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Consulting Services for Community Based Disaster Risk Management (CBDRM) and Farmer Water Users Community (FWUC) Support

FINAL REPORT 2019

Prepared for
Ministry of Water Resources and Meteorology
Royal Government of Cambodia

by
Agrifood Consulting International

in association with

International Centre for Environmental Management (ICEM)

PREFACE

This document is the Final Report related to the assignment *Consulting Services for Community Based Disaster Risk Management (CBDRM) and Farmer Water Users Community (FWUC) Support,* a subproject of the ADB No: 40190 - Greater Mekong Sub-region Flood and Drought Risk Management and Mitigation Project (GMS-FDRMMP). The report has been prepared under the guidance of the Central Project Management Unit (CPMU) of the Ministry of Water Resources and Meteorology (MOWRAM) of the Royal Government of Cambodia. The Consultant's Team would like to thank the guidance of H.E. Dr. Ponh Sachak, Project Director, and Mr. Bak Bunna, Project Manager. The Consultant Team is grateful to the numerous persons met in Phnom Penh and in Pursat province for sharing their ideas and generously giving their time. The views in the report are those of the Consultant's Team and do not necessarily reflect the views of MOWRAM.

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Phnom Penh, 31 August 2019

EXECUTIVE SUMMARY

Community Based Disaster Risk Management and Farmer Water Users Community (CBDRM-FWUC) is one of the three components of the GMS Flood and Drought Risk Management and Mitigation Project (GMS-FDRMMP). The Project is implemented by Ministry of Water Resources and Meteorology of Cambodia (MOWRAM). CBDRM Team have been working with communities in 50 villages located in 5 commune and 2 Districts of Pursat province. The communities are located in the command area of the Damnak Chheukrom Irrigation System of the GMS-FDRMMP.

The CBDRM-FWUC component started in September 2015. Its first phase was completed in September 2017. An Extension Phase was implemented between January and August 2019 to support the implementation of selected disaster risk reduction investment measures proposed by communities in their Village Safer Plans (VSP).

During the first phase, the CBDRM team has completed a number of activities including Hazard, Vulnerability, and Capacity Assessment (HVCA), Training Need Assessment (TNA), preparation of CBDRM Guideline, CBDRM Training Material, recruitment and training of Master Trainers, implementation of CBDRM training in the 50 target communities of the GMS-FDRMMP, preparation of 50 Village Safer Plans, support to the FWUC Department in the establishment of FWUC, development of a toolkit on Practical Risk Reduction Measures for Flood and Drought, and organization of a regional conference on CBDRM and Climate Change Adaptation.

During the extension phase, the CBDRM team worked with communities to select the pilot investment measures to be implemented, conducted training in agricultural techniques to strengthen resilience of communities, conducted a feasibility study and assessment of the proposed investments, started the training of FWUC, and conducted a safeguard assessment of the proposed investments.

Contents

1. INTRODUCTION

1.1 Background

1 Cambodia faces high level of risks associated with multiple natural hazards and experiencing flooding and drought almost every year. Rural communities have borne the impacts of such natural hazards consisting primarily of floods followed by drought, and intermittent epidemics and storms. In certain years flooding becomes excessive and results in the loss of human lives, destruction of crops and livestock, affecting homes and the prevailing network of community infrastructures such as schools, health clinics, irrigation systems, rural roads and bridges. Ketsana in September 2009 resulted in damage and losses estimated at $131 Millions in Cambodia. Recent prolonging drought in 2015 had struck 185,451 hectares of rice crops within 13 provinces of the country. Although floods are the more intense and visible disaster, droughts have a serious potential to affect more people and cover relatively a larger geographical area. Over the past years, Cambodia has been increasingly affected mostly by widespread localized agricultural droughts.

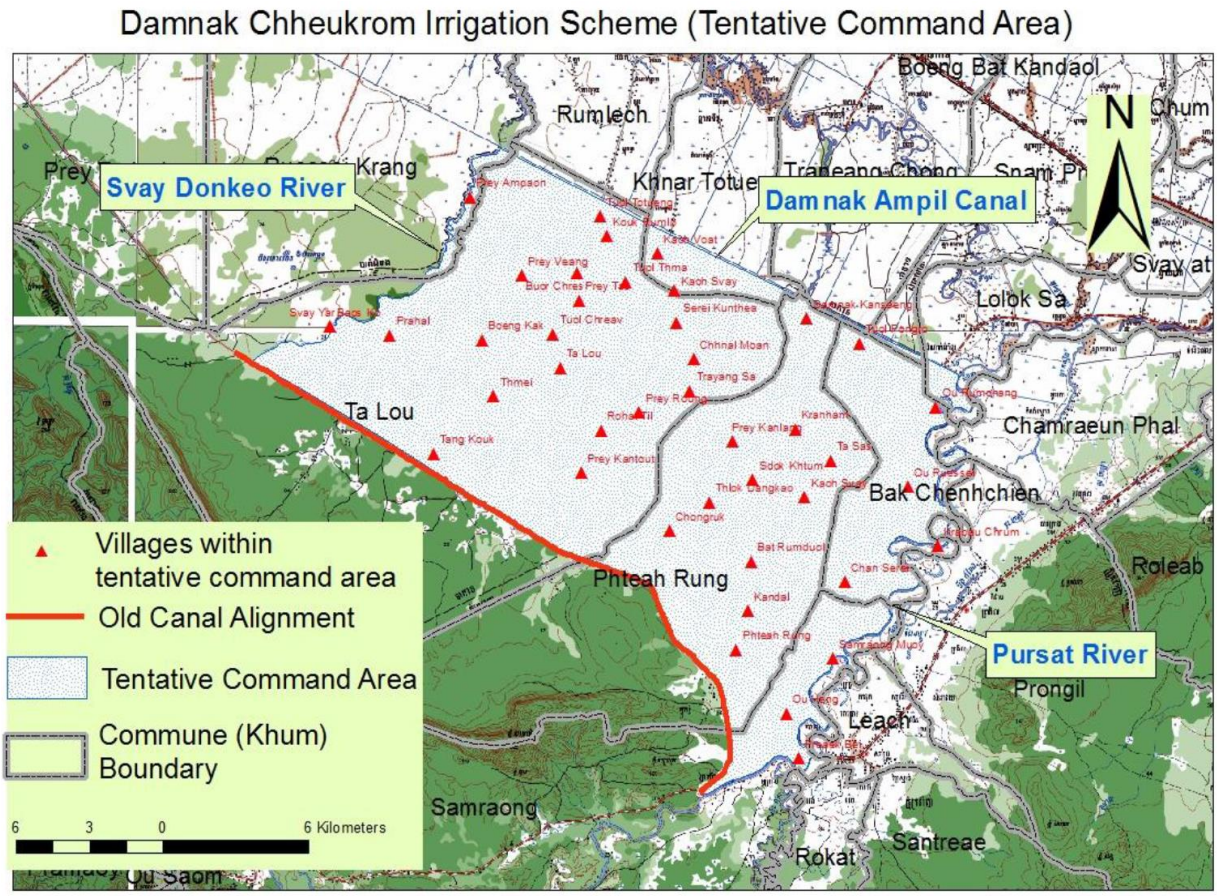
2 Pursat province, in which the project target area is located, is prone to natural and human-made disasters, including flood, drought, typhoon, lightening, river back erosion, fire and epidemics, landslides, forest fires, animal and insect infection, landmines and force eviction. The most vulnerable during disaster occurrence includes the poor, women headed households, children, old people, and the disabled. Almost every year during the monsoon season flooding and flash floods cause significant losses to lives, injury, loss of livestock, and damages to housing, crops and community infrastructures. On the other hand, droughts also affect the existing food security of the rural population, as they either destroy or damage crop production and livestock. Drought does not only occur during the dry season, but also within the wet season when the time lag of precipitation events exceeds more than two to three weeks.

3 Community Based Disaster Risk Management and Farmer Water Users Community Support (CBDRM-FWUC) is one of the three components of the GMS Flood and Drought Risk Management and Mitigation Project (GMS-FDRMMP) which is implemented by Ministry of Water Resources and Meteorology of Cambodia (MOWRAM).

4 The implementation of the CBDRM component started in September 2015 and will end on 31 August 2019. The original period of completion was September 2017 (Original Phase of the assignment). However, the PMU decided to extend the project to 31 August 2019 (the Extension Phase) to include a pilot phase of investment in disaster risk measures with the targeted communities and to complete FWUC capacity building activities that were postponed due to delayed construction work of the irrigation system of the overall project.t The Extension Phase covers the period 3 January 2019 to 30 August 2019.

5 During the CBDRM Original Phase, CBDRM Team had completed the majority of its TOR, and a few activities were carried over to the Extension Phase. Due to limited time given to the Extension Phase of the CBDRM Component, not all proposed activities can be completed by the end of the CBDRM Extension phase. However, it was agreed that those activities that could not be completed during the Extension Phase, they will be implemented by the project management unit at the project central level (CPMU) and by the project implementation unit (PIU) in Pursat province.

Figure 1. Map of Project Target Area



Source: CBDRM 2016, Inception Report

1.2 Objectives of the Draft Final Report

6 The Draft Final Report presents the progress during the Original Phase (September 2015 to September 2016) and the Extension Phase (January to August 2019).

1.3 Output of the Assignment (Original Phase and Extension Phase)

1.3.1 Outputs of CBDRM Original Phase

7 The assignment, of the CBDRDM Original phase, is to provide support for Community-based Disaster Risk Management (CBDRM) and Farmer Water Users Community (FWUC). The assignment has the following seven outputs:

Output 1. Provincial, District, Commune and Village level participants from selected areas trained in flood and drought risk assessment and analysis, prioritization, definition and implementation of locally appropriate flood and drought risk management measures.

Output 2. Safer Village and Commune Plans developed, utilized and updated

Output 3. Community-driven flood and drought risk reduction measures implemented in all selected communes
Output 4. Local level Coordinating Committees organized and managing the CBDRM implementation
Output 5. Technical Support and services available to provide technical assistance to the coordinating Communities
Output 6. Local facilitators recruited and trained to support village and commune planning and implementing risk reduction strategies in participating communes
Output 7. A CBDRM model formulated and implemented in the project area

1.3.2 Outputs of the Extension Phase

8 The assignment of the CBDRM component in the Extension Phase is to focus on building up the community capacity through the practical or hand-on knowledge and experiences to ensure that the theoretical knowledge they learnt through the CBDRM Training during the Original Phase of CBDRM, will be sustainable. Extension assignment has three key output as follows:

Output 1. Communities implement investments in infrastructure needed to improve resilience to disaster and water use management and irrigation, consistent with their safer plans and FWUC sub decree.
Output 2. Communities have adopted improved crops and animal husbandry techniques that make them more resilient to climate change disasters of drought and flood.
Output 3. FWUC are able to manage the water in Damnak Chheukrom irrigation system.

9 It is noted that the investment in piloting physical risk reduction measures will be implemented by the project management unit and/or project implement unit. The CBDRM consultants in the Extension Phase provided some supporting roles in implementing those measures. The roles and responsibilities of CBDRM team, CPMU and PIC were clearly made to all concerned parties in the Concept Note development by the consultant team before the actual implementation of activities started in January 2019. (See the concept notes for piloting community ponds and irrigation field channels in Appendix 1 and Appendix 2, respectively)

1.4 Organization of the Report

10 The Final Report is organized into 4 chapters.

Chapter 1. Introduction
Chapter 2. Main Achievements
Chapter 3. Issues
Chapter 4. Conclusions

2. MAIN ACHIEVEMENTS

11 The achievements of the Consultant Team during the CBDRM Original Phase and Extension Phase are presented separately in the following sections.

2.1 Original Assignment

12 All the key activities undertaken by the consultant team of the CBDRM Component are described in the subsections below. It should be noted that completion reports of each activity were prepared and submitted to the project management unit throughout the project implementation period. The summary of those reports will be presented in this report in order to give the readers a full overview and understanding of the project.

2.1.1. Hazard Vulnerability and Capacity Assessment (HVCA)[1]

13 CBDRM component adopted the Hazard, Vulnerability and Capacity Assessment (HVCA) tool for collecting baseline information from the communities in the target area. The tool was successfully implemented in Cambodia. However, the CBDRM team had developed its own HCVA template (questionnaire) in order to subsequently summarize the collected data. HVCA initiated participatory risk assessment to assist the community with the identification of risk reduction measures, both structural and non-structural, and prioritize these measures by the community. Furthermore, HVCA included the preparation of village maps (or social maps), hazard maps, disaster records, socio-economic activities, stakeholder maps and gender roles.

Figure 2. HVCA exercise in Kouk Rumlor Village (a), and Rohatil Village (b), Talou Commune, Talou Sen Chey District. ***(New administration)***

Source: CBDRM Team

14 HVCA activities were conducted by different groups of the CBDRM team. On average, the HVCA data collection took at least 3-day time for one village for one team. This activity started in late December 2015 and was completed in the second week of April 2016. Below is the information the team collected through the HVCA tool:

[1] The detailed report on HVCA was submitted in quarter 4 of 2016

a. **HVCA filled questionnaire**: This is a tabular questionnaire of 31 A4 pages which is used as one of the key tools of HVCA. It contains the summary information about each village. The questionnaire is divided into 10 sections as listed below:
   i. General information (about each village)
   ii. Geographical Data
   iii. Population Data
   iv. Water, Sanitation and Hygiene
   v. Socioeconomic Data
   vi. Disaster Events and Vulnerability Assessment
   vii. Disaster Events Response and Capacity Assessment
   viii. Mitigation Mechanisms
   ix. Institutional Setting
   x. Interviews/Chart (Case Study, Stories on Disaster)

b. Village Map/Social Map: It is a geographical map of each village which was jointly drawn by community people and the CBDRM Team. This map depicts all village assets in their approximate locations within the boundary of the village. For example, it tells the location and type of houses, location of water wells and ponds, location of schools, pagoda, health clinics, safe sites, roads, canals, etc.

Figure 3. Village Map/Social map Trayorng Sar Community.

Source: CBDRM Team

c. **Hazard Map**: It is the second geographical map of the HVCA tool. This map shows which part of the village hazards stroke in the past, and potential strike in the futures. Two key

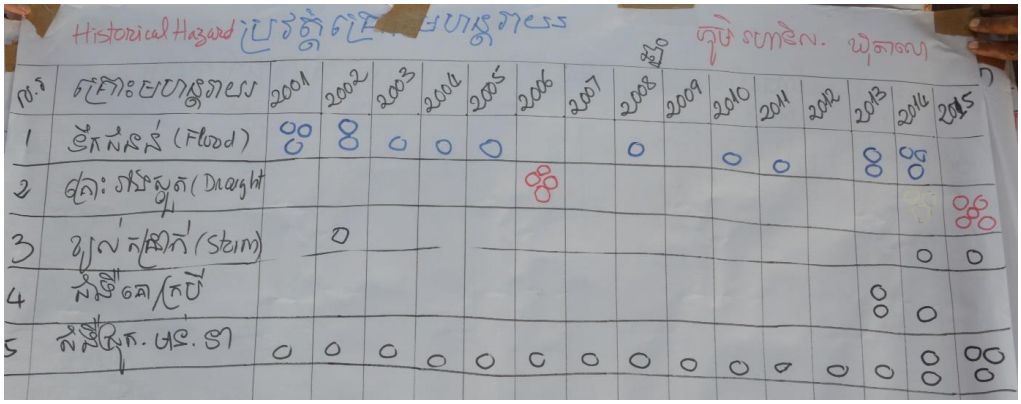
hazards—flood and drought are shown in the Hazard Map. See a sample of hazard map in the figure below.

Figure 4. Hazard Map of Trayorng Sar Community.

Sources: CBRRM Team

d. **Historical Hazards**: This is a tabular data record of different hazards that stroke the community within the last 10 years. It tells what hazards the community experienced in the past, in which year those events happened, and what are the level of their intensities (from minimum 1 to maximum 5). The intensity level of each hazard is determined by the community based on the size of damage or destruction or severity of the impacts. See an example of such tabular data in the table below.

Figure 5. Table of historical Hazards of Rohatil Village, Talou Commune, Bakan District (Pursat Province)



Source: CBDRM Team

Note: The second column of the table above is the list of Hazards, Starting from 1. Flood, 2. Drought, 3. Storm and Wind Gust, 4. Animal Disease (Cattle), 5. Animal Disease (Poultry)

e. **Seasonal Hazard**: This is the same type of record as the Historical Hazard, but it tells in which month of the year, from January to December, what disasters occurs, or in other word in which season (wet or dry season) what hazards strike the community.

Figure 6. Table of Seasonal Hazards of Sam San Village, Talou Commune, Ban Kan District (Pursat)

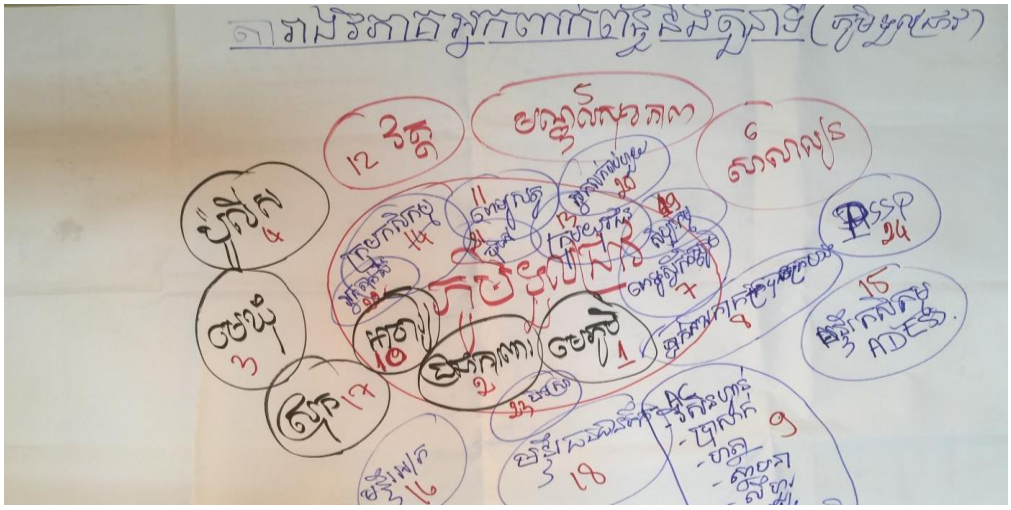
Source: CBDRM Team

f. **Seasonal Economic Activities**: It lists all the economic activities (e.g. rice farming, animal raising, labor selling, migration, etc.) in a community, and it shows what activities happen in which month of the year.

g. **Stakeholder Analysis**: All the stakeholders related to the community are displayed on this map (Venn diagram). It tells which stakeholders are in the villages, and who come from outside the villages. The role of each stakeholder is attached with the Venn Diagram, see

HVCA Report. The level of importance of different stakeholders for the community is measured by the community themselves. See Veen Diagram below.

Figure 7. Stakeholders Analysis Chart for Toul Chreav Village, Talou Commune, Bankan District (Pursat)



Source: CBDRM Team

h. **Gender Roles**: The roles of man and woman are presented by group discussion activities. The participants were divided into two different groups, a group of female participants and a group of male participants. The gender role was discussed for three different phases of the disaster cycle—before, during and after a disaster strike. This tool tells what men and women do and what activities they share in order to manage the impact of disasters.

i. **Photos**: Several photos are used as part of the HVCA Data record. The photos illustrate key features of each village. They will help the data analyst to better understand village vulnerability and capacity, then better assess village disaster risk to different hazard.

j. **Village Data Book**: Many villages have a Village Data Book in which a lot of useful information is recorded. Whenever available, the consultant team reviewed this document and extracted information for the HVCA.

15 All information collected through the HVCA Tool listed above, except photos and village data book, were entered into a computer system (Excel sheets for the tabular records and ArcMap of the GIS program Social Maps and Hazard Map). The answers in the questionnaire from each individual village were entered in the Excel Spreadsheet as the baseline data for the project, and it is organized in such a way that the analysis and data inquiring can be easily done in a systematic way. The database was submitted to the PMU in Quarter 4 of 2016.

2.1.2. Training Need Assessment (TNA)[2]

16 Training Need Assessment (TNA) was conducted using two complementary methods—Analyzing the HVCA data and Consultation with community leaders (Village Heads, Commune Heads, and District Heads).

17 As mentioned in the previous section, the HVCA was completed in the first half of April 2016. The assessment of the capacity need for the target community was done to some extent by the CBDRM team using the data from the HVCA. However, a separate consultation workshop was held in late May 2016 to verify with the community leader about the lessons learned by the team during the analysis of HVCA data.

18 The findings from the TNA exercise, in the form of consultation workshop, are used for the development of both CBDRM Guideline and CBDRM Training Materials which will be described in the next section. In addition to the content of the training, the ideas from the community and target trainees related to the timeframe and training implementation method were also taken into consideration for the design of the community Training.

2.1.3. Development of CBDRM Guidelines[3]

19 The CBDRM Guidelines provide master trainers and practitioners a text with comprehensive directions and reference materials to conduct a basic 5-day training of communities in disaster risk management. The Guidelines guide trainers how to build-up their knowledge and skills, in order to enable communities to implement various steps and stages regarding CBDRM. While describing implementation processes and specific actions, it forms the basis to develop and enhance the capacity of communities to establish a set of activities to develop more resilience against hazards as a community, and on a household level to increase preparedness and readiness in case a disaster strike.

20 This Guidelines are primarily intended for trainers, practitioners and professionals to provide an appropriately adapted training to community level volunteers. The purpose and scope of the guidelines is to facilitate the local authorities and district/provincial government officials to enhance their capacity on CBDRM.

21 The training at the community level was provided by the master trainers and implemented among the communities of the 16,100-ha command area comprising 45 villages in the Bakan and Phnom Kravanh districts of Pursat province.

22 It is anticipated that the CBDRM Guidelines will become a readily available tool to be used by the National Committee for Disaster Management (NCDM), Ministry of Water Resources and Meteorology (MOWRAM) and NGOs in Cambodia for training the local communities and government officials. This guideline is used as a key source for the development of the Training Materials CBDRM Training of Trainers (ToT) course and may not be considered as a manual for direct use at the village level. Other target audiences who can benefit from the implementation of this CBDRM Guideline may include:

- NCDM and its correspondent organizations at provincial, district, commune, and village level
- MOWRAM and its provincial departments
- International and local NGO
- Cambodia Red Cross

[2] The detailed report on TNA was submitted in Quarter 4 of 2016.

[3] The detailed report on CBDRM Guidelines was submitted in Quarter 4 of 2016.

- National and International Development Agencies
- Individuals and organizations who works on CBDRM issues/project

2.1.4. Development of Training Manual[4]

23 The training material (Content) on Community Based Disaster Risk Management (CBDRM) was developed by different specialists of the CBDRM Team. The material was prepared in PowerPoint Presentation format in both languages—English and Khmer. The material was developed in accordance with the CBDRM Guideline described in the previous section.

24 The training content was organized into 9 different modules.

Module 1. Introduction to the Project and Training. This first module covers the general introduction to the GMS-FDRMMP, introduction to the CBDRM Component and introduction to the target project area.

Module 2. Introduction to CBDRM. This module introduces the participants to the key terminology used in the CBDRM, CBDRM principles and introduction to CBDRM planning.

Module 3. CBDRM Structure in Cambodia. It presents the existing mechanisms of disaster risk management in Cambodia as a whole and in the target project province-Pursat. This module highlights also who are the key practitioners of DRM in the country.

Module 4. Community Disaster Risk Assessment. This module provides principles, concepts and steps for a disaster risk assessment for both CBDRM practitioners and communities. Some additional key terminologies are introduced in this module.

Module 5. Emergency Preparedness and Response Management. This covers the emergency cases. It considers measures to be implemented by community just before, during and after a disaster strike a community.

Module 6. Flood and Drought Risk Reduction Measures. Module 6 discusses the measures that should and could be implemented by communities (family level, and community level), local authorities and higher government agency level, department partners and NGOs. Only two types of hazards are considered in this module—Floods and Droughts.

Module 7. CBDRM Planning. CBDRM Planning is the key subject of the whole training. This module combines the knowledge of the first 6 modules together so that a CBDRM plan can be built. The Master Trainers will train the village CBDRM Group to enable them build up a Safer Village Plan by themselves in the future.

Module 8. Participatory Monitoring and Evaluation. Simple basic concepts of the Monitoring and Evaluation is provided in this module. The community will be key evaluator of the implementation of all Disaster Risk Management activities.

[4] The detailed report on Training Manual was submitted in Quarter 4 of 2016.

Module 9. Community Facility Skills. Knowing the content of CBDRM is important for the Trainers; but even more important is having the skills to transfer knowledge to the community. Module 9 provides techniques and skills of how to effectively facilitate and train the community so that they can absorb the subject as much as possible.

25 The material (PowerPoint Presentation in both Khmer and English Version) is available to be shared with all project stakeholders and DRM practitioners.

2.1.5. Recruitment and Training of Trainers

26 Recruitment and training local facilitators (also referred to as *master trainers*) is one of the key outputs (output 6) for the CBDRM-FWUC Component of the GMS-FDRMMP. The recruitment of Master Trainers followed the following 5 steps:

a. ***Development of TOR:*** This activity was completed by the CBDRM Consulting team in April 2016.
b. ***Vacancy announcement:*** Two types of media, web page (www.*Bongthom.com*) and local radio channel, were used to disseminate the job announcement, from 1 to 20 May 2016.
c. ***Application evaluation and shortlisting:*** 119 applications were received by the deadline date of the announcement; 44 (37%) out of 119 applicants were female. Of this total number, 24 top scoring candidates were shortlisted, 7 females, and 11 from Pursat province.
d. ***Interview****:* The interview was conducted for three days in the 3rd week of June, in Pursat PDWRAM Office. All the 24 shortlisted candidates were invited. However, only 19 candidates came to the interview, and others five dropped. Sixteen (16) out of 19 candidates (top scores) were selected for providing the TOT courses.
e. ***TOT Evaluation:*** The final evaluation was carried out during the TOT course. During the TOT, the Master Trainer Candidates were required to provide a trial test of training with community. The Consultant Team evaluated the training ability, selected the top 8 candidates to work with the Consultant team to provide training to the community. The TOT occurred between August 29 and September 12, 2016.

27 The Training of Trainers (TOT) is one of the key outputs of the CBDRM Component. The TOT was held during 15 consecutive days and without weekend break, from 29 August to 12 September 2016, in Pursat Province. Sixteen (16) Master Trainers' candidates were invited to the training, but for different reasons, only nine (9) of them could join and fully complete the course. The total number of trainees was thirteen (13) with the additional four trainees represented by the project counterparts (3 from the CPMU, and 1 from the provincial level).

Figure 8. Training of Trainer (TOT) activity

Source: CBDRM Team

28 The training aimed at providing and reinforcing knowledge and skills on CBDRM to the Master Trainer candidates who passed the interview stage of the Master Trainer recruitment process. The participants gained both the knowledge on the CBDRM subject and the community training/facilitation skills from intensive 15-day-training course. Among the nine (9) Master Trainer candidates, the eight (8) most qualified were recruited to provide the training on CBDRM to communities (46 villages) within the project target area.

29 The training was divided into two main sessions—class work and field practice. The class training was conducted in KM Hotel, in Pursat from Day 1 to Day 12 of the training program. The field practice work was conducted in four villages during Day 13 to Day 14. The last day of the training (Day 15) gave the opportunity to provide overall evaluation and sharing of lessons learned, and it was again done in the KH Hotel room.

30 Field practice took two days, after the completion of the class training. The trainees were divided into 4 group of two and three persons (namely, 3 groups of 2 trainees, and 1 group of 3 trainees). Each group provided a training to one village which were selected by the CBDRM team. The trainees had half a day to prepare for this field work. The subjects for the field training was provided by the Trainers and included material from Module 5, 6 and Module 7. The 4 trainee groups had to perform the training with the communities in 4 different villages. Each group was evaluated by all the CBDRM Team trainers.

2.1.6. Training the Communities on CBDRM

31 The community training on CBDRM is one of the key outputs of the CBDRM Component. The training aims at strengthening both community people and community leaders with the capacity to manage the potential impacts from natural disasters, especially flood and drought. The community, in addition to the existing knowledge and experiences from the disasters occurred in the past, would be able to understand the potential hazards, and the measures to be implemented in order to reduce or avoid the potential impacts from those disasters. The capacity building was not limited to the training on the subject of the Disaster Risk Management, but it also included the preparation of the CBDRM Plan or Safer Plan[5], and this plan was presented by the community leader (village leader), to the commune leader. The commune would integrate the key interventions (measures which are planned in the Safer Plan) into its Commune Investment Plan (CIP) and/or Commune Development Plan (CDP).

[5] Safer Plan is the term used in the Project Terms of Reference. It is called Emergency Preparedness and Response Plan (EPRP) in the Cambodian context.

Figure 9. Planning exercise during conducting BDRM Training in Pteah Rung Village, Pteah Rung Commune, Phnom Kravanh District (Pursat)

Source: CBDRM Team

32 The subjects to train the communities were derived from the training materials used for the Training of Trainers. The material used for the community training were sufficiently clear to allow all community members, even those without literacy, to absorb the contents of the training. Interactive training facilitation skill was provided to the master trainers during TOT, and with this community facilitation the trainers would facilitate participation of the trainees in the training activities. The participatory approach was found to be a very good way for communities to learn the content of CBDRM.

33 The Training on CBDRM for the 46 target communities[6] (villages) started in the third week of October. The training will be rolling out during a period of 6 months, from October 2016 to April 2017. The training was provided by the 4 teams each consisting of 2 selected Master Trainers. One group of two Master Trainers trained two villages per month. In consideration with the result of TNA conducted in late May 2016, the training for each community held in 5 days, but not consecutive. In order to let the community people to absorb best the training contents, the 5 days training was divided into 3 sessions: 2 days-2 days- 1 days. The 3 sessions were spread over one moth. The break from one session to the next is about one-week time. However, the schedule was flexible to meet the availability of the community.

2.1.7. Village Safer Plan (VSP)

34 CBDRM team have been extensively working with both community people and community leaders. The key purpose is to strengthen their capacity so that they will be more adaptive or more resilient to the natural disasters, especially floods and droughts which have been observed the most frequent and destructive events in their communities. The consultant team spent several months working

[6] Under the new administration, 4 villages were divided int 8 villages, so the total number of target villages with the command area of Damnak Chheukrom Irrigation Scheme increased from 46 to 50.

with communities trying to understand their existing adaptive capacity and their degree of vulnerability using HVCA methodology. About 690 community representatives from 50 villages were consulted. Training Need Assessment (TNA) was conducted with the community leaders to confirm the subjects on which the communities should be trained. The same number of community people (690), out of which 50% are female received extensive trainings on CBDRM from the 8 Master Trainers. Supporting the communities to prepare Village Safer Plans is the final goal of the CBDRM in the Original Phase.

35 To ensure the sustainability of the knowledge learnt, communities should have a chance to perform the real practices on what they have learnt from the project, especially to implement the plans they prepared. The communities need initial support to start up the implementation activities. Learning by doing is an essential approach which enables communities to understand better the theories provided and to know how to implement both activities and plans. For this reason, CBDRM Team suggested during the Original Phase to have an additional phase (the Extension Phase) of the CBDRM-FWUC component to support the communities to gain more insight in the knowledge of CBDRM, especially the implementation of the Village Safer Plan. It was proposed that the CBDRM consultants in the new phase would work closely with communities and provide them on the job trainings on piloting the implementation of some risk reduction measures in the plans, and also help them to find the sources of funding. The Extension Phase of CBDRM was expected to be very helpful for the whole GMS-FDRMMP project to visualize the project impacts from the investment in both Irrigation and Water Management and Capacity Building for local community

Figure 10. Female Community participant read the role and responsibility of VDMG for the group, Kampong Khtum Village.

Figure 11. Village Disaster Management Group (VDMG) of Kampong Khtum Village

Source: CBDRM Team

36 Village Safer Plans (VSP) or Village Emergency Preparedness and Response Plans (EPRP) was developed for each individual village and commune within project target area. The plans comprise of two main parts—Village Profile and Planning. A final draft of the Village Safer Template was developed by CBDRM Team in July 2017.

37 Planning is the most important part of the Safer Plan. The planning was developed by the Communities (villages) after they received training by the Master Trainers. Moreover, the CBDRM team worked with all communities and supported them till they could fully develop a proper plan to be used

for integration into the CIP or CDP. The development of the Planning part of the Safer Plan started in November 2016 and was completed in May 2017.

Why Village Safer Plan Is Important for a Community?

38 Disaster Risk Reduction (DRR) has been increasingly integrated into development efforts in Cambodia over the last 5 years. At the same time, funding agencies including ADB have been promoting mainstreaming climate resilience into development planning. DRR tools have been developed, tested and in cases applied, and include, among others, Community Disaster Risk Reduction Plans (DRR Plans), Early Warning System (EWS), Guidelines and Standard Operation Procedures (SOP) for the Community Based Disaster Risk Management (CBDRM).

39 The VSP for the GMS-FDRMMP project (Cambodia) are developed and will be utilized and updated for the selected communities to reduce risk and minimize future damages and losses from the impacts of droughts and floods. The overriding goal of VSP is to save lives, reduce vulnerability, protect social and economic assets, and ensure rapid recovery of the poor communities living in hazard prone areas. To achieve this goal, in addition to the capacity building training provided, the individual community received, the plan has a specific objective to reduce risk and vulnerability to flood and drought hazards in the project area.

40 The objective can be achieved through the provision of (i) structural and non-structural investment to mitigate the impact of recurring natural disasters, mainly flood and drought, (ii) design and development of village and commune plan that provide guidance on managing risk and minimizing damage and loss, and (iii) capacity building for local community leaders and villagers on the subjects related to risk management in different phases—preparedness, responses and recovery. The VSPs for all the 50 villages show risk reduction measures or activities, which the target commune councils can use to integrate in their three-year rolling Commune Investment Plan (CIP).

41 Apart from integrating the VSPs into CIP, CDP[7] and DDP[8], the community leaders (usually the village leaders) can also use the plan to find support from other stakeholders either within their own community like contribution from villagers, Saving Group, Self-Help Group, or from the outsiders like NGOs, Development Programs, or donors etc.

42 The communities in the target villages have a clear vision. The Village Safer Plan is a useful document for guiding community people to reach their future vision of being resilient to natural hazards. The VSPs contain a series of useful information in all the target villages such as geography, demography, social setting, economic activities, disaster risk record, village asset. The most important part of this document is the list of activities or disaster risk reduction measures, in Section 7, planned by community representatives. The resources or costs for implementing the planned measures are estimated and placed in the same table. Activity-related stakeholders (responsible agencies) are also mentioned in the planning table which guide the community leaders to get access to the sources of funding.

43 The number of planned measures in the VSPs varies from 5 to 15 measures. The planned risk reduction measures in each VSP is divided into two main categories—structural measures and non-structural measures. In each village, the total cost of the proposed non-structural measures varies from

[7] CDP = Commune Development Plan, is a 5-year plan of the commune leadership mandate.
[8] DDP = District Development Plan, is a 5-year plan of the district leadership mandate.

several thousand US dollar to 20 thousand US dollars. On average, the overall cost for the structural measures are 10 to 15 times higher compared with the non-structural measures. The estimated cost for all the measures in one VSP can go up to 100,000 to 200,000 USD.

44 Most measures in all the 50 VSPs are for responding to the impact of the drought event, such as crop damages and shortage of drinking water. The main proposed structural measures ranging from rehabilitation of existing irrigation canals (83%), construction of the new canal (33), digging community ponds (50%), and drilling groundwater wells (50%) etc. The most common non-structural measures proposed by the communities are agricultural training (on pest control, crop production, animal raising) and safe practices training.

45 The village leaders can present the VSPs to the commune councils when they start their rolling Commune Investment Program (CIP). In June or July every year, each commune starts consulting with villages to learn or collect issues and plan for the resolution. It is a good opportunity for each village to present their VSP to the commune, they may then take some measures of the most prioritized to place in the rolling plan. However, it is not guaranteed that measures which are selected by the commune for the CIP will be implemented while commune needs to further prioritize them with ones from other villages in the same commune. As budget allocated from the central government to the commune is very limited, only a few most prioritized CIP projects or measures are implemented each year, the rests are rolled over to the following year. However, with VSP in hands, village leaders can find resources from different stakeholders like local NGOs, provincial departments, Red Cross, Development Program and donors to support the implementation of some risk reduction measures.

2.1.8. Development of Practical Risk Reduction Measure for Flood and Drought

a. Drought Situation in the project target area

46 Over the past years, Cambodia has increasingly been affected mostly by widespread localized agricultural droughts. Four characteristics of agricultural drought affecting the country are: (1) unpredictable delays in rainfall onset in the early wet season, (2) erratic variations in wet season rainfall onset, amount, and duration across different areas, (3) shortening of rainfall duration during the wet season and (4) occurrence of mini-droughts of three weeks or more during the wet season, which can damage or destroy rice crops without irrigation.

47 Weather data indicates that extreme climate events, particularly relating to droughts occurred frequently in the last 15 years. The recent severe droughts were observed in 2005-2009 and 2012-2016, with increase in temperature and hit all 50 villages and lasts from April to October, which is 93% rainfed and 7% through irrigation canals. While, it is still an on-going process even in the start of 2017 causing serious economic damage and livelihood losses to the poor communities of Pursat province.

48 In the command area, a majority of the largely poor community earn their livelihood from agricultural production, mainly from paddy rice. With a view to perspective of water resources, the maximum rice is grown on rainfed fields, during the wet monsoon season. As per latest HVCA analysis, drought affected about 90% of agriculture lands of villages in 2014-2015, occurring in the months of April-October. While the drinking water was supplied either by roof rainwater harvesting, surface water ponds or shallow wells. Roof rainwater harvesting for drinking was used by 100% of households and individual household stored water about 3,000 litres for about 3-4 months. Similarly, usage of surface water ponds

and groundwater was 100%, being the main source. Nevertheless, wells were found very unevenly distributed across the command area, where villagers are dependent upon water ponds, storing water during the dry season. The other sensitive impact of drought disaster are their livestock and water are provided to them through wells (groundwater) and surface water ponds or lakes.

Figure 12. Rainwater Harvesting Sample in one of the communities within project target area

Source: CBDRM Team

49 Drought situation in Pursat province can be felt at the community level, for which huge irrigation system is being developed and will be implemented to command an area of 16,100 ha. The irrigation system is expected to reduce social, economic and environmental losses from the impacts of hazards caused by disaster events, especially for droughts. It is very likely that the implications of high degree of certainty anticipated climatic changes (precipitation, temperature, and moisture content), the command area of Pursat province will be facing more extreme droughts, occurring more frequently and the recurrence period of these extreme climate events will be shorter. Thus, sensitivity to predicted drought events in future will be of a serious nature in the command area. Drought events are becoming a key obstacle to a positive livelihood development of poor people in the command area, and also affect their agricultural development. The majority of command area people mainly livelihood depends upon subsistence agriculture, and their degree of vulnerability increases with diminishing water in the monsoon and off seasons.

b. Development of Practical and Applicable Drought Risk Measures for the Community of the Project Area

50 For the last couple of years, drought is becoming a serious problem in Cambodia, apart from other parts of the country, it has been reported to have an extensive damage in Pursat province. Where an average rainfall has been observed as 1,200 to 1,700 mm (wet season) and as low as 700 to 800 mm in the dry season. Severe drought periods have been observed in the end of 1990s and early years of 2000 resulting in affected livelihoods, human deaths, pushing migration of a large number of people, damaging and crops and further damaged a large number of livestock in the districts of Bakan and Kravanh in Pursat province. Cambodia including Pursat province has many dry lands in the sense, that the rainfall is scanty even in the monsoon season to mature the paddy rice fields. Almost all of the areas in Pursat province are within the range of monsoon rainfall, which however is erratic and scattered. Hence, these areas experience drought for 2 to 3 years in almost every decade.

51 The drought precautionary indicators include but are not limited to:

- Signals of prior drought occurrence
- Early termination of the rainy season
- Early onset of the dry season or shorter rainy season
- Delayed onset of rainy season
- Low levels of water in surface sources
- Damaged crops

52 The practical and applicable drought risk reduction measures considered for this area are listed below:

- Rainwater storage in large plastic bottles
- Household groundwater well with handpump
- Household pond
- Household fish farming
- Mulching on crop/vegetable bed
- Tunnel farming
- Drip irrigation system
- Sprinkler irrigation system
- Spray tube irrigation system

c. Community Anticipates for Applicable Drought Risk Reduction Measures

(1) Usage of dug-wells and hand-pumps are scanty and not much in practice by the communities for utilizing the groundwater for drinking, livestock and agriculture.
(2) Roof rainwater harvesting used for drinking purposes and in-sufficient, which needs to be enhanced and technically upgraded.
(3) Community use water ponds for multiple uses and are limited and needs to be enhanced and technically upgraded in the command area.
(4) New design for Damnak Chheukrom canal should incorporate the climate resilience, ensuring controlling of canal embankment erosion and infrastructures. Damnak Ampill canal capacity should also be enhanced to accommodate and release flood water from the command area during floods.
(5) Local farmers intend to have proper water allocation sharing, from the up-coming and establishment of Damnak Chheukrom irrigation system particularly during the dry season, the farmers have a general complaint about the illegal closure of canal cross regulators, pumping out the canal water for their crops, releases extra water in canal to inundate their rice fields in

the Damnak Ampil irrigation system, and need not be repeated in Damnak Chheukrom irrigation system.

(6) Establish proper and effective Early Warning Systems for Droughts

(7) Introduce Warnings for El Niño weather phenomenon having tendency to extend the dry season.

53 According to the study on Hazard, Vulnerability and Capacity Assessment (HVCA) and village safer plans in close cooperation with the communities, drought disaster has two main direct impacts locally: water shortage for domestic consumption and drop of agricultural/farming production. These two factors are very relevant to livelihood of the communities in the target area. Consultant's experiences suggest the following measures to cope with such impacts (Table 1). Practicability and applicability are key aspects in selecting those measures. The selected measures were presented in the CBDRM Advisory Group meetings in Pursat Province, February 28 and May 23, 2017, with the participation of representatives from local NGOs who have been working as Disaster Risk Management practitioners, and provincial departments. The meeting was optimistically concluded that if manual of the modern approaches offering enormous benefits are handy, they will be attractive to and considered by some local people. The participants also understood that all proposed measures are alternative and farmers themselves may choose any measures (one or more) based on their interest, capacity and ability. The detailed description, including general description, benefits, cost and method to implement, of each listed risk reduction measure in Drought Risk Reduction Report of CBDRM Component submitted to CPMU in September 2017.

Table 1. List of proposed drought risk reduction measures

No.	Measure	Key Function	Designation
1	Rainwater storage in large plastic bottles	Water storage	Domestic consumption
2	Household groundwater well with handpump	Water collection	Domestic consumption and agricultural/farming activity
3	Household pond	Water collection and storage	Agricultural/farming activity and domestic consumption
4	Household fish farming	Additional income and water storage	Farming activity
5	Mulching on crop/vegetable bed	Water saving	Agricultural/farming activity
6	Tunnel farming	Water saving	Agricultural/farming activity
7	Drip irrigation system	Water saving	Agricultural/farming activity
8	Sprinkler irrigation system	Water saving	Agricultural/farming activity
9	Spray tube irrigation system	Water saving	Agricultural/farming activity

Source: CBDRM, 2017. Drought Risk Reduction Report

2.1.9. Organization of CBDRM and Adaption to Climate Change Regional Conference

54 Community-based disaster risk management (CBDRM) is a very appropriate approach in coping with catastrophic events such as flood and drought and is gaining popularity in Cambodia and the Greater Mekong Sub-region (GMS). The CBDRM-Farmer Water Users Community component of the GMS Flood and Drought Risk Management and Mitigation Project (FFRMMP) implemented by Ministry of Water Resources and Meteorology (MOWRAM) is among the most important ongoing activities on this topic in Cambodia.

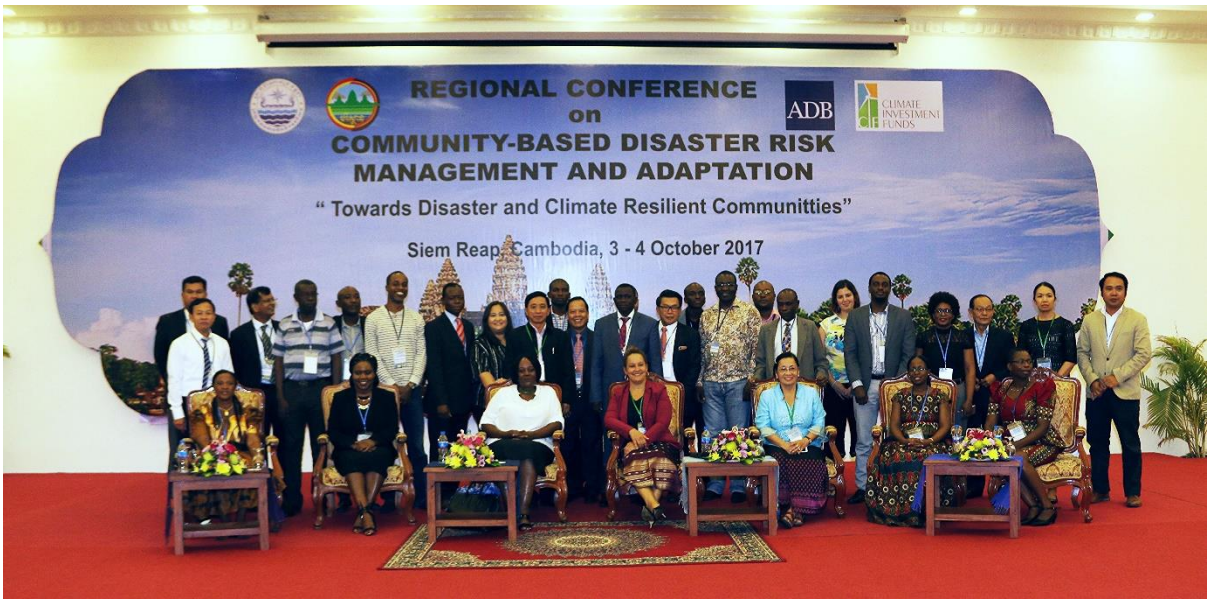
55 At the same time, the CBDRM approach is closely related to the efforts ongoing related to Community-based Adaption to Climate Change. The Strategic Program on Climate Resilience (SPCR) carried out by the Ministry of Environment (MOE) in Cambodia is actively involved in building capacity of institutions and communities in climate resilience. Both programs (FFRMMP and SPCR) provided a great opportunity to organize a highly visible conference on CBDRM and Community-based Adaptation.

56 The Conference was held in Siem Reap during October 3-4, 2017 and convened representatives from Cambodia, the region, and globally to share experience and identify new approaches to ensure resilience to disaster and climate change of communities. The main objectives were:

1. To share knowledge and experiences from Cambodia and the region for strengthening gender-responsive and inclusive community-based preparedness/responses and building capacities of local communities to reduce risks of natural disasters
2. To seek novel approaches for a sustainable management of gender-responsive and inclusive community-based disaster risks

57 The Conference was organized jointly by the Community-based Disaster Risk Management (CBDRM) team in Cambodia with the Ministry of Water Resources and Meteorology (MOWRAM) funded by Asian Development Bank (ADB) together with the Special Program on Climate Resilience (SPCR) in the Ministry of Environment (MOE), also funded by ADB.

Figure 13. Group Photo of the Key Delegation Participated the CBDRM Regional Workshop in Siem Ream (Cambodia), in early October 2017.



Source: CBDRM Team

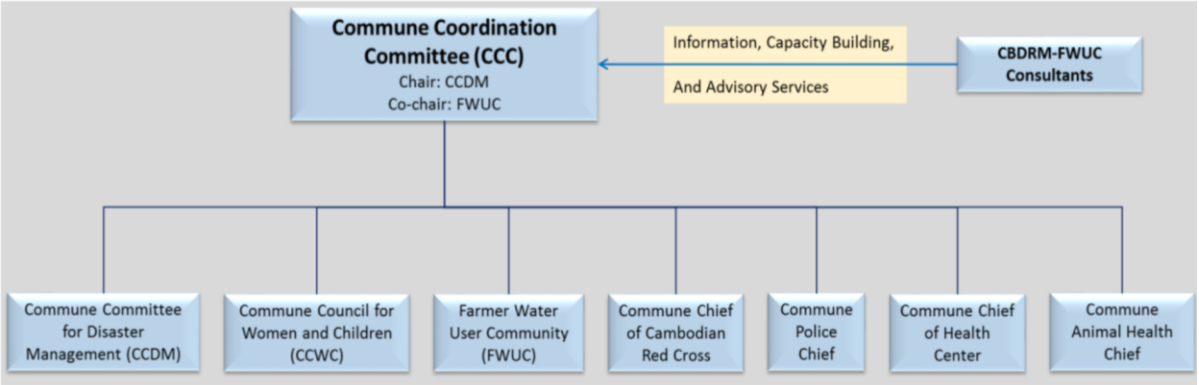
58 The Conference was attended by 179 participants. The participants included government and community representatives, development partners and NGOs, experts, and practitioners from Cambodia and abroad. Participants from abroad included delegations from Lao PDR, Myanmar, Thailand, Vietnam, and Zambia; experts from Japan and the Philippines.

59 The program consisted of nine sessions, of which five were held during the first day of the Conference (October 3), and the remaining 4 sessions in the second day (October 4). Apart from the Opening Session (Session 1) and the Closing Session (Session 9), the other Sessions included presentations, general discussions, and in some cases panel discussions. Some Sessions (such as Session 3, Session 4, and Session 7) included Parallel Sessions (Session 3.1 and Session 3.2; Session 4.1 and Session 4.2; and Session 7.1 and Session 7.2).

2.1.10. Establishment of Coordination Committee

60 In the inception phase of the CBDRM Original Phase, project coordination committees were established at the community levels (commune and district). CBDRM Team proposed to use the existing mechanism established under National Committee for Disaster Management (NCDM) of Cambodia. At these two levels—Commune Coordination Committee (CCC) for project coordination at the commune level and District Coordination Committee (DCC) for all the coordination work at the district level, and these two committees were officially recognized by the administration of the 5 commune and 2 target districts.

Figure 14. Organization Structures of Commune Coordination Committee for CBDRM-FWUC



Source: CBDRM, 2017. Inception Report

61 The committee consists of representatives from different key sectors—Committee for Disaster Management (-CDM), Council for Women and Children (-CWC), Cambodian Red Cross (CRC), Police, Health Center, and Animal Health. Farmer Water Users Community (FWUC), after established, is part of the coordination committee for the project which is co-chaired by presentative from the existing mechanism, and the consultant team of the CBDRM Component.

2.1.11. Achievements of the Outputs of the Original Assignment

The following table summarizes the achievements of the CBDRM related to the Original Assignment.

Table 2. Outputs of CBDRM and Achievements in the Original Assignment.

Outputs	Achievements
1. Provincial, District, Commune and Village level participants from selected areas trained in flood and drought risk assessment and analysis, prioritization, definition and implementation of locally appropriate flood and drought risk management measures.	Done. See sections 2.1.2, 2.1.4, 2.1.5, 2.16.
2. Safer Village and Commune Plans developed, utilized and updated	Done. See section 2.1.7.
3. Community-driven flood and drought risk reduction measures implemented in all selected communes	Done. All the selected communities have established Village Disaster Management Groups (VDMG), elaborated Village Safer Plan, and adopted some flood and risk reduction measures.
4. Local level Coordinating Committees organized and managing the CBDRM implementation	Done. See section 2.1.11
5. Technical Support and services available to provide technical assistance to the coordinating Communities	Done. Throughout the TA, the CBDRM team has provided technical support to the coordination committees and

	communities by developing CBDRM Guidelines (see section 2.1.3), developing training manual (see section 2.1.4), training communities (see section 2.1.6), supporting the preparation of village safer Plan (VSP), and developing practical risk reduction measures (see section 2.1.8)
6. Local facilitators recruited and trained to support village and commune planning and implementing risk reduction strategies in participating communes	Done. See section 2.1.5.
7. A CBDRM model formulated and implemented in the project area	Done. The model consists of the combination of hazard vulnerability and capacity assessment (HVCA) detailed in section 2.1.1, the training needs assessment detailed in section 2.1.2, the development of CBDRM Guidelines detailed in section 2.1.3, the development of training manual detailed in section 2.1.4, the recruiting of trainers and the training of communities detailed in sections 2.1.5 and 2.1.6, the preparation of village safer plans detailed in section 2.1.7, the organization of CBDRM events detailed in section 2.1.8, and the establishment of coordination committees detailed in section 2.1.9.

2.2 Extension of CBDRM Component

62 The main objective of the CBDRM-FWUC component of the GMS-FDRMMP is to build capacity of communities in community-based disaster risk management (CBDRM). This objective is achieved through the combination of training of communities, formulation of village safer plans, and mainstreaming of CBDRM into Commune Investment Plan (CIP) and Commune Development Plan (CDP). By September 2017, the CBDRM team has trained all 50 target villages in the command area and prepared Village Safer Plans (VSP) including various risk reduction measures.

63 Parallel to this effort in capacity building by the CBDRM component, the FWUC department and Project Management Unit (PMU), with the support of the CBDRM team, has established FWUC in the project area by January 2018. After consultations with the PMU, training of FWUC in Operations and Management (O&M), financial management, and conflict resolution is to be carried out during the CBDRM Extension Phase once some of the irrigation infrastructure is in place.

64 The proposal for extension of the CBDRM aimed at ensuring that communities and FWUCs have the opportunity to practice and implement what they have learned and planned. This would be done on a pilot basis which could bridge the gap between the end of the Original Phase and the time when some

of the irrigation systems planned under the Project GMS-FDRMM would be in place (expected in September 2019).

65 To achieve the purpose of piloting the implementation of safer plans and conduct practical training of FWUCs in the management of the irrigation systems planned by the FDRMMP, CBDRM component proposed to extent its implementation period up to 31 August 2019. The proposal was approved by the CPMU on 18 December 2018, and the consultants for the CBDRM Extension Phase have mobilized two weeks after the approval (January 3, 2019).

66 It should be noticed that the original proposed implementation period for the CBDRM Extension Phase was 24 months (September 2017 to September 2019). However, this duration was shortened to only 8 months as the proposal was not able to be approved until third week of December 2018. At the beginning of the extension phase, CBDRM Consultant has informed both CPMU and ADB that not all activities would be able to be implemented during the given 8 months' time. As a consequence, the activities planned beyond 31 August 2019 have been agreed to be implemented by CPMU and PIU.

67 The CBDRM-FWUC extension phase covers 3 main outputs, and there are different activities in each output. However, the three outputs are divided into two main categories—Investment in Infrastructures (Physical Risk Reduction Measures) and Capacity Building (Non-physical Risk Reduction Measures).

68 Below is the list of the risk reduction measures proposed for implementation during the CBDRM extension phase.

Table 3. List of proposed risk reduction measures proposed

Measure	Description	Remarks
Infrastructure Investments		
Field Channels	Several Irrigation Measures (Irrigation Canals) from different Village Safer Plan will be selected for further detailed assessment during the inception phase. The feasible measures will be selected for the implementation. The field channel will be at the quaternary level.	Canal lining (brick masonry, stone masonry, or concrete) will be an option to improve the irrigation efficiency. Involve the community as much as possible during the implementation. Most of the investment cost will be contributed by the Project while community can contribute land for construction, and labor. A typical canal can be 2,000 m long and cover a command area of 40 ha.
Community Ponds	Community ponds listed in different village safer plans will be selected for in-depth study during the inception phase. The feasible ponds will be selected for implementation. Ponds should be dug adjacent to irrigation canals or drainage canals.	Existing ponds, with available lands for rehabilitation, will have high priority for the selection. New ponds can be dug on only voluntarily contributed land. Majority of the investment cost will be contributed by the project while community will share lands for the ponds and labor.

Measure	Description	Remarks
		A typical pond might be 5,000 square meters and 2-3 meters deep.
Capacity Building Investments		
Agricultural Techniques Training	A series of training will be provided to several communities. The contents of the trained will be derived from the village's safer plans.	As the cost for training measures is not high, comparing with construction measure listed above, training can be widespread to most communities in the command areas
Capacity building of FWUC	This training will be consistent with Step 7-10 of the Government issued FWUC Guidelines. It will support the work by the FWUC department with communities. Step 7 - FWUC adopts and implements initial irrigation Service Plan Step 8 - Prepare and adopt Management Transfer Agreement (or Certification of Management Authority) Step 9 - Repair and improvement of irrigation infrastructure Step 10 - Continue capacity building and provision of support services	Training for all communities in the command area.
Study Visits	FWUC Management Committee will visit other FWUCs in Cambodia to learn about different practices.	

Source: Approved CBDRM Proposal for Extension, December 2019.

69 **The Infrastructure or physical risk reduction measures** were identified out of the Village Safer Plans (VSP) prepared by different communities during the original phase of the CBDRM. Two types of infrastructures have been identified—community ponds and irrigation field channels for piloting. These two types of infrastructures were prioritized and proposed for investment during the extension phase. The identification and selection of the infrastructures was done through a participatory approach where the communities take the key roles in decision making at each step.

70 A list of selection criterions was prepared for identification and selection of the infrastructure. Having studied all the 50 VSPs from 50 different villages with the target area of the project, a longlist of community ponds and irrigation field channels was prepared by the consultant team. The consultant team then held a consultation meeting with community leaders and conducted visits to all the longlisted infrastructures. A shortlist of most potential community ponds and irrigation field channels was prepared and submitted for approval, by the CPMU, with consideration of available and approved budget amount of the investment.

Table 4. List of infrastructures (Physical Risk Reduction Measures) proposed for piloting

No.	Measures	Size	Location	Land area	# Household Beneficiaries
1	Thlok Dangkor Pond	35mx78m	Thlok Dangkor village, Pteah Rung Commune, Phnom Kravanh District	N/A	105HHs
2	Sam Sant Pond	40mx70m	Sam Sant Village, Talou commune, Bankan District	N/A	250HHs
3	Toul Toteung Pond	30mx35m	Toul Toteung Village, Talou commune, Bankan District	N/A	45HHs
4	Rohatil Pond	40mx50m	Rohatil Village, Talou commune, Bankan District	N/A	80HHs
5	Prey Kanlang Pond	30mx40m	Prey Kanlang Village, Talou commune, Bankan District	N/A	70HHs
6	Koh Svay Field Channel	4,500m	Koh Svay Village, Pteah Rung commune, Phnom Kravanh District	100 ha	75HHs

Source: CBDRM Team

71 The implementation of the infrastructures' investment is to be undertaken through different steps. As described in the concept notes (Appendix 1 and Appendix 2) for the implementation of these selected infrastructures, the role and responsibilities of CBDRM Team, CPMU and PIU in each implementation step were made clear and agreed, and these steps are presented in the following table.

Table 5. Role and Responsibility Among CBDRM, CPMU and PIU in Piloting Physical Risk Reduction Measures

No.	Activities	Lead	Support
1	Identification of measures	CBDRM	VDMG, FWUC, PIU
2	Selection of measures	CBDRM	VDMG, FWUC, PIU
3	Feasibility Studies	CBDRM	VDMG, FWUC, PIU
4	Detailed Engineering Design	PIU	CBDRM
5	Procurement	PIU, VDMG, FWUC	CBDRM
6	Construction Supervision	PIU, VDMG, FWUC	CBDRM

Source: CBDRM

A. Identification of measures

72 About 20 most potential infrastructures (including community ponds and field channels) were planned in the VSP of the different selected villages and placed in the longlist for further assessment. CBDRM team then conducted field visit to each of the measures site to have the physical assessment of the measures. A longlist of measures was then prepared for the safeguard team to screen for compliance with both environment and social safeguards. Both identification and selection of the measures was based on the selection criteria which have been already developed by the consultant team before the process started.

B. Selection of the measures

73 Five most potential community ponds and one irrigation block with length of about 4.5 kilometer of several field channels have been selected for piloting. The shortlist of these infrastructures or physical risk reduction measures was submitted to PIU and/or PMUC for review and approval for implementation.

C. Feasibility Studies

74 Feasibility Study (FS) was carried out by the CBDRM team with the selected risk reduction measure separately. The FS highlighted, but not limited to, key aspects as follows:

- Community willingness and managing measure
- Proposed investment measures (what infrastructure? Improvement or new to be constructed?)
- Environment and social issue
- Cost for investment
- Benefits analysis

75 The Feasibility Study Report (FSR) for each was developed by the consultant team, and each FS report is about 10 pages.

D. Detailed Engineering Design

76 Detailed engineering design (DED) of each measure includes the topographical survey and soil assessment, production of technical drawings, bill of quantity (BOQ) and construction specification. The DED will be led by PIU (Pursat PDWRAM). The designer, either PIU Staff or services deployed by PIU should work closely with local authority, community people, especially the village disaster management group (VDMG), to ensure concerns of the community are taken into account in the design. CBDM team will support the design team in all required community consultations. The production of the DED will be used for procuring the construction contractors.

E. Procurement

77 The recruitment of the contractor to provide the construction service for the designed infrastructures will be done at the community level. PIU and community (VDMG and/or CCDM) will have a leading role in procuring a construction contractor.

F. Construction Supervision

78 PIU and VDMG will be the key supervisor for the construction work of each measures.

79 The Summary of Investment Cost for the proposed infrastructures is given in the table below.

Table 6. Estimated cost for infrastructure investment

No.	Measures	Size	Location	Beneficiaries	Estimated Cost ($)
1	Thlok Dangkor Pond	35mx78m	Thlok Dangkor village, Pteah Rung Commune, Phnom Kravanh District	105HHs	18,238
2	Sam Sant Pond	40mx70m	Sam Sant Village, Talou commune, Bakan District	250HHs	17,499
3	Toul Toteung Pond	30mx35m	Toul Toteung Village, Talou commune, Bakan District	45HHs	10,899
4	Rohatil Pond	40mx50m	Rohatil Village, Talou commune, Bakan District	80HHs	16,114

No.	Measures	Size	Location	Beneficiaries	Estimated Cost ($)
5	Prey Kanlang Pond	30mx40m	Prey Kanlang Village, Talou commune, Bakan District	70HHs	10,631
6	Koh Svay Field Channel	4,500m	Koh Svay Village, Pteah Rung commune, Phnom Kravanh District	75HHs	185,350
TOTAL					**258,731**

Source: CBDRM Team

Note: The estimated cost above included the contingencies already.

2.1.12. Feasibility Study of Community Ponds and Irrigation Field Channels

80 The Feasibility Studies (FS) for Community Ponds and Irrigation field channels have been conducted by the CBDRM consultant team with a strong participation from community people. The study started in late March and was completed by end of July 2019. It is done to gain detail information from the communities, especially on their willingness to participate in the implementation of the infrastructure they have proposed, their willingness to manage and operate and clarify resources they will use for maintaining the improved infrastructures so that they will be able to provide the service to the community for a long run. One of the key aspects of the feasibility study exercise is to assess whether or not the implementation of the infrastructure has any negative impact to either socioeconomic activities of the community people or environment where the community are living.

Figure 15. Field activities of the feasibility studies for the proposed infrastructures

(a). community people pegging community pond boundary

(b). Consultation meeting with Koh Svay community on irrigation field channels options

Source: CBDRM Team

81 The proposed improvement engineering options for each infrastructure were introduced and consulted with the community people to make sure that the selected option is feasible from an engineering point of view and is agreed and serviceable from the beneficiary side. Cost estimate for the investment of the proposed infrastructure has been made based on the unit price of the construction materials and labor cost at the provincial level.

82 The Feasibility Study Report presents the findings and recommendation of CBDRM Team for the proposed Community Pond. The report includes the assessment of the current status of water supply in the target community, current situation of the proposed community pond, proposed rehabilitation option, cost estimate and economic analysis, and the managing mechanism for the community pond after its rehabilitation. The report ends with the list of next step's activities. The reports have been shared with

Project Implementation Consultant (PIC) and general comment has been given. CBDRM Team is expected to finalize and submit these reports to CPMU in the third week of August 2019.

2.1.13. Agricultural Training

83 Training representative communities on Agricultural Techniques such as Integrated Pest management (IPM) on rice/vegetable and poultry/animal husbandry is one of the key elements of the CBDRM extension. This agricultural training will benefit selected farmers to increase their production to ensure food security and support to household economic growth in the future. The theoretical and practical knowledge received from the training will help the community to increase their adaptive capacity to response to the potential impact of different hazards—especially drought which was found the most frequent disaster event the community faces.

84 CBDRM team cooperated with Provincial Department of Agriculture in Pursat to organize Agriculture Training focus on home gardening and poultry raising at household level. The training was started on 5 June 2019, and included 184 farmers of which 132 females (72%) actively participate in the training and had a chance to practice agriculture work with trainers (see Agricultural Training Report for further details). These participants are farmers from 15 villages namely O'Russei, Kampong Khtum, Sam San, Rohatil, Chong Ruk, Thlok Dangkor, Prey Kanlang, Sdok Khtum, Koh Svay, Kandal, Samroung I, O'Heng, Toul Toteung, Kouk Romlor and Sam Roung II.

85 The 3-day agriculture training courses were co-organized based at village level by CBRDM team and Provincial Department of Agriculture (PDA) trainers. Each training course included 12 or 13 participants in each village and there were 2 separated sessions covered: (i) 1.5 days for vegetable session and 1.5 days for poultry raising session.

86 After completing the theory training, two practical demonstrations on cucumber and string bean seeding, and chicken feeding preparation and use of two types of vaccines were comprehensively conducted and facilitated by the two trainers. Then, all the participants took part in the post-test sessions and obtained better results than the pre-tests.

Figure 16. Photo of some activities in the Agricultural Training

(a). Explanation of examples (b). chicken feed production

Source: CBDRM Team

87 All the farmers were interested in this agriculture training as it was helpful to improve their production practices. Both participants and trainers are working hard together, which would produce a significant result with higher scores via the post-test exercise. Finally, all the village participants would replicate these new knowledge and skills for applying in home gardening and chicken raising to supply households' needs as well as income generation for their family members in a future.

2.1.14. Capacity Building for FWUC (Step 6)

88 One of the tasks of the CBDRM-FWUC component is to support FWUC department of the MOWRAM in establishment and provision of capacity building to FWUC management committee of Damnak Chheukrom Irrigation Scheme (DCIS) to ensure that water users in the irrigation system command area will benefit from improved irrigation and water management to a maximum extent. The establishment of the FWUC for the DCIS was successfully completed in quarter 3 of 2017 by the FWUC team of the CPMU. However, the Training for Capacity building for the management committees of this new FWUC was advised by the CPMU to start only when the construction of some irrigation infrastructures were in place. This would help the committee to improve understanding of the lesson given during the training. The FWUC training has then been carried over and agreed to be implemented in the Extension Phase of the CBDRM-FWUC Component.

89 The concept note of the training attached in Appendix 6 of this report describes in more detail the training activities—including target participants (Trainees), and budget detailed planned for this training. The Activity completion report will be prepared and submit to CMPU after the training is completed.

90 The participants will be split into two groups to make sure that it will be delivered effectively and to ensure that everybody has a chance to participate actively in all the training activities. The division of the participants or trainees will be done with consideration of the travel distance of participants and where or which part of the irrigation system they will manage, but balancing the number of participants in each group.

91 The training will be rolling within 15 days for both groups and about 7.5 days for each group. The training will be broken down into at least 3 sessions as following:

Session 1: System Operation and Maintenance	= 4 Days
Session 2: Financial Management	= 2 Days
Session 3: Conflict Resolution	= 1.5 Days

92 The training of above 3 sessions will not be conducted continuously but will be given at least one session in one week, or 3 different session in different weeks. This can give the participants, FWUC management committee members, time to review the lessons in their free time before a new session with new lessons starts. However, the trainings of the two groups are planned to roll out in parallel.

93 The trainings for the two groups of FWUC management committee members were done in two separate places. **Training for Group 1**, for members who will manage part of the system situated in Phnom Kravanh district, is planned to be conducted in **Bot Rumdoul Pagoda, in Bot Rumdoul village, Pteah Rung commune, Phnom Kravanh district,** whereas the training for **Group 2**, for members who will manage part of irrigation system in Bakan District, is planned to be organized in **Talou Pagoda in Talou village, Talou**[9]

[9] Talou commune was part of Bakan district, however since early 2019, a new district (Talou Senchey) has been formed, and Talou commune was transferred under this new district.

commune of Talou Senchey district. The training started on 19 August 2019 and completed on 18 September 2019 for Group 1 (in Bot Rumdoul pagoda) while the training in Talou pagoda started and completed 2 days after.

94 CBDRM deployed specialists on FWUC capacity building from an experienced and recognized organization—**Irrigation Service Center (ISC) to deliver the training** to prepared the training materials and deliver the trainings. However, CBDRM Consultant team closely supervised the training activities, including checking training materials and training activities in-situ.

95 Draft Training material was submitted to CPMU in both hard and soft copies on 31 July 2019. The FWUC completion report is submitted in a separately document on the 30 September 2019.

2.1.15. FWUC Support (Step 7 to Step 10 of Guideline)

96 Below are the four remaining steps to support a FWUC after they will be trained on the System Operation and Maintenance (O&M), Financial Management, and Conflict Resolution in the Step 6 of the FWUC establishment guideline of MOWRAM.

Step 7. Assisting FWUC to adopt and implement Irrigation Service Plans (Step 7)

Step 8. Support FWUC specialist of the CPMU in assisting the FWUC to prepare and adopt Management Transfer Agreement (Step 8)

Step 9. Support FWUC Specialist of the CPMU in assisting FWUC to prepare Maintenance Plans (Step 9)

Step 10. Support FWUC to provide continuous Capacity Building and Provision of Support Service to FWUC (Step 10).

97 These steps (Step 7-10) could be done only after the FWUC management committees have already received the capacity building training of Step 6. In addition, these activities should be done only once the irrigation infrastructures are in places. In either case, these activities cannot be implemented during the current CBDRM Extension phase lasting up to August 2019. The CBDRM consultant team has informed both CPMU and ADB about this issue. However, it seems likely that these steps will be implemented by the FWUC Department after the deadline of the CBDRM assignment.

2.1.16. Study visit

98 An exchange visit was planned for the community leaders, especially the FWUC management committees and the representative of the Village Disaster Management Group (VDMG) from the project target area to visit and learn the successful experiences from one community (to be identified) in different areas or projects in Cambodia. However, due to the overall project budget constraints, the CPMU in early January during the inception phase of the CBDRM Extension advised that this activity should be put in lower priority, and budget for this activities should be allocated to support other activities in the Component 1, National Flood Forecasting Center (NFFC), of the project. Hence, the CBDRM Team has not prepared any activity for conducting this visit. However, similarly to the FWUC supporting exercises in Step 7 to 10 mentioned in the previous section, the exchange visit should be done after the management committee member of the FWUC has been trained. Therefore, a visit could be arranged in the future by the FWUC team of the CPMU.

2.1.17. Achievements of the Outputs of the Extension Assignment

Table 7. Outputs of CBDRM and Achievements in the Extension Phase

Outputs	Achievements
1. Communities implement investments in infrastructure needed to improve resilience to disaster and water use management and irrigation, consistent with their safer plans and FWUC sub decree.	Done. The CBDRM team has supported selected communities to identify the resilient enhancing infrastructure measures consistent with their safer plans and FWUC sub-decree. It has helped to conduct feasibility study and due diligence for social and environmental impacts. The team has supported the preparation of procurement documents. The construction of the infrastructure will be carried out with the supervision of the PIU.
2. Communities have adopted improved crops and animal husbandry techniques that make them more resilient to climate change disasters of drought and flood.	Done Training of communities in improved crop and animal husbandry has been completed and farmers have started to adopt these best practices.
3. FWUC are able to manage the water in Damnak Chheukrom irrigation system.	Done partially FWUC training in operations, maintenance, financial management, and conflict resolutions has been conducted. The actual capacity of the trained FWUC will need to be assessed later on after the completion of the irrigation infrastructure.

2.3 Deliverables

In addition to the Progress reports (Inception Report, Mid-term Report, Quarterly Reports), the table below lists the Activities Reports that the CBDRM team has submitted and will submit to the project management unit (CPMU).

Table 8. List of Activities Report Submitted and will be submitted to CPMU

No.	Name of Reports	Submission Date
1	HVCA Report	Q4 2016
2	HVCA Databases	Q4 2016
3	Village Maps (Village asset map, hazards)	Q4 2016
4	TNA Report	Q4 2016
5	TOT Report	Q4 2016
6	CBDRM Village Training Report	Q4 2016

No.	Name of Reports	Submission Date
7	Village Safer Plan Report	Q2 2017
8	Flood Risk Management Report, including SOP for Flood	Q2 2017
9	SOP for Drought	Q2 2017
10	Drought Risk Reduction Measures	Q2 2017
11	CBDRM Training Manual	Q2 2017
12	CBDRM Advisory Group Meeting Reports	Q2 2017
13	Proceedings of Regional Conference on CBDRM and Adaptation to Climate Change	Q1 2018
14	Video on CBDRM	
15	Feasibility Report for Community Ponds and Irrigation field channels	Q2 2019
16	Due Diligence Report for Social and Environmental Safeguards related to proposed investment measures	Q2 2019
17	Draft Final Report	2 August 2019
18	Agricultural Training Report	30 August 2019
19	FWUC Training Report	30 August 2019
20	Final Report	31 August 2019

3. ISSUES

99 The implementation of the Original Phase was smooth and successful. The original planned FWUC training had to be postponed due a number of factors:

a. The process of FWUC election by the Department of FWUC took longer than initially expected and was completed only in January 2018.
b. The construction of the irrigation infrastructure also took longer than expected and the CPMU thought wiser to wait for some of the infrastructure to be in place before conducting FWUC training.

100 The Extension Phase was too short to allow for the completion of all the outputs initially envisaged. The initial proposal of the CBDRM team was to allocate a period of 2 years for the outputs in the Extension Phase to be successfully implemented. However, the period was shortened to only 8 months. The solution to this timing issue was for the CPMU and PIU to take responsibility to supervise the procurement of contractors and constructions of the structural measures selected by the communities.

101 The design concept of the irrigation field channels was rejected by ADB at a late stage during the Extension Phase. The design envisaged alignment of the field channel with concrete, but ADB advised to have earthen field channels.

102 The implementation of the procurement and construction of structural measures by the CPMU and PIU will be undertaken with the communities to ensure their full participation in all the implementation steps. The Village Disaster Management Group (CDMG) will support from the community side.

4. CONCLUSIONS

103 Over the two year-period (Sep 2015 to Sep 2017) of its implementation, the CBDRM component has been successful in building the capacity of the communities in the command area for the irrigation system under the Greater Mekong Sub-region Flood and Drought Risk Management and Mitigation Project (GMS-FDRMMP). The CBDRM team has trained fifty (50) communities and built their capacity in disaster risk management, including their capacity to prepare Village Safer Plans (VSF) and establish Village Disaster Management Groups (VDMG). These tools will enable the communities to integrate disaster risk management in their activities and in the Commune Development Plans (CDP), thus integrating the community efforts with the broader and national level effort pursued by the National Committee of Disaster Risk Management (NCDM).

104 The CBDRM component has also made contributions to the establishment of the FWUC in the command area and is currently improving their capacity through training in financial management, operations and management, and conflict resolution. These enhanced skills will be crucial to enhance the efficiency and sustainability of the irrigation infrastructure that is being built by the project.

105 In the Extension Phase of the CBDRM component, efforts have been directed to a pilot to implement some of the risk reduction measures that communities have formulated in their VSP. These efforts have included perspiratory identification of investments, feasibility studies, and due diligence reports. The final steps of implementation (detailed engineering design, procurement, and implementation) will be carried out by the CPMU and PIU after the completion of the CBDRM component in August 2019.

5. RECOMMENDATIONS

106 It is important that these accomplishments and efforts be sustained over time. This will require a number of actions:

a. Support to the communities in improving their VSP and strengthen their CDMGs. The VSP are documents that need to be revised periodically to reflect new needs of the communities and incorporated into the Commune Development Plans and Investment Plans.
b. Ensure that the CDMG received refresher coursed from the local representatives (at the Province or District Level) of the National Committee of Disaster Management.
c. Ensure that sufficient resources for implementation of the measures identified in the VSP are obtained by the combination of community resources and external resources provided by the Government, NGOs, and private sector.
d. Strengthen the linkages between FWUC and CDMG, particularly during the operation and maintenance phases of the irrigation infrastructure.
e. Share the tools developed by the CBDRM component with a broader audient. Those tools represent a CBDRM model that could be shared with other projects and stakeholders and eventually integrated in the overall efforts of NCDM.

APPENDIX 1 CONCEPT NOTE FOR PILOTING COMMUNITY PONDS

1. Background

The CBDRM-FWUC is one of the four components of the GMS-FDRMMP. The main objective of this assignment was to build capacity of communities in the 50 target villages in the command area of Damnak Chheukrom Irrigation System in Pursat province in community-based disaster risk management (CBDRM). This objective is achieved through the combination of training of communities, formulation of village safer plans, and mainstreaming of CBDRM into Commune Investment Plan (CIP) and Commune Development Plan (CDP). This component also supports the FWUC Department of MOWRAM in establishment and provision of capacity building to FWUC management committee of Damnak Chheukrom Irrigation System to ensure that water users in the command area will benefit the irrigation and water management infrastructures to a maximum extent.

The CBDRM team provided capacity building to its 50 target villages in the CBDRM and supported them to prepare a village safer plan (VSP) including various risk reduction measures. To ensure that the knowledge provided will be sustainable, the CBDRM is extended in another 2 years beyond its original completion date till September 2019 to support community to piloting some representative risk reduction measures originally planned in their VSPs.

2. Objective

This paper aims at providing a common understanding on piloting procedures including resources and schedules for implementing disaster risk reduction measures or interventions which will be selected out of village safer plans (VSP) prepared by village disaster management groups (VDMG) of the CBDRM target villages. It will highlight the output, outcome and impact of measures, implementation procedures, role and responsibility of different stakeholders, cost estimate, and will also conclude with a tentative implementation schedule.

3. Expected output, outcome, and impact

Five community ponds of about 5,000 cubic meters in storage capacity, for each pond, will be implemented by communities with strong support from the CBDRM team and PIU (PDWRAM Pursat). The measures will provide access to water consumption to 300 to 450 households of the command area[10], mainly for the dry season. Additional capacity building on effective and efficient pond water management will be also provided to the communities within the piloting target areas. Three communities of 21 VDMG members will have get the practical knowledge on implementation of disaster risk reduction measures of their respective VSPs. The knowledge is expected to be shared with neighboring communities in the GMS FDRMMP target area.

4. Implementation Procedure

The pilot of the implementation of the community ponds will be carried out through several key steps as below:

A. Identification of measures

[10] Area with Damnak Chheukrom irrigation system

The total 15 most potential ponds (8 for rehabilitation and 7 for construction) which are planned in all the VSPs of the different selected villages and placed in the longlist for further assessment. The CBDRM team then conducts field visits to each site to have the physical assessment of the measures. A longlist of measures is then prepared for the safeguard team to screen for the safeguard issues (both environment and social).
Both identification and selection of the measures are done with the selection criteria which has been already developed by the consultant team before the process starts. Five (5) communities ponds will be shortlisted, however only three (3) most potential ponds will be selected for implementation.

B. Selection of the measures

Five potential community pond of about 30m x 70m x 3m each or about storage capacity in total 5,000 cubic meters will be shortlisted and three out of the five (5) will be selected for piloting after a safeguard screening is completely done. The shortlist of the five interventions or measures will be prepared and proposed by the CBDRM consultant team, and be then submitted to PIU and/or PMUC for review and approval for implementation. One or two measures will be listed as reserve for substitution if any of the initial selected measure is found unfeasible.

C. Feasibility Studies

Feasibility Study (FS) will be carried out by the CBDRM team with the selected measure separately. The FS should highlight, but not limited to, key aspects as following:

- Community willingness and managing measure
- Proposed investment measures (what infrastructure? Improvement or new to be constructed?)
- Environment and social issue
- Cost for investment
- Benefits analysis
- Etc.

The content of the FS is to be developed by the consultant team, and each FS report is about 10 pages.

D. Detailed Engineering Design

Detailed engineering design (DED) of each community pond includes the technical survey and assessment, production of technical drawings, bill of quantity (BOQ) and construction specification. The DED will be led by PIU (Pursat PDWRAM) with close support from the CBDRM Consultants. The designer, either PIU staff or services deployed by PIU should work closely with local authority, community people, especially VDMG, to ensure concerns of the community are considered into the design. The CBDM team will support the design team in all required community consultation.
The production of the DED will be used for procuring the construction of the measure or infrastructures.

E. Procurement

The recruitment of the contractor to provide the construction service for the designed community pond will be done at the community level. PIU and community (VDMG and/or CCDM) will lead a procurement of construction contractor, and CBDRM team will have a role as a supporting team.

F. Construction supervision

PIU and VDMG will be the key supervisor for the construction work of each measure. However, where required, CBDRM team will support for both technical and construction management aspect.

G. Role and Responsibility

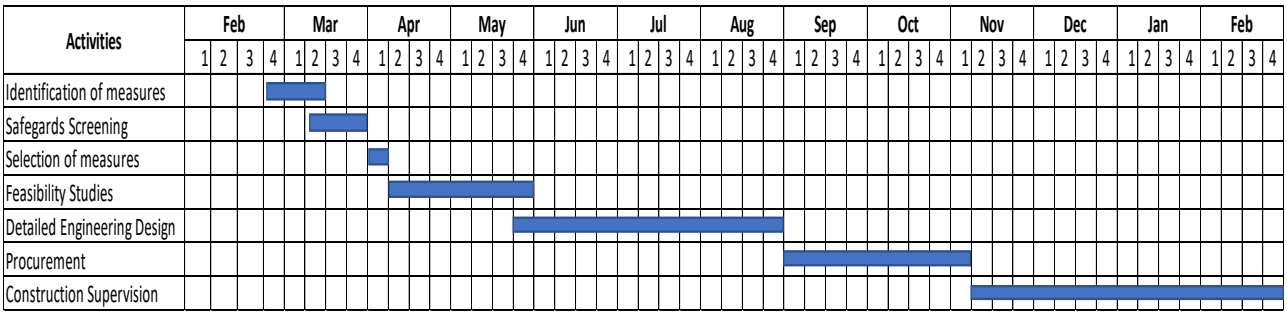
Table below presents roles and responsibility of project stakeholders for different activities in piloting community ponds

No.	Activities	Lead	Support
1	Identification of measures	CBDRM	VDMG, FWUC, PIU
2	Selection of measures	CBDRM	VDMG, FWUC, PIU
3	Feasibility Studies	CBDRM	VDMG, FWUC, PIU
4	Detailed Engineering Design	PIU	CBDRM
5	Procurement	PIU, VDMG, FWUC	CBDRM
6	Construction Supervision	PIU, VDMG, FWUC	CBDRM

5. EstimateD Budget

Total estimated budget for the investment for community ponds or measures is **$125,000 for about 5 community ponds**.

6. Schedule



APPENDIX 2 CONCEPT NOTE FOR PILOTING IRRIGATION FIELD CHANNELS

1. Background

The CBDRM-FWUC is one of the four components of the GMS-FDRMMP. The main objective of the assignment was to build capacity of communities in 50 target villages in the command area of Damnak Chheukrom Irrigation System in Pursat Province in community-based disaster risk management (CBDRM). This objective is achieved through the combination of training of communities, formulation of village safer plans, and mainstreaming of CBDRM into Commune Investment Plan (CIP) and Commune Development Plan (CDP). This component also supports FWUC department of the MOWRAM in establishment and provision of capacity building to FWUC management committee of Damnak Chheukrom Irrigation System to ensure that water users in the irrigation system command area will benefits the irrigation and water management to a maximum extent.
The CBDRM team provided capacity building to its 50 target villages in CBDRM and supported them to prepare a village safer plan (VSP) including various risk reduction measures. To ensure that the knowledge provided will be sustainable, CBDRM is extended another 2 years beyond its original completion date till September 2019 to support community to piloting some representative risk reduction measures planned in their VSP.

2. Objective

This paper is aiming at providing a common understanding on piloting procedures including resources and schedules of community irrigation measures or interventions which will be selected out of village safer plans (VSP) prepared by village disaster management groups (VDMG) of CBDRM target villages. It will highlight the output, outcome and impact of measures, implementation procedures, role and responsibility of different stakeholders, cost estimate, and will also conclude with a tentative implementation schedule.

3. Expected output, outcome, and impact

Five irrigation field channels (five risk reduction measures) of about 10 kilometer in total length will be implemented by communities with strong support from CBDRM team and PIU (PDWRAM Pursat). The measures will provide water access to 200ha of command area[11] up to two crops per year (rice and cash crop). Additional capacity building on effective and efficient irrigation and water management will be also provided to the communities within the piloting target area. Up to five communities (VDMG) of 35 community leaders will have get the practical knowledge on implementation of disaster risk reduction measures of the VSP.

4. Implementation Procedure

The pilot of the irrigation measures will be carried out through a number of key steps as below:

A. Identification of measures

About 15 most potential irrigation canals (field channels) which are planned in the VSP of the different selected villages and placed in the longlist for further assessment. CBDRM team then conducts field visit to each of the measures site to have the physical assessment of the measures. A longlist of measures is then prepared for the safeguard team to screen for the safeguard issues (both environment and social).

[11] Area with Damnak Chheukrom irrigation system

Both identification and selection of the measures is done with the selection criteria which has been already developed by the consultant team before the process starts.

B. Selection of the measures

Five most potential irrigation measures (field channels) of about two kilometer each or about 10 kilometers in total length will be selected for piloting after a safeguard screening is completely done. The shortlist of the five interventions or measures will be prepared and proposed by the CBDRM consultant team and be then submitted to PIU and/or PMUC for review and approval for implementation. One or two measures will be listed a reserved for substitution if any of the initial selected measure is found unfeasible.

C. Feasibility Studies

Feasibility Study (FS) will be carried out by CBDRM team with the selected irrigation measure separately. The FS should highlight, but not limited to, key aspects as following:

- Community willingness and managing measure
- Proposed investment measures (what infrastructure? Improvement or new to be constructed?)
- Environment and social issue
- Cost for investment
- Benefits analysis
- Etc.

The content of the FS is to be developed by the consultant team, and each FS report is about 10 pages.

D. Detailed Engineering Design

Detailed engineering design (DED) of each irrigation measure includes the topographical survey and soil assessment, production of technical drawings, bill of quantity (BOQ) and construction specification. The DED will be led by PIU (Pursat PDWRAM) with close support from CBDRM Consultants. The designer, either PIU Staff or services deployed by PIU should work closely with local authority, community people, especially VDMG, to ensure concerns of the community are taken into account for the design. CBDM team will support the design team in all required community consultation.
The production of the DED will be used for procuring the construction of the measure or infrastructures.

E. Procurement

The recruitment of the contractor to provide the construction service for the designed irrigation measure will be done at the community level. PIU and community (VDMG and/or CCDM) will have a leading role in procuring a construction contractor, and CBDRM team will have a role as a supporting team.

F. Construction supervision

PIU and VDMG will be the key supervisor for the construction work of each measures. However, where required, CBDRM team will support for both technical and construction management aspect.

5. Role and Responsibility

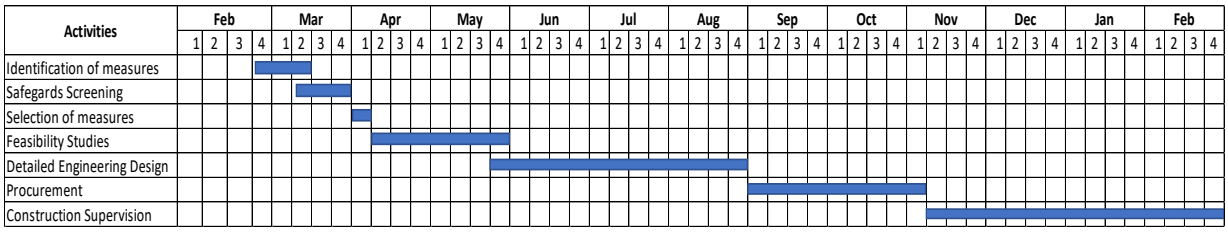
Table below presents roles and responsibility of project stakeholders for different activities in piloting irrigation measures

No.	Activities	Lead	Support
1	Identification of measures	CBDRM	VDMG, FWUC, PIU
2	Selection of measures	CBDRM	VDMG, FWUC, PIU
3	Feasibility Studies	CBDRM	VDMG, FWUC, PIU
4	Detailed Engineering Design	PIU	CBDRM
5	Procurement	PIU, VDMG, FWUC	CBDRM
6	Construction Supervision	PIU, VDMG, FWUC	CBDRM

6. Estimate Budget

Total estimated budget for the investment for irrigation measures is **$150,000 for about 5 intervention (field channels)** with approximately length of about 10 kilometers.

7. Schedule



APPENDIX 3 CONCEPT NOTE FOR COMMUNITY TRAINING ON IPM FOR RICE/VEGETABLS AND ANIMAL/POULTRY HUSBANDRY

1. BACKGROUND

The CBDRM-FWUC is one of the four components of the GMS-FDRMMP. The main objective of the assignment was to build capacity of communities in 50 target villages in the command area of Damnak Chheukrom Irrigation System in Pursat Province in community-based disaster risk management (CBDRM). This objective is achieved through the combination of training of communities, formulation of village safer plans, and mainstreaming of CBDRM into Commune Investment Program (CIP) and Commune Development Plan (CDP). This component also supports FWUC department of the MOWRAM in establishment and provision of capacity building to FWUC management committee of Damnak Chheukrom Irrigation System to ensure that water users in the irrigation system command area will benefits the irrigation and water management to a maximum extent.

By September 2017, the CBDRM team completely trained all the 50 target villages and provided them with assistance in preparing Village Safer Plans (VSP) including various risk reduction measures. To ensure a sustainable knowledge and basic skills of the community people that they have learned through both theory and practices in the first CBDRM phase mainly related to disaster risk management (DRM) such as hazard risk reduction/mitigation measures including adaptation and resilience, VSP development, etc., so that they would be able to replicate and translate into real actions while CBDRM is extended with another 2 years beyond its original completion date till September 2019 to invest in a community piloting on a certain number of representative risk reduction measures already planned in their VSPs. However, the investment scope is limited and only covers minor measures/interventions in a small number out of the total 50 target villages of Bakan and Phnom Kravanh districts in the extension CBDRM.

Parallel to this effort in capacity building by the CBDRM component, the FWUC department and Project Management Unit (PMU), with the support of the CBDRM team, has established FWUC in the project area by January 2018. After consultations with the PMU, training of FWUC in operations and management (O&M), financial management, and conflict resolution is expected to be carried out once some of the irrigation infrastructure is in place.

The CBDRM team has discussed with the PMU about the concern that the capacity building of communities in CBDRM and FWUC in O&M, financial management, and conflict resolution will not have the full impact unless the communities and the FWUC apply what they have learned and implement what they have planned.

At the same time, the extension CBDRM component has additionally allocated small amount of budget to provide a capacity building of some interested farmers in a joint-training on IPM on rice/vegetable and poultry/animal husbandry additional to infrastructure measures mainly in field channels and ponds.

Finally, the training on IPM on rice/vegetable and poultry/animal husbandry is a part/element of the extension CBDRM which is included in the total investment. In addition, this agricultural training would benefit some selected farmers to increase their production to ensure food security and support to household economic growth in a future beyond an end of the extension CBDRM by late 2019.

2. OBJECTIVE OF THE TRAINING

To build and upgrade a capacity of the selected village farmers with updated agriculture techniques and animal/poultry husbandry to be resilient and adapted to their specific communities.

3. EXPECTED RESULTS

After a completion of the 15 training courses on IPM on Rice/Vegetable and Animal/Poultry Husbandry, all the 150 village participating farmers would be able to:

- Replicate and better apply new skills in rice and vegetable growing;
- Effectively replicate new skills in raising animal and poultry;
- Improve food security and increase income generation to support family members; and
- Transfer and share these new skills with their close relatives and neighboring villagers inside and outside the village as well.

4. APPROACH AND METHODOLOGY

The overall approach is based on the idea that to achieve sustainability in both irrigation and water management and community disaster risk management, two key elements are needed:

- A comprehensive capacity building program for communities that are engaged in water use management, irrigation, and disaster risk management; and
- Learning by doing.

The capacity building program of communities is disaster risk management has been already completed over the first two years of the CBDRM component of the Project. However, the learning by doing still needs to be done.

The methodology to translate this approach into action is to carry out a pilot in the command area. The pilot will combine the capacity building of communities undertaken in the past with investments that enable communities to implement the ideas that the communities themselves have formulated in the village safer plans. At the same time, ACI will carry out the agriculture training that has already been approved to carry out during the extension period.

Although only a limited number of communities will be selected for the pilot investment, all communities will be involved in further capacity building activities, particularly those related to resilient agricultural practices and FWUC training.

5. VENUE AND TIME

A training venue will be conducted at a specific and appropriate location of selected village. Actual time for conducting the training will be identified and confirmed later after a completion of recruitment of selected trainers.

6. PARTICIPANTS

To ensure more effective learning, only 10 participants per village is invited and selected for comprehensive training is the best number. In terms of gender balance, three to four women are selected for such a combined three-day training course on IPM for rice/vegetable and on anima/poultry husbandry.

List of participants by village

S/N	# of participant	Village	Commune	Remarks
1	10 persons (5 are women)	TBD	TBD	
2	10 persons (5 are women)	TBD	TBD	
3	10 persons (5 are women)	TBD	TBD	
4	10 persons (5 are women)	TBD	TBD	
5	10 persons (5 are women)	TBD	TBD	
6	10 persons (5 are women)	TBD	TBD	
7	10 persons (5 are women)	TBD	TBD	
8	10 persons (5 are women)	TBD	TBD	
9	10 persons (5 are women)	TBD	TBD	
10	10 persons (5 are women)	TBD	TBD	
11	10 persons (5 are women)	TBD	TBD	
12	10 persons (5 are women)	TBD	TBD	
13	10 persons (5 are women)	TBD	TBD	
14	10 persons (5 are women)	TBD	TBD	
15	10 persons (5 are women)	TBD	TBD	

7. TRAINERS/FACILITATORS

Mr. …… /Ms. ……., IPM on Rice and Vegetable
Mr. …… /Ms. ……., Animal/Poultry

It is noted that the combined three-day training course on IPM on rice/vegetable and animal/poultry husbandry needs four trainers/facilitators (two trainers in IPM for the first half days, and two for the second half days for animal/poultry husbandry session). The trainers will be responsible for development of training modules and contents and training schedule/agenda details with support from CBDRM team.

In addition, trainers' recruitment should be considered and focused more on local people with experiences related to the training area. A purpose of recruiting local trainers is also subject to the budget available?

8. CONTACT INFORMATION

Mr. Rithy Oun, Community Organizer/Social Mobilizer, his phone # 012 282 685, email: ……

9. AGENDA (Example Draft)

DAY/TIME	ACTIVITY	TRAINER/FACILITATOR
Day I, 00/00/2019		
AM	Registration	Trainer
AM	• Opening session • Introduction • Presentation of training objective • Ground rule creation	

AM	• IPM on rice & vegetable:
	  ○ Types of insects
	  ○ Chemical/natural pesticides
	  ○ Chemical/compost fertilizers	

AM	○ Land preparation ○ Rice and vegetable varieties/seeds resilient to a community soil	
PM	○ On-farm water management ○ ……..	
Day II, 00/00/2019		

AM	*Recap some key points from the Day I* ○ …….. ○ …….	
PM	• Animal/poultry ○ Types of animals/poultry resilient to a community situation ○ Types of diseases	
Day III 00/00/2019		
AM	*Recap some key points from the Day II* ○ How to prevent from and treat those diseases ○ …….	
PM	○ …… ○ …….	
PM	Closing session	

10. LOGISTICS AND BUDGET ESTIMATION

Combined three-day training on IPM on rice/vegetable and animal/poultry husbandry

No.	Item	# Person	Unit Cost	# Day	Amount
1	Lunch for 10 participants from a village	10	$ 4	3	$ 120
2	Snack	10	$ 2	3	$ 60
3	Materials for participants	10	$ 1.5	1	$ 15
4	Trainer's fee	2	$ 40	3	$ 240
5	Trainer's preparation		$ 20	1	$ 20
6	Materials for trainer		$ 10	1	$ 10
7	Handout photocopy		$ 15	1	$ 15
	Total for one training				**$ 480**
	Total for 15 training courses				**$ 7,200**

APPENDIX 4 CBDRM AND INDICATORS IN THE DMF

The design monitoring framework for the overall GMS-FDRMMP is reported in the table below, where the parts relevant to CBDMR (output 3) are highlighted.

Table 9 Detail Project Implementation Progress (as of 30 June 2019)

Design Summary	Performance Targets and Indicators with Baselines	Progress
Impact Reduced economic losses resulting from floods and droughts	By 2020, average annual economic losses reduced by 50% in project areas (2011 baseline [Pursat flood damage]: $13.4 million)	
Outcome Improved capacity and preparedness to manage and mitigate the impacts of flood and drought events	NFFC issuing flood warnings to NCDM and linked to MRC regional flood management and mitigation center by 2015	Target Q3 2019 (Revised) Regular consultations with NCDM and MRC are held including sharing of data and information. Flood warning will be issued after the NFFC is fully operational. Hydrological data from MRC via Hydro-met database are used for flood forecasting every day.
	At least 6 gender-sensitive commune disaster risk management plans implemented	Number of communes revised to five (5) based on the irrigation project target area. 50 Safer Village Plans in 5 communes prepared.
	16,100 ha of upgraded irrigation and drainage operational (2011 baseline: 0 ha dry season paddy)	Detailed design completed and ICB contracts for Barrage (18 Oct 2017) and Main Canal (19 Jun 2017) awarded. Three NCB contracts of Secondary and Tertiary Canals signed on 12 Jun 2019). Updated completions dates are: • Main Canal – September 2019 • Barrage – March 2020 • Secondary and Tertiary Canals – December 2020
	Increased flood protection for 10,000 people (2011 baseline [Pursat flood]: 1,991 households displaced or approximately 9,955 people)	NFFC flood forecasting model developed and tested (Pursat River Basin and Mekong Mainstream).
Outputs 1. Enhanced regional data, information, and knowledge base for the	All NFFC staff trained and operational by Q2 2016	Target: Q4 2018
		Trainings have been provided to DHRW, CPMU, and DOM on hydrologic and hydrodynamic models and improved weather forecasting

Design Summary	Performance Targets and Indicators with Baselines	Progress
management of floods and droughts		using global and regional modelled and satellite products, web-portals, multi-regression forecasting and SPI. Additional training has been provided by the hydromet equipment supplier on the field instrumentation and software provided. Mentoring and on-the-job training of the DHRW-NFFC staff on the use of the improved forecasting techniques continued up to Aug 2019 (extension period). 75 staff including 23 females have been trained. (completed)
	NFFC forecasting model calibrated and operational by 2017 (2011 baseline: NFFC is not operational)	Target: by Q4 2018
		Modelling Team has developed hydrologic and hydrodynamic schemes and the hydrological models for the mainstream Mekong and Pursat river basin and tested. Additional cross-sectional survey information was used to refine the Pursat Hydraulic model, and field trips have been conducted to verify structural features on the landscape to refine the mainstream Mekong hydraulic model. The regression model for the mainstream Mekong has been updated. Training on the models has been conducted. A NFFC Web Portal for dissemination of flood and drought conditions has been developed. Additional flow data will be collected and used from newly installed hydro-met station to further improve the hydrological and hydraulic models (expected during the extension, Q3 2019) (Progress at 95%)
	Design criteria for flood and drought mitigation schemes in the Mekong Delta developed and disseminated by mid-2014	Target: by Q4 2018
		Design guidelines for flood and drought mitigation have been developed and additional chapter on Ecosystem-based Adaptation to climate change developed by SPCR of MOE has been added to the guideline, final workshop to be held in August 2019. (Progress at 95%)
		Target by 2018

Design Summary	Performance Targets and Indicators with Baselines	Progress
	Transboundary (Cambodia–Viet Nam) flood management options endorsed by both governments by 2015	Contact with the GMS FDRMMP Viet Nam was initiated in Q2 2017. A coordination Workshop was organized in Hanoi on 5 Nov 2018 by Viet Nam Project where a joint action plan at project level was developed. The technical and institutional capacity of MOWRAM to participate in transboundary initiatives has been strengthened under the activities of the NFFC component. The Action Plan has been agreed at project levels of two countries (13 May 2019). (Progress at 75%).
2. Upgraded water management infrastructure	At least 30% of workdays are provided by women on an equal pay for equal work basis	Target: by Q4 2020
		Included in the Works Contract (Completed, regular monitoring of construction on-going)
	O&M plans for each unit of upgraded infrastructure adopted	Target: by Q3 2019 (Revised Q1 2021, subject to project extension)
		DDCS consultant preparing plans and will be adopted after completion of infrastructure (Progress at 0%, not due)
3. Enhanced capacity for community-based disaster risk management	6 communes have disaster risk management plans and organizations to coordinate response by end of 2018	Target: by Q 2017
		Number of communes revised to 5 based on project target area. Risk profiles and Safer Village Plans of 50 target villages in 5 communes have been prepared and submitted to the CPMU (Progress at 100%)
	At least 200 women are trained on CBDRM and at least 30% of CBDRM committee members are female	Target: by Q2 2017
		i) Training Need Assessment workshop on 26 May 2017, 13 female (19%) out of 69 participants Training of Trainer, 4 out of 14 participants are female (29%) CBDRM Training for Communities, 385 (52%) of 750 community participants are female. ii) During Step 1 Information on FWUC formation was

Design Summary	Performance Targets and Indicators with Baselines	Progress
		disseminated in 5 communes, 50 villages, 2,159 (46%) out of 4701 participants were female. Trainings to elected FWUCs will be provided in Q2 2019, during the extension period. iii) Extension period: Training on home gardening (vegetables) and poultry were completed in 15 villages during June and July 2019, for 184 participants including 132 women (72%) (66 women, 67%). (Progress at 100%)
4. Effective project implementation	Project implementation is completed within 6 years (by March 2019) and all accounts are closed within 6.5 years (by September 2019)	Target: By Q1 2021 (proposed extension after Sep 2019)
		Progress: CPMU & PIUs have been established with proper financial flow. Staff and consultants have been recruited. (Progress at 90%)
Activities with Milestones		
Outputs 1. Enhanced regional data, information, and knowledge base for the management of floods and droughts	1.1 Equip NFFC by end of 2014	Completed in Q1 2017
	1.2 Appoint NFFC Staff by mid-2013	Staff appointed in Q4 2015
	1.3 Install software and calibration for selected basins by 2015	Hydrological and hydrodynamic models developed; staff trained.
	1.4 Calibrate and test forecasts in flood season 2015 – 2016	Models calibrated; tested.
	1.5 Update national design standards for hydraulic structure by 2015	Technical Report prepared, final workshop in August 2019.
2. Upgraded water management infrastructure	2.1 Prepare detailed engineering design by end of Q3 2013	Detailed design completed in Q1 2017
	2.2 Prepare resettlement plan and implement relocations according to plan by end of Q4 2013 for primary canal, Q2 2014 for secondary canals, and Q3 2014 for tertiary canals	Detailed RP1 of barrage and main canal prepared, by GDR and no-objection from ADB received on 21 December 2018. Detailed RP2 of secondary and tertiary canals submitted to ADB on 28 December 2018, revised submitted on 27 Feb 2019, no-objection from ADB received on 4 April 2019.

Design Summary	Performance Targets and Indicators with Baselines	Progress
	2.3 Call for bids by end of Q3 2013 for primary canal, Q4 2013 for secondary canals, and Q2 2014 for tertiary canals	Contracts of Main Canal and Barrage awarded on 18 Oct 2017 and 19 Jun 2017, respectively.3 NCB Contracts of Secondary and Tertiary canals awarded on 12 June 2019.
	2.4 Contract for construction works by Q1 2014 for primary canal, Q3 2014 for secondary canals, and Q4 2014 for tertiary canals	Contract for Main Canal signed 19 June 2017, for Barrage signed on 18 Oct 2017. Contracts for three packages of SCs and TCs signed on 12 June 2019.
	2.5 Undertake construction work by Q1 2014	Construction work of Canal started in Q3 2017, of Barrage in Q4 2017, and the secondary and tertiary canals in Q3 2019.
	2.6 Commission structures and undertake acceptance trials by mid-2018	Structures to be commissioned as follows: • Main canal - Q4, 2019 • Barrage – Q1 2020 • Secondary and tertiary canals – Q4 2020
3. Enhanced capacity for community-based disaster risk management	3.1 Establish farmer water user committees at Damnak Chheukrom Irrigation System 2014	18 Farmer water users sub-groups, and 4 user-groups have been established in SC1, SC2, SC 3 and SC 4; Establishment of overall FWUC completed in Q1 2018.
	3.2 Implement training for children, women and men in all project villages, including preparation of agricultural management plans, irrigation O & M plans and training for operation of water control structures by 2015	CBDRM trainings completed in 50 villages; Training of FWUC will be undertaken in Q3 2019. Training on home gardening (vegetables) and poultry were completed in 15 villages during June and July 2019 for 184 participants including 132 women (72%) (66 women, 67%). FWUC Training on O&M, Financial Management and Conflict Resolution is completed by 20 September 2019, 68 FWUC management members, 20 (29.4%) of which are female, have received the training lessons
	3.3 Piloting of CBDRM measures by Q4 2019 (additional scope of extension)	Feasibility study of 5 community ponds and one field channel have been completed, the procurement/construction will start in Q3 2019.
4. Effective project implementation	4.1 Appoint implementation management consultants by Q2 2013	PIC appointed in Q2 2015

Design Summary	Performance Targets and Indicators with Baselines	Progress
	4.2 Establish two project implementation units by Q2 2013	PIUs established in Q4 2014
	4.3 Establish national project performance monitoring and evaluation mechanisms by Q3 2013	Project Performance Monitoring System (PPMS) has been incorporated in the Project Quarterly Progress Reports submitted every quarter.
	4.4 Complete central project management unit staff capacity building by Q3 2014	CPMU Staff training provided by NFFC, CBDRM. DDCS and PIC teams. To be continued up to the completion of Project,

Note:
CBDRM - Community-based disaster risk management; CPMU- Central Project Management Unit; DDCS - Detailed Design and Construction Supervision, FWUC=farmer water user community; NFFC= National Flood Forecasting Center; PIC= Project Implementation Consultant, PIU = Project implementation Unit.

APPENDIX 5 CBDRM AND GENDER ACTION PLAN

The Gender Action Plan (Gap) Monitoring Table related to CBDRM Component is reported below

Table 10 Progress on Gender Action Plan

Gender Action Plan (GAP Activities, Indicators and Targets, Timeframe and Responsibility)	Progress to date (As of 31 March 2019)	Issues and Challenges
3.1. Ensure at least 40% of participants in all public consultations for the development of safer village and commune plans are women. **Target 4: Achieved**	49% (249 out of 513 of community people) participating in the Village Planning Activity are female. 45% are women (403 out of 892 participants) in public consultations for the Coordination Committee in 2 districts and 5 communes 50 villages. 50% are women (378 out of 756 participants) attended HVAC held on 10 April 2016. Documentation in the HVAC report submitted to the CPMU 50 village disaster management groups (VDMG) were formed. 41% (144 out of 350 members) are women. Documentation in the 50 Village Safer Plans submitted to the CPMU>	
3.2 Schedule of CBDRM training for community should be conducted to fit the schedules of both men and women in the community schedule to ensure effective participation of both. **Action 5: Achieved.**	Training Need Assessment was done on 26 May 2016, 19 % (13 out of 69 participants) were female. The participants were from the existing commune district structures, where female representatives were only 19%. The community training schedule was established based on consultations with all participants during the Training Need Assessment Workshop. 50 villages were trained on CBDRM. 52% (385 out of 750 community participants) were women. A training for one village took 5 days, however, this 5-day training was divided into two or more sections (e.g. 2 days and 3 days, or 2 days, 2days and 1 days). The pattern varied from one to another village depending on the availability of both female and male participants. The starting time and ending time of each training days, were also well consulted and agreed by participants, especially women. See Reports on Training Needs Assessment and Training of Communities.	
3.3 Ensure CBDRM training modules are gender sensitive and address the needs of women **Action 6: Achieved.**	CBDRM training manuals include gender roles and women in DRM. Gender perception is integrated into CBDRM Training Manuals. The topics included in the training manual are: Module 2 Session 2.4. Gender and The Role Of Women In DRM What is Gender? Gender Cross Cutting Issue, what is Gender Mainstreaming? Implications of Gender Mainstreaming, Effective Gender Mainstreaming, Why Is Gender Mainstreaming Important? How to Ensure Gender Mainstreaming in CDBRM?, What does gender equality	

Gender Action Plan (GAP Activities, Indicators and Targets, Timeframe and Responsibility)	Progress to date (As of 31 March 2019)	Issues and Challenges
	mean? How to achieve Gender Equality? Role of women in disaster management Module 7, Session 3: Gender Action Plan `1. What is Gender Action Plan: What makes a Good Quality and Realistic Gender Action Plan (GAP)? Features of a "Good" GAP, what are Common Problems encountered in Gender Action Plan (GAP)? Common GAP problem, 2. Role of Women in DRM expressed in the development of a "good" GAP (Improved Capacity of Women in DRM, Clear Strategy to Mainstream Gender in CBDRM 3. Incorporation of GAP into CBDRM: Gender Action Plan of Community Based Disaster Risk Management (CBDRM) and Farmer Water Users Community (FWUC). See Training Manual submitted to CPMU.	
3.4 Ensure at least 30% of members of the farmer water user committees are women **Target 7: Partially Achieved**	27 % Elected members of the Community Water User Committee 21 out of 78 elected members. 41 % were female (2714 female participants voted for FWUC and FWUG of 6627 Participants). Preparation of the Statute of the FWUG in 5 communes. 45 (33%) out of 135 of participants. step 1- 5 out of the 10 steps of FWUC establishment completed for FWUC formation, including Step 5 Election of the FWUC Groups and Sub-groups. In Step 1- Dissemination meetings, 46% (2,159 out of 4,701 participants) were female. Elections of one Farmer Water User Community (FWUC), 3 Farmer Water User Groups (FWUGs) at Secondary Canal level and 18 Farmer Water User Sub-Groups (FWUSGs) at tertiary canal levels were completed in February 2018. CPMU FWUC team have conducted 7 meetings with communities for project information disclosure (PID). During the consultation and meeting for PID; there were total 2,159 participants with 4,701 females equal to 45%. Gender awareness manual are prepared and translated in Khmer language. Trainings will be provided to FWUC/FWUGs/FWUSGs in 2019 after key structures of the irrigation sub-project is in place. Report on FWUC election prepared by FWUC department.	The participants in all activities related to FWUC establishment and elections included more than 30% women. However, the election to the FWUC committees, carried out under the FWUC sub-decree resulted in only 27% of women members (21 out of 78 members). Despite the efforts on sensitization for more women participation carried out in the consultations participated by good percentage of women, this is short of the 30% requirement. Since this was based on free, independent election procedures, it was accepted as the election outcome where outside interference was not desired.
3.5. Ensure at least 40% of women in project	Above 40% of women attended in CBDRM's activities as included in 3.1 & 3.2. 52% of women who attended the training had low education level, where trainers spent more time to explain	

Gender Action Plan (GAP Activities, Indicators and Targets, Timeframe and Responsibility)	Progress to date (As of 31 March 2019)	Issues and Challenges
communes participate in the formulation, implementation and training on CBDRM **Target 8: Achieved.**	and discuss in a flexible schedule covering real practical experience in both the theory and practice sessions. During the training, most of women were hesitant to talk because they think it's a new concept, and it needed special effort to encourage women to participate in DRM planning. Note: this action is associated with the DMF gender target "at least 200 women are trained on CBDRM". Based on the report in 3.2: 50 villages were trained on CBDRM. 52% (385 out of 750 community participants) are women. This is to confirm that this DMF gender target is achieved by the MTR.	
3.6. Ensure at least 30% of CBDRM group members are women **Target 9: Achieved**.	27 (31 %) out of 87 of CBDRM committee members in 5 communes and 2 districts are female 50 Village Disaster Management Groups (VDMG) were formed in year 2016-2017. 144 (41%) out of 350 VDMG members are female. Membership of the VDMG is selected in compliance with directive/guideline for VDMG establishment of the National Committee for Disaster Management. The main objective of VDMG is to support the process of preparing a Commune Investment Plan (CIP) when the Commune Council starts collecting needs and activities as well as village-level data / information for the investment plan, actively involved with the village's key and advisory group of the CBDRM project. The roles of VDMG member are presented by group discussion activities. The gender role was discussed for three different phases of disaster cycle-before, during and after a disaster strikes. This tool tells what men and women do and what activities they share in order to manage the impact of disasters. Number of women are increased participation in project activities from 30% (27 (31 %) out of 87 of CBDRM) to 41 % (144 (41%) out of 350 VDMG members) and equitable access to the GAP and project resources, including skills training, technical and management services such as disaster risk management, O&M, etc.	
3.7. Gender sensitive awareness material for CBDRM prepared (Gender sensitive materials for CBRM will be tested with communities ensuring they,	Training manuals, for master trainers and community, including gender awareness materials and project brochure were prepared and disseminated. CBDRM Team together with the CPMU has developed tools for gender checklist and tested with communities and master trainers ensuring them, especially women clearly understand the definition, concept, and gender roles for CBDRM, and also include best practices on integration of gender into DRM during field training. All terminology and message in the training materials used local terminology with pictures showing relevant topics and roles and responsibility of both men and women which advances gender sensitive knowledge, skills and attitude.	

Gender Action Plan (GAP Activities, Indicators and Targets, Timeframe and Responsibility)	Progress to date (As of 31 March 2019)	Issues and Challenges
especially women clearly understand.) **Action 6: Achieved.**	Villages plan have been prepared at the end of each training, involving local women and men in each village, where women community leaders are encouraged to take on roles and responsibilities and contribute to disaster risk management of villages and communes. To strengthen the capacity of trainers and the communities, following activities were conducted: (i) conduct orientation on GAP to master trainers, (ii) provide TOT to master trainers, with project's context, (iii) develop gender checklist, and (iv) sex-disaggregated data collection report in each training villages/commune.	

APPENDIX 6 CONCEPT NOTE FOR FWUC TRAINING

Concept Note for FWUC Trainings Of the Community Based Disaster Risk Management and FWUC Support Component (Extension Phase)

Background

The CBDRM-FWUC is one of the four components of the GMS-FDRMMP. The main objective of the assignment was to build capacity of communities in 50 target villages in the command area of Damnak Chheukrom Irrigation System in Pursat Province in community-based disaster risk management (CBDRM). This objective is achieved through the combination of training of communities, formulation of village safer plans, and mainstreaming of CBDRM into Commune Investment Plan (CIP) and Commune Development Plan (CDP). This component also supports FWUC department of the MOWRAM in establishment and provision of capacity building to FWUC management committee of Damnak Chheukrom Irrigation System to ensure that water users in the irrigation system command area will benefits the irrigation and water management to a maximum extent. The CBDRM team provided capacity building to its 50 target villages in CBDRM and supported them to prepare a village safer plan (VSP) including various risk reduction measures. To ensure that the knowledge provided will be sustainable, CBDRM is extended another 2 years beyond its original completion date till September 2019 to support community to piloting some representative risk reduction measures planned in their VSP and to undertake activity carried over from the original phase—FWUC Training.

Objective

This document is prepared to gain a common understanding among different project stakeholders on the Training for building capacity for FWUC management committees of Damnak Chheukrom Irrigation Scheme (DCIS). The concept note covers the expected output and outcome of the training, how the training will be rolling out, schedule, participants and estimated required budget.

Expected output and outcome

The Training on System Operation and Maintenance, Financial Management and Conflict Resolution will be provided to 74[12] management committee members for 96 leading positions within the whole FWUC of Damnak Chheukrom Irrigation Scheme. The trained FWUC management committee members will have knowledge to operate the Damnak Chheukrom Irrigation Scheme (DCIS), when the construction of the infrastructures is completed, to provide irrigation services to the water users in the command area of the system effectively and efficiently in a long run. In addition, after the completion of the training, FWUC of DCIS will receive additional support from FWUC Department through CPMU of the project in a form of on-the-job training to enhance the knowledge given through the training.

Methodology

The participants will be split into two groups to make sure that it will be delivered effectively and to ensure that everybody has chance to participate actively in all the training activities. The division of the participants or trainees will be done by consideration with the travel distance and where or which

[12] 22 management members hold two position in Damnak Chheukrom Irrigation System.

part of the irrigation system they will manage, but balancing the about the same number, of participant, in each group.
The training will be rolling within 15 days for both groups or about 7.5 days for each group. The training will be broken down into at least 3 sessions as following:

Session 1: System Operation and Maintenance = 4 Days
Session 2: Financial Management = 2 Days
Session 3: Conflict Resolution = 1.5 Days

The training of above 3 sessions will not be conducted continuously but will be given at least one session in one week, or 3 different session in different weeks. This can give the participants, FWUC management committee members, time to review the lesson at their free time before a new session with new lesson starts. However, the trainings of the two groups are planned to roll out in parallel.
CBDRM is going to use specialists on FWUC capacity building from an experienced, recognized organization—Irrigation Service Center (ISC) to deliver the trainings. However, CBDRM Consultant team will closely supervise the training activities, including checking training materials and training activities in-situ.

Training Venues

The trainings for the two groups of FWUC management committee members will be done in two separate places. **Training for Group 1**, for members who will manage part of the system situated in Phnom Kravanh district, is planned to be conducted in **Phnom Kravanh district town**, whereas the training for **Group 2**, for members who will manage part of irrigation system in Bakan District, is planned to be organized in **Talou commune center** of Bakan district. However, the exact locations will be identified by the community mobilizer of the CBDRM Team before the training starts.

Training Schedule

The training for two groups of management committee members of DCIS's FWUC is planned to roll out within a period of 1.5 months' time, starting from **mid-June 2019 and completing by the end of July 2019**. The detailed tentative training schedule is attached in appendix 1.

Participants (List of FWUC Management Committees)

All management members of 74 people whose hold 96 positions (22 members hold dual positions) in DCIS's FWUC will be the key targeted audiences for the trainings. However, FWUC officer(s) of the PIU or Pursat PDWRAM will also be invited to join the training to gain additional knowledge on the subjects or to gain a common understanding on overall management of the system. Those officers will work better with FWUC in the future. Appendix 2 of this document provides list of management committee members of DCIS's FWUC.

Budget

A total budget of **$45,541.36** has been approved by the CPMU for CBDRM team to conduct the training for DCIS's FWUC management committee members. This budget covers the expenses on Trainers (for the three sessions—O&M, Financial Management, and Conflict resolution) for 75 working days, Training materials and supplies, Allowance for participants, refreshment, etc. See Appendix 3 for detailed training budget.

Appendix 1. Tentative Training Schedule

Activities	Group	Jun-19				Jul-19				Aug-19
		W1	W2	W3	W4	W1	W2	W3	W4	W1
Training Materials Preparation	G1&G2									
Training on System Operation and Mainteance	G1									
	G2									
Training on Financial Management	G1									
	G2									
Training Conflic Reslution	G1									
	G2									
Training Reporting Preparation	G1&G2									

Appendix 2. List of DCIS's FWUC management committee members or Training Participants

No	Name	Sex	Position	Role	Location	Management Group
GROUP 1						
1	Nhim Lorn	M	Chief	Overall Management	Kandal	FWUC
2	Lay Tha	M	1st Vice-Chief	O&M Planning	Thmey	FWUC
3	Ouy Phen	M	2nd Vice-Chief	Water distribution	Thlok Dangkor	FWUC
4	Yok Ky	M	2nd Vice-Chief	Water distribution	Chong Ruk	FWUC
5	Sok Sam	F	Tresurer	Budgeting	Prey Kanlang	FWUC
6	Nov Pheun	M	1st Vice-Chief	O&M Planning	Pteah Rung	SC1
7	Oeun Chy	M	2nd Vice-Chief	Water distribution	Pteah Rung	SC1
8	Keo Chanry	F	Tresurer	Budgeting	Kandal	SC1
9	Neu Pheun	M	Chief	Overall Management		SC1-TC1
10	Sim Vansan	M	2nd Vice-Chief	Water distribution		SC1-TC1
11	Soun Pech	F	Tresurer	Budgeting		SC1-TC1
12	Im Ra	M	1st Vice-Chief	O&M Planning		SC1-TC2
13	Phan Ya	M	2nd Vice-Chief	Water distribution		SC1-TC2
14	Poun Phal	M	1st Vice-Chief	O&M Planning	Bat Rumdoul	SC2
15	Sok Saran	M	2nd Vice-Chief	Water distribution	Sdok Khtum	SC2
16	Hang Rin	M	2nd Vice-Chief	Water distribution	Kra Nham	SC2
17	Cheng Chuop	M	1st Vice-Chief	O&M Planning		SC2-TC1
18	Mam Rin	M	2nd Vice-Chief	Water distribution		SC2-TC1
19	Sat Norn	F	Tresurer	Budgeting		SC2-TC1
20	So Ry	M	1st Vice-Chief	O&M Planning		SC2-TC2
21	San Kheng	M	2nd Vice-Chief	Water distribution		SC2-TC2
22	Souy Sieng Heng	F	Treasurer	Budgeting		SC2-TC2
23	Soth Kosal	M	1st Vice-Chief	O&M Planning		SC2-TC3
24	Ouch Samnang	M	2nd Vice-Chief	Water distribution		SC2-TC3
25	Duk Din	F	Treasurer	Budgeting		SC2-TC3
26	Un Oeun	M	Chief	Overall Management		SC2-TC4
27	Y Sarin	M	1st Vice-Chief	O&M Planning		SC2-TC4
28	Nget Kan	M	2nd Vice-Chief	Water distribution		SC2-TC4
29	Hang Tin	M	Chief	Overall Management		SC2-TC5
30	Sok Sun	M	1st Vice-Chief	O&M Planning		SC2-TC5
31	Chheun Song	M	2nd Vice-Chief	Water distribution		SC2-TC5
32	Pen Sopheap	F	Treasurer	Budgeting		SC2-TC5

No	Name	Sex	Position	Role	Location	Management Group
33	Nget San	M	1st Vice-Chief	O&M Planning	Prey Roung	SC3
34	Sar Thun	M	2nd Vice-Chief	Water distribution	Sereikunthea	SC3
35	An Kun	F	Tresurer	Budgeting	Prey Roung	SC3
36	Chey Seng	M	1st Vice-Chief	O&M Planning		SC3-TC1
37	Touch Pohan	M	2nd Vice-Chief	Water distribution		SC3-TC1
38	Keo Nan	F	Tresurer	Budgeting		SC3-TC1
39	Neu Phoan	M	Chief	Overall Management		SC3-TC3
40	Sem Sal	M	1st Vice-Chief	O&M Planning		SC3-TC3
41	Mak Sarom	M	2nd Vice-Chief	Water distribution		SC3-TC3
42	Cheam Navy	F	Treasurer	Budgeting		SC3-TC3
43	Sar Ran	M	Chief	Overall Management		SC3-TC4
44	Pich Peu	M	1st Vice-Chief	O&M Planning		SC3-TC4
45	Sar Ron	M	2nd Vice-Chief	Water distribution		SC3-TC4
46	Chey Mom	F	Treasurer	Budgeting		SC3-TC4
GROUP 2						
47	Touch Ly	M	1st Vice-Chief	O&M Planning	Talou village	SC4
48	Soung Eang	M	2nd Vice-Chief	Water distribution	Prey Tor village	SC4
49	Long Sao	M	2nd Vice-Chief	Water distribution	Prey Vaing village	SC4
50	Teun Theun	F	Treasurer	Budgeting	Kok Rumlor village	SC4
51	Sim Ra	M	1st Vice-Chief	O&M Planning		SC4-TC1
52	Nget Nhim	M	2nd Vice-Chief	Water distribution		SC4-TC1
53	Ei Pheap	F	Tresurer	Budgeting		SC4-TC1
54	Soth Cheum	M	Chief	Overall Management		SC4-TC2
55	EK Sambath	M	1st Vice-Chief	O&M Planning		SC4-TC2
56	Im Sophy	M	2nd Vice-Chief	Water distribution		SC4-TC2
57	Ek Sa Im	F	Treasurer	Budgeting		SC4-TC2
58	Moung Eun	M	1st Vice-Chief	O&M Planning		SC4-TC3
59	Nhin Lay	M	2nd Vice-Chief	Water distribution		SC4-TC3
60	Sum Phy	F	Treasurer	Budgeting		SC4-TC3
61	Khet Thuch	M	Chief	Overall Management		SC4-TC4
62	Ven Savorn	M	1st Vice-Chief	O&M Planning		SC4-TC4
63	Vong Pheut	M	2nd Vice-Chief	Water distribution		SC4-TC4
64	Kheng Sochan	F	Treasurer	Budgeting		SC4-TC4
65	Khim Heun	M	Chief	Overall Management		SC4-TC5
66	Horn Heub	M	1st Vice-Chief	O&M Planning		SC4-TC5
67	Hoeum Phanna	F	2nd Vice-Chief	Water distribution		SC4-TC5
68	Morm Sokhom	F	Treasurer	Budgeting		SC4-TC5
69	Yeum Cheang	M	1st Vice-Chief	O&M Planning		SC4-TC6
70	Son Sambath	M	2nd Vice-Chief	Water distribution		SC4-TC6
71	Phat Saroun	F	Treasurer	Budgeting		SC4-TC6
72	Ngim Sameun	M	1st Vice-Chief	O&M Planning		SC4-TC7

No	Name	Sex	Position	Role	Location	Management Group
73	Seng Sam	M	2nd Vice-Chief	Water distribution		SC4-TC7
74	Meas Phally	F	Treasurer	Budgeting		SC4-TC7

Appendix 3. Detailed budget plan

	Budget description	*Number of Day*	*Number of Participants*	*Unit Rate (USD)*	*Amount (USD)*
4.1	Refreshment for participants attend FUWC	15	177	3.00	7,965.00
4.2	Lunch for participants	15	177	3.00	7,965.00
4.3	Transportation for participants	15	177	5.00	13,275.00
4.4	Speakers (Microphone)	15	1	30.00	450.00
4.5	Reproduction, copying, supplies (Flipcharts, Marker)	15	1	100.00	1,500.00
4.5	Expert on O&M	30	1	181.82	5,454.55
4.5	Expert on Financial Management	30	1	181.82	5,454.55
4.5	Expert on Conflict Resolutin	15	1	181.82	2,727.27
4.5	Other expenses	15	1	50.00	750.00
	Sub-Total: 4				**45,541.36**

Note: This budget line is part of overall budget plan for FWUC establishment and capacity building which has been approved by CPMU during the CBDRM Original phase.