



# CCN PILOTS EVALUATION AND INSIGHTS REPORT

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*Dr Lien Pham*



Mekong Connections: Governance, Transparency, and Local Voices

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## 1. Aim of evaluation

In conducting evaluations of the CCN Pilot, our aim is to increase the probability of achieving pilot success by:

- providing the CCN facilitators and members with the tools for assessing the planning, implementation, and self-evaluation of their network
- mainstreaming evaluation as part of the learning of the CCN.

## 2. Evaluation Approach

Empowerment evaluation is employed to complement the CCN network principles as a forum for learning. Our approach to empowerment evaluation is practical and transformative. It focusses on the processes and outcomes in order to enhance the CCN pilot's improvements and outcomes. Transformative empowerment highlights the psychological and social values of being able to recognise psychological risks, and take learning and practical adaption strategies to encourage learning about climate change, adaptation, and willingness to take on the adaption themselves. As the CCN's main objective is to enable members to learn about climate change, adaptation, and apply effective practical adaptation to improve resilience, the focus is on freedom from conventional 'ways of doing things'. The process of empowerment evaluation involves:

- engaging in the cycle of reflection and action in the collection of data, analysis, and feedback loop of learning
- designing evaluation activities to encourage CCN participants to be a community of learners, to learn from each other, serve as resource, and norming mechanisms of behavioural change in adaptation gained from the CCN
- engaging the CCN facilitators and members in the evaluation as reflective practitioners to enhance their awareness and capacity to apply their what they gained from the CCN pilot.

The evaluation is guided by the following questions:

1. What are the outcomes (intended and unintended) of the CCN pilot?
2. How does the CCN pilot design and implementation address the needs of its participants members and wider Cambodian rural community?
3. What are the enabling factors and barriers to delivering the pilot and achieving its outcomes and impacts?
4. What is the extent to which the CCN pilot has impacted the communities and can be sustained beyond the pilot?

## 3. Evaluation Methods

In each CCN meeting, CCN members discussed in groups about the topics presented and the practical activities in terms of its pros and cons as an adaption at the household and village level. In addition, they participated in pre-session and post-session topic test. Analyses of the test scores was carried out to assess their understanding of the topic.

Discussion with the CCN facilitators were conducted at the end of each meeting to understand their views on the relevance and accessibility of the topic content, practical activity, members engagement and level of interest in the topic.

The evaluation at the end of the pilot aimed to assess the extent to which the pilot has met its criteria for success based on ToC (Figure 1) in engaging participants to the pilot, during the pilot and after the pilot has completed. What are the impacts of the pilot on the broader experience and behaviours of participants relating to climate change and adaptation, and as climate actors that can influence policy.

## Theory of Change

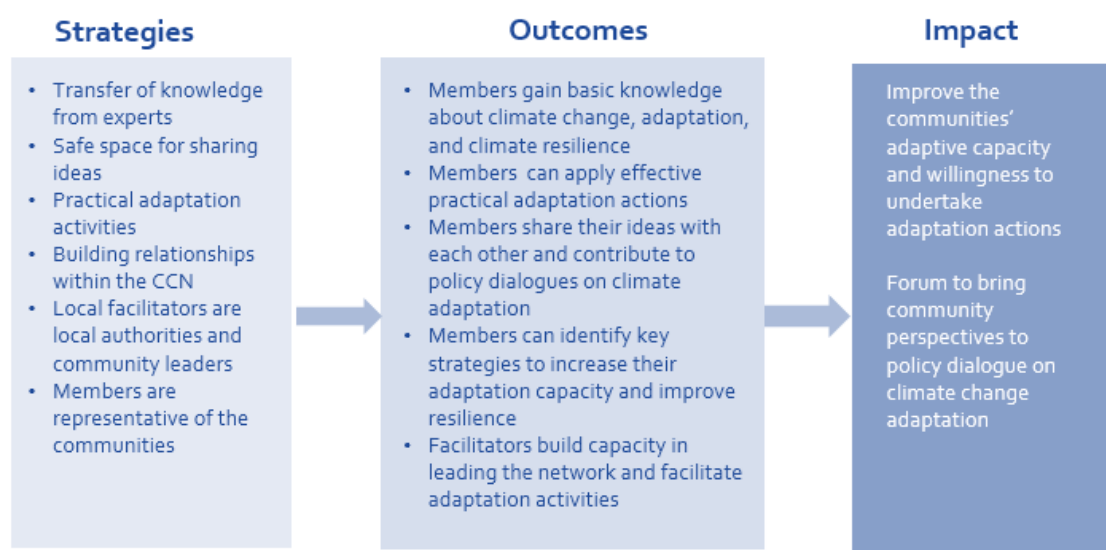


Figure 1. Theory of Change

The end of pilot evaluation was conducted in the last meeting of the pilot. It was organised as the final learning and insights workshop for the facilitators and members to reflect on the learnings from the previous five sessions, and to decide collectively if they wanted to continue the CCN on their own. The session had four components. First, the CCN facilitators led the group reflection on what they have learnt in the last 5 months. Second, the members discussed in small groups aspects of acceptance, practicability, adaptability, trialability and success in the pilot CCN. Based on the group discussion, the group collectively decided on the topics which they want to continue disseminate knowledge, and the practical activities that they want to scale up in their village, and the persons they consider most appropriate to coordinate these activities. Then, those that were nominated were asked if they agree, and other people volunteered to become the CCN champions. Fourth, all CCN members and facilitators completed individual questionnaires about the CCN's outcomes, benefits, their engagement in the CCN activities, their acceptance of the CCN as a modality for grassroots adaptation and whether they would continue participating in the CCN and/or scaled up activities.

## 4. Evaluation Insights

### 4.1 Attendance

There were 70 members in the CCN pilot in Pursat, 37 (52%) are female. By the 6th session, 54 members remained. Of the 70, 41 people (59%) attended all 6 sessions of the pilot. There were four local facilitators. One dropped out during the pilot.

There were 49 members of which 23 (47%) are female in the CCN pilot in Prey Veng. The number of attendances varied between sessions, with 31 people (63%) attended all 6 sessions. There were three local facilitators and all four participated in the entire pilot.

### 4.2 Pre and post test results on topic knowledge

As shown in Table 1 and 2, paired-t test is used to evaluate the level of significance between samples from the same group before and after the training. In our case, the p value is lower than 0.05, which indicate that we are 95% confident to say that the score or the knowledge of participants did improve after each session. The quantum of the score change reflect to a certain extent members' prior knowledge about the topic, and their comprehension of the materials presented. In both sites, members achieved higher scores in the post training test, and the highest scores improvement were in topic 3 on drought causes, impacts and management.

Table 1. Prey Veng CCN participants' tests results

Topic	No. of valid tests	Number of attempted tests	Score point improvement based on paired t-test results	Maximum possible score
1. Climate change cause, impacts, and adaptation	33	47	0.79	8
2. Flood causes, impacts and management	30	42	0.83	9
3. Drought causes, impacts and management	27	42	1.88	8
4. Water and livelihood	28	41	1.55	8
5. Climate change, water, hygiene practices (sanitation)	28	41	1.03	10

For topic 1, 75% of people passed the test after the training, while 50% of them fail in the pre-test. Though, the magnitude of score before and after the training doesn't improve much. From the correction, what we observed is that those who manage to earn more scores did correctly answers in the Question 1 (What is climate change?) Question 8 (What are examples of climate mitigation in

Cambodia?). For Question 1, there were 32% answered correctly in the pre-test whereas in the post-survey, this were 65%. For Question 8, 90% of CCN members didn't know how to answer them at first, but later many participants could answer correctly. For the rest of the questions which related to greenhouse gas and greenhouse definition, there were not changed much

For topic 2, only 25% and 35% of participants before and after the session answered that flood was caused by both human activity and nature. All the rest believed it was caused by the nature. Regarding the water quality, they all believed that water is polluted during the flood. However, the majority of them were not aware that floods can pollute both surface and groundwater. As a result, only 13% and 25% of CCN members in the pre and post-test, respectively, select the option that both water sources were polluted. The majority of them think that only the surface would be polluted. The participants referred an evacuation centre to any place that has a higher elevation than the flood level and most of them mentioned the pagoda. 78% of them were aware of the adaptation options that they could do at the community and household level. They could not give clear descriptive examples about those adaptations, but at least this time, they seemed to get the meaning of the word "Adaptation" better and could answer on their own.

For topic 3, before the training, most of the participants were aware that if they pump the groundwater too much, it will lead to the depletion of river volume and there should be a restriction on the number of wells allowed in certain areas. They also thought that bottled water is always a safe source for drinking. In the pre-test, few people could give examples of drought adaptation as well as drawing the water cycle. Many of them chose to drill more wells as an adaptation measure to drought. Most of them were not aware that there are multiple sources of groundwater and river water. After the session, more than 90% of them were able to provide a few good examples of drought adaptation that obviously were the ones that the consultant had explained. Some of them could also draw the water cycle and choose the correct options for the sources of groundwater and river water.

For topic 4, before the session, most of the participants were aware of the answer to question 8 which is about giving examples of water governor at the community level. Most confused water productivity with safe water practice. Most responded correctly to questions 1 (water sources and water cycle), 2 (Freshwater sources), 5 (clean living and water sources) and 6 (loss of soil organic matter increases risk of flood and erosion) but were confused with question 3 (people could pollute but not deplete the water quantity) and question 4 (water pollution at another village will affect the water quality at our village). This was improved after the lecture. However, in the post-survey, only 2 people more people could answer correctly to question 7 (What is productive water use?). This could be explained that the parts about the mechanism of water absorption, which is lost from time to time due to the lack of organic material, and how this is interlinked with improving water use efficiency is still not clear for participants.

For topic 5, before the lecture, the majority of the participants could pick the correct answer for question 9 and 10 which are about the infected waste and how to deal with hazardous waste. Not all the participants were aware that increasing the number of toilets would increase the number of girls attending school. The participants had less knowledge on 1, 5, and 7 which are about causes of malnutrition, type of crop that is suitable to apply the safe faecal sludge and components of the sanitary landfill. This was improved after the session.

Table 2. Pursat CCN members' tests results

Topic	Number of valid tests	Number of attempted tests	Average score improvement based on significant paired t-test results	Maximum possible score
1. Climate change cause, impacts, and adaptation	50	72	2.73	8
2. Flood causes, impacts and management	59	68	2.15	9
3. Drought causes, impacts and management	59	62	3.23	8
4. Water and livelihood	55	61	0.74	8
5. Climate change, water, hygiene practices (sanitation)	49	53	0.99	10

For topic 1, similar to results from Prey Veng session, in general, most participants were able to answer the question better during the post survey, and most significant different were the response to questions about the definition of climate change and examples of strategies to reduce greenhouse gases emission respectively.

For topic 2, most participants were able to answer the question better during the post survey, particularly on question 4, 8 and 9, which are about safe distance between well and toilet, flood adaptation measure at community level, and flood adaptation measure at household level, respectively. Before the training, none of the participants were aware of safe distance between well and latrine, but after the training 72.8% of them were aware of it. Similarly, before the training only 46% and 67% of the participants were able to give one correct flood adaptation measure at household level and community level. However, after the training these figure increase to 89.8% and 84.7% respectively.

For topic 3, most participants were able to answer the question better during the post survey for all questions. Prior to the session, they were clearly not aware of water cycle and the connection between surface and groundwater.

For topic 4, in general, most participants were able to answer the question better during the post survey, particularly for the question 7 and 8 which are about productive water use and water management at community level, respectively. Prior to the session, none of the participant were able to response to question 7. But, after the session 10 of them were able to give correct answer. Similarly, for question 8, prior to the session only 11 people were able to give half of the response, but this number increased to 28 after the presentation.

For topic 5, in general, participants were able to answer most of the question better in the post survey, particularly for the question 8, 9 and 10 which are about technical aspect of using sand as water purifier materials, option to manage contaminated waste, and option to manage hazardous

waste, respectively. The participants seem to have more difficulties in answering the question regarding management of fecal sludge and use of fecal sludge as fertilizer both during the pre and post survey.

### 4.3 Group discussion on topic areas

#### 4.3.1 Topic 1: Climate change cause, impacts, and adaptation

Table 3. Summary of discussion on climate change and adaption

Discussion questions	Key themes	
	Pursat's CCN	Prey Veng's CCN
1. What is potential climate hazard in your community?	<ul style="list-style-type: none"> <li>- Storm, Heavy Rain, Drought, thunderstorm, increasing heat, unpredictable rainfall pattern</li> </ul>	<ul style="list-style-type: none"> <li>- Intent heat, flood, drought, thunderstorm and storms</li> </ul>
2. What are the existing adaptations and mitigation you have observed? Who are responsible to take and who benefit from it?	<ul style="list-style-type: none"> <li>- Elevated house above flood level, raise ground level, choose climate resistant rice variety, planting tree, animal breeding, and construct canal/ pond for the community, build flood diversion channel, canal renovation, assign flood evacuation site, release fishes in public lakes/water, government support (ID poor)</li> <li>- All community members should participate in the adaptation activities</li> </ul>	<ul style="list-style-type: none"> <li>- At the target villages, the existing adaptation measures made by the government are only the construction of community pond and target pagodas for evacuation during flood. Below measures, are what our participants suggested household to take action at their home level such as home raising, tree planting, crop diversification, changing to use the adaptive crop species, emergency preparedness, canal rehabilitation, and improving of water storage capacity.</li> <li>- According to the group discussion, all community members, and local government should be the one who responsible to take action.</li> </ul>
3. Do benefits distribute equally among the community? How to ensure that everyone including the elderly, children and disable, benefit from the adaptation program?	<ul style="list-style-type: none"> <li>- Not aware of inclusive adaptation.</li> <li>- Believe that everyone including kids, elderly, disable people and the poor already benefit same from</li> </ul>	<ul style="list-style-type: none"> <li>Among 5 teams, 4 (80%) claimed that they believed the benefit was fairly distributed. And to ensure that the distribution is inclusive, they suggested that community focal</li> </ul>



	existing adaptation program.	points, NGOs, and local authorities must raise awareness about adaptation and improve the adaptive capacity of the villagers. However, the rest of 20% didn't agree that the existing distribution is fair. Yet, they didn't have any idea of how to improve the current system.
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Group engagement of both provinces is similar. The only difference is that in Prey Veng, we observed both men and women were active in the discussion while in Pursat, women seemed to be more active. The participants were excited that they could have a chance to share their experiences as well as hear from others. Though there were people who neither could write nor understood the questions, the facilitators and other group members would always support to write their ideas on the paper and did the presentation. Since each group consisted of participants from villages experiencing climate hazards differently in scale and nature, they were more willing to compromise their answers rather than to debate each other. Each group seemed to work together quite well.

*Recommendation for future sessions:* To improve the engagement in terms of sharing ideas and communication, in each group, there should be a leader who is knowledgeable to help explain the questions as well as the lesson to the team members. In addition, the facilitators and the group members should enable a judge-free environment that encourage those who were timid to express their idea more. In addition, to be able to properly engage in the discussion session, the participants need to be informed about the issues to be discussed, which require an active communicator/ leader who can share and keep the community member in the loop.

#### 4.3.2 Topic 2: Flood causes, impacts and management

Table 4. Summary of group discussion on flood and flood management

Discussion questions	Key themes	
	Pursat's CCN	Prey Veng's CCN
4. After the CCN of the 1 <sup>st</sup> month, what have you done in terms of knowledge or practices sharing to your community?	<ul style="list-style-type: none"> <li>- One participant who is village head mentioned that shared the knowledge about climate risk with is villager and also worked with commune authority on a canal improvement project.</li> <li>- A female participant had led her neighbor who are rice farmers to dig a drain to lead water from village pond to the rice field to</li> </ul>	<ul style="list-style-type: none"> <li>- Out of the 5 groups, 4 said that they have shared what they learnt about climate change especially about the benefit of tree planting whenever there are people asking them about the CCN activities, and when they meet their peers.</li> <li>- One group admitted that they haven't done anything.</li> </ul>

	<p>avoid flood in the village and have enough water for rice cultivation.</p> <ul style="list-style-type: none"> <li>- Most of the participants said they had only share what they had learn about climate risk and the CCN program with their neighbor.</li> </ul>	
5. Identify different type of floods that occurs in their localities	<ul style="list-style-type: none"> <li>- Their villages only get flooded by prolong heavy rain.</li> <li>- There was no severe flooding recently due to improvement of canal system as well as road elevation project by government.</li> </ul>	<p>There are no serious floods in the studied villages. After the last 10 years, people raised their homes, and the government has built more divert canals. There are only floods at the rice field between September to November, which is during the rainy season in Cambodia. These floods just cause them to lose their income, cut off transportation for some days. Though, there are intense rain, the water will disappear within a few hours or days.</p>
6. Identify flood management actions they can do	<ul style="list-style-type: none"> <li>- Enhance flood canal and improve natural waterways</li> <li>- Elevate ground level</li> <li>- Identify flood evacuation site and evacuation plan</li> <li>- Prepare flood emergency kits</li> <li>- Migrate animal (i.e., cattle, buffalo...) to higher ground</li> <li>- Stay informed about flood condition by communicating with the authority</li> <li>- Sharing information with other villagers.</li> </ul>	<ul style="list-style-type: none"> <li>- Report to the management about the situation and severity of flood for emergency action</li> <li>- Evacuate the villagers to the evacuation centers such as pagoda.</li> <li>- Prepare emergency kits that could be lasted between 5 to 7 days such as food, clean water, and medicine.</li> <li>- Keep the villages clean</li> <li>- Rehabilitate existing canals, install sewage lines along the roads, and dig more divert canals.</li> </ul>

The group discussion in Prey Veng was active like the last time, except for several people. This time, the participants knew what to do and prepared. They were all engaged. However, from the correction of the survey, the consultant observed that around or maybe more than 20% of people have very limited knowledge or even couldn't read. These team need a facilitator to be with them for the whole discussion. This time, because one the facilitator was sick, she couldn't manage to facilitate the activities. The 3 facilitators stick around to their groups and left the 2 groups behind. Few of them were bored and chit chat. Though, others tried to understand the questions and answers on their own. The consultant spent her time with one of that team until they finished.

In Pursat, most of the participants are as active as previous month. All participants were happy to participate in the discussion. Both male and female participants were very engaging, except a small number of male participants who were a bit shy and did not talk during the group discussion unless the facilitator point to them to talk. There were no challenges for the facilitator to facilitate group discussion as well given that all participants were the same participants from previous session; therefore, they were familiar with the discussion process and also know each other. In addition, the local facilitators were also able to facilitate the group discussion better than previous month. They seemed to know better about their roles and were also well prepared. This is because before the session started, a briefing session was conducted between project consultant and local facilitator team. During the briefing session, the researcher (project facilitator) briefly reminded local facilitators about their facilitating tasks and how the session would be conducted. One facilitator volunteered to manage the whole session. However, due to her limitation in explaining about the flood emergency kits, especially the medical kits, she was able to manage only the morning session where presentation and group discussion session on flood management take place.

#### 4.3.3 Topic 3: Drought causes, impacts and management

Table 5. Summary of group discussion on drought and drought management

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
7. Identify different type of drought that occurs in their localities	<ul style="list-style-type: none"> <li>- Participants has mentioned that their community is impacted by meteorological drought. The impact of drought is significant only on farming but not impact on their water usage for daily livelihood activity.</li> <li>- They have also stressed that deforestation has contributed to the drought event in their community given that deforestation have been a severe problem in the areas.</li> <li>- No concern related to groundwater.</li> </ul>	<p>Participants perceived impact of drought as serious on the cultivation only. They have never experienced water sources dried up completely in their villages. During the dry season, they would have to increase the pump depth and pump intensity to get water out. Another solution is that they just drill more well to get water for their farms.</p> <p>Thus, when being asked to describe about the type of droughts they've seen in their villages, majority of them, instead raised about the impact of drought such as lacking of rainfall, lacking of water to irrigate/use, and to feed the livestock, losing of crop and livelihood.</p>
8. Identify drought management actions they can do	<ul style="list-style-type: none"> <li>- For drought management action, the group has identified rainwater harvesting, water allocation and resistance crop variety, and animal husbandry, and pond digging as practical</li> </ul>	<ul style="list-style-type: none"> <li>- Majority of them mentioned digging more ponds, rehabilitating canals and storage tanks whereas 22% raised about using less water and another 22 % talked about improving</li> </ul>

	adaptation option for the community.	irrigating system, changing to drought-resistant crop, and alternative crop. One group raised about digging more wells, which were explained by the consultant that this was not a good solution and could instead impact to groundwater sustainability in their areas.
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This month, the local facilitators in Prey Veng led the group division and facilitated the discussion. The group discussion in Prey Veng this time was more active than last time. Since the group members were arranged in advance by the facilitators, there was always a leader who was more active and knowledgeable in each team. There were less groups than last time, 5 versus 6, and in each group, there were 9 members. With the leader, the group did not need to rely so much on the facilitators. Contrary to the last time when we hadn't arranged the group and people got distracted, in this 3rd month, all the participants were very engaged in the discussion. They seemed to know what to do and got things done quicker. In addition, in order to get more fruitful discussions, the consultant and local facilitators need to ensure that the groups understand all the questions and answer each question correctly. From the observation, the CCN members did not seek clarification from the facilitators or the project consultant, they just went with whatever they thought. This issue was taken care of more seriously in the next session.

In Pursat, one of the local facilitators was chosen to lead the activities during the day. Similar to previous month, except that some participants arriving at the meeting place a bit late, everyone were very active and engaging during the whole day. For the group discussion activities, women were still more active than men. This situation is very different from other places in Cambodia. According to the participants, the reasons that women are more active than men in these communes is because the local authority have been trying to promote women engagement in community works/ discussions/ meetings for many years already. At this stage, most women were familiar with group discussions and participated in group work more than men. Comparing to previous month, a group of men who were previously less engaging in the group discussion activities were also more involved. This was because they were assigned to work together in smaller groups, which provided them more chance to express their idea. During the reflection session, the participants mentioned that after joining the first 2 CCN, they become more and more comfortable to discuss and share their ideas with others. This is because they have gained knowledge from the presentations by project consultants; therefore, they know the topics being discussed and they now know each other better, which make them become more confident to talk.

#### 4.3.4 Topic 4: Water and livelihood

Table 6. Summary of group discussion on water and livelihood

Discussion topics	Key themes	
	Pursat's CCN	Prey Veng's CCN
1. Have your commune/ village experienced water related concerns?	- Participants has mentioned that their communes has experience water related problem such as flood	The common water-related issues that were raised by most of the participants are lack of water for irrigation,

	(although not a severe long-lasting flood), waterlogged problem due to continuous rainfall, unusual dry period in dry season, and lack of clean water supply for household use.	mineral in well water such as lime, iron, and water turbidity.
2. How did it affect your livelihood?	<ul style="list-style-type: none"> <li>- It has effect on the livelihood of the villager, particularly effect on their crops, cause of crop loss and reduce productivity. While drought period also effects on health (both human and animal), flood has more effect on the daily life activities.</li> </ul> <p>Flood also cause evacuation in some location of the community.</p>	<ul style="list-style-type: none"> <li>- Two factors affecting livelihood of the participants are: expenses for buying medicine and clean water.</li> <li>- Bad water quality causes water-related diseases. The treatment is resource- consuming, especially causing the vulnerable villagers to be poorer. In addition, when water become very turbid, people have no choice but to spend more to buy clean water for daily consumption.</li> </ul>
3. Were the effect distributing equally across the community? Who were the most vulnerable people?	<ul style="list-style-type: none"> <li>- A few participants expressed their idea that the impact of those water related problem that occurred in the past affect everyone in the village equally. But most mentioned that those effect were not equally distributed among all villagers. They also mentioned that those who are most affected are elderly, kids, poor households, unhealthy people and those who has disability.</li> </ul>	All participants agreed that the magnitude of the impact is not similar for all the villagers. They were aware that everyone was affected by the same issues, but many of them think that groups of people who are more prone to health problems are children and the elderly.
4. What had you and your community member done to adapt with those concerns?	<ul style="list-style-type: none"> <li>- What have been done to adapt, especially to flood in drought by most of the community are: improving water conveyance/drainage, pond digging, use of well water for some household, and use drought resistance</li> </ul>	To deal with water shortage and water quality problems, the practical adaptation actions taken up by the participants are: 1. to boil and filter water, 2. To save more water, 3. To practice safe water transporting and

	crop. A few participants also mention saving water as adaptation option practice that have been used by the community.	storage, and 4. To manage their own trash.
5. Has it been an effective adaptation option?	- Most participants mentioned that these adaptation option has been an effective option, but still need to be scale up or improve since the practice is not collective for the whole community but for some villager and households who has the capacity.	- Majority of them think that what they have been doing is effective or at least acceptable considering the limit resources and available WASH products in their community. However, one team admitted that water saving is taken for granted within his community because people have not yet experienced a real water shortage for their consumption.
6. Do you think in what way, the community can work together to improve water management? What resources are needed to support this water management activities?	<ul style="list-style-type: none"> <li>- According to the participants, their community would have better water management by communicating closely together among villagers, as well as with the authority. They should have a plan for protecting their water source (i.e., everyone practices clean living, responsible for own waste, help to save water). They also mentioned about the community movement to rehabilitate water channel and water storage construction.</li> <li>- For the support and resource needed, they have mentioned that there is a need for a strong leader, participation from all community member, as well as technical and financial support.</li> </ul>	<ol style="list-style-type: none"> <li>1. To mobilize community heads and villagers to start planning for the rehabilitation of water sources such as canals and ponds.</li> <li>2. To start planning about regulations limiting the overuse of water resources within the community.</li> <li>3. To allocate commune budget for water-related issues.</li> </ol> <p>Promote and encourage people to practice water use efficiency.</p>

In Prey Veng, the local facilitators have now become comfortable in leading the group compilation and facilitating the group discussion. The group discussion in Prey Veng has become more active and effective than previous sessions. They were familiar with their tasks and do not need so much

support from the facilitators as long as they get the question clearly. This time, we gave them less discussion topics per group, so participants have enough time to discuss on each topic. Unlike last time, that there are few people were less active, this time, within a good timing for each discussion, the group seems to be very active, both women and men. In addition, the consultant observed that the participants had already started to cooperate the knowledge from the previous sessions into the discussion. They are now familiar with the adaptation options and could think about many of them independently.

In Pursat. The local facilitators led the group discussion similar to previous month. Women were still more active than men in the discussion session activities but in the practical session the engagement from both men and women are very similar. During the reflection session, the participants mentioned that they are now they become more and more comfortable to discuss and share their ideas with others. This is because they have gain knowledge from the presentations by project consultants and they get use to the discussion activities already; therefore, they know what topics are being discussed and how they can initiate the discussion and response to a question by other people.

#### 4.3.5 Topic 5: Hygiene practices, water and environment

Table 7. Summary of group discussions on hygiene practices, water and environment

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
9. Have your commune/ village experienced hygiene-related concerns? Which season that is more serious?	<ul style="list-style-type: none"> <li>- There are two concerns during flood periods. These include solid waste problem and poor water quality. Solid wastes are generally managed by burning and burying. But in wet season these options are not possible. Therefore, there are present of waste floating everywhere. Poor water quality is seen as flood water impacts that lead to poor hygiene practice.</li> <li>- There is not significant hygiene related concerns raised by participants during dry season.</li> </ul>	<p>The 3 common hygiene-related issues that were raised by participants are:</p> <ol style="list-style-type: none"> <li>1. No proper management of solid waste at households and community level. This led to littering around canals, waterways and sidewalk.</li> <li>2. Inadequate in WASH access such as latrine, washing facility and pipe water supply</li> <li>3. Unsafe method to store food. Slum, bulk of trash and flies were usually seen around the food stores in the villages.</li> </ol>
10. How did it affect your livelihood?	<ul style="list-style-type: none"> <li>- The participants raised that poor water quality and solid waste problem during flood period negatively affect their livelihood such as causing health problem (diarrhea, fever and malaria), especially for young children, loss of</li> </ul>	<p>This issues cause:</p> <ul style="list-style-type: none"> <li>- children to have diarrhea, which sometime lead to mortality.</li> <li>- Consume time and money on the treatment of hygiene-related diseases.</li> <li>- Make people become poorer</li> <li>- Unpleasant living</li> </ul>

	household income, and time.	
3. What had you and your community member done to adapt with those concerns?	<ul style="list-style-type: none"> <li>- The community members have been trying to solve these problem by practicing clean living, especially ensure safe food and safe drinking water. They also try to take prevention action such as frequent cleaning and using mosquitoes' net.</li> <li>- There is no collective solution for the whole community.</li> </ul>	-To deal with these problems, the practical adaptation actions taken up by the participants are: 1. Building more latrines, cleaning up quite often and promote about proper trash storage.
4. What should we deal with the fecal sludge and baby napkin waste to avoid disease transmitting via animal scavengers and runoff?	<p>Common practice of the community to deal with fecal sludge and baby napkin are:</p> <ul style="list-style-type: none"> <li>- Burying of fecal sludge far away from water source.</li> <li>- Let to dry and burning baby napkin.</li> <li>- Collect animal manure and use as fertilizer.</li> </ul>	According to the group opinion, because there is no trash collecting system in the community, the only option they could do is to bury the sludge for at least 2 years (as recommended) and after that they can use it as fertilizer for their farms. Same for baby napkins they will just bury them.

In Prey Veng, the local facilitators gave the opening remark, facilitated the group division/discussion, and led the group presentation. The facilitators did their job very well. The group discussion in Prey Veng was active and effective as last time. They were familiar with their tasks and could work independently. This time, we gave them less discussion topics per group, so participants have enough time to discuss on each topic. Within a good timing for each discussion, the group seems to be very active, both women and men. In addition, the consultant observed that the participants had already started to cooperate the knowledge from the previous sessions into the discussion. They are now familiar with the adaptation options and could think about many of them independently.

In Pursat, despite the relatively low number of CCN member than expected, all the participants were active and very engaged in both discussion session and practical activities. The level of engagement between male and female participants were similar. The discussion session was done smoothly through the support of local facilitator. Given that the participants were familiar with the discussion activities and become very close to each other, they were more confident to share their idea within the group and present their group results to other groups.

#### **4.4 Group discussion on practical adaptation introduced**

##### **4.4.1 Tree planting**

In the first month, CCN members planted trees in the local communities as ta practical adaptation activity and then discussed the benefits and challenges of this activity as an adaptative response in their village. Table 8 summarises the group discussions in both sites.



Table 8. Group discussion about tree planting adaptation

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
1. Advantage of tree planting	<ul style="list-style-type: none"> <li>- Provide shed</li> <li>- Provide wood for construction, fruits and provide income source</li> <li>- Help to absorb CO<sub>2</sub> and main air moisture</li> <li>- Induce more rains</li> <li>- Provide protective support against storm, floods, and soil erosion.</li> </ul>	<ul style="list-style-type: none"> <li>- Provide shed</li> <li>- Homes for animals</li> <li>- Induce more rainfall</li> <li>- Increase soil moisture and groundwater</li> <li>- Reduce erosion</li> <li>- Reduce drought</li> <li>- Increase air humidity</li> <li>- Source for fruit</li> <li>- Make soil more fertility</li> <li>- Source of raw material for housing</li> <li>- Absorb CO<sub>2</sub> and release O<sub>2</sub></li> </ul>
2. Disadvantage of tree planting	<ul style="list-style-type: none"> <li>- Dead or broken tree can fall off and cause accident and block the street.</li> <li>- Require spacious place to growth otherwise it will shed on other small plant species.</li> </ul>	<ul style="list-style-type: none"> <li>- The dead trees that fall off during storms induce accidents, block the road/canal/bridge, and destroy houses.</li> <li>- For small land, the trees will occupy the space for vegetation garden</li> <li>-</li> </ul>

Tree planting in Pursat was not so challenging since the local facilitators got the supports from the student of Talou Meanchey high school to prepare the planting spot (dig the holes) beforehand. However, tree planting session was set in the afternoon, which was not a good timing given very hot weather in Cambodia. Despite this unfavourable weather, most of the participants were still very active and able to complete the planting session in Talou commune center. The tree planting in Brohal village center was done in the following day by the CCN's member who reside within the village due to the long distance travelling from meeting place to Brohal village center.

All CCN participants in Pursat agreed that tree planting is beneficial for the community particularly in providing shed, materials for household uses, construction, fuel wood and fruit (for fruit tree), as well as for income generation. In addition, most of the participants also mentioned that tree planting is beneficial for protecting the communities against flood, storm, soil erosion and climate change mitigation by helping to maintain air moisture and induce more rainfall. Despite a relatively limited awareness of the benefit of tree planting, all the participants still expressed their interest to plant more tree along public street, and especially in their own land. Aside from this, the participants were also shared their own experiences with each other and suggest that tree planting should be done the first thing in the morning for future programs.

The challenge of this adaptation for scaling up in Pursat, is the selection of public space for tree planting since public infrastructures in rural area (road, canal) are underdeveloped and subjected to be expanded/ renovate/ reconstructed in unpredictable time and plan.

In Prey Veng, tree planting did not go smoothly in Prey Veng because the locations designated for planting are sparse. The facilitators and the participants were not well prepared. The facilitators had

tried their best. However, because it was the first month, the facilitators were not quite aware of their role and responsibility. This should be considered more carefully in the training of the facilitator, where the role and responsibility of the facilitators is made understand clearly with the term of reference or a guiding structure. The tree planting should be moved to the next month, so that there is enough time for the consultant and the participants to plan better for the activities. The plan should cooperate the target planting areas with the target group of CCN members, things to prepare, and who will be the person in charge in addition to the facilitators.

All Prey Veng participants believe that tree planting is a good engagement activity to support knowledge about adaptation. To improve the knowledge sharing or encourage people to take on adaptation on their own, they must clearly understand the importance of trees for the communities in terms of climate resilience. The consultants had explained this to the participants. However, because the knowledge of the participants is very limited, it would be better if we have the prototype of a catchment that explains to the participants the role of land use management in terms of tree conservation to protect against flood and soil erosion. There are many stories that could be told with that prototype before they go off planting the tree. Surprisingly, most of them raised the benefit of trees, mainly as the things to produce housing material, provide shed and income followed by soil moisture/fertilization improvement, and the reduction of CO<sub>2</sub> and erosion.

#### 4.4.2 Flood emergency kit

In the second month, to supplement the lecture on flood management, CCN members were involved in putting together flood emergency kits. The kits consist of Tent (4m\*6m), water bottle (30L), flashlight, soap, fish in cane, a package of noodles, and first aid kits that contained pain killers, cold and flu tablets, skin rash cream, first aid materials, emergency water treatment tablets. Table 9 summarises the group discussion about this activity.

Table 9. Group discussion about flood emergency kits adaptation

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
3. What are the benefits of preparing of flood emergency kits?	<ul style="list-style-type: none"> <li>- Could help victim on time while waiting for support from the authority</li> <li>- Save money because the materials cost lower in normal than during flood event</li> <li>- During flood event mobilization is very difficult. Therefore, it is better to have those important materials prepared beforehand.</li> <li>- Understand what problem (i.e., lack of access to clean water, health risks...) could probably happen during flood event.</li> </ul>	<ul style="list-style-type: none"> <li>- Could help the victims on time</li> <li>- Save time to go for those things meaning to save more money</li> <li>- Provide food and shelter during the emergency</li> <li>- Protect from diseases</li> <li>- Make them know what types of medicine they should have at home and how to use those medicine.</li> </ul>

<p>4. Why did we choose these essential items to put in the kit - why are they prioritised over other items? Based on your experience of flood, do you agree?</p>	<ul style="list-style-type: none"> <li>- Most of the respondents mentioned that the kits prepared during the session contain all necessary materials for emergency situations. But, they can also add more materials to the kits such as rain coats, dry foods and safe boxes for important documents.</li> <li>- These materials are a priority over others because these are basic needs for an emergency situation.</li> </ul>	<ul style="list-style-type: none"> <li>- Majority of them responded that the emergency kit prepared by the project contains all the necessary things. They couldn't ask for a better preparation. However, one group said that there was a lack of plates, spoons, and ingredients.</li> <li>- In overall, they agreed with the preparation of the kit from the project.</li> </ul>
<p>5. What are the challenges in scaling up the preparation and dissemination of these flood emergency kits to the whole village? Who should we prioritise to receive them? Who should be involved in preparing them?</p>	<ul style="list-style-type: none"> <li>- There are a few challenges to scale up this activity for the whole village, including (1) lack of awareness: people who had never experienced a flood situation before don't believe that emergency kits are important, (2) poor households do not have money to afford the kits.</li> </ul>	<ul style="list-style-type: none"> <li>- The main challenges are lack of financial support, transportation, labor to prepare the kit, and knowledge of the local authority.</li> <li>- They all agreed that the vulnerable and poor citizens should be prioritised.</li> <li>- They think that the ones who should prepare the kits are government, NGOs, donors nationally and internationally.</li> </ul>
<p>6. How do we go about planning for the scaling up now? How can we mobilise the funding within the community for this type of scale up?</p>	<ul style="list-style-type: none"> <li>- The participants stated the first thing to do in order to scale up this activity for the whole village is to do an awareness campaign to teach people about flood risk and impacts. Then, to be able to provide emergency kits to poor households who couldn't afford the materials by themselves, the community should carry out a fund-raising or charity event when those who have money can contribute to support the poor. This case is feasible like a Buddhism practice like <i>Bon Pka</i>.</li> </ul>	<ul style="list-style-type: none"> <li>- Surprisingly, when asked about how to mobilise the fund, none of them raised about the commune budget plan nor making the report to the government. They suggest to raise the fund from citizens especially from the rich men in their community.</li> </ul>

The emergency kit preparation took more time than expected in Prey Veng. Because the majority of the CCN members are not literacy in English or even Khmer, it is really challenges for them to sort out the medicine on their own, though, we have already guided them both verbally and in the presentation material. We could judge that some people were not aware about what they were going to do because they didn't bring the handout with them when being requested to sort out the medicine. In many cases, the CCN members who can read could manage to do the sorting effectively by themselves. To be more efficient for next time, we can add images of a complete set of a kit in colour. Those who can read will be encouraged to try on their own first before looking at the image.

In Pursat province, it was not so challenging as in Prey Veng given that all participants can read. In addition, the local facilitators were very helpful in supporting the group to arrange the emergency kits and put appropriate medicine into each medical kits. The materials were pre-arranged by type, and put into a package of 12 sets only, the sorting process was faster and less confusing for the participant. It is also very helpful that we put the note in Khmer language on the medicine package before letting the CCN member to sort it into the medical kit.

#### 4.4.3. Water bottle distribution and water safety awareness raising activity

In this month, CCN members took part in distributing water bottles to poor households and raised awareness about water safety to the households they visited. The intention is that the CCN members observed the distribution demonstrations, particularly observing the water safety issues in water extraction, transport, storage, and will do similar thing when they go and distribute the bottles in their home villages. Table 10 summarises the group discussion about this activity as adaption response to drought and water safety generally.

Table 10. Summary of group discussion about water bottle distribution and water safety

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
7. Is bottled water distribution a good strategy to cope in case of drought? Do you agree or disagree? Why and Why not?	- All participants agree that water bottle distribution is one way to cope with drought especially for poor household. But it is not enough. There is a need to build their knowledge about water safety and other adaption option.	- All participants agreed that the distribution of bottles to the vulnerable households is a good strategy.
8. What is the current practice of the households you've just visited in terms of cleanliness of water access, transporting, and storage?	- All of the participants mentioned the current water storage and handling of the households that they have visited are not clean. - Most of the households boil water for drinking but the storage is not clean and located in unsafe space.	4 out of 6 said that the current practices of visited households were good whereas another 2 said that some were good and some were not. One group raised about insufficient spacing between well and latrine.

9. What could be done to improve their current practices?	<ul style="list-style-type: none"> <li>- Capacity building to promote knowledge about water safety and priority in daily life.</li> <li>- Provide more support to poor households so that they can afford clean water all the time.</li> </ul>	- To improve the current practice, awareness raising about WASH is required.
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In Prey Veng, during the bottle distribution activity, participants who were eager to learn tried to follow the consultant’s discussion about water safety all the time. However, it was quite a challenge for those who are not. The volunteer participants did a very good job in explaining households about water safety. At the first few households, most of the participants tried to come closer and listen, but later on, their attention was lost. This maybe that this topic has been well-known among them already. In this regard, for the scale-up activity, the topic concerning drought management should be the one that triggers the curiosity of the participants especially topics related to the livelihood improvement.

In Pursat, water bottle distribution was divided in two groups. Each group was led by a project team, a local authority, and local facilitators. All of the CCN members were engaged in these activities. Overall, the CCN member and local facilitator were very keen to learn and share knowledge about water safety, water storage and handling to households in their villages. Seven CCN members were also able to demonstrate the water distribution activities directly on the day. Although, they were not able to explain in detail about water handling and storage to the household, but they explain well about the important of water safety. They also seem to be very happy in performing the activities despite the long distance travelling by motorbike and hot weather.

#### 4.4.4 Planting a water efficient backyard vegetable garden

This month, CCN members took part in preparing and planting vegetable garden that is water efficient. Demonstration of soil preparation and seeds planting were observed by CCN members who were given seeds to plant them in their own backyard. Table 11 summarises the discussions about this activity as an adaptation.

Table 11. Group discussion on backyard vegetable garden adaptation

Discussion topics	Key themes	
	Pursat’s CCN	Prey Veng’s CCN
1. Is vegetable gardening a practical livelihood improvement strategy for your community? Why and why not?	<ul style="list-style-type: none"> <li>- Most of the participants mentioned that vegetable gardening is very practical livelihood improvement strategy for their community.</li> <li>- They mentioned that their village has very good soil and condition for vegetable gardening.</li> </ul>	- Majority of the CCN members believe that vegetable garden is a good practice to improve people livelihood, especially the planting that use less labor such as hydroponic planting.

	<p>Most of them used to have (some still have) their own vegetable garden that serves their own consumption and generate some income. But, due to the limitation in connecting to the market, they start to lose interest in gardening.</p>	
<p>2. What could be the barrier for the villager to implement this livelihood strategy?</p>	<p>The main barrier for the villager to practice this vegetable gardening is they need to spend more time for other income generation activities. And they only see vegetable gardening as a small contribution to food supply. In addition, they also mentioned that vegetable gardening is time and energy consuming.</p>	<ul style="list-style-type: none"> <li>- First and the most important one is the land constraint within each household. Second is the lack of skill to nurture the plant to produce high yield. Third, some of them were concerned about market and return profit. Because organic vegetable takes time and there are many vegetables imported from neighboring countries such as Vietnam and Thailand, the participants worry about the price would be very competitive and they couldn't make any profit.</li> </ul>
<p>3. Do you think in what way, this strategy can be scaled up to the whole village or commune?</p>	<p>According to the participants, this livelihood strategy is scalable to whole village if there are the supports to build a market for local product in their village as well as technical support on planting program. Previously, there was also a dealer who tried to help connect the community with market but it was not successful because there is no technical support to train the community about planting program.</p>	<p>The group suggests:</p> <ol style="list-style-type: none"> <li>1. Encourage the whole community to start vegetable garden</li> <li>2. Promote vegetable garden and organic vegetable</li> </ol> <p>Provide skill to villagers about how to do the vegetable properly such as how to select the good seed, apply good fertilizer and pesticide, nurture the plant, etc.</p>

In Prey Veng, the participants were very interested with the home gardening topic. They asked many questions during the 30 minutes lecture from the expert and after returning from the expert house. The questions that they asked are about: how to plan more efficiency for different types of plants because few of them didn't understand why they could not keep their plant survive until the harvesting, how to plan in a box for the confined space, how to set up hydroponic system, how to make natural pesticide, how to set up the small scale irrigation pipe. They want to ask more but due to time constraints, they stop. Most of them wanted to have a longer discussion for this topic with the expert.

In Pursat, water efficient and drought prone vegetable gardening was led by a local facilitator with technical support from a local focal point. All of the CCN members were engaged in these activities. Overall, the CCN member and local facilitator were very kin to learn about this practical livelihood strategy. A few of the female CNN members, also shared their own experience in vegetable farming to other participants, which initiate a good discussion during the demonstration session. This makes the session lively and more interesting.

#### 4.4.5 Waste separation

This month, CCN members took part in picking up rubbish and sorting them 3 types of waste bins: Red for general waste (combustible), blue for organic waste, and green for recyclable waste. Table 12 summarises the discussions about this activity as an adaptation.

Table 12. Summary of group discussion about waster separation

Discussion topic	Key themes	
	Pursat's CCN	Prey Veng's CCN
1. What is the benefit of trash sorting for the community?	<ul style="list-style-type: none"> <li>- Trash shorting help to keep the environment clean and support livelihood by keeping healthy living; therefore, less expense for health care.</li> <li>- Some trashes are also valuable for reuse and sell.</li> <li>- Good action to show to younger generation.</li> </ul>	<ul style="list-style-type: none"> <li>- Majority of the CCN members believe that when they live in the clean environment, the change to get infected is less and this will indeed improve the health and livelihood of people.</li> </ul>
2. Regarding the current situation that there is no trash collecting system, should we choose trash sorting as the top priority for trash management system, or is there any other measure should be considered?	<ul style="list-style-type: none"> <li>- The community has mentioned that good management of trash is need for their community. Waste management awareness must be promoted among all the villager to help keeping the village clean.</li> <li>- Currently, given that there is no waste collecting system in the community, practical option such waste reduction, separation and safe technic to manage</li> </ul>	<ul style="list-style-type: none"> <li>- They all believed that trash sorting should be prioritized. After that is the collecting system.</li> <li>-Some village members said that they have raised the concern to the commune leader many times, but there is still no response or measures have been taken up. They have already lost motivation to raised it up again. They said that the commune budget is usually small and put into priority areas such as road</li> </ul>

	<p>waste i.e., burry and burning must be widely introduced. So far, no waste management awareness program have been actually conducted across the community.</p>	<p>reparation, and humanitarian aid for the very poor people and during a disaster. However, there are a lot of NGOs come and do the WASH awareness raising every year in their villages.</p> <ul style="list-style-type: none"> <li>- One group said that they want to have more incineration plants in their villages, especially in the schools.</li> </ul>
<p>3. Do you think in what way, this trash sorting can be scaled up to the whole village or commune? And how should we deal with the lack of trash collecting system?</p>	<ul style="list-style-type: none"> <li>- According to the community to scale up waste shorting in the whole community, it is important to build knowledge among all the community member first. They must be aware about the benefit of waste separation.</li> <li>- Then, adequate trash bin facility must be provided at public space or in center such as school, health center, pagoda, community center and so on. Otherwise, at households' level simple materials such as old paint container which are available at home can also be use as trash bin.</li> </ul>	<ul style="list-style-type: none"> <li>- The group said to scale up the trash sorting activity they will disseminate the information during the community ceremonies or when they meet with their peer. When being asked about allocation of commune budget for public events, which would be a more effective option, they all raised the same issue about the limiting budget which will only spend on the most priority areas set by the high management.</li> </ul>

In Prey Veng, the activity was conducted at Kamchay Mear High School. There was no organic waste besides falling leaves, or toxic or hazardous waste was found in the vicinity of the school, the groups were asked to collect only the recycled material and mixed waste. At first, the participants were not familiar with the waste characteristic. Later, they were able to do it correctly, when we asked them to sort the trash again before putting it in the designated bins. The demonstration went smoothly, and all participants were engaged in the demonstration.

Waste collecting and sorting in Pursat was done very quickly. The demonstration was finished in about an hour. This is because the pagoda space was just cleaned up by a group of visitors several days prior to the CCN activities. Therefore, there were not so much waste to be clean up. Based on the observation, most of the participants were very happy to conduct the activities. Most of them mentioned aside from learning about waste shorting, they were happy to clean up the pagoda as it is a good act for Buddhism. There were some participants, particularly male participants, who get confused about which trash bin is assigning for which type of wastes. But, with the support from local facilitators and the consultants, they get to know it easily.



## 4.5 Group reflections of the overall pilot

In the last CCN session, all members were asked to reflect on their learning in the last 5 months. The reflection was done by the local facials at the group level, then in smaller groups.

There were similar reflections between these two activities, and generally across the two sites. In both sites, the local facilitators noted that for the first time, they became aware that flood and drought are the consequence of climate change. They learnt about 1) climate change definition and adaptation measures such as tree planting as protection of soil erosion, protection from storm and heat; 2) flood emergency kit at home to prepare for flood, 3) the need to plan evacuation spot and raise home, 4) rehabilitate existing canals and increase storage capacity like pond digging and ensure safe water storage at home to cope with drought; 5) the need to conserve water, 6) vegetable gardening as a way to improve livelihood, health and cope with drought impacts on crops, and 7) waste segregation to help keep water source and environment clean to maintain good living environment especially during flood.

The small group discussions aimed to get the members to reflect deeper and to consider how they may continue disseminate acquired learning and practical adaption beyond the pilot. Table 13 summarises the group discussions in both sites, and show similarity between the two groups.

Table 13. Summary of group discussion on scale up CCN post pilot

Question	Summary response from Pursat CCN	Summary response from Prey Veng CCN
a. Who should be the coordinators? Focal points at each village, commune etc?	All participants preferred the same facilitators. But, they also pointed at few CCN members who can potentially be facilitators.	All participants preferred the same facilitators and suggested village head and village members to be the focal points.
b. Are the current facilitators happy to continue with their role? Why and why not?	Yes, they are all happy to continue their work. They are happy to share what they have learned.	Yes, they are all happy to continue their work.
c. Is there anything that can be done to improve the facilitation of the CCN?	The facilitator should inform the CCN member a bit early about the CCN event (at least a few days before the event). So that, they can reserve their schedule.	Everyone said that the facilitators did a great job and they could not ask for more.
d. What components of the CCN pilot should be continued?	All the 5 topics are important and should be continues.	Most of them like the vegetable garden idea. Few mentioned about bottled water distribution and trash sorting. Overall, they think all the topics are important.
e. Should the CCN meets monthly or more or less?	All of them agree to meet once a month.	60% want to meet once a month whereas other 40% want to meet twice per month.
f. Should the CCN continue to meet at the same venue or somewhere else?	All of them agree to meet at the same place (Talou pagoda).	All of them choose the Smoang Primary School as the best venue among other places.

g. How to attract new members or keep the current members committed?	It is important that current CCN members keep good communication and maintain their commitment to participating in the CCN activities. And all CCN members must help to share knowledge about CCN activities to others who have not participated in the piloting program.	They suggested to keep motivate the existing members and disseminate about the project to the new people to attract them.
h. What funding is needed to maintain and or scale up the CCN to other communes?	<ul style="list-style-type: none"> <li>- Food and transportation</li> <li>- Materials for the practical activities</li> </ul>	<ul style="list-style-type: none"> <li>- Food and transportation</li> <li>- Small allowance, if possible.</li> <li>- Allowance for facilitators.</li> </ul>
i. Which of the 5 CCN topics you would like to have the material presented in the CCN be made available to you for sharing with you community?	All the topics are considered equally important to them.	All the topics are considered equally important to them.
j. What is the preferred format of the materials? E.g. posters, videos, flyers, book, leaflets, banners etc..	<ul style="list-style-type: none"> <li>- Poster to be displayed in commune center, school, pagoda.</li> <li>- Booklets for knowledge sharing with other villagers.</li> </ul>	<ul style="list-style-type: none"> <li>- Big posters and banners to stick at the public place like pagoda, school, and market.</li> <li>- Book and video.</li> </ul>
k. Which of the 5 practical activities do you think can be scaled up in your community?	<ul style="list-style-type: none"> <li>- Two groups prefer to scale up vegetable gardening.</li> <li>- One group want to scale up flood emergency kit</li> <li>- One group want to scale up waste segregation activities.</li> </ul>	They all thought the vegetable garden should be scaled up.
l. What is your plan to scale up this activity (consider timeline for the scale up; target village or villagers; expected costs and possible funding sources and how to raise the required funds.	<ul style="list-style-type: none"> <li>- Vegetable gardening is selected as practical activity to be scale up in all the villages in the two communes. 10 households per village.</li> <li>- The scale up period is 3 months.</li> <li>- Funding for seeds is expected from EMW</li> </ul>	Only one group came up with a concrete plan to conduct the scale up activity in all the 17 villages and to select 25 households per village, Other groups needed more guidance, and time to be able to make plan, delegate tasks and estimate the cost.

The agreed scale up plan in both sites is knowledge dissemination on all 5 topics and vegetable scale-up activity, with financial support from EMW from January to March 2023.

In Prey Veng, 9 members (3 were the local facilitators) volunteered to be the CCN champions to lead the scale up activities. The teams are split into 3 groups, and they could select any villages and any households to disseminate the knowledge.

In Pursat, 33 members from 33 villages (12 are village heads/committee members) volunteered to be the CCN champions to lead the scale up activities. Each champion is responsible for knowledge dissemination and vegetable gardening activity in one village, which is their own village.

The project will support all CCN champions in the knowledge dissemination by providing a set of 5 posters (1 for each topic), 5 booklets (each booklet contains all 5 topics), snacks and 25\$ honorarium per CCN champion per session to organise and deliver 3 sessions in 3 months. There are no limited numbers of participants in each session. For vegetable garden, each facilitator will receive honorarium of \$15 if they could mobilise 10 households to plant vegetable garden in the next 3 months. The seeds will be supplied by EWM.

The agreed scale up plan indicates the willingness of CCN members to sustain the CCN and confidence in both knowledge dissemination and vegetable gardening adaptation scale up.

#### 4.6 Individual responses about the pilot outcomes and benefits

The final evaluation activity in the last session was the completion of the individual survey. Table 14 summarises the result of the survey in both sites.

Table 14. Summary of individual members survey results

Question	Pursat	Prey Veng
1. Did you attend all 5 CCN session? If not, what was the reason for you not attending all sessions?	Yes 47 (91%), No 4 (9%)  Reason for not joining: - I was sick (50%) - I was busy with rice harvesting (25%) - Overlap with other important event (25%)	Yes 21 (68%), No 10 (32%)  Reason for not joining: - I sent my kid to the hospital (10%). - I was sick. (50%) - I was having class (10%). - Busy with work (10%). - No answer (20%).
2. What was your expectation of the CCN prior to joining? Were those expectations met? Was there anything that you did not expect from the CCN and experienced or observed it?	- I didn't expect much from the program at the beginning. - The expectation on climate change and adaptation knowledge were met. - Hoping that EMW will continue to support the dissemination of this knowledge to other communes as well (20%).	- I didn't expect anything because I was not aware about the detail of the program, but now I have learned a lot. (16%) - Yes, my expectation was met. (65%) - Unable to answer or could not answer correctly (29%)
3. What did you enjoy most in the CCN?	- Presentation session on all topic (30%)	- All the topics (48%) - Vegetable garden 19%

	<ul style="list-style-type: none"> <li>- Practical activities especially vegetable gardening, waste separation and emergency kits (43%)</li> <li>- Discussion session (100%)</li> </ul>	<ul style="list-style-type: none"> <li>- Tree planting 10%</li> <li>- Emergency kit preparation 3%</li> <li>- Flood management 6 %</li> <li>- Water topic 6%</li> <li>- Trash collection and sorting 10%</li> <li>- Gaining more knowledge about climate change 20%</li> <li>-</li> </ul>
4. What did you enjoy least in the CCN?	<ul style="list-style-type: none"> <li>- All activities and sessions were equally interesting.</li> </ul>	<ul style="list-style-type: none"> <li>- I don't find any topic/activity that is least interesting. 65%</li> <li>- Bottle distribution 3%</li> <li>- Should plan more tree 3%</li> <li>- Sometimes, I did not catch up with the lecture. 3%</li> <li>- Had a hard time understanding the technical terms. 6%</li> <li>- Location and timing 3%</li> </ul>
5. In your view, is the group discussion approach an effective way to engage participants in learning and sharing ideas about what they learn? Why and why not?	<p>The group discussion approach is effective way to engage participants because:</p> <ul style="list-style-type: none"> <li>- It let people share their ideas/ experiences</li> <li>- Make people become more confident</li> <li>- Create trust among citizens</li> </ul>	<p>All the participants agreed that group discussion is an effective approach with the following reason:</p> <ul style="list-style-type: none"> <li>- Good way to share knowledge/experience and compensate for each other. 77%</li> <li>- Cooperation 3%</li> <li>- They can share what they discuss to other village members. 6%</li> <li>- Attract more members. 10%</li> <li>- Unable to describe 13%</li> </ul>
6. What are some of the benefits for you personally as a result of attending the CCN?	<ul style="list-style-type: none"> <li>- Knowledge about climate change (100%)</li> <li>- Practical adaptation option (70%)</li> <li>- Materials i.e., flood emergencies kits, vegetable seeds, net (5%)</li> </ul>	<ul style="list-style-type: none"> <li>- I get knowledge related to the environment and climate change. 20%</li> <li>- I've learned about things that benefit and make an adverse impact to my community 10%</li> <li>- I've learned about emergency kit preparation, bottle distribution and vegetable garden.</li> </ul>

		<ul style="list-style-type: none"> <li>- In general, I gain more knowledge .30%</li> <li>- I've learned about benefit of using clean water, vegetable gardening and trash collection. 3%</li> <li>- Adaptation and hazard preparation. 3%</li> <li>- Unable to describe specifically Or answers are not related. 34%</li> <li>-</li> </ul>
7. Will you continue to take part in the CCN after the pilot if it keeps running? Why and why not?	<ul style="list-style-type: none"> <li>- Yes (100%)</li> </ul>	<ul style="list-style-type: none"> <li>- Yes for all</li> </ul>
8. What knowledge and skills did you acquire from participation in the CCN?	<p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>- Climate change content 100%</li> <li>- Flood and drought management 75%</li> <li>- Water saving, safe storage and hygiene 15%</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>- Water safety 15%</li> <li>- Emergency kit preparation 60%</li> <li>- Waste collecting and sorting 50%</li> <li>- Vegetable gardening. 70%</li> </ul>	<p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>- Climate change content 13%</li> <li>- Flood and drought management 20%</li> <li>- Water saving 6%</li> <li>- Water and livelihood 6%</li> <li>- Benefit of clean water 6%</li> <li>- Gain more knowledge in general. 20%</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>- Planting tree 45%</li> <li>- Bottle distribution 6%</li> <li>- Water safety 9%</li> <li>- Emergency kit preparation 6%</li> <li>- Waste collecting and sorting 42%</li> <li>- Vegetable gardening. 45%</li> <li>- How to use emergency medicine. 10%</li> </ul>
9. How might you apply those knowledge and skills after the CCN?	<ul style="list-style-type: none"> <li>- I will teach my family members about what I have learned (100) %</li> <li>- I will share with my neighbor (45%)</li> <li>- I will share with the villager (45%)</li> </ul>	<ul style="list-style-type: none"> <li>- I will teach my family member about what I have learned. 6%</li> <li>- I will share with the community member about what I have learned. 68%</li> <li>- Try to apply what I've learned. 26%</li> </ul>

		<ul style="list-style-type: none"> <li>- Not be able to or answer incorrectly. 16%</li> </ul>
<p>10. After attending the CCN, what do you think are the most urgent issues to be done to improve adaptive capacity of your family and your community?</p>	<ul style="list-style-type: none"> <li>- Solving of water shortage problem (restoration of water ways, drainage, pond digging) 60%</li> <li>- Promote knowledge of flood and drought adaptation (75%)</li> <li>- Promote knowledge of safe water storage (5%)</li> <li>- Not sure/ don't know (20%)</li> </ul>	<ul style="list-style-type: none"> <li>- Prepare for emergency medicine 3%</li> <li>- Lack of budget and material. 20%</li> <li>- Need emergency preparation 16%</li> <li>- tree planting 13%</li> <li>- My family should be prepared for emergency kit and find a safe evacuation place. 13%</li> <li>- Should find more budget from donors and government. 3%</li> <li>- People lack knowledge, so to improve the situation, we must keep raising awareness. 16%</li> <li>- Advise people to use clean water. 10%</li> <li>- Vegetable garden to increase family income 3%</li> <li>- Trash issues 26%</li> <li>- Earn knowledge to apply when I face difficulty 3%</li> <li>- Not be able to describe. 13%</li> </ul>
<p>What will be your active contribution to address these issues in your household and community?</p>	<ul style="list-style-type: none"> <li>- Continue sharing knowledge with relative and other villagers (100%)</li> <li>- Participate with the community activities to adapt with climate change</li> <li>- Practice adaptation options learned from the CCN program</li> </ul>	<ul style="list-style-type: none"> <li>- Earn knowledge to apply when I face difficulty 6%</li> <li>- I have to educate my family or/and community members about what I have learned. 32%</li> <li>- Be prepared for an evacuation place and raise home, food stock, and medicine. 10%</li> <li>- Need to mobilise more people to join CCN.</li> <li>- We have to put in commune plan for: 1. Tree planting, 2. Water-saving irrigation, 3. Water storage and toilet, 4. Emergency kit and 5. find an evacuation spot. 3%</li> <li>- Raise awareness 3%</li> </ul>

		<ul style="list-style-type: none"> <li>- Clean my home and be more hygienic. 3%</li> <li>- Try to apply what I've learned to show to my family and my neighbours. 3%</li> <li>- Not be able to describe/ answer not related. 13%</li> </ul>
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## 5. Conclusions and recommendations

### 5.1 Conclusions

The individual endline evaluation survey results align with the groups reflections in the end of pilot evaluation and those conducted during the pilot.

These results, as discussed in this report clearly indicate the achieved outcomes of the CCN as intended in the ToC:

- Members gained basic knowledge about climate change, adaptation, and climate resilience
- Members could apply effective practical adaptation actions
- Members were able to share their ideas with each other
- Facilitators built capacity in leading the network and facilitate adaptation activities

The intended outcome of "Members can identify key strategies to increase their adaptation capacity and improve resilience" is less clear as it the members are still learning about different adaptation targets. It also reflects the lack of knowledge about climate change and adaptation among CCN members prior to the CCN. In that regard, the CCN was a good modality to raise awareness rather than technical knowledge which would require longer period of implementation with more regular meetings.

It is clear that the CCN pilots have impacted the wider communities by improving the communities' adaptive capacity and willingness to undertake adaptation actions. This is evidenced by the positive change in pre and post test results, supported by groups discussions and reflections on their CCN journey, the high number of CCN champions who volunteer to continue the CCN efforts, and all members indicated that they will continue sharing knowledge with relative and other villagers, participate with the community activities to adapt with climate change, and practice adaptation options learned from the CCN pilot.

The second intend impact of the CCN as a forum to bring community perspectives to policy dialogue on climate change adaptation requires longer period of CCN implementation as this is an innovative concept in the context of Cambodia as noted, the baseline of knowledge and skills in relation to climate adaptation was low. The challenge also lies in the context of the rural Cambodia where there's a gap between adaptation policy design which is at the national level, and implementation plans at the local levels. In addition, the modality of community engagement has always been a top-down approach with provincial and district authorities controlling villages actions rather than engaging villagers and employ grassroots activities.

The evaluation findings clearly support the assumption of the TOC that knowledge building and practical adaptation activities, and leveraging networks of citizens will lead to improved villagers' knowledge and skills and consequently their willingness to take on adaptation themselves.

The CCN has provided a safe space for sharing ideas among villagers. With full representation of villagers in the communes and without the authorities have enabled members to engage in discussion presenting ideas, and making their voices heard. This is more prevalent in Prey Veng, whose citizens are more accustomed to public forum especially training to be organised by provincial or district authorities. This cultural phenomenon has led to what appears to be the only observable difference between two sites in that there was a lower level of engagement in the CCN in Prey Veng in the first 3 months. This could also reflect the presence of the Deputy Director of the Provincial Department of Rural Development in Prey Veng in these sessions. In subsequent sessions, the level of engagement improved significantly, which could be attributed to improved skills of local facilitators, better planning and briefing of the sessions at the start. In both sites it is clear that facilitators have built their capacity to lead the CCN. However, the focal points in Pursat seemed to have a stronger role than the facilitators. Compared with the situation in Prey Veng where the local facilitators were responsible for all mobilising and facilitation activities. This may also explain why in Prey Veng, the CCN champions comprised 3 pilot facilitators whereas in Pursat, all champions were the villagers or village heads. Receptive of these differences, the principle of the CCN network approach focus on relationships among members to increase trust and confidence to share stories and ideas, is a contributing factor to CCN outcomes and its sustainability.

Despite these outcomes and impacts, the inherent challenges for implementing the CCN or similar networks in countries like Cambodia are threefold. First, Capacity building and creating a forum for the communities to share knowledge and contribute to policy dialogue takes time to overcome constraints due personal factors and civic culture in rural Cambodia. Second, sustaining the CCN beyond the pilots require financial resources and commitment by the communities. Third, support of local and provincial authorities requires a recognition that building adaptive capacity for the community benefits from a collaborative two-way process between citizens and authorities rather than top-down approach.

## 5.2 Recommendations for future CCN

Based on the evaluation results, the design and implementation of CCN in other areas in Cambodia or similar context should follow the same principles of a sustained network modality as that underpinned by the pilot CCN:

- *Accessible:* Accessible, functional and known through local facilitators and organised in the locality
- *Co-designed localism:* Undertake consultations with the communities to design the network, invite CCN members and activities relevant to their needs and interests
- *Community:* Relationships and relevant interest matter more in the delivery of the CCN and sustaining it rather than technology of sophisticated platform of communication
- *Active participant driven:* CCN delivery is driven by participants through constant feedback, discussion, and evaluation. Practical activities alongside content lecture and group discussion will keep the network alive and members engaged



- *Agile*: reflection of facilitators, members and project team to allow for revision of the content and modes of CN facilitation
- *Relevant*: Content and activities on climate change and adaptation meet the specific needs of the communities to engage and maintain their interests and to improve their willingness to sustain the network activities

The CCN activities, particular the materials presentation and group discussion should consider the following:

- A clear guideline must be provided and a debrief session must also be conducted before each session in order to help build facilitators' capacity.
- Feedbacks are better collected from group work and focus group discussion compared to the whole group discussion.
- The number of participants was reduced from 90 % to 82 % for Prey Veng and majority of them were women.
- The materials could be made more comprehensive and accessible for those with very basic education by adding more images and videos.
- To make the team more engaged, we need to set up the team in advance and encourage those who are timid to share their opinion.
- Team building game help to comfort the participants before they start group discussion.

Other recommendations relating to design and implementation in broader contexts:

- Consider design features and requirements that support a shared understanding of climate risks and solutions across different contexts and geographical boundaries
- Use and adjust existing governance structures to support sustainability and adoption relevant to contexts
- Identify and consider the implications of related projects planned or already underway
- Undertake practical feasibility analysis to consider the achievability of implementing and scaling up CCN from a quality and risk management perspective.