriate irrigation: 20 demonstrations @ $ 2000 = 40,000 8 Farmer Field Days 3,500 Contingencies: 1,500	45,000	By 1 April 2013 depending on approval of a detailed plan &budget for activity 1.5
Activity 1.6	Not included in this budget	0	
Activity 1.7	Provision USD 2,000 for a closure workshop DAE project management: reporting,, technical backstopping and follow up to project sites during project implementation:	2,000 12,000	Payment by 1 March 2013
Total:		**198,000**	

Note 1: The budget estimate and payment for activity 1.4 may be adjusted to the actual number of Farmer Field Schools to be implemented, when that is clarified.

Note 2: The budget estimate and payment for activity 1.5 may be adjusted to approved detailed plan and budget for activity 1.5.

Appendix c: Demonstration Activity 1 Description

Integrated Farming Training Programme for (a) agricultural/fisheries extension staff and (b) households/families in multi-scale climate change adaptation strategies and integrated farming (integration of crops, livestock, fish, water) at 8 target communes. Preceded by Agro Ecological Analysis (PRA methodology in use by MAFF).

A concept along these lines is currently practised under the first Cambodia NAPA implementation project funded by GEF, UNDP and IFAD. It has now run since 2009 and reached about 6000 farmers in Preah Vihear and Kratie provinces. Adaptation of this concept is also well in line with the CARP component document, which emphasises that links between the mentioned project and CARP will be established, in part, to exchange technology and knowledge on climate change adaptation (impact documentation from Cambodia in Annex 2).

The farmer field school concept has, furthermore, been practised in Cambodia and elsewhere (particularly in Vietnam and Bangladesh) with high degrees of successful impact on increasing rural incomes as well as on diminishing unwanted environmental and human health impact through the often associated propagation of Integrated Pest Management (IPM) technologies.[3]

The concept finally offers the possibility of developing tailor-made solutions to suit individual households as well as individual communities and communes – because the farmer field schools concept is integrated with a preceding agro-ecological systems analysis for each commune. A working model for agro-ecological systems analysis is currently used by the Department of Agricultural Extension. The model integrates crop, plantation, livestock and fisheries, water and other livelihood sources into the integrated agricultural (or livelihoods) concept, and allows individual households as well as their larger communities to develop comprehensive solutions that are tailor-made to their specific needs, preferences and opportunities[4].

By providing the space for comprehensive solutions; all concerns of particular households (e.g. not only related to climate change) can be accommodated; while likely unsuccessful sub-optimisation through peace-meal solutions to particular constraints are avoided.

<u>Proposal for Economic Assessment:</u> Establishment of farmer training programme in integrated farming/livelihoods in eight[5] target communes by following the above described concept. Implementation in the following steps:

i. *Conduct of Agro Ecological Analysis in 8 communes (2 months)*
ii. *Adaptation of model and curricular to coastal conditions (1 month)*
iii. *Implementation of Training of Trainers programme - of presently concerned extension agents both in government, NGO and private sector, as relevant. (3 months). This is capacity development, which can find more widespread use also outside the present CARP target communes.*

[3]Documentations include: (a) ASSP Impact Assessment, Danida, Dhaka, 2003, and (b) Mid-term Review of IPM Programme, Danida, Hanoi, 2003.

[4] For example, different age-groups would have different preferences and opportunities.

[5] Peam Krasaob may be sufficiently covered by the proposed activities under the Fisheries Community, but a couple of specilised Farmer Field Schools could also implemented.

iv. Implementation of Farmers/Fishers training programme using the Farmer Field Schools concept – at least for the rest of the year, longer if possible. This could include visits to areas with similar problems in Cambodia .

v. Establishment of a sustainable continuation basis for re-fresher training and possibly other types of extension support along above lines (but less intensive) – to continue after project closure.

vi. Monitoring and documentation of the impact and experiences through steps i-v.

Steps (v-vi) may be contracted before activity closure and not part of a first activity implementation contract. Impact expectation, logical framework and cost estimates for the proposed demonstration activity 1 follows below:

DESCRIPTION	INDICATORS	SOURCE OF VERIFICATION	ASSUMPTIONS
Outcome : **Doubling of household income and adaptation to climate change for 75% of FFS participants**[6]	• Increase of average net household income by $200 per ha and equivalent in livestock or fisheries • Increased capacity of extension agents to advise on climate change and integrated farming	• Activity reports, reviews and evaluations	
Output 1: Multi-scale climate change adaptation in Integrated Farming and IPM Training Programme	• Implementation of extension activities directly reaching 1200 farming households via 48 season long Farmer Field Schools (FFS) and indirectly reaching about 6000 farming households in 8 communes by 2014.	• Activity monitoring, reviews and evaluations	• The activities supported will add sufficient confidence for farming household to take up the recommendations and gain income impact. • DAE, Phnom Penh, will lead the production of the overall output.

[6] Documentation for achievements of the FFS approach in Cambodia is in Annex 2. FFS impact is usually immediate, but some follow-up period for consolidation is desireable (ref. Output 1.5). However, economic calculations show a large degree of robustness and telerance for lower impact without losing profitability of the investment (ref. section Chapter 5).

Activity 1.1: Conduct of Agro Ecological Analysis in 8 communes. Duration: 2 months.	• Participative Agro Ecological Analysis conducted in four communes lead by multi-teams from MAFF, MoWRAM and MoE; including climate change adaptations. This would form basis for community considerations during FFS season	• Eight Agro Ecological reports	• Mentioned officials are available to lead the analysis: Assumed 4-5 resource persons from DAE, Phnom Penh; 3 from PDA, SHV; 2 from PDA, KK; 3 from DAO, Prey Nup; 2 from DAO, KK; + 2 fisheries cantonment officers and 2 PDWRAM officers, 1-2 forestry officers, 2 MoE officers. 22-23 staff in all. • In addition, 2 commune councillors and 5 local villages will participate for each commune.
Activity 1.2: Adapting training modules and curricular to coastal conditions. Duration: 1 month	• Curricular with more fishing and livestock husbandry • Moduls to specifically consider salinity and storm threats for the Coast • Include on-farm water conservation measures, dyke maintenance and polder management measures	• DAE report containing these adaptation • Teaching material produced ready for direct FFS application	• DAE staff with sufficient expertise are available

Activity 1.3: Implementation of Training of Trainers programme (of most presently concerned extension agents both in government, NGO and private sector, if relevant). Duration: 2 months.	• TOT training of 28 extension agents from SHV and KK in about 30 days	• Training Reports	• DAE, CARDI, MoWRAM & MoE trainers is available in time. Assumed need for 8-10 master trainers from DAE .
Activity 1.4: Implementation of farmers training programme using the Farmer Field School concept – <u>at least for the rest of the year</u>, longer if possible. This could include visits to areas with similar problems, if affordable. Duration : 9 months	• 48 season long Farmer Field Schools (FFS) with 1200 participants in climate change adaptation and integrated farming in eight communes during 2013. • 48 Farmer field days (FFD)for neighbours (6000 participants) • Study tours	• Project monitoring of activities and results • Ex-post impact assessment • FFS and FFD reports • Study Tour Reports	• Farmers are interested in participating

Activity 1.5 (see separate description) Implementation of on-farm demonstration activities in water conservation, rain harvesting and appropriate irrigation. Example drip irrigation for supplementary crops (i.e. vegetables) in dry season.	• Demonstrations conducted and documented on 20 sites in 8 communes during 2013	• Supervision and monitoring by CARP • Site reports	• PDA and others have sufficient capacity to conduct demonstrations
Activity 1.6 Establishment of a sustainable continuation basis for re-fresher training and possibly other types of extension support along above lines (but less intensive) – to continue after project closure. (1 month)	• Contractual arrangements with PDA, District and Commune Councils • Possibly involving fund for each commune to be replenished by local and national contributions	• Contracts and monitoring arrangement	• Authorities are interested in such arrangements
Activity 1.7: Monitoring and documentation of the impact and experiences through steps i-v. (continuous)	• Monitoring by project staff and by external reviewers	Monitoring and Review reports	Project monitoring part of normal management duties at no extra cost

Re. Activity 1.5.On-farm water conservation and rain harvesting methods. This is in response to underground seepage of salt water into the water table. Thereby to some extent possibly reinforce the fresh groundwater table.

Future pressures from climate change may intensify water shortages, such as those already experienced by the target communities, i.e. fresh water scarcity. Rainwater harvesting can improve water supplies (e.g., in terms of own consumption) or increased crop production.

Rainwater harvesting locally collects and stores rainfall through various technologies. In the format envisaged, in situ rainwater harvesting system, rainwater harvesting technologies include soil and water management strategies that improve rainfall infiltration in the soil and decrease surface runoff. Thus, rainwater is efficiently put to use and soil erosion is countered. Examples of such systems are terracing, pitting and conservation tillage practices. Due to rainwater harvesting soil water is recharged to primarily better crop growth and increase farm productivity. Yet, the water can also be used for other purposes.

This activity could also include promotion of improved and more efficient on-farm irrigation practices, for example, drip irrigation in vegetable and fruit production.
Further information from the first NAPA follow-up project includes the following:

Annual Water Use for Family			
Use	Size	Water Need	Total Use
Rice field	1 ha	1 crop = 12,000 m3	12,000
Vegetables	0.2 ha, 6 mths/yr	5mm per day	1,500
Domestic	20 l / pers / day	5 pers x 365 days	36.5
Cows	40 l / cow / day	2 cows x 365 days	29.2
Pigs	10 l / pig / day	3 pigs x 365 days	10.95
Chickens	0.5 l / chicken / day	10 chickens x 365 days	1.825
TOTAL ANNUAL WATER USE			13,578

The total amount of water the family uses is only about 75% of the water falling as rain onto their land. If they need more water, they can take it out of rivers or pump it from wells. Note that water used for rice growing is about 90% of the total in this calculation. In most families it would be more than 90%, because 0.2ha is a very large vegetable plot.

Cost of water: we pay directly for water for many kinds of use. Some examples:

- The cost of "ordinary" drinking water in a shop is usually about $US 0.05 for ½ litre. $US 20 / m3.
- In rural districts with no wells, water sellers often charge 2000 riel ($US 0.50) for a 200 litre drum of water. $US 2.50 / m3.

For description of possible activities see the logical framework format below.
This activity is included under demonstration activity 1.

DESCRIPTION	INDICATORS	SOURCE OF VERIFICATION	ASSUMPTIONS
Outcome: ***More water (of good quality) for household consumption and increased crop (vegetable) production. Reduced impact of moisture stress on yields – increased opportunity for supplementary crops in the dry season.***	• Increase of average net household income by $200 per hectare. • Increased vegetable productionby 0.1 ha per houshehold in dry season.	• Activity reports, reviews and evaluations	
Activity 1.5.1: In-field water conservation method and on-farm rain harvesting and small-scale irrigation methods	• Implementation of these as demonstration and training activites	• Activity monitoring, reviews and evaluations	• The demonstrations and training activities will add sufficient confidence for farming household to take up the recommendations and gain income impact.

Sub-Activity 1: Assessment of farming techniques, soil/water quality, crop production potential in this context via the Agro-Ecological systems Analysis (AEA) already part of demonstration activity 1 – at no extra cost	• Appropriate water harvesting techniques, water conservation and small-scale irrigation activities as identifed by AEA at 8 communes	• AEA Reports	• Mentioned officials are available to lead the AEA analysis • No extra cost assumed
Sub-Activity .2: Implementation of on-farm demonstration activities in water conservation, rain harvesting and appropriate irrigation. Example drip irrigation for supplementary crops (i.e. vegetables) in dry season.	• Demonstrations conducted and documented on 20 sites in 8 communes during 2013	• Supervision and monitoring by CARP • Site reports	• PDA and others have sufficient capacity to conduct demonstrations
Sub-Activity .3 Conduct Farmer Field Days (FFD) in connection with each demonstration sites – one FFD per commune	• Seven Farmer Field Days held	• FFD Reports	• Farmers interested in participating

Sub-Activity 4: Training Training of farmers/households on in-situ rainwater harvesting techniques – possibly in connection with demonstration activity 4. May include visits to other places in Cambodia	• 200 farmer households enrolled and trained in 32 sessions	• Project reports	• Farmers are interested in participating
Sub-**Activity 5:** Monitoring and documentation of the impact and experiences through steps i-iv. (continuous)	• Monitoring by project staff and by external reviewers	Monitoring and Review reports	Cost: Project monitoring part of normal management duties at no extra cost

3.2 Project Implementation Plan (PIP) for Demonstration Activity 2:

Community Fisheries Project in PeamKrasaob in cooperation with FiA, MAFF.

Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement. The relation of community fisheries to climate change adaptation is that general fishing developments and its regulatory measures are likely to be required to adjust the livelihood of fishing communities.

Title	Community Fisheries Project in PeamKrasaob
Project Start	01-04-2013
Project Finish	31-03-2014

PIP Introduction

In regards to the Community Fisheries Project in Peam Krasaob it is worth noting that project closure is already during the first quarter of 2014. It thererfore follows a path through the following five steps:

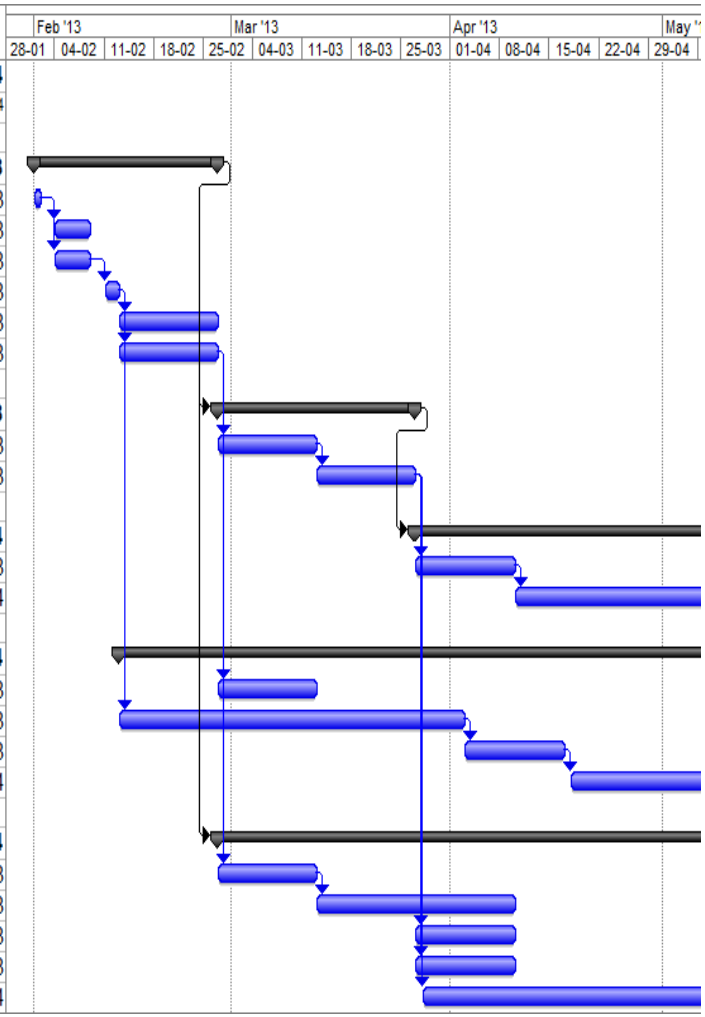
1. Official Registration of Peam Krasaob with FiA – must be completed by end May 2013.
2. Specification of a Community Area Management Plan – must be completed by late May 2013.
3. Implementation and Management of fish stock enhancement measures – to be implemented by the beginning of May 2013.
4. Strengthening of fisheries monitoring, control and surveilance measures – to be implemented by mid May 2013.
5. Expanded support services to supplement and support services – to be implemented by the mid May 2013.

The contract is expected to be signed on end of March 2013.

Also, by ensuring that the bulk of the project activities is implemented by/in Mayl 2013 allows for as much possible time for the actual patrolling and monitoring (and any necessary support to these activities).

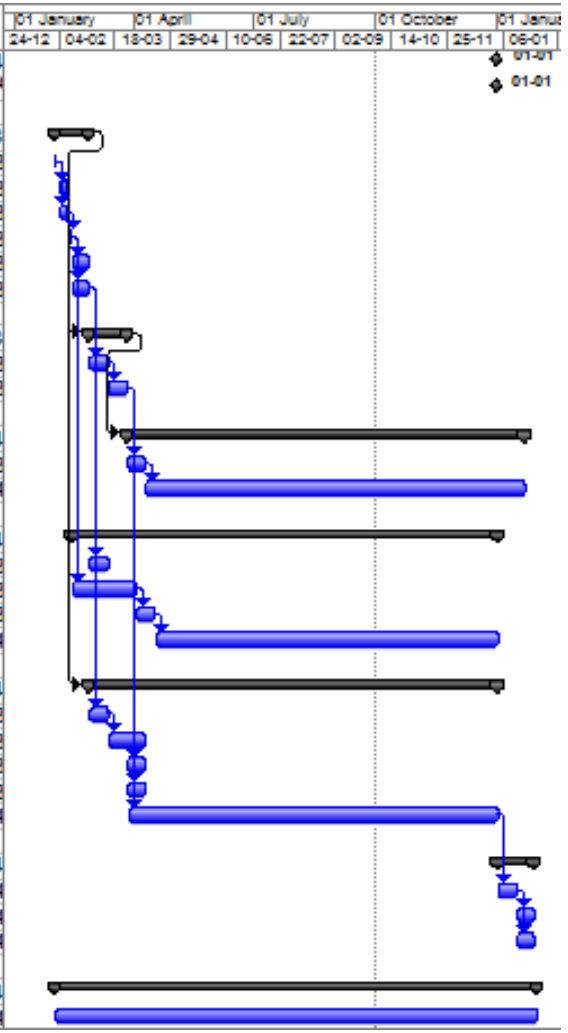
PIP for Activity 2.1.-2.5: 1st Quarter: (to be revised according to start date)

ID	Task Name	Duration	Start	Finish
1	**Outcome: Increased income from fisheries in Peam Krasaob's 277 households**	**0 days**	**01-01-14**	**01-01-14**
2	Output: Establishment of Community Fisheries Project at Peam Krasaob	0 days	01-01-14	01-01-14
3				
4	**Activity 2.1: Official Registration of Peam Krasaob as a Fisheries Community with Fi**	**18 days**	**01-02-13**	**26-02-13**
5	2.1.1. Contact with local authorities	1 day	01-02-13	01-02-13
6	2.1.2. Identification of users	1 wk	04-02-13	08-02-13
7	2.1.3. Participatory Resource Assessment	1 wk	04-02-13	08-02-13
8	2.1.4. Village Meetings	2 days	11-02-13	12-02-13
9	2.1.5. Mapping and Demarcation	2 wks	13-02-13	26-02-13
10	2.1.6. Bye-laws are finalized and approved	2 wks	13-02-13	26-02-13
11				
12	**Activity 2.2.: Specification of a Community Area Management Plan**	**20 days**	**27-02-13**	**26-03-13**
13	2.2.1. Drafting of a multi-year Management/Operational Plan	2 wks	27-02-13	12-03-13
14	2.2.2. Approval of Management Plan	2 wks	13-03-13	26-03-13
15				
16	**Activity 2.3.: Implementation and Management of fish stock enhancement measures**	**215 days**	**27-03-13**	**21-01-14**
17	2.3.1. Demarcation of fish refuge conservation areas	2 wks	27-03-13	09-04-13
18	2.3.2. Monitoring and management of fish refuge conservation areas	41 wks	10-04-13	21-01-14
19				
20	**Activity 2.4.: Strengthening of fisheries monitoring, control and surveillance measu**	**231 days**	**13-02-13**	**01-01-14**
21	2.4.1. Needs Assessment and agreement on sharing of costs	2 wks	27-02-13	12-03-13
22	2.4.2. Procurement of boat and other equipment	7 wks	13-02-13	02-04-13
23	2.4.3. Organisation and Training	2 wks	03-04-13	16-04-13
24	2.4.4. Patrolling and catch monitoring (ongoing)	37 wks	18-04-13	01-01-14
25				
26	**Activity 2.5.: Expanded extension services to supplement and support services prc**	**221 days**	**27-02-13**	**01-01-14**
27	2.5.1. Fisheries Training and extension needs assessment	2 wks	27-02-13	12-03-13
28	2.5.2. Upgrade landing site	4 wks	13-03-13	09-04-13
29	2.5.3. Savings groups established	2 wks	27-03-13	09-04-13
30	2.5.4. Selling groups established	2 wks	27-03-13	09-04-13
31	2.5.5. Training and extension (ongoing)	40 wks	28-03-13	01-01-14



PIP for all activities and the full project period:(to be revised according to start date)

ID	Task Name	Duration	Start	Finish
1	**Outcome: Increased income from fisheries in Peam Krasaob's 277 household**	**0 days**	**01-01-14**	**01-01-14**
2	Output: Establishment of Community Fisheries Project at Peam Krasaob	0 days	01-01-14	01-01-14
3				
4	**Activity 2.1: Official Registration of Peam Krasaob as a Fisheries Community**	**18 days**	**01-02-13**	**26-02-13**
5	2.1.1. Contact with local authorities	1 day	01-02-13	01-02-13
6	2.1.2. Identification of users	1 wk	04-02-13	08-02-13
7	2.1.3. Participatory Resource Assessment	1 wk	04-02-13	08-02-13
8	2.1.4. Village Meetings	2 days	11-02-13	12-02-13
9	2.1.5. Mapping and Demarcation	2 wks	13-02-13	26-02-13
10	2.1.6. Bye-laws are finalized and approved	2 wks	13-02-13	26-02-13
11				
12	**Activity 2.2.: Specification of a Community Area Management Plan**	**20 days**	**27-02-13**	**26-03-13**
13	2.2.1. Drafting of a multi-year Management/Operational Plan	2 wks	27-02-13	12-03-13
14	2.2.2. Approval of Management Plan	2 wks	13-03-13	26-03-13
15				
16	**Activity 2.3.: Implementation and Management of fish stock enhancement mea**	**215 days**	**27-03-13**	**21-01-14**
17	2.3.1. Demarcation of fish refuge conservation areas	2 wks	27-03-13	09-04-13
18	2.3.2. Monitoring and management of fish refuge conservation areas	41 wks	10-04-13	21-01-14
19				
20	**Activity 2.4.: Strengthening of fisheries monitoring, control and surveillance**	**231 days**	**13-02-13**	**01-01-14**
21	2.4.1. Needs Assessment and agreement on sharing of costs	2 wks	27-02-13	12-03-13
22	2.4.2. Procurement of boat and other equipment	7 wks	13-02-13	02-04-13
23	2.4.3. Organisation and Training	2 wks	03-04-13	16-04-13
24	2.4.4. Patrolling and catch monitoring (ongoing)	37 wks	18-04-13	01-01-14
25				
26	**Activity 2.5.: Expanded extension services to supplement and support service**	**221 days**	**27-02-13**	**01-01-14**
27	2.5.1. Fisheries Training and extension needs assessment	2 wks	27-02-13	12-03-13
28	2.5.2. Upgrade landing site	4 wks	13-03-13	09-04-13
29	2.5.3. Savings groups established	2 wks	27-03-13	09-04-13
30	2.5.4. Selling groups established	2 wks	27-03-13	09-04-13
31	2.5.5. Training and extension (ongoing)	40 wks	28-03-13	01-01-14
32				
33	**Activity 2.6.: Establishment of a sustainable continuation basis for re-fresher**	**20 days**	**02-01-14**	**29-01-14**
34	2.6.1. Contractual arrangements with PFiA, District and Commune Councils	2 wks	02-01-14	15-01-14
35	2.6.2. Establishment of re-fresher training for fisheries extension staff	2 wks	16-01-14	29-01-14
36	2.6.3. Establishment of re-fresher training for Peam Krasoap community membe	2 wks	16-01-14	29-01-14
37				
38	**Activity 2.7.: Monitoring**	**261 days**	**01-02-13**	**31-01-14**
39	2.7.1. Monitoring and documentation of impact and experiences	52,2 wks	01-02-13	31-01-14



Project Implementation Plan Notes

<u>On Activity 2.1: Official Registration of PeamKrasaob as Fisheries Community with FiA</u>

Re. sub-activity 2.1.1. Contact with local authorities

- Contact with local authorities, including provincial governor's office and the CARP provincial technical working group.
- Objectives and work is to be explained

Re. sub-activity 2.1.2 Identification of users

- Primary and secondary users are identified through talks with local authorities, commune council village chiefs and local fishermen

Re. sub-activity 2.1.3 Participatory Resource Assessment

- Conducted with both Primary (fisher folk households) and Secondary (e.g. traders, processors and other stakeholders) users regarding use, supply and demand, conflicts, etc.
- The PR Assessment will coordinate with the CARP Agro Ecological Analyse scheduled to be implemented during January 2013 through its demonstration activity 1.

Re. sub-activity 2.1.4 Village Meetings

- To discuss PRA - this is already conducted via CARP demo activity 1. Subsequent planning for PeamKrasaob therefore needs to account of the resulting Agro Ecological Report.
- Elect community fisheries committee, if not already established.
- draft rules and regulations
- Name those that will be responsible for protection activities and extension work.

Re. sub-activity 2.1.6 By-laws

- By-laws are finalized and approved finalized and made public
- endorsed and signed by relevant authorities

<u>On Activity 2.2.: Specification of a Community Area Management Plan</u>

Re. sub-activity 2.2.1: Drafting of a multi-year Management/Operational Plan

- Community Fisheries Committee (in cooperation with local stakeholders, e.g. local fishermen) will draft operational plan will define activities and actions related to resource protection, management and enhancement as well as benefit distribution.
- Must include dyke maintenance measures and plans
- Facilitated by Fisheries Administration and Ministry of Environment

On Activity 2.4.: Strengthening of fisheries monitoring, control and surveillance measures

Re. sub-activity 2.4.1. Needs Assessment and agreement on sharing of costs

- An agreement on sharing of operational cost between CARP and the Commune should be made. This is in order to ensure the sustainability of the concerned activities

On Activity 2.5.: Expanded extension services to supplement and support services provided by FiA

- Expanded extension services to supplement and support services provided by FiA from District and Cantonment levels; including promotion of processing and marketing of fisheries products

On Activity 2.6.:

- Establishment of a sustainable continuation basis for re-fresher training and possibly other types of extension support along above lines (but less intensive) – to continue after project closure

Re. sub-activity 2.6.2

- This is refresher training of all relevant fisheries extension staff of Koh Kong province - using the PeamKrasaob demonstration project as basis defining such training needs.

Management

The Deputy Director General, Fisheries Administration (FiA), MAFF, Phnom Penh, will be overall in charge of the demonstration activity, and as such refer to the CARP Management in all matters related to the demonstration activity. The CARP Provincial Working Groups for Koh Kong respectively will in this context monitor implementation of the demonstration activity.

Under the overall direction of the Deputy Director General, FiA, the Director, FiA Cantonment, Koh Kong, will be the day-to-day Manager of the Demonstration Activity, and will as such cooperate directly with the Chairman, PeamKrasaob Commune Council, as well as with the Director, Provincial Department of Environment, Koh Kong, and the CARP Provincial Working Group, in all matters related to the daily implementation of the demonstration activity.

Reporting

The formal reporting requirements are as follows:

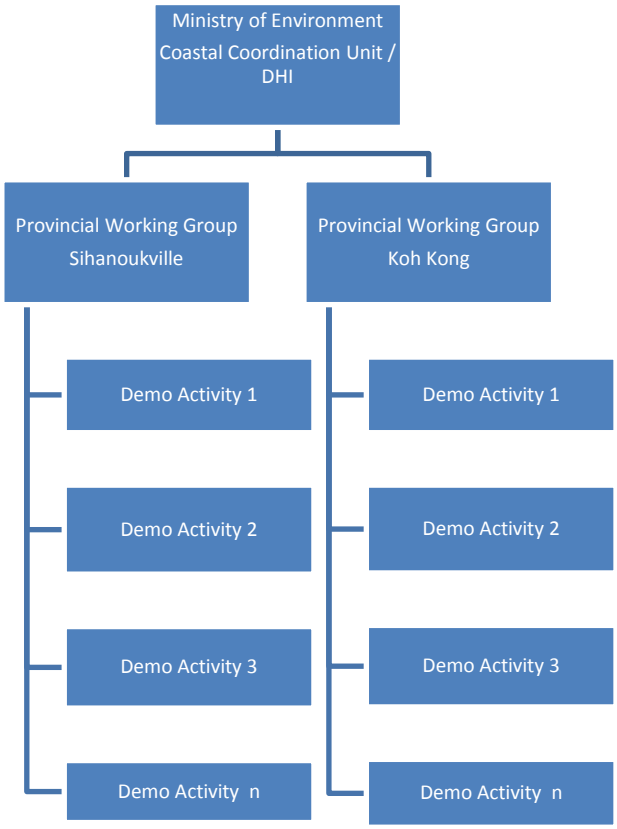
i. Quarterly Progress Reports giving overview of both progress to date and plans for the next quarter. The report must highlight any impediments or constraints for implementation. The first report is due on 30June 2013.

ii. Quarterly Financial Reports giving details of amount spend to date and budget plan for next quarter. The first report is due on 30June 2013.

iii. Final Reports, including final financial report and accounts, giving overview of progress and objectives achieved, and recommendations for follow-up activities.

These reports will be submitted directly to the Coastal Coordination Unit, MoE, Phnom Penh, with copies to the Provincial Working Groups for Sihanoukville and Koh Kong, and with copies to the concerned Commune Chief

An overview of the CARP reporting structure is illustrated in the following diagram; while the composition of the provincial working groups is attached in Appendix a:



Appendix a: Composition of the Provincial Technical Working Groups

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Preah Sihanouk	***PhayPhan***	Provincial Hall	Provincial Deputy Governor	Chief
	Hem SaRoeun	DoE	Director	Vice Chief
	TithVuthy	Prey Nub District	District Governor	Vice Chief
	ChimKalyany	DoE	Deputy Director	Secretary
	Duong SamAth	Fishery Contonment	Director	Member
	Kev Pha	DAFF	Director	Member
	Sou Sok	DLMUC	Director	Member
	AngChanDara	DWRAM	Director	Member
	EmPheap	Provincial Development Unit	Director	Member
	PrakVisal	Provincial Admin Unit	Deputy Director	Member
	Pen SamBou	Prey Nub Commune	Chief	Member
	PrakSaRoem	Sammaky Commune	Chief	Member
	Hak San	ToeLaork Commune	Chief	Member
	Phoeun Nam	ToekThla Commune	Chief	Member
	Kea Vou	O OuknhaHeng commune	Chief	Member
	SoengSaReth	TuolTorToeng Commune	Chief	Member

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Koh Kong				
	Say SuCheat	Provincial Hall	Provincial Deputy Governor	Chief
	Mon Phalla	DoE	Acting Director	Permanent vice chief
	Sao SinThuon	Provincial Adminstration Unit	Deputy Director	Vice Chief
	Chuon BunTHoeut	DAFF	Agronomy vice chief office	Member
	Lung KoemTha	DLMUC	Vice Chief office of LMUC	Member
	Irv Vannara	DWRAM	Deputy Director	Member
	Pen Vanna	MondulSeyma District	Deputy District Governor	Member
	Yem Yan	PeamKrasaop commune	Chief	Member
	KhoemSaNeth	KuolKorki commune	Chief	Member
	Hun Marady	DoE	Deputy director and CRC coordinator	Secretary
	Ul Ran	PeamKrasaop wildlife Sanctuary	Director	Member
	NeiBroHorsSaRith	DoE	vice Chief office of conservation	Member
	NouNguy	Fishery Division PeamKrasoap	vice Chief	Member

Appendix b: Budget and Schedule for Payments

Steps	Budget Estimate	Amounts (US$)	Payment
Activity 2.1	Official Registration of PeamKrasaob as a Fisheries Community (if not already done) with FiA; including mapping	3,000	Upon contract signature
Activity 2.2	Community area management plan with the assistance of FiA and its cantonment staff	3,000	Upon contract signature
Activity 2.3	Implementation of fish stock enhancement measures (e.g. rehabilitation, demarcation of conservation areas and management of fish refuges) Logistics: 2,000 Materials: 8,000	10,000	Upon contract signature
Activity 2.4	Strengthening of fisheries monitoring, control and surveillance measures; including procurement of equipment Needs assessment : 1,000 Patrolling, catch monitoring: 1,000 Speed Boat: 6,000 Others and Equipment : 2,000	10,000	By 1 April 2013 depending on progress of activities
Activity 2.5	Expanded extension services to supplement and support services provided by FiA from District and Cantonment levels; including *promotion of processing and marketing* Training needs assessment: 1,000 Training and extension: 5,000 Landing site: 2,000 Savings groups: 3,000 Study Tours: 3,000	14,000	By 1 April 2013 depending on progress of activities
Activity 2.6	Establishment of a sustainable continuation basis for re-fresher training and possibly other types of extension support along above lines (but less intensive) – to continue after project closure.	0	(not included in this budget)
Activity 2.7	Project monitoring is part of normal management . However, a provision of USD 1000 for administrative costs and USD 1000 for a closure workshop at the community site is included in this budget	2,000	By 1 April 2013 depending on progress of

			activities
Total:		**$42,000**	

In addition, the PeamKrasaob community is expected to mobilise supplementary funding for the above activities in order to make them sustainable and increase community ownership and commitment. The exact amount required from the PeamKrasaob community in this regard will be determined and agreed during the first month of implementation.

Appendix c: Demonstration Activity Description Activity 2:

Community Fisheries project at PeamKrasaob in cooperation with the Fisheries Administration; especially in terms of strengthening regulatory measures and their enforcement[7].

"There is a high incidence of Illegal, Unreported and Unregulated (IUU) fishing, the impact of which on Cambodian fish stocks is unknown, and results in the potential benefits of marine fisheries currently not being captured by Cambodians. Habitat degradation is a major concern, due to dynamite/ cyanide fishing, illegal trawling in nursery areas, mangrove destruction (for firewood, shrimp culture), siltation, and urban/ industrial pollution. Conflicts between fishermen are common over access rights and gear interactions. Monitoring, control and surveillance are considered ineffective. Efforts to control/ reduce fishing effort and to find alternative livelihoods for fishers are well recognized, but present a huge challenge to RGC". (ref RGC 2010).

"There has been a commendable promotion of co-management/ Community-based Fisheries Organisations (CFOs) in recent years, although many need greater financial and technical support for effective operation. A Royal Decree and Sub-Decree on Community Fisheries Management was promulgated in 2005. To reduce illegal fishing, the law allows serious penalties to be applied to those who break the law including government officers. To investigate, prevent and counteract illegal activities and compile documents for submission to courts, the officers of the fisheries administration are considered as judicial fisheries police. There is, however, a concern in regard to the efficacy of enforcing the law. Human, financial and material resources allocated for planning/management appear not to be commensurate with the socio-economic value of sector" (ref EU Programme doc).

The Purpose of this proposed demonstration activity could therefore be: Strengthening of the community fisheries capacity at Peam Krasaob to fully engage in the decision making processes leading to sustainable fisheries through improved management, and to deliver quality services to its members.

The current proposal is founded on the following factual obeservations:

1. The Peam Krasoap Cummunity has clearly identified this type of activity as of high priority for them – on par with dyke maintenance. Clearly in order to maintain and improve the productivity of their resource base. This ws confirmed by a mini-workshop with the Commune Councillors, April 2012 (Result documented in Annex 3).
2. The national Strategic Framework for Fisheries 2010-19 emphasise the Community Fisheries concept as one of its priorities (RGC 2010, page 19).
3. A number of donor agencies have agreed and are actively funding Community Fisheries (CF) activities in Cambodia. These agencies include Danida, EU, among others.[8]
4. There were no less than 469 CFis in the country in 2010, but only 324 were officially registered (303 inland, 21 coastal)[9] with MAFF, as is required by the RGC sub-decree on CF management.

[7] FiA has currently 21 registered Coastal Fisheries Communities.

[8] Ref. Annual Work Plan 2012 for Fisheries Strategic Framework.

[9] Strategic Planning Framework for Fisheries 2010-19, Vol. II, Background Information (RGC 2010)

We understand from comments received that this type of natural resource management activity was previously tried under the Danida Environmental Management in the Coastal Zone Project 1997-2007, with limited success. However, a critical success factor is that the Commune Council be allowed to assume full responsibility by the national park authorithy. This may not have been possible during that period, since the Commune Councils in many respects were still under formation at that time.

The livelihood potential of this proposed demonstration activity is increased fining opportunities for the households of PeamKrasaob commune because of enforcement of regulations, establishment of fish sanctuaries and refuges, - as well as increased income from eco-tourism etc. The Economic Assessment report quantifies this as a potential combined income benefit of USD 320 per household per year from after year 5.

This could be achieved through:

1. Stressing the need for a fully responsible management unit for the Peam Krasaob fishing estuary and to mobilise resources in line with specification of a community area management plan, if such do not already exist.

2. Bringing fishing effort into line with the reproductive capacity of the stocks, through support for the development of ecosystem-specific management plans with full engagement of fishers and other concerned stakeholders, in tandem with efforts to develop and expand stock enhancement methods such as mangrove protection and rehabilitation, demarcation of conservation areas and management of fish refuges.

3. Strengthening of fisheries monitoring, control and surveillance through capacity development of community fisheries members to undertake MCS and enforcement, together with expanded extension services to supplement and support services provided by FiA from District and Cantonment levels.

Activities could include (most of these activities are suggested by Peam Krasaob Commune Councillors):

1. Demarcation of community fishing zones in shallow water areas
2. Set up teams to protect community fishing zones
3. Plant mangrove trees
4. Create tourist fishing zones
5. Training and extension activities, including in aquaculture techniques like fish, crab, shell, frog and shrimp farming
6. Procurement of equipment required for improving monitoring, control and surveillance of the fisheries
7. Promotion of processing and marketing
8. Management supports

<u>Proposal:</u> Development and costing of a Demonstration Activity Plan for Peam Krasaob as outlined above in collaboration with the Peam Krasaob Commune Council, community members and FiA of Koh Kong.

DESCRIPTION	INDICATORS	SOURCE OF VERIFICATION	ASSUMPTIONS
Outcome : **Increased income from and regulatory adaptation for fisheries of PeamKrasaob's 277 households**	• Increase of average net household income by $320 per household (20% increase) over time (5 years)	• Activity reports, reviews and evaluations	
Output 2: Establishment of Community Fisheries project at PeamKrasaob	• Implementation of Community Fisheries activities directly reaching all 277 households of Peam Krasaob by 2014.	• Activity monitoring, reviews and evaluations	• The activities supported will add sufficient benefits for the targeted household to gain income impact.
Activity 2.1: Official Registration of PeamKrasaob as a Fisheries Community (if not already done) with FiA	• Necessary legal framework established (bye laws, etc) • Elections and AGM • strengthening of mandates, and agreements • Mapping	• Registration with FiA • Bye-laws, agreements and minutes	• A fishing community located within a national park can be officially registered as a Fisheries Community

Activity 2.2: Specification of a community area management plan; including for dyke maintenance	• Development and approval of area management plan	• Local consultancy report containing the plan	• Local consultants with sufficient expertise are available
Activity 2.3: Implementation of fish stock enhancement measures (e.g. mangrove protection and rehabilitation, demarcation of conservation areas and management of fish refuges)	• implementation of CFi plans, conservation efforts, CFi demarcations	• Project and FiA reports	• Stakeholders will agree to such measures
Activity 2.4: Strengthening of fisheries monitoring, control and surveillance measures; including procurement of equipment	• Equipment needs assessment (e.g. small enforcement boats and/or engines) • Delivery and user training • Study tours and networking with like communities	• Project monitoring of activities and results • Study Tour Reports • Catch monitoring	• Community households are interested in participating

3.3 Project Implementation Plan for Demonstration Activity 3:

Shorter Duration Seeds for Crops in cooperation with CARDI.

Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy, thus, possibly enabling harvest before onset of heavy flooding and sea water surges at all five communes. Such varieties will need to be tested (at no cost to farmers) in specific localities, where they are likely to be effective.

Title	Shorter Duration Seeds for Crops
Project Start	01-03-2013
Project Finish	30-04-2014

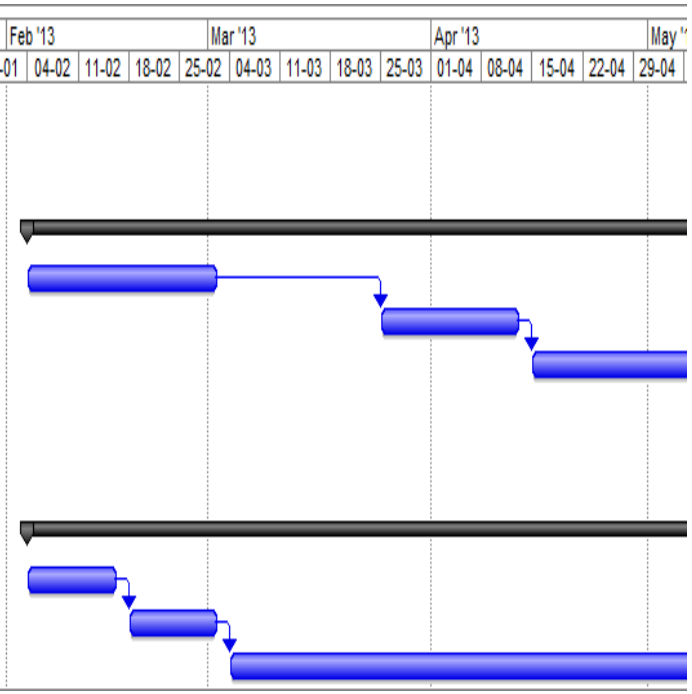
PIP Introduction

In regards to the Project on Shorter Duration Seeds for Crops it is worth noting that project closure is already during the first part of 2014. It thererfore follows a path though the following four steps:

1. Wet season On-Farm Adaptive Trials for paddy varieties – Ongoing throughout almost the entire project period.
2. Wet and dry season On-Farm Adaptive Trials for vegetables – Ongoing throughout almost the entire project period.
3. 10 Farmer Field Days in 10 sites – ongoing from Maj 2013 until March 2014.
4. Seed purification techniques – Ongoing throughout almost the entire project period.

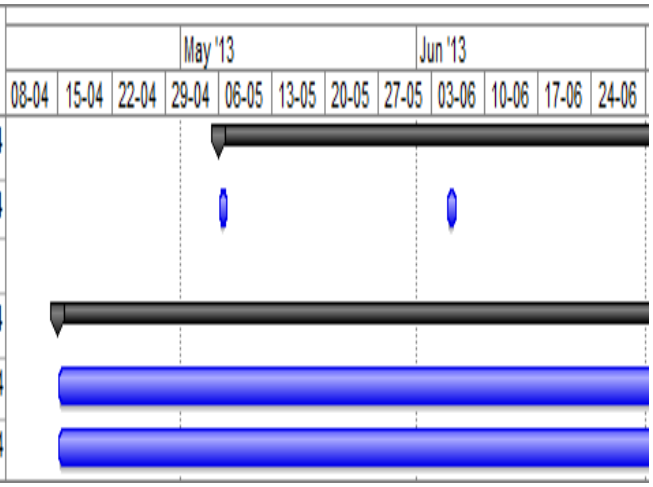
PIP for Activity 3.1.-3.2.: 1st Quarter:

ID	Task Name	Duration	Start	Finish
1	**Outcome: Increased household income demonstrated to 6000 farming households**	**0 days**	**31-03-14**	**31-03-14**
2	**Output: Promotion/field trial of ST higher yielding paddy / vegetable varieties**	0 days	31-03-14	31-03-14
3				
4	**Activity 3.1.: Conduct wet season On-Farm Adaptive Trials for paddy varieties**	**295 days**	**04-02-13**	**21-03-14**
5	3.1.1. Selection of sites in target communes	4 wks	04-02-13	01-03-13
6	3.1.2. Training and distribution of materials to farmers	3 wks	25-03-13	12-04-13
7	3.1.3. OFAT experiments: Early Wet Season	13 wks	15-04-13	12-07-13
8	3.1.4 OFAT experiments: Main Wet Season	20 wks	15-07-13	29-11-13
9	3.1.5: OFAT experiments: Dry season	16 wks	02-12-13	21-03-14
10				
11	**Activity 3.2. Conduct wet and dry season OFAT for selected vegetable varieties**	**310 days**	**04-02-13**	**11-04-14**
12	3.2.1. Selection of sites in target communes	2 wks	04-02-13	15-02-13
13	3.2.2. Training and distribution of materials to farmers	2 wks	18-02-13	01-03-13
14	3.2.3. Implementation of OFAT experiments	58 wks	04-03-13	11-04-14



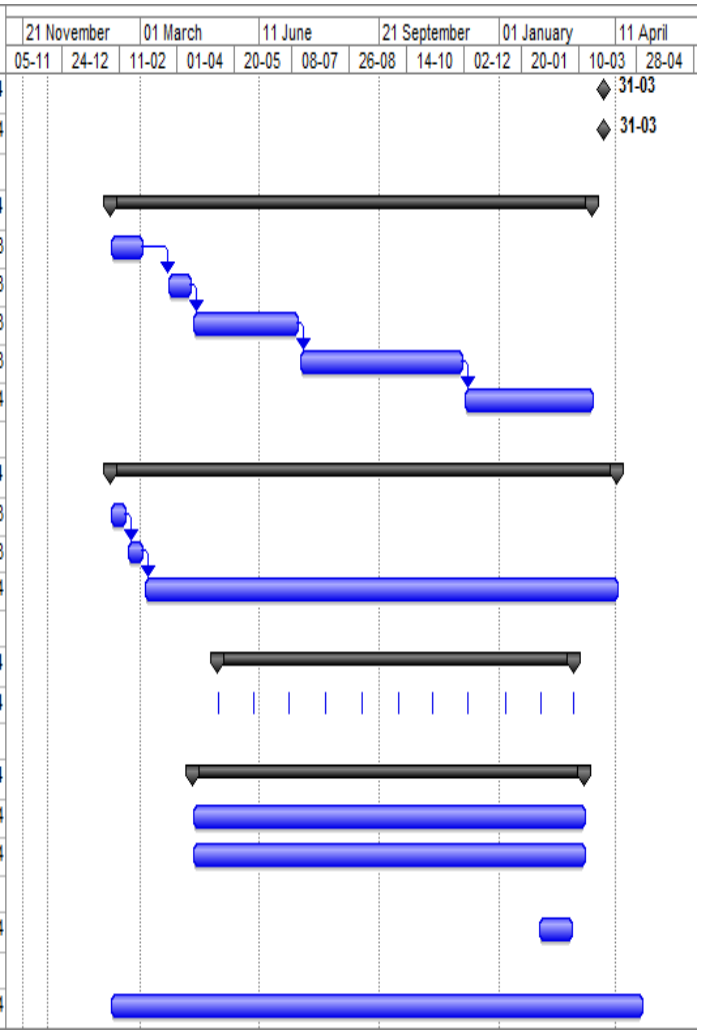
PIP for Activity 3.3.-3.4: 2nd Quarter

ID	Task Name	Duration	Start	Finish
16	**Activity 3.3. Conduct Farmer Field Days (FFD) in connection with each trial site**	218 days	06-05-13	05-03-14
17	10 Farmer Field Days held	218 days	06-05-13	05-03-14
29				
30	**Activity 3.4.: Demonstration and train farmer group in seed purification techniques**	240 days	15-04-13	14-03-14
31	3.4.1. 8 seed purification demonstrations	48 wks	15-04-13	14-03-14
32	3.4.2. Train one farmer group (28 farmers) in seed purification techniques	48 wks	15-04-13	14-03-14



PIP for all activities and the full project period:

ID	Task Name	Duration	Start	Finish
1	**Outcome: Increased household income demonstrated to 6000 farming households**	**0 days**	**31-03-14**	**31-03-14**
2	**Output: Promotion/field trial of ST higher yielding paddy / vegetable varieties**	0 days	31-03-14	31-03-14
3				
4	**Activity 3.1.: Conduct wet season On-Farm Adaptive Trials for paddy varieties**	**295 days**	**04-02-13**	**21-03-14**
5	3.1.1. Selection of sites in target communes	4 wks	04-02-13	01-03-13
6	3.1.2. Training and distribution of materials to farmers	3 wks	25-03-13	12-04-13
7	3.1.3. OFAT experiments: Early Wet Season	13 wks	15-04-13	12-07-13
8	3.1.4 OFAT experiments: Main Wet Season	20 wks	15-07-13	29-11-13
9	3.1.5: OFAT experiments: Dry season	16 wks	02-12-13	21-03-14
10				
11	**Activity 3.2. Conduct wet and dry season OFAT for selected vegetable varieties**	**310 days**	**04-02-13**	**11-04-14**
12	3.2.1. Selection of sites in target communes	2 wks	04-02-13	15-02-13
13	3.2.2. Training and distribution of materials to farmers	2 wks	18-02-13	01-03-13
14	3.2.3. Implementation of OFAT experiments	58 wks	04-03-13	11-04-14
15				
16	**Activity 3.3. Conduct Farmer Field Days (FFD) in connection with each trial site**	**218 days**	**06-05-13**	**05-03-14**
17	**10 Farmer Field Days held**	**218 days**	**06-05-13**	**05-03-14**
29				
30	**Activity 3.4.: Demonstration and train farmer group in seed purification techniques**	**240 days**	**15-04-13**	**14-03-14**
31	3.4.1. 8 seed purification demonstrations	48 wks	15-04-13	14-03-14
32	3.4.2. Train one farmer group (28 farmers) in seed purification techniques	48 wks	15-04-13	14-03-14
33				
34	**Activity 3.5: Formulation of PDA follow-up activities to secure sustainability**	4 wks	04-02-14	03-03-14
35				
36	**Activity 3.6: Monitoring and documentation of the impact and experiences**	65 wks	04-02-13	02-05-14



Project Implementation Plan Notes

<u>On Activity 3.1.: Conduct wet season On-Farm Adaptive Trials for paddy varieties</u>

- About 30 OFAT, some in the early wet season (April-July); some in the main wet season (July-December) and some in the dry season (Dec-March). The final number of OFATs and the number per season will be finally determined in consultation with concerned farmers in the field.
- Preferably one than one paddy variety should be tested per site, if feasible.

Re. sub-activity 3.1.1. Selection of sites in target communes

- Selection of 30 sites in 8 target communes and selection of the volunteer farmers to conduct OFAT experiments. Includes participation of PDA staff.
- 8 communes are TuekThla, TuekL'ak, Sameakki, TuolToteung, OuOknha Heng and Prey Nob Communes, Prey Nob District, Sihanoukville Province, plus TuolKokir, and PeamKrasaop, MondolSiema District, Koh Kong Province.

Re. sub-activity 3.1.2. Training and distribution of materials to farmers

- Distribution the experimental materials (including seeds - quantity and sorts to be defined) to farmers, and training of procedures to conduct the experiments. Includes participation of PDA staff

<u>On Activity 3.2.: Activity 3.2. Conduct wet and dry season OFAT for selected vegetable varieties</u>

- Max.15 OFAT, some in the early wet season (April-July); some in the main wet season (July-December) and some in the dry season (Dec-March). The final number of OFATs and the number per season will be finally determined in consultation with concerned farmers in the field.
- Preferably more one than one and the most suitable types of vegetables (from both a marketing and household consumption perspective) should be tested per site, if feasible.

Re. sub-activity 3.2.1. Selection of sites in target communes

- Selection of max 15 sites in 8 target communes and the volunteer farmers to conduct OFAT experiments. Includes participation of PDA staff.
- 8 communes are TuekThla, TuekL'ak, Sameakki, TuolToteung, OuOknha Heng and Prey Nob Communes, Prey Nob District, Sihanoukville Province and TuolKokir, and PeamKrasaop, MondolSiema District, Koh Kong Province.

Re. sub-activity 3.2.2. Training and distribution of materials to farmers

•Distribution the experimental materials to farmers (including seeds - quantity and types / sorts to be defined), and training of procedures to conduct the experiments. Includes participation of PDA staff.

On Activity 3.3. Conduct Farmer Field Days (FFD) in connection with each trial site

•Assumed Farmer Field Days are to be held at beginning, middle and end of crop growing seasons. Includes participation of PDA staff.
•Each Farmer Field Day is assumed to invite interested farmers from several communes. The 8 target communes may in this respect, for example, be clustered into 3 groups: Prey Nob East, Prey Nob West and Koh Kong.

On Activity 3.4.: Demonstration and train farmer group in seed purification techniques

Re. sub-activity 3.4.1. 8 seed purification demonstrations

•1demo per commune. Includes participation of PDA staff.
•Each demo may stretch over a growing season. The exact mode of operation will be determined at the field.

Re. sub-activity 3.4.2. Train one farmer group (28 farmers) in seed purification techniques

•The purpose of this training is to enable participants to produce good quality seeds for their communities.

Management

The Director, Cambodian Agricultural Research and Development Institute (CARDI), Phnom Penh, will be overall in charge of the demonstration activity, and as such refer to the CARP Management in all matters related to the demonstration activity. The CARP Provincial Working Groups for Sihanoukville and Koh Kong respectively will monitor the implementation of demonstration activity.

A Deputy Director, CARDI, will be the day-to-day Manager of the Demonstration Activity, and will as such cooperate directly with the Provincial Departments of Agriculture, and with the CARP Provincial Working Group, in all matters related to the daily implementation of the demonstration activity.

Reporting

The formal reporting requirements are as follows:

iv. Quarterly Progress Reports giving overview of both progress to date and plans for the next quarter. The report must highlight any impediments or constraints for implementation. The first report is due on 31 May 2013.

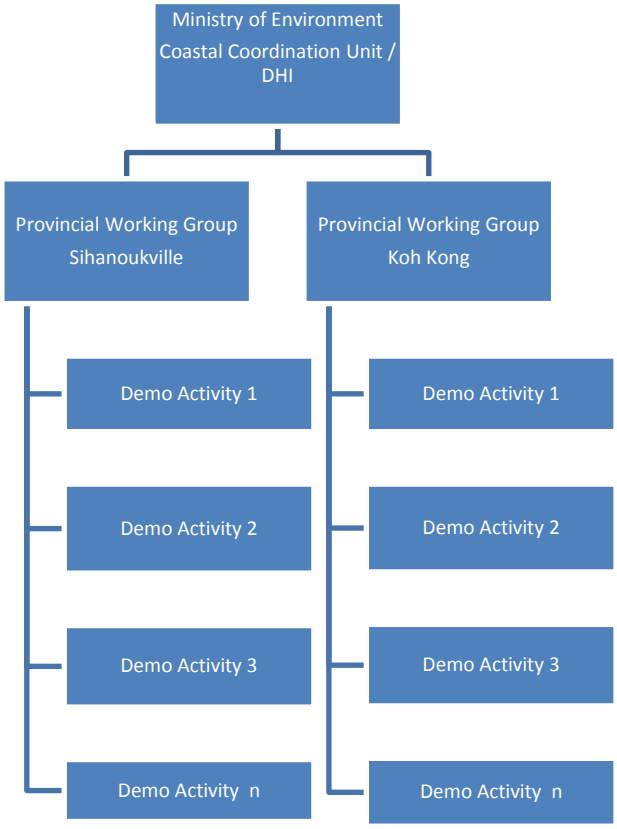
v. Quarterly Financial Reports giving details of amount spend to date and budget plan for next quarter. The first report is due on 31 May 2013.

vi. Final Reports, including final financial report and accounts, giving overview of progress and objectives achieved, and recommendations for follow-up activities.

These reports will be submitted directly to the Coastal Coordination Unit, Ministry of Environment, Phnom Penh, with copy to the Provincial Working Groups for Sihanoukville and Koh Kong and with copies to the concerned Commune Chiefs.

Participation in regular meeting with the provincial working groups and monitoring activities is part of the activities.

An overview of the CARP reporting structure is illustrated in the following diagram; while the composition of the provincial working groups is attached in Appendix a:



Appendix a: Composition of the Provincial Technical Working Groups

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Preah Sihanouk	***PhayPhan***	Provincial Hall	Provincial Deputy Governor	Chief
	Hem SaRoeun	DoE	Director	Vice Chief
	TithVuthy	Prey Nub District	District Governor	Vice Chief
	ChimKalyany	DoE	Deputy Director	Secretary
	Duong SamAth	Fishery Contonment	Director	Member
	Kev Pha	DAFF	Director	Member
	Sou Sok	DLMUC	Director	Member
	AngChanDara	DWRAM	Director	Member
	EmPheap	Provincial Development Unit	Director	Member
	PrakVisal	Provincial Admin Unit	Deputy Director	Member
	Pen SamBou	Prey Nub Commune	Chief	Member
	PrakSaRoem	Sammaky Commune	Chief	Member
	Hak San	ToeLaork Commune	Chief	Member
	Phoeun Nam	ToekThla Commune	Chief	Member
	Kea Vou	O OuknhaHeng commune	Chief	Member

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
	SoengSaReth	TuolTorToeng Commune	Chief	Member
Koh Kong				
	Say SuCheat	Provincial Hall	Provincial Deputy Governor	Chief
	Mon Phalla	DoE	Acting Director	Permanent vice chief
	Sao SinThuon	Provincial Adminstration Unit	Deputy Director	Vice Chief
	Chuon BunTHoeut	DAFF	Agronomy vice chief office	Member
	Lung KoemTha	DLMUC	Vice Chief office of LMUC	Member
	Irv Vannara	DWRAM	Deputy Director	Member
	Pen Vanna	MondulSeyma District	Deputy District Governor	Member
	Yem Yan	PeamKrasaop commune	Chief	Member
	KhoemSaNeth	KuolKorki commune	Chief	Member
	Hun Marady	DoE	Deputy director and CRC coordinator	Secretary
	Ul Ran	PeamKrasaop wildlife Sanctuary	Director	Member
	NeiBroHorsSaRith	DoE	vice Chief office of conservation	Member

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
	NouNguy	Fishery Division PeamKrasoap	vice Chief	Member

Appendix B: Budget and Schedule of Payments

Steps	Cost Estimate (details)	Amounts ($)
Activity 3.1	30 OFAT for Paddy @ $ 600	18,000
Activity 3.2	15 OFAT for vegetables @ $ 600	9,000
Activity 3.3	10 Farmer Field Days	10,000
Activity 3.4	Demos and training in seed purification	5,000
	Contingencies	2,000
Total:		**44,000**

Appendix C: Demonstration Activity Description Activity 3

Promotion and increased availability of shorter duration seeds for crops; particularly for wet-season paddy possibly enabling harvest before onset of heavy flooding and sea water surges at all seven communes. Such varieties will need to be tested (at no risk or income loss to farmers) in specific localities, where they are likely to be effective. This will also include testing of other additional crops like vegetables.

While this activity may well be part of demonstration activity 1, it can also, or even at the same time, be undertaken as a stand-alone demonstration activity. This is because of its nature of experimental trial or adaptive research; which is likely to require the participation of a research organisation experienced in this type of activity (e.g. Cambodia Agricultural Research and Development Institute (CARDI)).

The Provincial Directorates of Agriculture (PDA), and the Commune Councils, could and should participate and be given a role in this context. However, neither the PDA's nor the Commune Councils probably currently have sufficient capacity to lead this kind of demonstration activity. But the activity may be able, over the CARP period, to install such a capacity at the PDA's.

The first NAPA project has entered into a contract with CARDI for similar activities. That contract also covers other areas of agricultural adaptive research

Proposal: Development and negotiation of a contract with CARDI for the above. This may also include other activities, e.g. field trials on vegetables, farmer field days and training in seed selection.

This demonstration activity should be coordinated with especially demonstration activity 1: Climate Change and Integrated Farming.

DESCRIPTION	INDICATORS	SOURCE OF VERIFICATION	ASSUMPTIONS
Outcome: ***Securing and increasing household income from paddy and vegetables demonstrated to 6000 farming households***	• Adoption by 20% of households with resulting net income increase of $ 200 per ha.	• Activity reports, reviews and evaluations	
Output 3: Promotion and field trial of short-term higher yielding paddy varieties during wet season at Prey Nob and TuolKokir	• Implementation of field trails, farmer field days and training in seed for about 6000 farming households in 8 communes by 2014.	• Activity monitoring, reviews and evaluations	• The activities supported will add sufficient confidence for farming household to take up the recommendations and gain income impact.
Activity 3.1: Conduct wet season On-Farm Adaptive Trials (OFAT) for ST paddy varieties	• Trials conducted and documented on 30 sites in 8 communes during 2013	• Trial Reports	• CARDI and PDA have sufficient capacity to conduct the trials

Activity 3.2: Conduct wet and dry season On-Farm Adaptive Trials (OFAT) for selected vegetable varieties	• Trials conducted and documented on 15 sites in 8 communes during 2013-14	• Trial Reports	• CARDI and PDA have sufficient capacity to conduct the trials
Activity 3.3: Conduct Farmer Field Days (FFD) in connection with the trial sites.	• Ten Farmer Field Days held	• Trial Reports	• Farmers interested in participating
Activity 3.4: Conduct demonstration of seed purification (one per commune) and train one farmer group in seed purification techniques	• 8 seed purification demonstrations • 28 farmers trained in seed purification	• Seed purification report	• Farmers are interested in participating
Activity 3.5: Monitoring and documentation of the impact and experiences through steps i-iv. (continuous)	• Monitoring by project staff and by external reviewers	Monitoring and Review reports	Cost: Project monitoring part of normal management duties at no extra cost

3.4 Project Implementation Plan for Demonstration Activity 4

Revolving Livestock Scheme/Enterprise in cooperation with Center for Livestock and Agriculture Development (CelAgrid) in collaboration with the Project Management Unit, Ministry of Agriculture, Forestry and Fisheries.

Promotion of increased livestock keeping at up to eight communes - by using a revolving scheme for improved breeds of small livestock (no cattle, but pigs, poultry, goats and similar) – tested successfully in Cambodia, Laos and elsewhere. This is in response to increased flooding problems as livestock are moveable and most appropriate livelihood to assist the community household in improving skills, income, nutrition and food security and building community livestock foundation.

Title	Revolving Livestock Scheme
Project Start	18-03-2013
Project Finish	31-03-2014

PIP Introduction

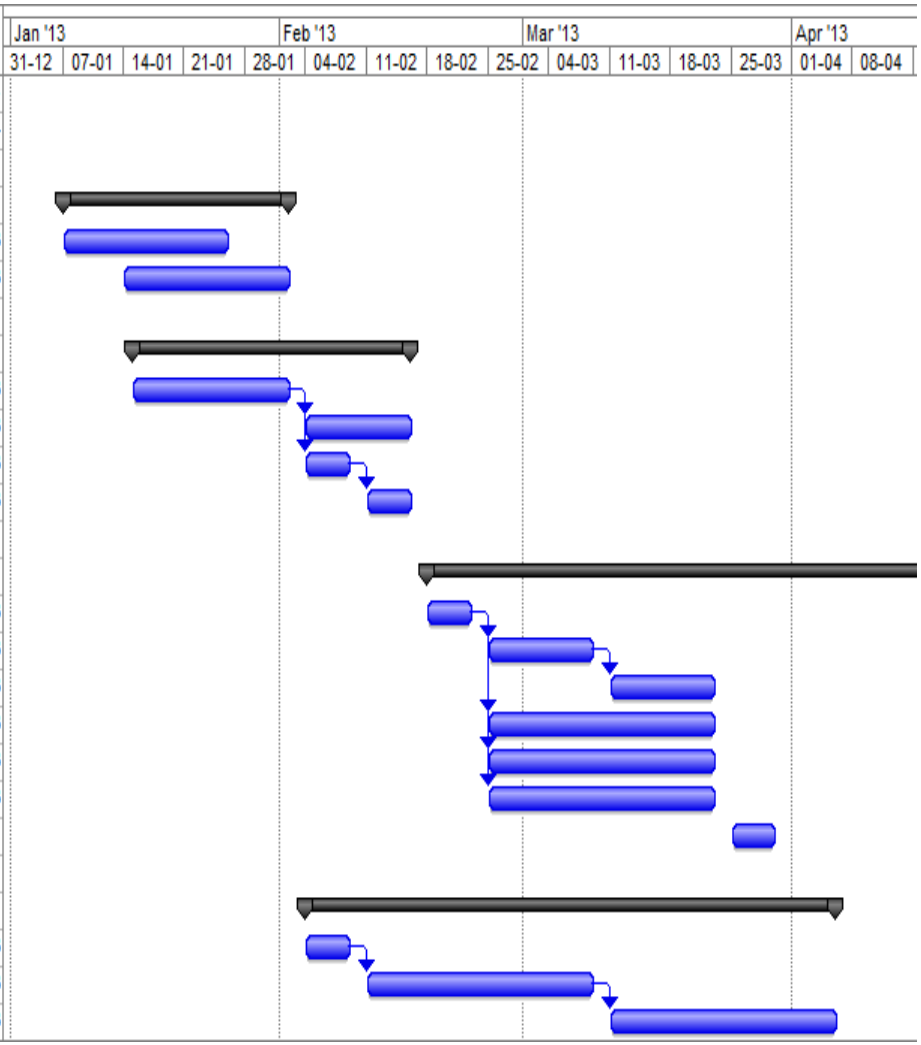
In relation to the Project on a Revolving Livestock Scheme it is worth noting that overall CARP project closure is already during the first quarter of 2014. The project therefore follows a path though the following three steps:

1. Agro Ecological Analysis to be conducted by DAE, MAFF – to be completed by the end of february. The Center for Livestock and Agriculture Development (CelAgrid) participates in the AEA in collaboration with DAE, MAFF, if possible. It is in any case important CelAgrid applies the AEA report as basis for the further development of the project. Report access will therefore be provided by CARP.
2. Planning, recruitment and formation of informal livestock interest groups (LIG) and commune Project Management Committees – primarily being completed in March/April 2013.
3. Introduction of improved breeds of livestock – to be implemented from the beginning of May 2013 (for poultry, due to disease control, probably from after July 2013).

The contract is expected to be signed about mid-March 2013. The period from contract signing until the actual project start should allow for ample time for any necessary mobilisation of resources.

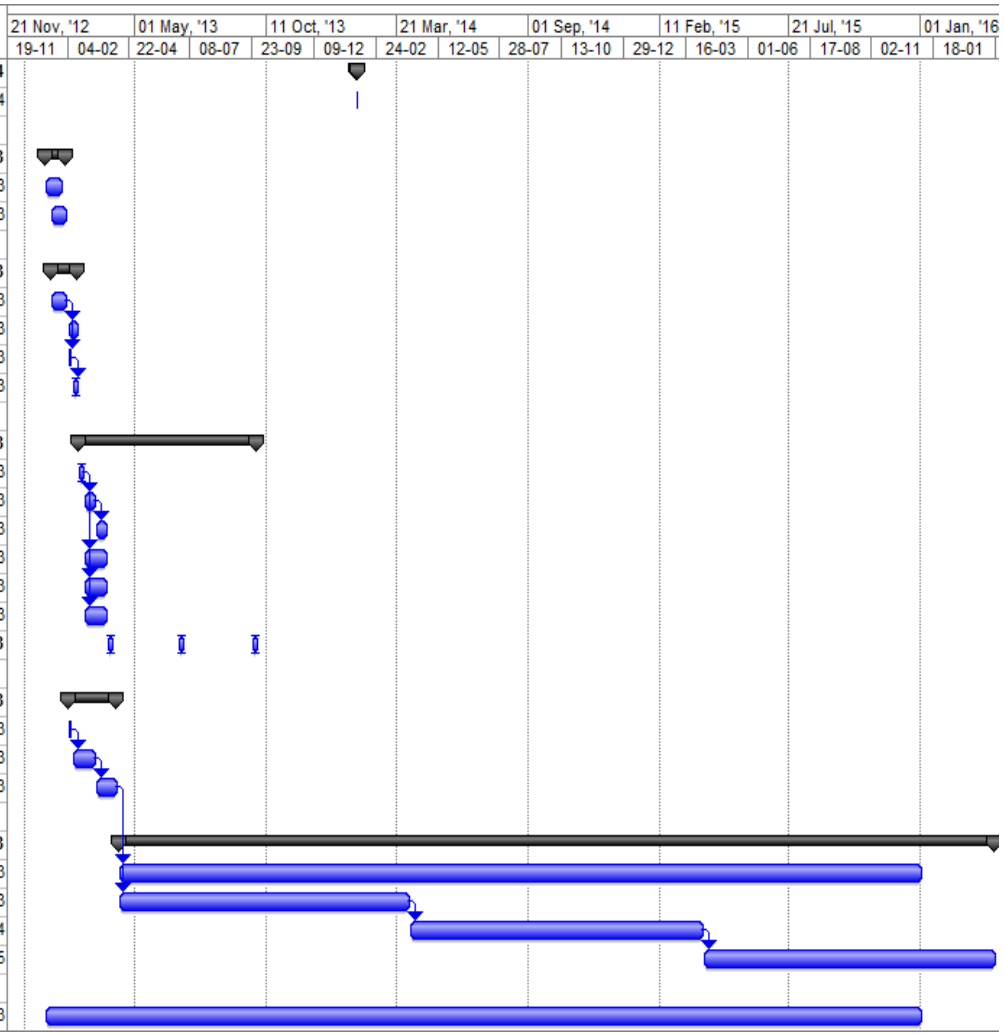
PIP for Activity 4.1-4.4.: 1st Quarter:

ID	Task Name	Duration	Start	Finish
1	**Outcome: Increase in livestock production and thereby an incre**	**1 day**	**31-01-14**	**31-01-14**
2	Output: Implementation of revolving livestock scheme	1 day	31-01-14	31-01-14
3				
4	**Activity 4.1.: Agro-Ecological Analysis (conducted by DAE, MAFF)**	**20 days**	**07-01-13**	**01-02-13**
5	4.1.1. AEA of 8 communes	3 wks	07-01-13	25-01-13
6	4.1.2. Drafting and reporting of AEA in 8 communes	3 wks	14-01-13	01-02-13
7				
8	**Activity 4.2.: Development of plan for Revolving Livestock Scher**	**24 days**	**15-01-13**	**15-02-13**
9	4.2.1. Detail actions and modalities	2,8 wks	15-01-13	01-02-13
10	4.2.2. Identify beneficiaries and livestock group members	2 wks	04-02-13	15-02-13
11	4.2.3. Identify potential partners	1 wk	04-02-13	08-02-13
12	4.2.4. Establish contracting procedure	1 wk	11-02-13	15-02-13
13				
14	**Activity 4.3.: Formation of informal livestock groups and PMC**	**160 days**	**18-02-13**	**27-09-13**
15	4.3.1. Establishment of groups according to farmer preferences	1 wk	18-02-13	22-02-13
16	4.3.2. Formation of PMCs	2 wks	25-02-13	08-03-13
17	4.3.3. Training of PMCs	2 wks	11-03-13	22-03-13
18	4.3.4. Livestock training of farmers	4 wks	25-02-13	22-03-13
19	4.3.5. Organise livestock extension support	4 wks	25-02-13	22-03-13
20	4.3.6. Preperation of animal facilities	4 wks	25-02-13	22-03-13
21	**4.3.7. Training of VAHWs**	**135 days**	**25-03-13**	**27-09-13**
25				
26	**Activity 4.4.: Introduction of livestock**	**45 days**	**04-02-13**	**05-04-13**
27	4.4.1. Identification of improved breeds (livestock)	1 wk	04-02-13	08-02-13
28	4.4.2. Procurement of livestock	4 wks	11-02-13	08-03-13
29	4.4.3. Introduction of livestock to farmers	4 wks	11-03-13	05-04-13



PIP for all activities and the full project period:

ID	Task Name	Duration	Start
1	**Outcome: Increase in livestock production and thereby an increase livel**	**1 day**	**31-01-14**
2	Output: Implementation of revolving livestock scheme	1 day	31-01-14
3			
4	**Activity 4.1.: Agro-Ecological Analysis (conducted by DAE, MAFF)**	**20 days**	**07-01-13**
5	4.1.1. AEA of 8 communes	3 wks	07-01-13
6	4.1.2. Drafting and reporting of AEA in 8 communes	3 wks	14-01-13
7			
8	**Activity 4.2.: Development of plan for Revolving Livestock Scheme**	**24 days**	**15-01-13**
9	4.2.1. Detail actions and modalities	2,8 wks	15-01-13
10	4.2.2. Identify beneficiaries and livestock group members	2 wks	04-02-13
11	4.2.3. Identify potential partners	1 wk	04-02-13
12	4.2.4. Establish contracting procedure	1 wk	11-02-13
13			
14	**Activity 4.3.: Formation of informal livestock groups and PMC**	**160 days**	**18-02-13**
15	4.3.1. Establishment of groups according to farmer preferences	1 wk	18-02-13
16	4.3.2. Formation of PMCs	2 wks	25-02-13
17	4.3.3. Training of PMCs	2 wks	11-03-13
18	4.3.4. Livestock training of farmers	4 wks	25-02-13
19	4.3.5. Organise livestock extension support	4 wks	25-02-13
20	4.3.6. Preperation of animal facilities	4 wks	25-02-13
21	**4.3.7. Training of VAHWs**	**135 days**	**25-03-13**
25			
26	**Activity 4.4.: Introduction of livestock**	**45 days**	**04-02-13**
27	4.4.1. Identification of improved breeds (livestock)	1 wk	04-02-13
28	4.4.2. Procurement of livestock	4 wks	11-02-13
29	4.4.3. Introduction of livestock to farmers	4 wks	11-03-13
30			
31	**Activity 4.5.: Continued operation of revolving scheme**	**780 days**	**08-04-13**
32	4.5.1. Extension support and other support	143 wks	08-04-13
33	4.5.2. One Year Cycle - Pigs and Poultry	52 wks	08-04-13
34	4.5.3. One Year cycle - Pigs and Poultry	52 wks	07-04-14
35	4.5.4. One Year Cycle - Pigs and Poutry	52 wks	06-04-15
36			
37	**Activity 4.6.: Monitoring and documentation of the impact and experienc**	156 wks	07-01-13



Project Implementation Plan Notes

On Activity 4.1.: Agro-Ecological Analysis (conducted by DAE, MAFF)

Re. Activity 4.1.1. AEA of 8 communes

Conducted by DAE, MAFF, follows the Project Implementation Plan of DAE.

Re. Activity: 4.1.2. Drafting and reporting of AEA in 8 communes

Conducted by DAE, MAFF

On Activity 4.2.: Development of plan for Revolving Livestock Scheme/Livestock Interest Group (LIG)

Re. Activity: 4.2.1. Detailed Action Plan and Modalities

This is the development of a detailed action plan for the entire Revolving Stock Scheme; including:

- Definition of detailed actions and modalities (i.e. in terms of types breeds of livestock to be distributed, distribution logistics, vaccinations, training of farmers, assessment and promotion of fodder production, farm-grown feed, feed conservation, etc)
- Identify beneficiaries and possibly other partners; e.g. local community based organisation or NGOs. Establish contracting procedure to such, if required.
- Establish the organisation and management to operate the project: This will include one part-time Project Technical Advisor and one full time Project Coordinator, residing at the Coast, and recruited and employed by CelAgrid. Additionally one full time Admin-Finance Assistant will be included. In addition, Community Facilitators (CF) will be selected for each location/province. The CF is likely to be selected from their own midst community. As Village Animal Health Workers live in the target villages, they will be used as Community Facilitators.

The detailed Action Plan would need to be confirmed by CARP before further field developments.

Re. Activity: 4.2.2. Identify beneficiaries and livestock group members

The potential farmers and their preferences (livestock interest group) for the first cycle of scheme participation should be identified. This may already to some extent have taken place during the AEA, but is in any case a consultative and facilitated process is to be completed under MAFF's Agriculture Association guideline.

Re. Activity: 4.2.3. Identify potential partners

For example local community based organizations, NGO, and Department of Provincial Agriculture (PDA)/or others.

On Activity 4.3.: Formation of informal livestock groups and PMC, first 1-year cycle

Re. Activity: 4.3.1. Establishment of groups according to farmer preferences/LIG

These groups will serve as focal point for the revolving scheme and it's supports (under the guidance of the Project Manager and Project Coordinator of CelAgrid and, among other, provide a basis for livestock recording and selection processes.

The organisation of interest farmers into groups should primarily be based on the guideline for Agriculture Association Establishment and particularly meeting the following criteria:

- Their preferences for type of livestock (pigs, poultry or other species)
- The capacity and previous experience of said interest farmers, including whether a farmer is adequately equipped in terms of production infrastructure, animal shelter and feeding facility.
- The group size should be flexible: it could range from, 15 to 25 persons, each from different households. Sub-groups can be formed under the informal livestock groups, based on the type of animal selected by the group members. In addition, non-salaried Group Facilitators (GF) for each livestock group will be selected. The GF is likely to be selected from their own midst by the respective groups themselves.

(All groups are encouraged to practice household non-farm activities including the group saving and micro-credit system. In this way group members can borrow from their group fund to expand their enterprises, including livestock).

It is furthermore imperative that there is a common understanding between farmers and Agriculture Association Establishment Agreement (Royal Decree) in relation to farmer's fulfillment of certain requirements and rules. Contractual agreements to this effect are to be entered into between the participating interest farmers and the CARP, plus possibly the Commune Councils, if this is appropriate. The Commune Councils will also give advice to the PMCs.

Re. Activity: 4.3.2. Formation of PMCs

One Project Management Committee (PMC) per commune.

A PMC will consist of representatives of each of the livestock interest groups (1 person per group), the designated Village Animal Health Workers (VAHW), project coordinator, the community facilitator and project coordinator of Celagrid. The PMC will be providing monitoring and participating in the operational management of the scheme in their area, including participating in the planning, monitoring and decision-making process as well as in selecting and purchasing the animals and other important activities related to the project. The village chief, commune council, and relevant government departments will be invited to serve as advisory body of the PMC in relation to project implementation and other concerned issues.

The PMC will meet on a quarterly basis, to discuss the project progress, review the project plan, and plan for the next quarter with the support from village chief, commune council, and relevant government departments.

Re. Activity: 4.3.3: PMC Capacity Building- Training of PMC

After the formation of the PMC, capacity building of the PMC members is needed. It is also imperative that PMC members have the capacity to manage the project and insure project sustainability after the project is ended. Training on project management, planning, monitoring, and communication and facilitation skills will be provided to PMC members followed by field coaching and mentoring during the life of the project.

Re. Activity: 4.3.4. Livestock training of farmers

Adequate Technical Training in animal husbandry, disease control, feed preparation, etc. (according to type of livestock) – prior to receipt of the first cycle of livestock and animal feeds. The series of Technical Trainings will be provided to all project families prior to receipt of the livestock, as mentioned in activities 4.5. In addition, training on group management and micro-credit management system will be also be provided to group leaders, so that they will be able to manage their groups effectively.

Re. Activity: 4.3.6. Preparation of animal facilities

All livestock interest group members are expected to build sufficient animal shelters after attending the series of technical trainings. The preparation includes appropriate animal shelter, feed and water system before the receipt of the improved breeds.

Re. Activity: 4.3.7. Re-fresher Training of VAHWs

A refresher training for Village Animal Health Workers (VAHW) should be conducted. One VAHW is supposed to exist per village – assumed about 30 at the 7-8 communes. If no VAHW exists in a participating village, such a person will need to be identified and trained.

3 refresher courses are to take place during 2013 – spread over the year with about 1 course per quarter and arranged at suitable times and place. A basic veterinary kit will in this connection be provided by the project to each participating VAHW (unit cost US$ 200).

These courses are very important in order to get the VAHW up to the knowledge and information on current matters and in order to ensure their adequate services for the project implementation.

<u>On Activity 4.4.: Introduction of small livestock (primarily pigs and poultry)</u>

Re. Activity: 4.4.1. Identification of improved breeds of livestock

Selected breeds must have a proven record of adequate productivity under Cambodian conditions. The livestock must be tendered and/or outright purchased in economic lots in order to cut down on logistics and other transaction costs; including initial vaccinations.

Re. Activity: 4.4.3. Introduction of livestock to farmers

Each LIG 'member (first cycle) will receive either 5 fattening piglets or 2 sows or 50 chickens or 3 goats. This will include small amounts of starter feed (about 20 kg per LIG/household) provided by the project. The project covers the cost of freight and related administrative cost/ceremonies.

<u>On Activity 4.5.: Continued operation of revolving scheme</u>

Re. Activity: 4.5.2. First Year Cycle - Pigs and Poultry

From March until May it is the period for LIG formation and training. As such livestock will not be placed until June/July. One production cycle for fattening pigs is in the range of 6 months and for sows at least one year. Chicken may be faster, however the project cycle is set at a one year cycle for all species of animals is adopted The continued cycle will be reinvested by the successful LIG member/household while the value of livestock investment will be returned for new formed LIG under the management of PMC following the same guideline of the first cycle.

Re. Activity: 4.5.3 & 4.5.4.: LIG Donation Cycle Management (second and third year):

This project is designed to innovate the community livestock investment enterprise targeted at the capacity building for LIG in livestock training, management and livestock business transformation. The project initially for the first LIG cycle is to provide technical training, management and some seed fund called Operation Cost and Livestock is the Investment Cost. The member/household of LIG of the first cycle is to return the Investment Cost to PMC and share time in training and community service for the second cycle LIG and so on. PMC will develop the investment plan to manage the returned investment fund from the first cycle and thus it may be regarded as the community development fund for livestock. PMC with built capacity will become the Community Development Body and thus leads to the sustainability as the project LIG families continue to multiply the impact of the project inputs and trainings even after the end of the project period. In addition, this project will further expand the impact through the general extension, increasing the number of families impacted by trainings, capacity building and local resource mobilization using the increased Community Development Fund. Each year, the LIG donation and business cycle management will be organized by the PMC and LIG members to celebrate achievement of the previous LIG cycle members who have fulfilled the return/donation contracts. All relevant groups will be invited to participate in the event.

Activity 4.6: Monitoring and documentation of the impact and good practices

A project monitoring plan will be developed and implemented by the CelAgrid project coordinator and manager. Project impact and good practices will be collected and documented for sharing with concerned government institutions, development partners, commune councils and the PIP groups and other relevant stakeholders for replication and/or expansion.

Management

The Project Management Unit and DAE, MAFF will be overall in charge of the demonstration activity, and as such refer to the CARP Management in all matters related to the demonstration activity. The CARP Provincial Working Groups for Sihanoukville and Koh Kong, respectively, will in this context monitor the implementation of the demonstration activity.

A project coordinator to be employed by CelAgrid will be the day-to-day responsible for carrying out the Demonstration Activity, and will as such cooperate directly with all concerned stakeholders, and with the CARP Provincial Working Group, in all matters related to the daily implementation of the demonstration activity.

Reporting

The formal reporting requirements are as follows:

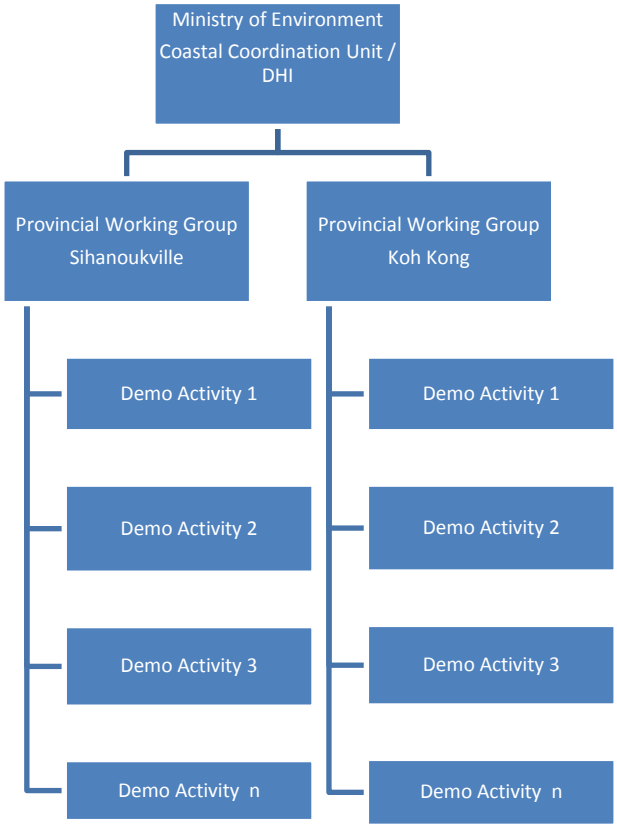
vii. Quarterly Progress Reports giving overview of both progress to date and plans for the next quarter. The report must highlight any impediments or constraints for implementation. The first report is due on 5 June 2013.

viii. Quarterly Financial Reports giving details of amount spend to date and budget plan for next quarter. The first report is due on 5 June 2013.

ix. Final Reports, including final financial report and accounts, giving overview of progress and objectives achieved, and recommendations for follow-up activities is due on 30 April 2014.

These reports will be submitted directly to the Coastal Coordination Unit, Ministry of Environment, with copy to the Provincial Working Groups for Sihanoukville and Koh Kong, and with copies to the concerned Commune Chiefs.

An overview of the CARP reporting structure is illustrated in the following diagram; while the composition of the provincial working groups is attached in Appendix a:


Ministry of Environment
Coastal Coordination Unit / DHI
Provincial Working Group Sihanoukville
Provincial Working Group Koh Kong
Demo Activity 1
Demo Activity 2
Demo Activity 3
Demo Activity n
Demo Activity 1
Demo Activity 2
Demo Activity 3
Demo Activity n

Appendix a: Composition of the Provincial Technical Working Groups

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Preah Sihanouk	***PhayPhan***	Provincial Hall	Provincial Deputy Governor	Chief
	Hem SaRoeun	DoE	Director	Vice Chief
	TithVuthy	Prey Nub District	District Governor	Vice Chief
	ChimKalyany	DoE	Deputy Director	Secretary
	Duong SamAth	Fishery Contonment	Director	Member
	Kev Pha	DAFF	Director	Member
	Sou Sok	DLMUC	Director	Member
	AngChanDara	DWRAM	Director	Member
	EmPheap	Provincial Development Unit	Director	Member
	PrakVisal	Provincial Admin Unit	Deputy Director	Member
	Pen SamBou	Prey Nub Commune	Chief	Member
	PrakSaRoem	Sammaky Commune	Chief	Member
	Hak San	ToeLaork Commune	Chief	Member
	Phoeun Nam	ToekThla Commune	Chief	Member
	Kea Vou	O OuknhaHeng commune	Chief	Member
	SoengSaReth	TuolTorToeng Commune	Chief	Member

Province	Technical Working Group			
	Name	**Institution**	**Position**	**Working group position**
Koh Kong				
	Say SuCheat	Provincial Hall	Provincial Deputy Governor	Chief
	Mon Phalla	DoE	Acting Director	Permanent vice chief
	Sao SinThuon	Provincial Adminstration Unit	Deputy Director	Vice Chief
	Chuon BunTHoeut	DAFF	Agronomy vice chief office	Member
	Lung KoemTha	DLMUC	Vice Chief office of LMUC	Member
	Irv Vannara	DWRAM	Deputy Director	Member
	Pen Vanna	MondulSeyma District	Deputy District Governor	Member
	Yem Yan	PeamKrasaop commune	Chief	Member
	KhoemSaNeth	KuolKorki commune	Chief	Member
	Hun Marady	DoE	Deputy director and CRC coordinator	Secretary
	Ul Ran	PeamKrasaop wildlife Sanctuary	Director	Member
	NeiBroHorsSaRith	DoE	vice Chief office of conservation	Member
	NouNguy	Fishery Division PeamKrasoap	vice Chief	Member

Appendix B: Budget and Schedule of Payments

Steps	Cost Estimate (details)	Amounts ($)	Payment Schedule
Activity 4.2	Project Establishment and logistical expenses (March '13): Personnel = 3,000 logistics and materials = 2,000 Contingencies: = 2,000	7,000	Upon contract signature
Activity 4.3	Formation of livestock Interest groups, PMCs, Training of VAHWs (March-Sept '13): 3 VAHW 1-week training courses @ $ 4,500 = 13,500 30 Vet kits @ $ 200 = 6,000 logistics and materials = 3,500 Training and meeting of PMC = 3,000 Contingencies = 2,000	28,000	Upon preparation of training schedule
Activity 4.4	Procurement of livestock, first cycle (Mar-Jul '13): 26 lots (each of 10 flocks[10]) of livestock x $ 4000 = 104,000 Animal Feeds (20kg per family): 6,000 Animal management/insurance: 6,000 Logistics at @ $100 per lot: 3,000 Vaccinations @100 per lot: 3,000 Contingencies: 2,000	20 ,000	Upon approval of Scheme Plan
Activity 4.5	Continued Operation of the revolving scheme: Cycle 1: (2012 / 13): Coaching services[11]: 14,000 Farmer Training[12] 8,500 26,500 Training expert: 4,000 Cycle 2: (2013 / 14) and Cycle 3: (2014 /15): will be under agreement with established LIG's	26,500	Do.
Activity 4.5- 4.6	Project Coordinator: 1 year @ $ 600/mth = 7,200 Project Advisor: 1 year @ $ 800/mth = 9,600 Local travel- coordinator: $200 / mth = 2,400	19,200	These amounts will be paid in

[10] A "flock" in here defined as either: (i) 5 small pigs (ca. 10-12 kg each); or (ii) 50 heads of poultry or 3 goats. Each flock expected to cost about $ 400.

[11] Coaching Visits by local experts (Project Coordinator and Project Adviser): Minimum 1.5 times per month during first year @ $ 50 per lot (10 x 50 x 28 = 15000 total).

[12] Farmer training in the first cycle technically belongs under Activity 4.3. However for budgetary purposes it is situated under Activity 4.5. The calculation is based on synergy between lot implementation

	CelAgrid Administration and support: $ 800 / mth first year Year 2 and 3 Administration and support $ 500/mth	9,600 12,000	quarterly instalments Year 2 and 3 will be paid at final payment.
Total:		226,300	

Appendix C. Demonstration Activity Description Activity 4

1. **Promotion of increased livestock keeping at Seven to Eight communes - by using a revolving/investment scheme for improved breeds – tested successfully in Cambodia including the Coastal area, Laos and elsewhere. This is in response to increased flooding problems as livestock are moveable as well as in response to community livelihood improvement, increasing the capital base and income generation, improved livestock enterprise and nutrition and food security at household level in response to the climate resilient development effort for farmers. Although livestock also need water and feed in the dry season the quantities of water involved are much less than for e.g. a ha of paddy; while fodder conservation makes it possible to manage dry periods.**

"The increase in extreme weather events, such as severe drought or floods, is likely to increase the importance of livestock for rural household, particularly for poor and remote ones. Livestock is much more resilient to climatic and natural changes or disasters than crop agriculture because livestock can be displaced and may find ways to survive events that will inexorably destroy crops. For rural household, and most particularly for poor rural households, livestock is thus of prime importance not only as tilling power, for traditional celebrations and emergency cash but also for income generation, savings, and adaptation to climate change" (EU 2012, page 12).

The major problem categories that plague livestock production in Cambodia are (a) diseases, (b) poor nutrition and (c) the low genetic potential of the local breeds. Disease could be minimised by vaccination, quarantine and management measures. Improved nutrition is both a management and a fodder availability problem. With the increase of population the availability of wild fodder or feed is getting scarce. The farmers also lack the knowledge and the capital to improve the situation. Similarly, there is little incentive to improving the genetic potential.

It is considered, however, that a revolving livestock scheme for improved breeds can address the abovementioned constraints. It will, in addition, increase the capital, income and nutrition base of the involved households, and thereby improve their livelihood prospects. The scheme can function as follows:

1. A few progressive farmers in each commune are selected to receive (as a grant with obligations) individual female animal(s) of an improved breed. The selected breeds must have a proven record of adequate productivity under Cambodian conditions. This could be pigs, or small flocks of ducks or hens, depending on local preferences and circumstances.

2. A pre-condition is that the first female[13] (and possibly more) offspring of these improved animals is donated (again as a grant with obligations) to a second selection of farmers in the same commune or village. Another pre-condition is that the farmers in question agree to receive advice and to follow certain guidelines on the husbandry of these animals. Contracts to the above effect are entered into between the concerned farmers and the CARP, plus possibly the Commune Councils, if this is appropriate. Subsequently 'Farmer Donation' in this way can, in principle, continue into eternity, or at least until all interested households have received their improved breed.

[13] Or the equivalent in cash.

3. Extension and disease control support must be made available through the Village Animal Health Workers (VAHW)[14] as well as from the Animal Health and Production Department at provincial levels. The appropriate training of these extension agents might be incorporated into demonstration activity 1, if feasible (to be decided).

4. A farmer or community based organisation at each participating village should be established to take responsibility for all appropriate measures in this context[15], and provide a basis for recording and selection process, without which the introduction of improved breeds simply may dissipate into the unknown.

5. It is suggested to distribute the livestock in lots of 10 to the same village or Farmer organisation for reasons of: (a) mutual support and (b) reducing logistical costs.

The implementation of this demonstration activity could be outsourced to an NGO or similar organisation with experience of operating such schemes or at least with experience in promoting animal production. The commune councils need to be party to such contractual arrangements, but do not themselves have sufficient experience and capacity to act as managers of this demonstration activity.

This demonstration activity would thus provide starting stock to farmers, as well as appropriate vaccination, feed pots, worming, and performance recording organisation in farmer groups. This will be accompanied with regular coaching in livestock management, nutrition, recording, pasture improvement, fodder conservation, etc. The incentive for recording, breeding selection and improved management could be provided by organising rural fairs in which prizes will be given to the owner of the best sow/hen. Prize money (or in kind) may be donated by the private sector as promotional action (CP feed, Pharma, vaccines…).

It will give farmers a tool to actually gain net income from produce livestock, and at the same time, deal with one of the major constraints, which is farmer's lack of capital to invest. This is to be done without actually making straightforward donations, which diminish ownership and motivation.

The concept is based on the experience of the EU-supported Livestock Farmer Support Project in Laos, Smallholder Livestock Production Programme (SLPP) in Cambodia 2005-10 and similar projects elsewhere. The former Coastal Zone Management Project 1997-2007 also used this concept. This experience has proven that the system of "Farmer Donation" (used by CelAgrid[16] for many years) is an effective way to introduce good livestock management practices. It is now also part of a major new EU-funded livestock sub-sector programme for Cambodia due to start beginning of 2013.

[14]The Department of Animal Health and Livestock Production, MAFF, has confirmed the existence of more than 14000 VAHW in Cambodia. These VAHW have received very basic training and may be able to perform very simple tasks for disease protection, surveillance and livestock production. It is MAFF policy to turn most of these VAHW into general village agricultural extension workers – and about 50% has received general extension training in this context by 2012. The VAHW are private agents and do not receive government salaries. Their existence at the target commune level has been confirmed by the team in the field at Tuol Korkr, but not yet at Prey Nob.

[15]Commune Councils may play a role in this as well but cannot replace a village level support group specialised in livestock production in this context.

[16]CelAgrid was also used to implement a similar activity under the Coastal Zone Management Project, 1997-2007.

<u>Proposal:</u> It is proposed to develop and cost an implementation plan for a 'rotating livestock scheme' as described above. In doing that emphasis will be on: (1) getting the scheme started and complete the first rotation round before CARP closure beginning 2014, and (2) establish sustainable farmer organisations and support mechanisms also before CARP closure in 2014 – thereby securing that the rounds of rotation can continue on the basis of the livestock donated in the first round.

DESCRIPTION	INDICATORS	SOURCE OF VERIFICATION	ASSUMPTIONS
Outcome: ***Doubling of participating household's income from livestock***	• Increase of average net household income by $200 per year[17] for each of 100 or more participating households after year 1 – with addition of 50 or more households per year thereafter	• Activity reports, reviews and evaluations	
Output 4: Revolving scheme for improved breeds of livestock	• Implementation of revolving stock scheme activities directly reaching 100 or more farming households in the first round of revolving in 7-8 communes by 2015.	• Activity monitoring, reviews and evaluations	• The activities supported will add sufficient confidence for farming household to take up the recommendations and gain income impact.

[17] Ref Annex 2, of mentioned report where (partial) livestock budgets show that such a level of increased income is feasible across all types of commonly reared livestock at the Coast. Tools for measuring net income are available in the CARP Report: "Analysis of Economic and Social Costs & Benefits of options for modified agricultural practises that are less vulnerable to impacts of climate variability and climate change", CARP, November 2012.

Activity 4.1: Development of the plan for the Revolving Stock Scheme; including: • Detail actions and modalities defined (i.e. breeds, distribution, vaccinations, training of farmers, promotion of fodder production, farm-grown feed, feed conservation etc) • Identify beneficiaries and partners • Establish contracting procedure	• The plan and its approval • Involvement of DAHP, PDA and Village Animal Health Workers (VAHW)	• Planning document and project reports	• Expertise for plan development is available
Activity 4.2: Contracting of CBO/FO/NGO for operating the Livestock Revolving Stock Scheme.	• Contracting negotiations and arrangements	• Signed contracts • Project reports	• Qualified contractors interested in bidding for contracts.
Activity 4.3: Implementation of the Revolving Stock Scheme during 2013 -15 mainly delivery and installation of first revolving round of livestock - and agreements with participating farmers for scheme continuation	• 100 or more farmer households enrolled and trained • 10 or more lots of livestock distributed	• Supervision and monitoring by CARP • Project reports	• Farmers' interest confirmed

Activity 4.4: Support program for continuation of the villages ' animal revolving stock schemes - involving VAHW, Commune Councils, District and Provincial Departments after 2015	• Number and type of local arrangements established • Inclusion into Commune Development Plans	• Project monitoring of activities and results • Ex-post impact assessment • Commune Plans	• Commune Council and Provincial Department commitments
Activity 4.6: Monitoring and documentation of the impact and experiences through steps i-v. (continuous)	• Monitoring by project staff and by external reviewers	• Monitoring and Review reports	• Project monitoring part of normal management duties at no extra cost

3.5Project Implementation Plan (PIP) for Demonstration Activity 5:

Awareness raising and resistant irrigation training in cooperation with MoWRAM.

Climate change awareness raising and training on climate change resistant irrigation in the target communes. A comprehensive training and awareness activity in relation to climate change impacts will be implemented applying experience from previous work in Cambodia. The work training will be done in all 8 selected communes. The demonstration activity is proposed for implementation through cooperation with a NGO and the established provincial working groups, who will be responsible for the implementation.

Title	Awareness raising in relation to climate Change and resistant irrigation training
Project Start	01-02-2013
Project Finish	31-03-2014

CC Education and awareness-building

Two closely related activities are proposed:

- Training-of-trainers
- Pilot education and awareness-building sessions at commune level

A kit for CC education and awareness-building was produced and successfully implemented under the NAPA Follow-up Project by Save Cambodia's Wildlife (SCW) in collaboration with MAFF, UNDP and GEF.

A cornerstone of the kit is a flip chart, consisting of 34 thematic pages, with artistic drawings and explanatory notes. The themes covered are CC impacts, CC mitigation and adaptation, safe water and sanitation, waste disposal, rural livelihoods, resource conservation, and urban implications.

The flip chart was developed with a view to education of extension workers and communities. In reality, it could serve as a tool for discussion from kindergarten to university level. It is very clearly based on the Cambodian CC agenda, but does not cover the specific coastal zone challenges and adaptation needs. Therefore if it is modified to include theme to the coastal zone agenda for CC adaption, it would be well suited for use in the coastal zone

The following activities are proposed under the CARP:

- *Amendment of the flip chart to add coastal themes, such as sea level rise; coastal/river mouth erosion; saline intrusion; mangrove habitats; sea grass and coral habitats; and perhaps costal infrastructure. (Soil deterioration and urban drainage would be other candidate themes, but could end up with being too much). (The highly relevant topics of floods and storms are covered already).*
- *Skipping some of the existing pages, in order to obtain a concise and manageable toolkit, possibly ending up with around 24 pages.*
- *Preparation of 3 sets of handouts, largely reflecting the rear sides of the flip chart pages, and clearly related to each page of the flip chart: One comprehensive set of notes in Khmer; a similar set in English; and a set of concise notes in Khmer.*
- *Training-of-trainers from the PWGs (2 sessions, one in each target province), based on preliminary versions of the revised flip chart.*
- *Pilot implementation at commune/village level (4 sessions, two in each target province), with feedback from participants and trainers.*
- *Adjustment of the kit (presumably mainly the handouts rather than the flip chart itself).*
- *Production of 50 flip charts.*
- *Development of an amended flip chart and handouts will be undertaken by SCW in dialogue with the PWGs and with technical support by the TA team. Hereby, the finalization of the toolkit will take place interactively with the training-of-trainers.*
- *Training-of-trainers (from the PWGs) will be undertaken by SWC, who will also participate in the initial pilot applications.*
- *The PWGs will undertake subsequent routine applications in the communes.*

FWUC strengthening

Training needs were identified and evaluated during consultations under CARP in May and June 2012. All of these are related to climate resilience/climate adaptation - in some cases directly and in other cases indirectly. However, only selected (priority) needs will be accommodated during the pilot training. The Prey Nob FWUC is well operated by any standard (and as compared with many other Cambodian FWUCs). It is not in need of basic training.

Two independent activities are proposed:

Two pilot FWUC training sessions, one in each province, each with a duration of 3 days, with 18 FWUC representatives participating in each session, with briefings on CC concerns and management options, and one day allocated for a site visit. This will improve awareness and understanding of CC-related challenges and options within CC resilient irrigation management and cultivation technology. Rice cultivation in the pilot area is in a stage of transition piloted by entrepreneurial farmers, from traditional long-term and low-yield (but tasty!) varieties, with one crop per year, to more contemporary (and climate-resilient) short-term and high-yield varieties. Most experience is from other parts of the country, where conditions are different. The transition can be supported by exchange of knowledge from elsewhere, as well as within the pilot area. On this background, the rationale of the training sessions is to learn from each other, exchanging experience and ideas between and among farmers and PWG members.

- *A 3-days programme is proposed:*

  Day 1: Introduction; briefings by provincial departments, Prey Nob FWUC, CARDI and the TA consultant; welcome dinner

  Day 2: Site visit to irrigated paddy fields/FWUCs/Farmers Associations in each province, including the Prey Nob Polder and (expectedly) TuolKokir

  Day 3: Panel and plenary discussions, conclusions and recommendations

A study exchange visit to Cuu Long Delta, with 24 participants (16 government employees and 8 FWUC representatives), and a return visit with 8 participants. This will assist in achieving an understanding of proven technology and management options related to salinity control of paddy fields and high-yield cropping, from an environmental setting similar to the one in the CARP target communes. TheCuu Long Delta is located 2-300 km from the target area. It is exposed to seasonal (dry season) sea water intrusion, affecting irrigation and urban water supplies. Irrespectively, the Delta is intensely cultivated, with rice yields around 4 t/ha in the wet season and 6 t/ha in the dry season, along with fruit trees and aquaculture. The new climate-related challenges to paddy farmers in Cambodia's coastal zone are well known in the Cuu Long Delta. Experience has been built over decades in salinity control, soil management, and brackish water production systems other than rice cultivation. Technologies have been adapted with support from the scientific community and governmental technological service institutes.

- *There is a clear scope for gaining insight in this experience for the purpose of Cambodia's coastal zone. For the purpose, one study visit and one return visit are proposed:*
  - *A 4-days visit by representatives from provincial departments and the governors' offices, and some FWUC representatives*
  - *A 2.5 days return visit by Vietnamese resource persons for review of impressions and lessons learned on the background of the Cambodian development agenda*

The activities regarding the FWUCs will be implemented by the Provincial Working Groups, with initial support from CARP.

Active participation has been assumed by

- *Provincial Department of Environment (involved in CC adaptation)*
- *Provincial Department of Agriculture (involved in cultivation technology)*
- *Provincial Department of Water Resources (involved in irrigation system operation)*
- *The Provincial Governors' Offices*
- *The Prey Nob FWUC*
- *CARDI*
- *Perhaps a rice miller*

In Vietnam:

- *Southern Institute of Water Resource Planning (SIWRP), and/or Southern Institute of Water Resources Research (SIWRR); and/or*
- *Can Tho University: Faculty of Agriculture, and/or Faculty of Technology*

Appendix A: Budget

	Activity	**Costs** **$**	
Activity 5.1	**CC Education and awareness-building** Prepare the toolkit, Conduct training-of-trainers, PWG The PWGs will conduct the commune-level sessions One suite of sessions in Preah Sihanouk Province One suite of sessions in Koh Kong Province Documentation and reporting Adequate documentation (in Khmer) will be provided, in support of replication A feedback survey of the quality and the relevance of the training will be conducted during the pilot sessions	20,000	
Activity 5.2	**FWUC strengthening** CC resilient irrigation system operation and management Drainage and salinity control Soil management Disaster preparedness: Floods and storms Choice of seeds, including short-term and high-yield varieties Use of pesticides and fertilizers	10,000	
Activity 5.3	**Study tour – Vietnam** Detailed programme One study tour One return visit Documentation and reporting	15,000	
	Contingencies	5,000	
	Total	**50,000**	

3.6Project Implementation Plan (PIP) for Demonstration Activity 6:

Adaptation measures integrated into Commune Development Plans in 8 communes in cooperation with.

Adaptation measures integrated in Commune Development Plans in 8 communes. Concrete demonstration actions will be done in each of the target communes based on the planned activities in the 2013 commune investment plans and implementing actions that will make the communes more resilient to climate change impacts. The demonstration actions will be conducted in cooperation with the commune councils, districts and the provincial working groups.

Title	Adaptation measures integrated into Commune Development Plans in 8 communes
Project Start	01-02-2013
Project Finish	31-03-2014

Description

Climate change adaptation planning is to be based on the specific contexts of the communes. Although communes may face similar climate change scenarios (if not the same), the risks from such scenarios may not be the same. Therefore the responses to said CC will often differ. Community based adaption identifies and implements community-based development activities that strengthen the capacity of local people to adapt to living in a more risky and less predictable environment. Moreover, community-based adaptation creates adaptation strategies through participatory processes, which involve local stakeholders and development and disaster risk–reduction practitioners alike. These processes build on existing norms and address local development concerns that are the reason why the people are so vulnerable to CC in the first place.

The objective of this activity is the mainstreaming of climate change adaptation at the commune level; and that the Capacity for development planning under conditions of climate change improves.

The Commune Law mandates all Communes to adopt a five-year Commune Development Plan (CDP). The Plan is to be prepared and approved by the Councils in the first of the five years of their mandate, and must be reviewed and updated yearly. The CDP is meant to provide the framework for a multi-year Commune Investment Program (CIP) and for the preparation of the annual budget. Therefore it is important that climate change adaptation is mainstreamed into the planning process of said CDP. As such climate change will be an important aspect in the identification of service needs and development problems that affect the respective communes; in turn transforming these priorities into clear-cut objectives and goals; and formulating and costing projects and wider cross sector programs.

Presently the The*Local Governments and Climate Change Project (LGCC)* is implemented by NCDD and piloting on demonstrating the role that sub-national administrations can play in fostering climate change resilience. The project provides climate change adaptation investments in service delivery and a number of physical commune based projects in Takeo Province. The project is designed to use government planning framework and financing pathways and thus represents a suitable case for mainstreaming climate resilience into development planning at sub-national level.

In the coastal area a similar approach will be implemented in relationto screening and assessing proposed commune projects in relation to climate change.

Several consultations have been conducted at the provincial, district and commune levels in the two target areas in order to disseminate information about climate change to provincial and district officers and commune councils. Coping strategies and vulnerability in the areas have been assessed to identify the vulnerable groups, the character of the vulnerability, and related options and challenges.

These findings will be applied with the commune council members, PWGs for selecting and climate proof projects in the Commune Investment Plan for 2013 and in consultation with the communes and the communities. The CARP will provide the technical assistance to support this process and for carrying out feasibility evaluations and climate change measures. The intention is that the projects should be partly financed through the commune budgets and the remaining from the CARP

demonstration budget. During this process, the technical support from the provincial working group is expected to be the main facilitators.

The following criteria will be applied for selection:

- The proposed project must be picked from the 2013 commune investment programme
- The project must consider the most vulnerable communities
- The proposed project must respond to climate change adaptation
- The project must be located in a vulnerable area.

The projects to be conducted will be described and could be included as annexes to the investment plan.

There is a scope for coordination between climate screening and screening for EIA/Strategic Environmental Assessment, as provided for in new legislation (in preparation). Such screenings should take place at an early stage of the planning cycle, where a scope remains for adaptation. This will be considered as a training element in the present activity.

Appendix A: Budget

	Activity	**Costs** **$**	
Activity 6.1	Identification and selection of relevant projects in the 8 communes – assisted by project team	-	
Activity 6.2	Climate change related work for identified projects in the selected communes. Budgets will be detailed for each project. 8 projects @ 10,000 $	80,000	
	Total	**80,000**	