



Ministry of Public Works and Transport



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QUARTERLY PROGRESS REPORT- JUNE-AUGUST 2018

Project: *Integrated Urban Environmental Management in the Tonle Sap Basin (RRP CAM 42285-013)*
Package IV: *NGO Support for Community Mobilization and Environment Improvement*
Submitted to *Ministry of Public Works and Transport - Government of Cambodia*



in association with



Preface

This document is the Quarterly Progress Report prepared for the CMEI project's first quarter of operations (June-August 2018). The Community Mobilization and Environmental Improvements (CMEI) project will translate Project principles into community action. This includes support for community planning and prioritization, and provision of community-driven climate-resilient urban environmental infrastructure. The involvement of local communities, including poor, vulnerable and ethnic Cham and Vietnamese, in planning, decision-making and supervision of the works will encourage local solutions and greater accountability of the services delivered. It will help to create ownership and provide benefits to those often marginalized and vulnerable. The report incorporates also stakeholder comments and suggestions during the Inception Phase and the first Quarter of field operations.

Acknowledgements

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List of Abbreviations

ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Center
AMSL	Above the Mean Sea Level
BBB	Building Back Better
CCDM	Commune Committee for Disaster Management
CHF	Cambodian Humanitarian Forum
CM	Community Mobilization
CMEI	Community Mobilization and Environment Improvement
Danida	Danish development assistance to Cambodia
DCDM	District Committee Disaster Management
EU	European Union
FGD	Focus Group Discussion
GAP	Gender Action Plan
HHs	Household
ID	Identification Card
INGO	International National Government Organization
IPCC	The Intergovernmental Panel on Climate Change
KAO	Khum Administrative Organizations
LNGO	Local National Government Organization
LRRD	Linking Relief Recovery to Development
MEAL	Monitoring Evaluation and Learning
MPWT	Ministry of Public Works and Transport
MRC	Mekong River Commission
MRD	Ministry of Rural Development
NCDM	National Committee for Disaster Management
NGO	National Government Organization
NPRS	National Poverty Reduction Strategy
ODA	Official Development Assistance
PADEK	Partnership for Development in Kampuchea
PC	Program Coordinator
PCDM	Provincial Communities for Disaster Management
PDRD	Provincial Department of Rural Development
PLHIV/AIDS	People Living with HIV/AIDS
PVCA	Participatory Vulnerability and Capacity Assessments
SIDA	Swedish International Development Cooperation Agency
UNDP	United Nations Development Program
UNEP	The United Nations Environment Program
UNFCCC	United Nation Climate Change Cambodia
VDMC	Village Disaster Management committee
WASH	Water, Sanitation and Hygiene
WCCC	Women and Children's Consultative Committees
WEDC	West East Development Cambodia

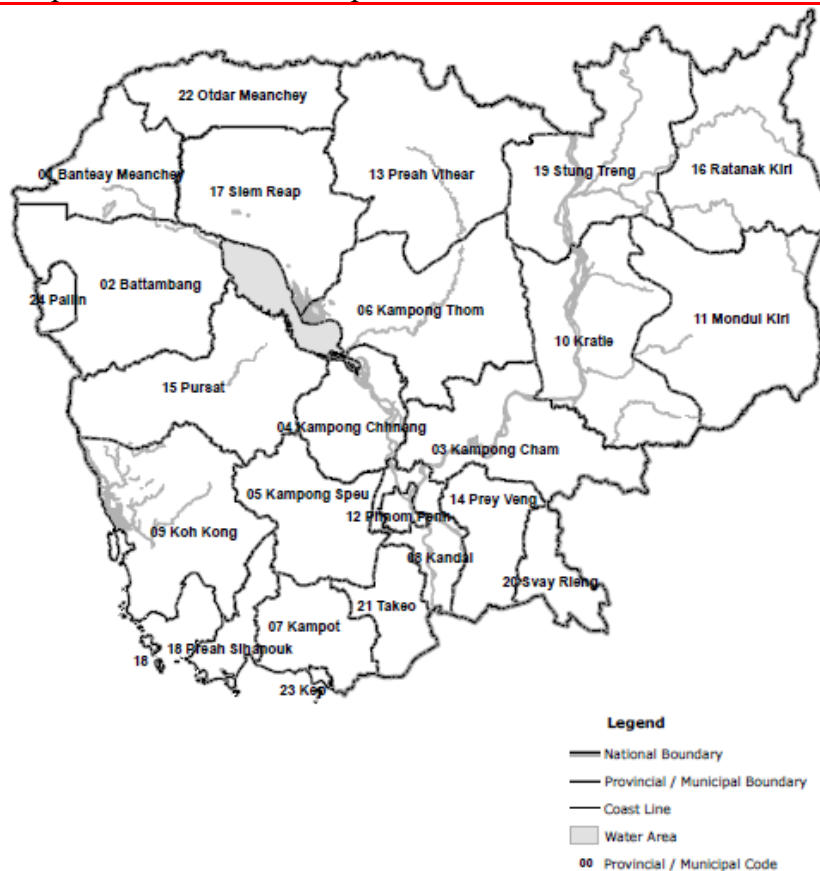
1. Executive Summary

- 1- This executive summary presents the quarterly phase implementation actions for the CMEI project of Ministry of Public Works and Transport (MPWT) supported by Asian Development Bank (ADB). The Project has completed the inception phase and in the first quarter of the implementation phase, has started to invest in managing the proposed action. The inception phase provide a definite understanding to the project action and aided in cementing the relationship with the key stakeholders and establishing the field teams.
- 2- The first phase has also seen the establishment of better methodological arrangements for the management of the project, team management, relooking at the role and responsibilities, working arrangement and coordination actions with the other components of the larger Tonle Sap II programme.
- 3- The project team has visited the key locations, held detailed dialogs with the community of the programming areas, coordinated with the CCDM and provincial authorities, held periodic meetings for management and query resolution. The two provincial offices and teams in the two provinces of Pursat and Kampong Chhnang are well established now.
- 4- In the current phase, the findings of the Inception phase are also being continually revised and we hope to continue the project on the desired scale and scope. The project is also committed to bring out the emerging needs of the vulnerable community.

2. Country Context

- 5- Cambodia is one of the poorest nations in South-East Asia. Approximately 70% of Cambodian households derive all or an important part of their income from agriculture and the majority of agricultural production is dependent on the monsoon rain and natural floods/recession of the Tonle Sap River and Lake. Climate change is likely to disrupt the natural cycle of the monsoonal system and the hydrological function of the interconnected Mekong-Tonle Sap River drainage system and therefore cause a significant impact on the livelihood and welfare of rural Cambodians.

Map 1: Administrative Map of Cambodia



- 6- Cambodia exhibits a tropical monsoon climate characterized by strong dry and wet seasons. The major geographical features of the country are the large Tonle Sap Lake, the Bassac River and the Mekong River system. Recent climate change trends observed throughout the country point to an increase in frequency and intensity of extreme weather events, an increase in mean temperature, alterations in the timing and duration of the seasons, and sea-level rise. Cambodia's vulnerability to climate change is further exacerbated by its post-civil war situation and structural development challenges, and with approximately 80 per cent of its population living in rural areas, the country largely depends upon natural resources for food and income. Increasing pressure on the livelihood of rural communities caused by the intensification of climate related natural disasters, environmental degradation and climate change is likely to increase the current trend of migration out of rural areas, in the coming years (IOM 2016)

- 7- Located on the south-western part of the Indochina peninsula, between 10° to 15° north latitude and from 102° to 108° east longitude, Cambodia covers 181,035 square km (176,515 square km of land and 4,520 square km of water areas), is bordered by Thailand to the west and north, Laos to the north, Viet Nam to the east and south, with a 443-kilometre coastline along the Gulf of Thailand to the southwest. Cambodia is a low-lying country. Its highest point, the Phnom Oral, culminates at 1,810 m. Cambodia has a tropical climate, with a six-month wet season and a six-month dry season. The southwest monsoon corresponds with the rainy season which goes from mid-May to mid-September / early October. The north-east monsoon brings dry, cooler air and stretches from November to March. The hottest days are concentrated in April, until early May.

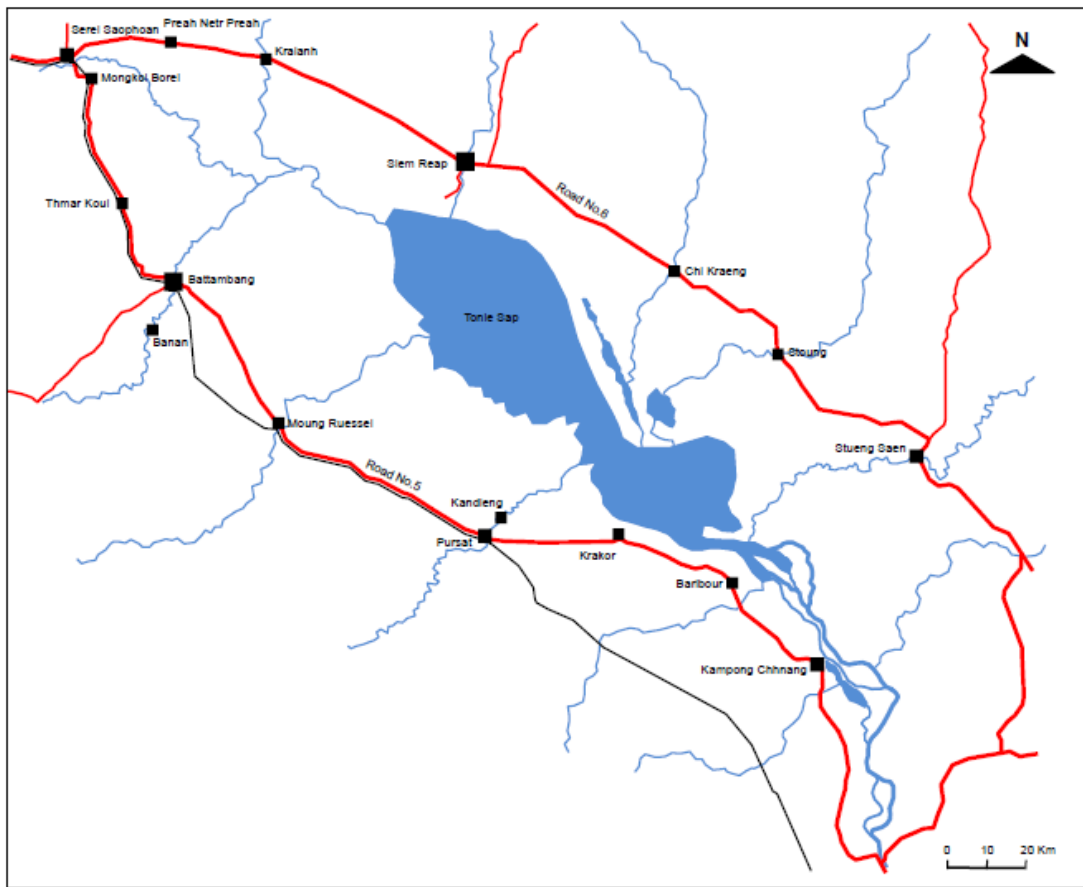
2.1 Disaster Profile

- 8- In 2011, Cambodia was classified as the second most affected by extreme weather events, with a Gross Domestic Product (GDP) loss estimated at 3.1 per cent (Harmeling and Eckstein, 2012), and was ranked as the 9th and 6th most vulnerable country to climate change in the World Risk Index 2011 and the Maplecroft Climate Change Vulnerability Index 2012, respectively (UNDP, 2012b). In global assessments, the Mekong basin has been classified as one of the river basins that will feel the effects of climate change most severely (AIT-UNEP RRC.AP, 2010).
- 9- Cambodia is prone to a number of natural disasters including flood, lightening, drought, fire, storm, epidemics, pest outbreak and river bank collapse. Flood and drought are the main physical hazards in Cambodia, linked its key sectors: agriculture and fisheries. About 80 percent of the Cambodia's territory lies within the Mekong River, flowing directly from the north to the Mekong Delta of Viet Nam in the south.
- 10- Cambodia regularly experiences almost all types of natural hazards, including floods, droughts, heavy storms, riverbanks collapses, fire incidents and epidemics affecting people and their assets repeatedly, almost every year, and putting the country's economy at high risk. Between 1996 and 2013, the National Committee for Disaster Management (NCDM) recorded no less than 7,800 disaster events. In 2011, major floods hit 18 out of 24 provinces, affecting more than 1.77 million people, approximately 13 per cent of the country population and leading to the evacuation of 52,000 households. In 2013, floods hit 20 out of the country's 24 provinces, affecting 377,354 households and forcing 31,314 households to evacuate to safer areas. Over the same period of time, increased occurrence of severe droughts had devastating effects on the livelihood of rural communities. Climate change is anticipated to increase the frequency, intensity and severity of extreme natural events, which could turn into far worse disasters, with considerable impact on human lives, agriculture, health, economy, education, rural and urban infrastructures, and private properties.
- 11- Cambodia experiences almost all types of hydro meteorological hazards such as floods, droughts, heavy storms (or typhoon), fire incidents and epidemics (NCDM, 2013). In this respect, the country's National Poverty Reduction Strategy (NPRS) explicitly identifies natural disasters, particularly flood and drought, as critical factors that have, and continue to increase
- 12- Tropical cyclones might not be as common as floods and droughts, but are the most costly meteorological disasters affecting South-East Asia. Storm surges and strong winds, and the resultant flooding and landslides cause agricultural loss, injuries and fatalities, and damage of private and public infrastructures. As Cambodia is predominantly lowland plains and

plateaus, it is likely to experience increasing episodes of storm related events, especially in low-lying areas such as the extensive floodplains surrounding Tonle Sap Lake (USAID, 2014).

13- The total landmass of the Kingdom of Cambodia (hereinafter referred to as Cambodia) is approximately 181,000 km² (a little less than the half of Japan's total area). The Mekong River traverses the country from north to south, crossing the boundary with Lao PDR in the north. The Tonle Sap Lake and the river systems are the dominant features forming the Central Plains, which cover three quarters of the country's area. The Tonle Sap River runs off the Tonle Sap Lake and joins the Mekong River at the capital city of Phnom Penh. To the north and northeast, near the boundaries with Viet Nam and Lao PDR, are mountain ranges with dense virgin forests and diverse wildlife. According to the 2008 census, Cambodia has an estimated population of 1,340,000 people.

Map 2: Urban Centres in Tonle Sap Basin



14- The Mekong River has large fluctuations of water levels between the dry and wet seasons, causing a cycle of droughts and floods almost every year, damaging agricultural production and livelihoods and constraining Cambodian socio-economic development. It is estimated that floods kill about 100 people annually and cause agricultural losses of 100 to 170 million USD each year. The main types of floods are spills from the Mekong River aggravated by local rainfall, flooding from tributaries, flash floods, and heavy rains from typhoon in some areas. Related natural hazards are epidemics.

15- The Tonle Sap area is one of the most important and critical parts of the Mekong system due to its unexceptional water regime, unique flood pulse – dependent ecosystem and high fish production (MRCS/WUP-FIN 2007, Keskinen et al. 2007). For the same reason, it is also considered as a particular vulnerable area for potential changes in the Mekong's flow.

2.2 Operational geography – the Tonle Sap Lake

16- The Tonle Sap Lake Area forms a critically important economic, social and environmental ecosystem in Cambodia. Given the dominance of agriculture and the already heavy pressure on the area's natural resources, the ecosystem is a fragile system. At the same time, the livelihood structure of the Tonle Sap area is diversifying, with increasing load on the ecosystem. The analysis of the hydrological impacts of climate change indicate that climate change is likely to bring remarkable changes to the Tonle Sap, with most remarkable impacts being felt in the longer term.

17- Also the ecology and natural resources of the area is likely to change in the future, as the lake floodplain system is predicted to feel increasing negative impacts due to human interactions, in particular through intensive hydropower development in the upper parts of the Mekong River Basin. In fact, the Tonle Sap Lake area can be considered as the most vulnerable area to the changes caused by the current hydropower development plans in the Mekong. At the same time, the climate change is estimated to cause new kinds of changes to the lake floodplain system. Consequently, the area's future includes many uncertainties, and will depend on both external driving forces –including changes in the Tonle Sap's hydrology and related impacts to fisheries and agriculture– as well as on internal changes in the socio-economic setting of the area.

18- Due to its relatively short duration of Inception phase (3 months), the project has focused primarily on the human aspects of the project implementation with focus on the hydrological impacts of climate change as well as related adaptation strategies in the Tonle Sap area of Cambodia. The project can be seen as a kind of scoping study that aimed to analyse some of the main issues related to climate change adaptation in these two areas as well as to recognise possibilities for future research and action.

2.3 Hydrological Regime of Tonle Sap

19- The Intergovernmental Panel on Climate Change (IPCC) categorized the Lower Mekong Sub-region as one of the most sensitive areas to climate change in the world. The intensification of sudden onset climate events has been evident in Cambodia, with floods in 2000, 2002 and more recently in 2011 and 2013, alongside consecutive droughts in 2001, 2002 and 2003. Sudden onset natural calamities and slow onset processes of climate change and environmental degradation act as additional stressors on the socioeconomic situation of rural communities as they affect the assets of the most vulnerable households.

20- The Tonle Sap River connects Tonle Sap Lake to the Mekong River which it joins at Chaktomuk junction near Phnom Penh. The water flow from the Mekong River to Tonle Sap Lake occurs during the flood season (June - October), when the rising water in the Mekong forces the Tonle Sap River to change its flow backwards into Tonle Sap Lake. The incoming water causes massive flooding that extends over a vast floodplain, covering forests, shrub land and rice fields. The Lake acts as a natural reservoir for the Lower Mekong Basin by regulating the floods downstream from

21- Phnom Penh during the wet season and makes an important supplement to the dry season flow to the Mekong Delta in Vietnam. From December to February, the Lake provides approximately 50% of the total inflow to the delta (Fuji et al., 2003; Morishita et al., 2004). In the wet season, the Lake increases 6 fold in area coverage, and 10 fold in depth when compared

with the dry season; from an area of 2,500-3,000 km² to 10,000 - 16,000 km² (Fuji et al., 2003; MRC, 2003) and a depth of less than one metre to 9 -10 metres during the peak of the flood season (Keskinen, 2003). Similarly, the water volume of the Lake increases over 60 fold, from about 1.3 km³ up to 60 - 80 km³ depending on the flood intensity (Kummu et al., 2006). As a result, the size of the Lake also expands from 160 km long and 35 km wide, to 250 km long and 100 km wide (Keskinen, 2003). The bottom of the Lake lies approximately 0.5 - 0.7 m above the mean sea level (AMSL). Hence during the year, the surface of the Lake varies between 1.3 and 10.3 m AMSL (MRC-WUP-FIN, 2003).

- 22- There are four main sources of inflow to the Tonle Sap Lake: from the Mekong via the Tonle Sap River, 51%, from the Mekong via overland flow, 5%, from the 13 tributaries, 31%, and from precipitation, 13% (MRC-WUP-FIN, 2003). Around 88% of the total outflow discharges to the Mekong whilst 12% evaporates directly from the Lake. The average annual outflow during 1997-2006 was 78.6 km³, varying from 43.5 km³ in 1998 to 104.8 km³ in 2000 (Kummu et al., 2006 and MRC-WUP-FIN, 2007). Figure 1 shows the Tonle Sap water balance.
- 23- Sithirith (2005) also investigated the flow contribution to Tonle Sap Lake. Thirteen rivers in the watershed discharge water into the Lake. It is estimated that 38% of water in the Tonle Sap originates from the Tonle Sap watershed areas and 62% comes from the Mekong River. Since this study did not take into account the contribution of precipitation directly fallen on the Lake, the percentages of water contributions from the Tonle Sap watershed and from the Mekong River are slightly different from the figures suggested by the other two studies cited above.
- 24- According to the statistical flood analysis by MRC-WUP-FIN (2007), the timing of the peak flood in Tonle Sap Lake is very regular (normally in October). But the start and end dates of the flood vary a lot depending on the mainstream flood and local rainfall in the Tonle Sap tributaries. Figure 2 shows the Tonle Sap water balance. The flood starts on average on the 23rd of June, peaking on the 7th of October and ends on the 3rd of March. The start of the flood is determined by the date when the water level exceeds the flood level (2.5 m) and ends on a date when the water level falls below this flood level again. The rate of water level change in Tonle Sap Lake is highest during July being around 8 cm/day, whilst the most rapid water level decline rate occurs during December reaching 6 cm/day (MRC-WUP-FIN, 2007).

2.4 Recurrent disasters

- 25- Devastating though the flood is, Southeast Asia revolves around the Mekong's seasonal floods. Eighty to ninety percent of the river's flow occurs during the flood season, which runs from June to November. This flush of water creates wetland habitats and draws nutrients from land into the river to feed a diverse fish population. The floods can damage crops, but they also lay down nutrient-rich soil that naturally fertilizes fields. The Mekong River Commission estimates that the annual flood causes 60 to 70 million dollars in damage, but brings 8 to 10 billion dollars into the economies of Southeast Asia.
- 26- Strangest of all, perhaps, is the flood's influence on the Tonle Sap, Southeast Asia's largest freshwater lake. For part of the year, the lake drains into the Mekong River, but during the flood season, the Mekong pushes water back into the lake. Water flows into the wetlands between the Mekong and the Tonle Sap and builds up in the lake itself. In October 2011, water levels on the Tonle Sap were above flood status—a level they last reached in 2000.
- 27- Flood occurs alongside Mekong River and Tonle Sap Lake, whilst east, west and northwest parts of the country are the drought-prone areas. The magnitude and severity of flood and drought have increased from year to year. The disasters have caused great loss in economy and human lives, affected people's livelihoods and agricultural production and damaged social infrastructures. Over the decades, Cambodia has been affected by more recurrent floods and

prevalent agricultural droughts. In the recent years, Cambodia has experienced more severe storms and more recurrent lightning strikes.

28- The key disasters mapped are as follows:

- a. **Floods** - The southwest monsoons begin in mid-May and last through the end of October, bringing over three-quarters of the country's annual rainfall. As a result, floods along the Mekong River and its tributaries, as well as from the Tonle Sap Lake, are recurrent and often themselves constituting major disasters. Approximately 80% of the country's population lives along the Mekong River, which is known to have large fluctuations. Flash floods in tributaries around the Tonle Sap Lake affect others. For example, the severe floods that occurred from 2000 to 2002 resulted in 438 casualties and caused damages amounting to US \$205 million. Over the period 1998-2002, as much as 70% of rice production loss was attributed to floods and 20% to droughts. Estimates suggest that floods kill 100 people annually, cause agricultural losses of US \$100-170 million each year, and can significantly affect critical infrastructure along the floodplain. Aberrant rainfall patterns over the past few years and the destruction caused by the 2009 Typhoon Ketsana have captured the attention of key decision makers and the public.
- b. **Droughts** - Coupled with poor management, access, and storage of existing water resources, delays or early ending of the monsoon rains and erratic rainfall have contributed to droughts in Cambodia, especially in Svay Rieng province, which is one of the most drought-prone provinces in the country. Droughts impact every aspect of the country's economy and population, including leading to economic losses due to crop failure, health problems, and environmental damage. Over the period 1998-2002, a 20% loss in rice production loss was attributed to droughts.
- c. **Sea Level Rise** - Rising sea levels could pose a significant threat to marine coastal areas, which already suffer from storm surges, high tides, beach erosion, and seawater intrusion. Low-lying areas, including settlements, beach resorts, seaports, coastal fisheries, and mangrove forests could all be affected.

3. Background of the project –CMEI

- 29- The CMEI- Community Mobilisation and Environment Improvement project supported by the Ministry of Public Works and Transport (MPWT) and funded by Asian Development Bank (ADB) is being implemented across the vulnerable areas of Cambodia. The Project looks at the interconnections between infrastructure developments, urban management, water and climate change in Tonle Sap Region specifically in the two provinces of Pursat and Kampong Chhnang in Cambodia.
- 30- The agencies PADEK and WEDC have been awarded the project output: Community Mobilization and Environmental improvements (CMEI) under the project titled “Integrated Urban Environmental Management in Tonle Sap Basin”. This is part of a larger mandate to help develop the Tonle Sap basin. The Community Mobilization and Environmental Improvements (CMEI) output is working to translate Project principles into community action. This includes support for community planning and prioritization, and provision of community-driven climate-resilient urban environmental infrastructure. The involvement of local communities, including poor, vulnerable and ethnic Cham and Vietnamese, in planning, decision-making and supervision of the works will encourage local solutions and greater accountability of the services delivered. It will help to create ownership and provide benefits to those often marginalized and vulnerable.

3.1 Project Outputs and Outcomes

- 31- The project aims to address the climate change and environmental needs of the urban poor and vulnerable, including ethnic Cham and Vietnamese in Kampong Chhnang and Pursat—making the project more inclusive by extending benefits from large infrastructure investments.
- 32- It includes improved household sanitation for ID Poor 1 and 2 in the current municipality area; climate change and hygiene awareness and action; and community small-scale infrastructure improvements in pre-identified poor and vulnerable areas in each municipality. Small-scale infrastructure improvements will be prioritized by the communities and will be financed by the project, national government, and community. The output will help extend project benefits to the poor and vulnerable groups.
- 33- The output includes the following sub-outputs and activities:
- a. Household sanitation grants for ID Poor 1 and ID Poor 2 households within the defined municipality area).
 - b. Information, Education and Communication (IEC) activities to promote project awareness, hygiene awareness, initiate behavioural change and disseminate climate change information to men and women. The project area for the IEC efforts will include Sangkats in the existing municipal boundary and adjacent urban Sangkats. It will generate information and opportunities for knowledge management to further strengthen the knowledge management aspects of the project; and,
 - c. Small-scale infrastructure improvements in Sangkats that are pre-identified by the project survey as being poor and vulnerable to poor urban environmental conditions (e.g., community sanitation, improved drainage with access roads, or community collection points for solid waste management). These components will connect directly with Output 1 and 2 investments to ensure that local communities are also direct beneficiaries. Communities residing in the urban Sangkats of the existing municipal boundary area will be eligible for assistance.

3.2 Key benchmarks for project implementation

34- The key benchmarks for the project implementation are:

- a. Address the climate change and environmental needs of the urban poor and vulnerable, including ethnic Cham and Vietnamese in Kampong Chhnang and Pursat.
- b. Making the project more inclusive by extending benefits from large infrastructure investments.
- c. Improved household sanitation for ID Poor 1 and 2 in the current targeted municipality areas; climate change and hygiene awareness and actions;
- d. Small-scale infrastructure improvements prioritized by the communities and financed by the project, national government, and community.
- e. Help extend project benefits to the poor and vulnerable group by the end of project period.

3.3 CMEI Approach:

35- The project has adopted an integrated WASH approach covering the following key action agendas:

- a) supports effective processes to manage water and sanitation systems assisting in establishment of Water Trust Funds, Drinking Water Users Associations and local networks of stakeholders, as well as help in the development of Water Safety Plans,
- b) supports various abovementioned stakeholders in constructing and managing water and sanitation systems in project target villages; and
- c) Ensures a civil society and govt. collaborative monitoring mechanism is in place at urban municipal level so that consumers, operators and other stakeholders can hold a constructive dialogue over management in water consumption area.

4. Operational Geography – Kampong Chhnang and Pursat Provinces

- 36- The Cambodian population is largely rural, and currently there are an estimated 2,565 million rural households out of the estimated total of 3,261 million households. (MoP, 2015). However, urban population has grown without interruption since 1962, from 10.3 per cent of the total, to 19.5 per cent in 2008, and to 29 per cent in 2014 (MoP, 2015). The impacts associated with high rates of rural to urban migration may be considered, from an environmental perspective, under two interrelated angles. On one hand, continuing migration to urban centres fuelled by steady growth of the industrial and tertiary sectors and unplanned settlement, is putting pressure on already inadequate urban infrastructures and services. On the other, the literature indicates that despite large number migrating out of rural areas, this does not necessarily ease access to productive assets and natural resources for those left behind. Rural to rural migration also occurs, usually driven by facilitated access to natural resources, land and cleared forest areas.
- 37- As the rural population increases, scarce income earning opportunities within rural communities encourages further conversion of forests to farming plots. Based on current trends, continued population growth could lead to further degradation of fragile ecosystems, reduce the carrying capacities of the host environments, increase existing vulnerabilities and further reducing resilience in rural communities (MoE, 2009; IOM, 2009; USAID, 2014).
- 38- The Sangkats of operation of CMEI have been pre-identified for inclusion in the small-scale infrastructure improvements. Based on the evolving operational environment, the villages might change in consultation with the other components of the project and the MPWT. For each additional community, detailed needs assessment will be carried out and submitted to the MPWT. The project will cover 2 provinces
- a. Kampong Chhnang Municipality (Total 7,928 households or 40,360 people. Covers 26 villages in 4 Sangkats)
 - b. Pursat Municipality (Total 13,314 households or 63,773 people. Covers 66 villages in 7 Sangkats)

4.1 Kampong Chhnang Province

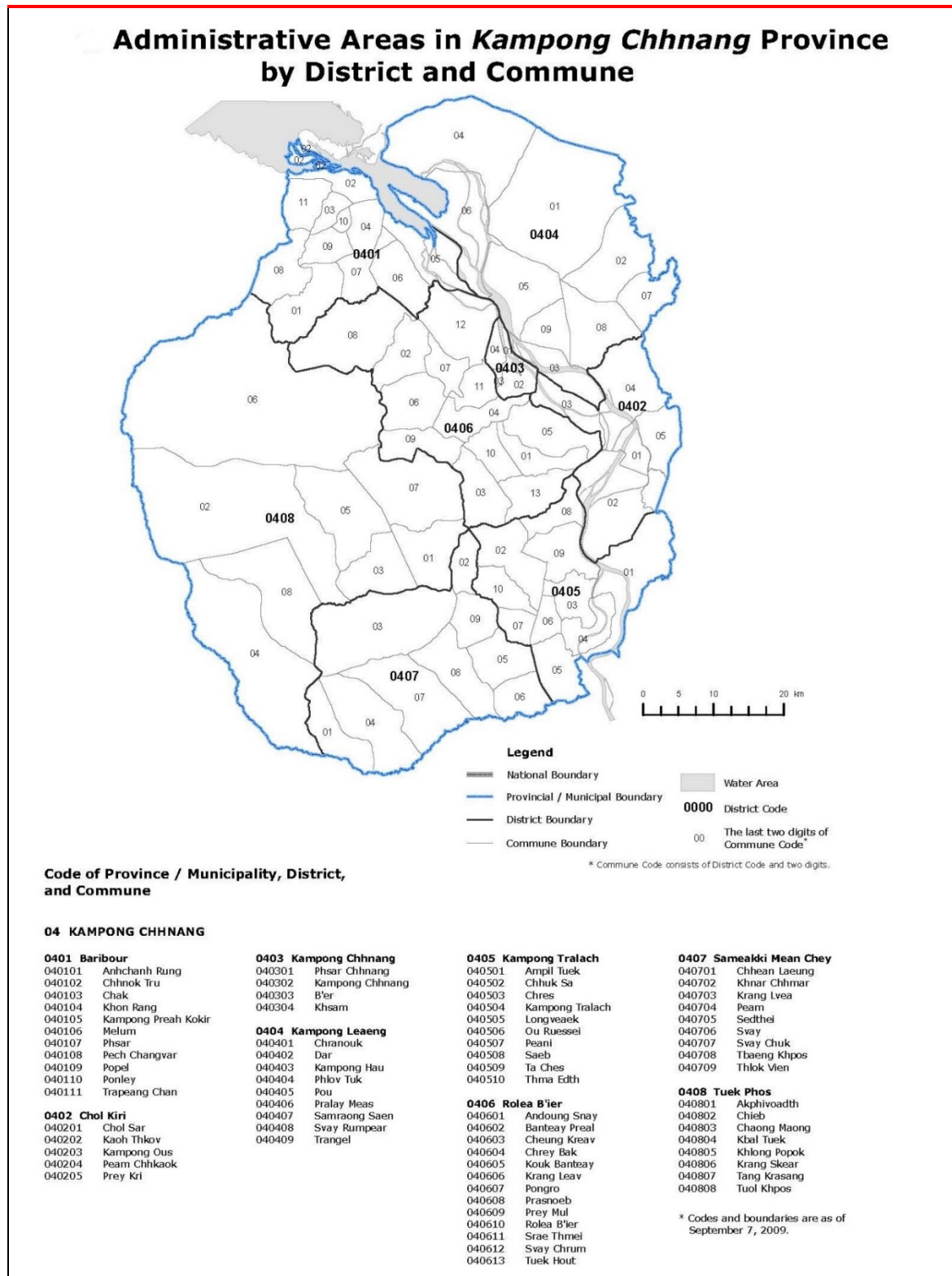
- 39- The province is located in the central part of the Kingdom and to the north-east of Municipality of Phnom Penh. It is situated on the banks of the Tonle Sap River. Kampong Chhnang Province is 91 Km far from Municipality of Phnom Penh on the national road number 5. Kampong Chhnang Province ranks at 11th, 10th, 13th, and 12th, in terms of number of establishments, number of person engaged, sales and expenses among the 24 provinces.
- 40- The province is subdivided into 8 districts (Srok). The districts are further subdivided into 65 communes (khum) and 478 villages (Phum). There is one city and 14 townships. There are also 102 Khum Administrative Organizations (KAO).
- a. Baribour
 - b. Chol Kiri
 - c. Kampong Chhnang
 - d. Kampong Leaeng
 - e. Kampong Tralach
 - f. Rolea B'ier
 - g. Sameakki Mean Chey
 - h. Tuek Phos

41- Kampong Chhnang is the capital city of Kampong Chhnang Province, in central Cambodia. It is located just west of the Tonle Sap River and is a noted port. The small city is connected to Phnom Penh by a national highway route and railway. Phnom Kong Rei is a landmark located north of the city across the Tonle Sap River. The economy of the area is dominated by rice production and many locals live on floating fishing villages during the high-water monsoon season.

Table 1: Detailed Information on Kampong Chhnang Municipality

Kampong Chhnang Municipality	
Chong Kaoh (PhsarChhnang)	352 (1,862 people)
Kandal (PhsarChhnang)	211 (1,061 people) 685 HHs including Vietnamese (approx. 3,425 people)
Samroang (PhsarChhnang)	419 (2,188 people)
Pre-identified Need	
<ul style="list-style-type: none"> • Presence of vulnerable group: ethnic Cham • Top environmental issue identified is flooding- increased demand for small-scale infrastructure • Presence of highly vulnerable group- ethnic Vietnamese • High percentage of poor HHs 	

Map 3: Administrative Areas in Kampong Chhnang Province by District and Commune



4.2 Pursat Province

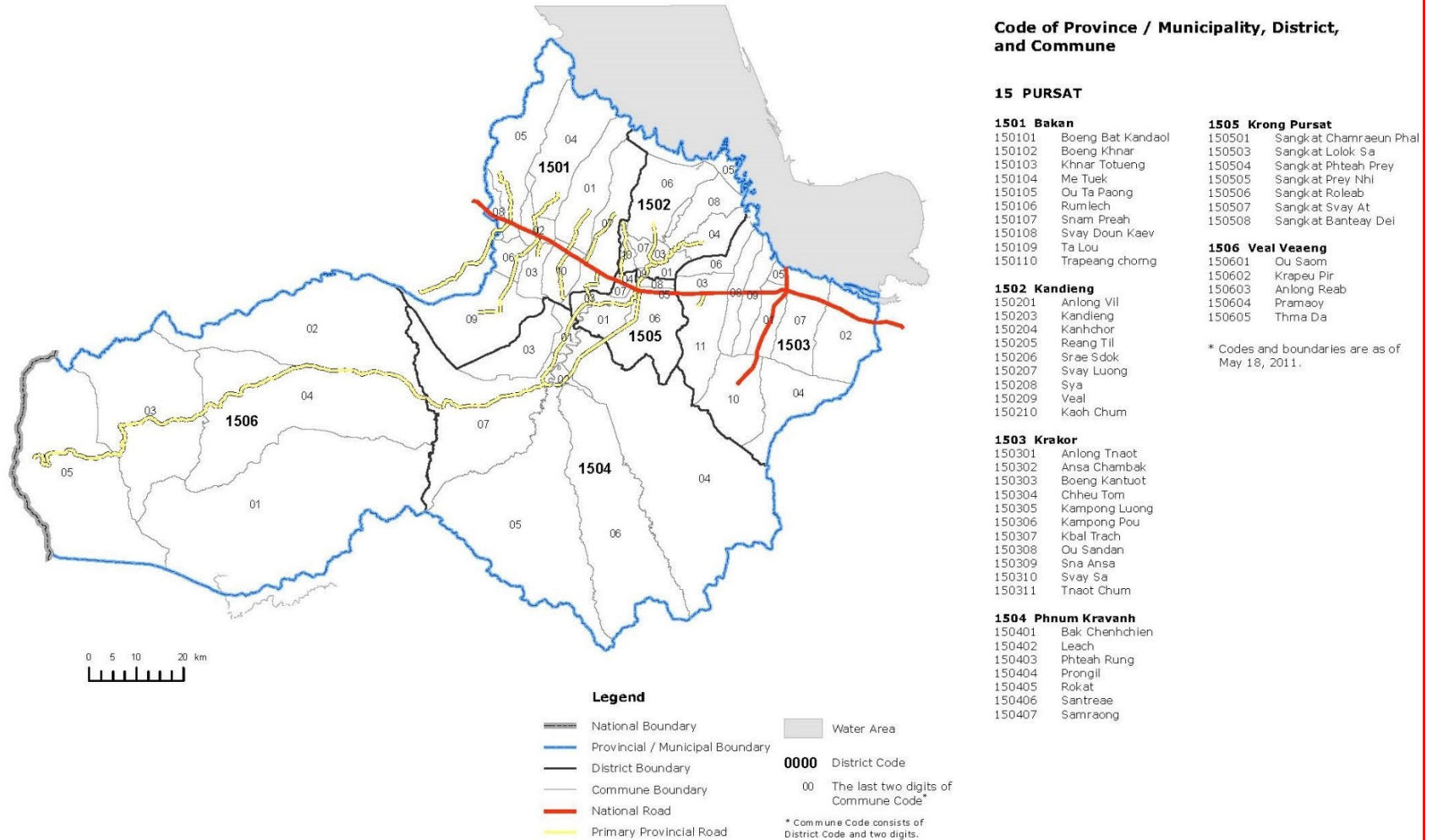
- 42- The province is located in the western part of the country and borders clockwise from the north with Battambang province, the Tonlé Sap, Kampong Chhnang province, Kampong Speu province, Koh Kong province, and Thailand. It is located between the Tonle Sap and the northern end of the Cardamom Mountains. The Pursat River bisects the province, running from the Cardamoms in the west to the Tonle Sap in the east. Pursat is the fourth largest province of Cambodia in term of the area, and it ranks only 14th in population. The region is accessible by National Highway 5, by boat, rail and by numerous smaller roads. The capital, Pursat town, lies 174 kilometers North West of Phnom Penh by road and 106 kilometers south east of Battambang.
- 43- The physical geography of Pursat encompasses many bioregions ranging from densely forested mountains to fertile plains to the Tonle Sap basin. Forests cover approximately 58% of the Pursat. The mountains of the Cardamom range rise high in the west and southwest of the province along the border with Thailand and the coast. The land slopes toward the northeast, opening up into the fertile plains that continue into Battambang and from which much of Cambodia's rice crop is harvested. The Pursat River follows this orientation and drains into the Tonle Sap which forms Pursat's eastern boundary. Pursat is one of the nine provinces that are part of the Tonle Sap Biosphere Reserve.
- 44- The province is subdivided into six districts.
- a. 1501 Bakan
 - b. 1502 Kandieng
 - c. 1503 Krakor
 - d. 1504 Phnum Kravanh
 - e. 1505 Pursat - is a small but very densely populated urban area of Pursat province
 - f. 1506 Veal Veang

Table 2: Detailed information on Pursat Municipality

Pursat Municipality	
Kbal Hong (Pteah Prey)	220 (1,013 people)
Kaoh (LolorkSar)	219 (980 people)
TuolMkak (Roleap)	301 (1,432 people)
Pre-identified Need	
<ul style="list-style-type: none"> • Highest percentage of poor among villages • Top environmental issues: air pollution linked with garbage burning • High percentage of poor HHs • Key environmental issue –flooding 	

Map 4: Administrative Areas in Pursat Province by district and commune

Districts and Communes in Pursat Province



5. Overall Project progress of the CMEI project

45- The CMEI project has continued to build on the actions and the learnings from the Inception Report, the current phase has been largely utilised to strengthen our understanding of the operational actions, stakeholders in the field, coordination and team management. This has led to the formation of core groups for actions in the headquarters and the field locations.

5.1 Submission of the Inception Report

46- At the close of the inception phase of the current project, the Inception report was submitted to the Ministry within the stipulated time.

5.2 Programmatic Actions Completed

47- The following programmatic actions have been completed in the current phase and have aided in developing a common action agenda for the team. The team has set up individual action plans based on this.

- **Field Coordination:**

- Discussed about the CMEI project in the targeted villages in Pursat and Kampong Chhnang provinces in close coordination with the CMEI staff team and Padek Director;
- Conducted meeting between the CMEI project staff and municipal Deputy Governor, Sangkat chiefs and village chiefs in Pursat municipal meeting room to discuss about the critical issues and situations in Kbal Hong village;
- Had meeting with CCDM to update about the structure, roles and responsibilities of its members;

- **Needs Assessment**

- Developed WASH and CCA TOR for conducting assessment;
- Conducted orientation field trip visits in three target villages in Pursat and rapid needs assessment on WASH and CCA in Toul Makak village in Pursat province;
- Conducted WASH and CCA assessments in very close cooperation with fields team staff in Pursat and Kampong Chhnang provinces;
- Coordinated to collect data on cost market survey of materials construction, water sources and latrines data linked to flood water levels in six target villages;
- Collect data on cost market survey of materials construction, water sources and latrines data linked to flood water levels in six target villages;
- Assessed the community villager needs such as latrine and hygiene awareness;
- Discussed with local authorities for developing the estimated budget cost for re-digging the drainages and building water gate in Samrong village, Sangkat Phsa Chhnang in Pursat;

- **Reporting**

- Developed field trip and assessment reports about WASH and CCA findings;
- Finalisation and refinement of the monthly reporting format
- Developed program workshop report;
- Developed WASH and CCA fields assessment questionnaires;
- Developed the process of sanitation grant;
- Updated work plan and the engineering TOR;

- **Information Management**

- Translated government mission rates from Khmer into English language;

- Discussed, edited and translated the inception report;
- Developed note on nodal ministries at the national, provincial levels and the flow of government funds to the provinces
- Developed a consent form in English and translated into Khmer – this will be used to undertake consent from the beneficiary prior to any referencing or case story generation
- Prepared the questionnaires and prepared the materials to the target field villages
- Developed the detail villager name lists in the six target villages.
- Developed tables of data collection;
- Collected ID poor I and poor II data from Department of Planning and communities in six target villages;
- **Team Management**
 - Monthly Team meeting for discussing about project and action plan;
 - Update of detail implementation plan and detailed discussions on the IEC materials;
 - Put the target and responsibility in the detail implementation plan;
 - Developed the permission letter and ID cards to the field staff;
- **Programmatic Brainstorming and Development**
 - Discussed about the process of Program Meeting Agenda and IEC materials for printing;
 - Discussions on the branding of CMEI actions
 - Social Media Profiling of CMEI
 - Conducted Program Workshop Meeting discussing about clear CMEI project action plan for six months and what went well and what should be improved;
 - Searched and collected Climate Change Lessons;
 - Selected appropriate Climate Change Lessons for CAR and community members;
 - Developed the list of key stakeholders such as NGOs, INGOs and other relevant institutions in Kampong Chhnang and Pursat;
 - Checked CAR list updated by CMEI team in Kampong Chhnang;
 - Checked and studied Case Study;
 - Continual monitoring of the flood situation in the field locations
 - Development of Concept Note on Climate Change Training;
 - Developed case studies in Kampong Chhnang and Pursat;
- **National Level Coordination Actions**
 - Key meetings with MRD and MOH focal staff for collecting IEC materials and collected the existing IEC materials in soft copies;
 - Periodic meetings with the PMIS team
 - Periodic Meetings with the Procurement and Finance team in the MPWT
 - Attended in the meeting about Business Resilience Forum with CHF, ADPC, government and private sectors for building up the disaster network and the capacity building on DRR and Resilience;

5.3 Multi stakeholder Mapping and Coordination arrangements

48- The project team has completed a core analysis of the key Stakeholders in the target geography along with the detailed assessments in the field. The matrix will be continually fine-tuned during the implementation stage. In the phase 01 we have finalized the key stakeholders who will be targeted for the training sessions. The list of the training participants in give below:

- | | |
|------------------------|-----------------------|
| i. Women member | x. Businessman |
| ii. Minority member | xi. Transporter |
| iii. Parents | xii. Health supporter |
| iv. Adolescent | xiii. Policeman |
| v. School children | xiv. Village chef |
| vi. Fisherman | xv. School director |
| vii. Farmer | xvi. Disable people |
| viii. Commune Council | xvii. Elder |
| ix. Potential villager | |

49- The key stakeholders of the project are mapped as shown in the graphic below and identified as the important players for the project to engage with. The major stakeholders include: PMU, PIUs, PMIS consultants, NGOs, municipal, sangkat (sub-district), commune and village authorities, PDOWA, and WCCC



Figure 1: Stakeholder mapping in the operational geography

5.4 Collaboration and coordination with local actors and stakeholders

50- Several development partners are actively engaged in addressing climate risks in Cambodia. Key donors include the Governments of Australia, Denmark, the European Community, France, and Japan. Multilateral institutions such as the World Bank Group, the Asian Development Bank (ADB), the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP) and others are involved in several projects with implications for climate change adaptation and disaster risk reduction.

51- The Cambodia Climate Change Alliance (CCCA), funded by EU, UNDP, SIDA, and Danida, is a major new initiative addressing climate resilience in Cambodia using a program-based approach. Yet much more needs to be done to improve Cambodia's resilience to climate variability and change. The project has held continual meetings with other components team for enhanced coordination and collaboration. The key meetings with other agencies and stakeholders at the national level included:

- Oxfam
- Cambodia Humanitarian Forum
- Save the Children
- People in Need
- Red Cross

52- This is further complimented by coordination meetings with key officials in provinces - provincial project office and administration staff which are in being held continually in the field and Phnom Penh level.

5.5 Coordinated actions with other components within the Tonle Sap 02 -PMIS

53- The CMEI project has coordinated with the PMIS team in the inception stage to coordinate continually. The key actions that will be progressively implemented with mutual consensus include:

- a) Collaboration: joint meetings – once a month at the Phnom Penh level for information sharing and complementarity
- b) Information management: collective information management and collection of information in pre agreed manner
- c) use of digital data gathering solutions with spatial referencing (mobile handheld devices)
- d) development of a joint information management system
- e) Field based coordination: field staff will be connected to each other at the coordinator level, continual information sharing to complement our actions in the field incl. community level meetings
- f) Capacity Building plan: Joint training of teams in information collection and Capacity building plan for the provincial authorities

5.6 Emergent Datasets of Provinces

5.6.1 Pursat: Preliminary Information

55- The project has identified the following information sets for the province of Pursat. The project has conducted meeting and interaction sessions with Key Community groups including Village leaders, village health workers, men, women, and teenagers who were invited to participate in the assessment focus group discussion in the village. Each interaction selected 10 to 12 individual households in targeted villages as sample for individual survey and observation.

56- The key findings include:

- a. Migration is high due to the continuity of the disasters with labour based migration the main occupation trait. The males migrate for construction labour works, young women work in local factories, elders farm and grow vegetables for subsistence and sell in local markets
- b. Disaster timeline:
 - i. Large floods occurred in year 2011, 2012 and 2013
 - ii. Flood seasons September, October & November
 - iii. Livelihoods losses more than 75% of people loss of labour & productive assets

57- Target Geography: Kbal Hong, Toul Makak and Kosh villages- Sangkats (Phteasprey, Roleap and Loloksa)

58- Institutional Framework:

- a. Commune Committee for Disaster Management (CCDM) and Provincial Communities for Disaster Management (PCDM) exist
- b. Village Disaster Management committee (VDMC) do not exist

59- Preparedness Actions:

- a. Collaboration with Provincial Committee Disaster Management (PCDM), District Committee Disaster Management (DCDM) and Red Cross in times of disaster
- b. Advocacy with the 'at risk' communities for disaster management, preparedness and capacity building and preventive measures

60- Special Note:

- a. Kosh village (Sangkat Loloksa) is extremely flood risk prone due to its low elevation location along with adjoining areas (Sangkat Svay Ath and Phteas Prey). The communities are seeking a dam/ embankment which will serve the purpose of access road as well

61- Data Set: According to the collected information by the team work in Pursat province, meet with Sangkat councils and village chiefs in three target areas of Kbalhong, ToulMkak and Kosh villages, the collected information is shown in the table below:

Table 3: Data for Pursat Province

Province Name	District/Town Name	Commune/Sangkat Name	Village Name	Total HHs	Total people	Male	Female	ID Poor in Total	ID Poor 1	ID Poor 2
Data for General people										
Pursat	Pursat Town	Phteas Prey	KbalHong	311	1348	455	893	54	23	31
Women Headed Household		Phteas Prey	KbalHong	35						
Disable People		Phteas Prey	KbalHong	N/A	7	5	2			
		Roleap	Toul Mkak	363	1586	719	867	88	43	45
Women Headed Household		Roleap	Toul Mkak	68						
Disable People		Roleap	Toul Mkak	N/A	46	25	21			
		Phteas Prey	Kosh	248	1062	483	579	60	39	21
Women Headed Household		Phteas Prey	Kosh	33						
Disable People		Phteas Prey	Kosh	N/A	15	15	0			
Total General people & ID Poor:				922	3996	1657	2339	202	105	97
Total WHH:				136						
Total Disable People:					68	45	23			

5.6.2 Pursat: Water Sanitation and Hygiene (WASH)

62- There are water issues in Toul Makak village and Koh village of 3 targeted villages in Pursat province: there are not water supply pipe networks in the village, inadequate water from sources within unsafe sources like ponds and open wells, moreover people in these two villages purchase water from town in very high price in dry season. Result from assessment show 50% of people drink untreated water from cement water jar where they stored directly on the ground without lids. There are only 16% of households purchase 20 litres bottled of drinking water in price 2,500Riels to 3,000Riel (about US\$0.62 to US\$0.75) per bottle.

63- There are more than 50% of families in the targeted village do not use latrine and there are only few communal latrines in targeted villages, additionally there is no formal facilities for hand washing in the communal latrine, open wells, pump wells and household toilets (from FGD and HHs survey in sample targeted village). The households use toilets that they do not have a suitable toilet type for pregnant women, disable people and old people to use.

64- Low understanding on hygiene and sanitation among community people, and attitude toward excreta, defecation practices in the village are threat to community people health like 50% drink unsafe water, 50% excreta near the bush, almost households in the village through garbage around house and some burn garbage, and 90% raising animal freely under the house.

65- All targeted villages in Pursat Province are not formal drainage network for waste water and flood management.

5.6.3 Pursat: Climate Change Adaptation (CCA) and DRR

66- There are temperature rising were noted from the people in targeted village compared to 20 years ago. Strong wind is also reported frequency happen more in last few years at the beginning of raining season within bigger damage to community's livelihood. Rainfall and

drought are noted huge change on the duration of shorter rainy season and longer dry season compare to 15-20 years before. The amount of rainfall is also noted less, in some months of rainy season rainfall were like drizzle, in contrast the other months' rainfall were very heavy and mostly make flood. Flood in 2011 and 2013 were reported affected badly in the targeted village, and drought in the dry season in 2015-2016 also reported affected on livelihood and health badly (FGD in Toul Makak village).

67- Community people in targeted villages do not aware about climate change adaptation and disaster risks reduction, due to they reported they are never participate in training, awareness dissemination about climate change adaptation and disaster risks reduction (from FGD).

5.6.4 Kampong Chhnang: Preliminary information

68- The project has identified the following information sets for the province of Kampong Chhnang. The project has conducted meeting and interaction sessions with Key Community groups including Village leaders, village health workers, men, women, and teenagers who were invited to participate in the assessment focus group discussion in the village. Each interaction selected 10 to 12 individual households in targeted villages as sample for individual survey and observation.

69- The key findings include:

- a. Fishing is the main occupation, Majority of males are out for work, young women work in local factories, elders farm and grow vegetables for subsistence and sell in local markets. The people living in village near Tonle Sap River are resilient and adaptive to the floods.

70- Institutional Framework:

- a. Commune Committee Disaster Management (CCDM) and Village Disaster Management committee (VDMC) exists
- b. Cooperative environment exists between Provincial Committee Disaster Management (PCDM), District Committee Disaster Management (DCDM)
- c. Continual advocacy amongst 'at risk' communities about disaster management, preparedness and capacity building

71- Target Geography: Samrong, Kandal and Chong Kosh village (Sangkat Phsa Chhnang, Kampong Chhnang Municipality, Kampong Chhnang Province)- All the locations assessed are prone to frequent floods

72- Disaster Timeline

- a. Flooding Seasons: August and September
- b. Large Flood of the year 2000 led to evacuation of people and animals in Sangkat Phsa Chhnang
- c. 80% of people reported livelihood losses and people suffered (Chong Kosh and Kandal villages) for lack of food, and students could not attend schools regularly

73- Data Set

Table 4: Data for Kampong Chhnang

No.	Village name	# of HHs	# of families	# of people	# of women	# of Poor I	# of poor II	Other Poor but no card
1	Phsa Loer	630	649	3337	1591	61	93	160
2	Phsa Chhnang	425	440	2354	1193	53	47	100
3	Chong Kosh	375	403	2464	1211	86	25	111
4	Samrong	557	564	2241	1218	100	157	257
5	Kandal	206	250	1172	612	56	55	111
6	Kosh Krabey	140	159	685	342	11	47	58
7	Trapang Bey	650	660	3500	1778	78	41	119
8	Kampong Os	300	324	1331	673	80	28	108
Total: 8 villages		3283	3449	17084	8618	525	493	1024

- a. Samrong village
 - i. 564 families with 2241 population, women 1218, poor I 100 families poor II 157 families and others 257 families.
 - ii. Window 131 families, widower 4 families, disabled 6 persons 1 woman, oldest 21 persons
 - iii. Core occupation: fishing, farming, factory work and sellers
- b. Kandal village
 - i. 250 families with 1172 population, women 612, Poor I 56 families, poor II 55 families and others 111 families, window 35 families, oldest 18 persons
 - ii. 165 families have access to latrines, 35 families live in Public Land, 2 families PLHIV
 - iii. Core occupation: Fishing, farming and daily labour
- c. Chong Kosh
 - i. 403 families with 2464 population women 1211, Poor I 86, poo II 25 and other 111, window 48 families, oldest 20 persons
 - ii. 87 families have access to latrines, 210 families live on Public Land
 - iii. Core Occupation: fishing, farming, factory work and sellers

5.6.5 Kampong Chhnang: Water Sanitation and Hygiene (WASH)

74- There are water supply pipe networks in all the targeted villages, but around 100 families in Chong Koh village still use water from Tonle Sap Lake as the main source for household consumption. The quality and quantity of water from sources are acceptable from the people. Even though, open-wells and lake are used for laundry and bath for most of people. 54.5% of HHs store water in cement jar before using, half among of them put the jar on the ground directly without lids and only 45.5% of HHs store in 20-50 litres plastic container in their house. In addition, 73% of HHs in survey reported they drink water directly from tap or storages, and recent diarrhoea occurrences in the areas have been reported to be around 27% from HHs sample in survey (HHs survey and observation).

75- Around 70% of families in targeted village did not use latrine, they disposal excreta into Tonle Sap Lake and use water where they disposal to clean anal, hand without soap or near the bush

and use plant leaves for anal cleaning, were reported. (FGD in Samrong village). There are only few communal latrines in targeted villages; additionally, there are not formal facilities for hand washing in the communal latrine, open wells, and household toilets (from FGD and HHs survey in sample targeted village). The households use toilets that they do not have a suitable toilet type for pregnant women, disable people and old people as well as children to use.

- 76- The current defecation practice is threat to health due to Tonle Sap flood in rainy season around and under the houses; moreover, the people need to make a hole on excreta storage of HH latrine to flow excreta out from the storage to let the latrine work during flooded.
- 77- Targeted villages mostly do not access to garbage collection services, most of the people throw the garbage to under the house, and few people transport garbage to throw at the field or burn out in dry season.
- 78- Low understanding on hygiene and sanitation among community people, and attitude toward excreta, defecation practices in the village are threat to community people health like 73% drink water direct from sources or store, 70% of household excreta into lake, garbage around and under house in dry season and throw into lake in rainy season. In addition, 55% of people in the village do not regularly washing hand with soap (as result from replied in individual HHs survey in Samrong village).
- 79- All targeted villages in Kompong Chhnang Province are not formal drainage network for waste water and flood management. There were flooded almost anywhere of village due to rising water level of Tonle Sap in rainy season. The flood affects to health, transportation to reach individual HHs. Moreover, waste-water from houses was flow from the houses where are in row close to road to behind, where there are a lot of houses are behind likely settle in the year round stagnant pool.

5.6.6 Kampong Chhnang: Climate Change Adaptation (CCA) and DRR

- 80- There are temperature rising were noted from the people in targeted village compared to 20 years ago. Strong wind is also reported frequency happen more in last few years at the beginning of rainy season within bigger damage to community's livelihood. Tall wooden houses were built from the ground to alleviate above the Tonle Sap flooded level are high risks to strong wind in Samrong village. Rainfall and drought are noted huge change on the duration of shorter rainy season and longer dry season compare to 15-20 years before. The amount of rainfall is also noted less, in some months of rainy season rainfall were like drizzle, in contrast the other months' rainfall were very heavy. Flood in 2000, 2004 and 2005 were reported affected badly in the targeted village due to the level of Tonle Sap Lake, and drought in the dry season in 2015-2016 also reported affected on livelihood and health badly (FGD in Samrong village).
- 81- Community people in targeted villages do not aware about climate change adaptation and disaster risks reduction, due to they reported they are never participate in training, awareness dissemination about climate change adaptation and disaster risks reduction (from FGD).

5.7 Identified Support options for the provinces:

82- The project has identified the following key support actions for the provinces

Pursat	Kampong Chhnang
<ul style="list-style-type: none"> • There is strong proposal from community people to connect to water supply pipe network. • Increase awareness and use new tools on water and sanitation related to health, and drinking safe water • Support individual household to improve rain water harvesting and area for putting water storage such cement jars. • Provide water jars and jar lids (the lids could be made from metal). • Provide more awareness rising on sanitation such as excreta disposal manner and affected to health. • Support to build more communal and HHs latrine within suitable type for pregnant women, disable and old people as well as children. • Set up formal and simple hand-washing facilities with communal and HHs latrines. • Provide training on health safe animal raising technic and support some households as demo in Toul Makak village. • Support local authorities to put awareness signboards on garbage management law, effect of plastic garbage.... etc. alongside of the road. • Support community to conduct environment day to raise awareness practice on environment protection and garbage management. • Waste collection areas and landfills. 	<ul style="list-style-type: none"> • Provide more awareness raising on sanitation such as excreta disposal manner and affected to health. • Support to build more communal latrine like school pagoda and HHs latrine with special design for flooded excreta storage is needed and suitable toilet type for pregnant women, disable, and old people. • Set up formal and simple hand-washing facilities with communal and HHs latrines. • Support local authorities to put awareness signboards on garbage management law, effect of plastic garbage.... etc. alongside of the road and public places. • Support community to conduct environment day to raise awareness practice on environment protection and garbage management. • Support community to form and operate the garbage collection cooperative to manage solid waste in the village • Feasibilities study for drainage network should be conducted • Support community to form and operate the garbage collection cooperative to manage solid waste in the village. • Strong suggestion from community people in FGD on garbage collection service in the village • Awareness raising among community people about hygiene sanitation and public health could be conducted more with appropriate tools and methods. • Waste collection areas and landfills.

Photograph 1: Snapshots from the Detailed Needs Assessment



5.8 Resilient Livelihoods Approach

- 83- The livelihoods analysis in the Tonle Sap area aimed to link the changes in the water resources and environment to the realities of the people living in the area, with a focus on water-related livelihoods. Climate change may be one reason for these changes in the future, but also other issues such as hydropower development and institutional issues are likely to have an impact – and on a much more immediate timescale.
- 84- The main livelihood strategies in the Tonle Sap area are rice cultivation and fishing: both of these occupations are highly dependent on natural resources, and are influenced by the dynamic hydrology of the lake, notably the flood pulse system with its remarkable but yet relatively regular seasonal variation. A large proportion of the population in the area is living in poverty, and is therefore particularly vulnerable to changes in the environment and in the availability of different natural resources.
- 85- The needs assessment component looked at the livelihoods and their resilience as well as local adaptation capacity to environmental and water related changes in the Tonle Sap. The results from the field studies carried out in the Tonle Sap area point out that while people are well adapted to remarkable seasonal variation of the Tonle Sap’s waters, their adaptation capacity towards unusual water regimes—such as extraordinary high floods or sudden storms— is relatively limited.
- 86- Particularly limited seems to be the adaptation capacity of the poorest groups, as their already low living standards and asset-base intensifies their vulnerability to additional challenges. The assessment results also indicate that one of the most efficient strategies for enhanced adaptation is to increase the general standard of living and the prerequisites to maintain a productive livelihood. Equally important is to support local capacities and institutions to cope with both sudden shocks as well as with more long-term stresses and changes. In addition, the results from the field studies in the Tonle Sap as well as from the stakeholder consultations indicate that any efforts to enhance local adaptation capacity should build on existing livelihoods and strengths at the local level as well as lessons learnt from the unexceptional events of the past.
- 87- The informants had several ideas about the sort of activities through which they could improve their future livelihoods, and thus to enhance their resilience and adaptation capacity. Supporting and nurturing these ideas can thus be seen as one of the keys for enhancing the adaptation capacities at the local level. The theoretical approach of the livelihoods analysis was based on the resilience theory with additional inputs from the sustainable livelihoods approach. The on-going discussion on climate change adaptation was also considered. The CMEI project used the CCA- Resilience Livelihoods Framework for the analysis of the action as explained in the next section.
- 88- The first objective was to assess the different impacts that the changes in the environment and water resources are likely to have on the livelihoods of the people living in the Tonle Sap area. Related to this, the aim is also to define the changes that have already taken place or are on-going and have had effect on people’s lives. Special emphasis was placed on determining the groups that are most vulnerable to the changes.
- 89- The second objective was to assess the resilience of the livelihoods to such changes; in other words, their capacity to cope with various shocks and tresses that place pressure on their everyday life. The Tonle Sap area experiences a great natural variation in the environment on a seasonal basis due to the flood pulse from the Mekong River. The local livelihoods are already well adapted to the resulting seasonal changes, which could suggest that their inbuilt resilience towards environmental pressure is relatively high. The question here is, however,

whether the changes induced by climate change or other major changes, will multiply the effect of other stress factors to such an extent that it will force the social and environmental systems to a point where they cannot bend under the pressure any further. Such a situation may result in unexpected and substantial changes such as the collapse of fish stocks, which may then have drastic impacts on the livelihoods.

90- Related to resilience, the adaptation strategies that people living in the study area utilise in coping with different changes were looked at, concentrating on so-called autonomous strategies that they have used to cope with environmental changes and risks in the past. The objective here was to assess the usability of such strategies in planning future adaptation strategies.

5.8.1 Key Findings: Livelihoods

- The project beneficiaries informed that rice farming is still generally the dominant economic activity for all members of the household and the primary source of income for the population. Livestock raising is prevalent in large number of families.
- As a secondary occupation, in Kampong Chhnang, sedge mat weaving is the most widespread among households with bamboo handicraft also being considerable.
- Characteristically, small land ownership patterns and limited rice crop production leads to communities generally experiencing food shortages for three to seven months each year.
- Farming takes up their time for the four crucial cultivation months a year, due to the single cropping system.
- Vegetable growing involves only a few households, with most of the work families (male and female adult) are engaged in rattan basket making for about seven months a year.
- For mat making, the activity takes place about 6 months per year.
- The months December, January and February are the peak months of planting vegetables for many households in Kampong Chhnang.
- Cheung tea cabbage and cucumber are the most commonly planted vegetables in Kampong Chhnang, followed by chongkeus cabbage and wax gourd. The volume of vegetables harvested depends on the type planted
- Chili is also a high volume crop, followed by eggplant and cucumber. A small portion of the volume of vegetables harvested was not sold and probably consumed within the household.
- Farmers generally sell their produce in the local community, but some have access to district buyers. About 20% sell their vegetables in other provinces and a few sell within other areas in Kampong Chhnang.
- The role of traders is also substantial, with more than four out of five farmers using trader services. More than half of the traders function within their own community. One-third are individuals from other communities within the province, while almost one-fourth are from other provinces. A significant increase in income was reported to come from vegetable farming with 1/4th community respondents suggesting a decrease in their vegetable farming income. The decrease is attributed primarily to higher cost of agricultural inputs.

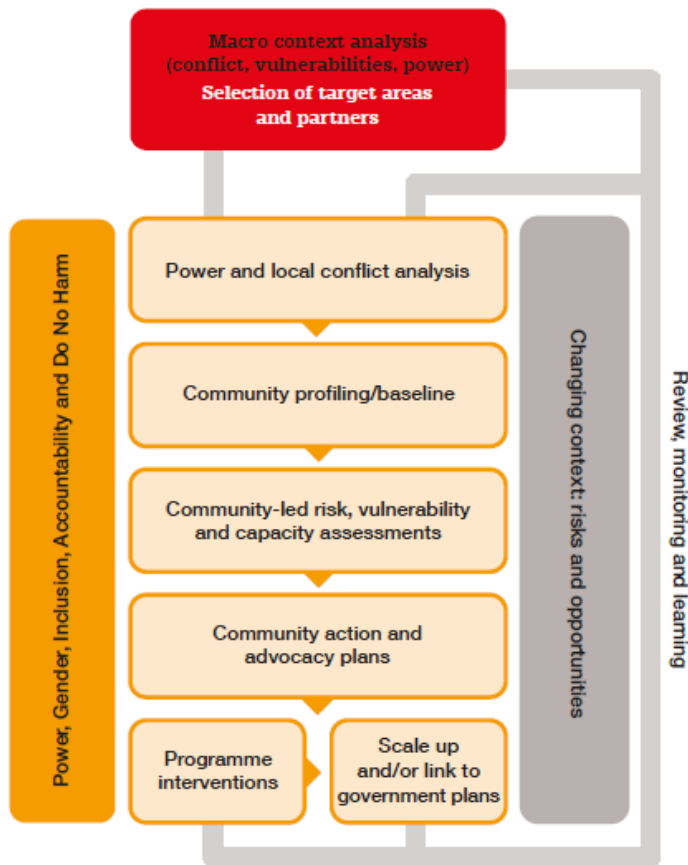
5.8.2 Focus on Resilient Livelihoods Framework

- 91- CMEI project's goal is to empower people to live with dignity, able to respond successfully to disasters, risks and opportunities. CMEI defines resilience both as a process (steps taken to achieve an end) and an outcome (an end result). Resilience is a capacity-building process to enhance the ability of individuals and communities to 'anticipate, organise for and adapt to change'. Based on the team's experience, CMEI believes that a holistic, adaptive and integrated approach is needed for men and women living in poverty to manage the risks they face and to make the most of opportunities that arise. Partnerships, brokering relationships and integration are key to this. Such an approach is also key to achieving the global sustainable development goals.
- 92- This process must be inclusive and accountable, and led by people and communities. The Resilience Framework recognises that there are different scales and levels: global, national, regional, district and with individual households. All levels are dynamically linked and influence how communities and individuals experience vulnerability to risk. The framework is equally applicable across each of the levels.
- 93- At the core of the framework is the belief that individual and community resilience can be enhanced by empowering poor and vulnerable women and men, boys and girls to manage risks and improve their wellbeing, so that they can live with dignity.
- 94- The use of the framework will help CMEI and partners to support communities to identify the risks they face, act on their own behalf, exercise their rights, access resources, and respond appropriately and effectively to achieve sustainable results.
- 95- The principles for implementing the framework include:
- a. **Community-led processes (especially participatory vulnerability and capacity assessments – PVCAs):** focused on putting communities and individuals at the centre of change, increasing awareness of risks, uncertainties and their root causes, building on local capacities and identifying mitigation strategies in an active cycle of analysis, action and advocacy activities, informed by local and external knowledge such as climate information and market analysis.
 - b. **Power, gender and inclusion:** power, gender and inclusion analysis focuses on providing targeted assistance (such as protection) aimed at tackling power dynamics, encouraging meaningful participation, and promoting and measuring transformational change.
 - c. **Accountability:** including the sharing of information, genuinely inclusive participation and the embedding of feedback mechanisms throughout the whole programme cycle. Programmes need to adapt to the local context, integrating social, cultural and/or spiritual considerations.
 - d. **Do no harm:** programmes should have a deep understanding of the wider context to avoid reinforcing existing or underlying community tensions and inequalities and transferring environmental, social or economic risks to other areas, communities or social groups.
- 96- All these elements are fundamental in building shared understanding, trust and long-term solutions.

5.8.3 Implementing the framework

97- The circular process of analysis, learning and action starts at programme level with a macro-context analysis, which includes power analysis and vulnerabilities and, where appropriate, a conflict analysis. This initial analysis will inform selection of target areas and partners. At community level, the process should begin with a power analysis focusing on gender and inclusion, and where appropriate, a local-level conflict analysis. Through a community-led process, informed by the macro and local analysis, community members review their risks, vulnerabilities and capacities, and develop an integrated community-owned plan of action and advocacy activities framed by the changing context (risks and opportunities). Where appropriate, opportunities to scale up and link with different levels of governance should be pursued. Accountability, meaningful participation and a systematic process of review and learning at community, partner and programme level are fundamental to sustainability and long-term impact.

Figure 2: Action Process of Resilience Enhancement and Sustainable Development



5.9 Gender and Social Inclusion Plan

98- The project is focusing on Women in a major way, targeting the female headed households within the ID Poor 1 and 2 to ensure better delivery of the Sanitation grants. The project has continually and meaningfully engaged in consultations with women in Kampong Chhnang and

Pursat. This has helped in prioritizing the needs of the women in small-scale infrastructure improvements (e.g., gender-specific requirements for public infrastructure, such as separate latrines for women with trash bins, if appropriate). The project is making all efforts to ensure at least 40% of participants in CMEI activities and training are women. The thrust as informed by the inception stage will be on hygiene IEC campaigns covers topics focused on women (e.g., at least 30% of hygiene campaigns focus on menstrual hygiene and solid waste management) to be prioritized.

99- The key findings in the field indicate:

- a. It is important to promote work that is suitable for women, which is relatively light and attuned to their normal chores. The interactions with the women groups indicated that women to contribute to and increase their household's income when supported, while not neglecting their household duties.
- b. It is important to provide opportunity for women to play a significant role in the financial and managerial aspects of household production.
- c. The design of the project should focus on the development of activities that give the women additional income.
- d. Most women are keen to take on handicraft and vegetable garden activities after the end of the main farming seasons of cultivation and harvesting. Past studies have shown that Men see these activities as appropriate, as the women can stay at home and look after the house and the children.
- e. Women are less likely to migrate to find work, but the men continue to do so. For men who help with off farm activities, their responsibility is mainly in gathering raw materials, and cutting and splitting them. With this division of duties, women are able to focus better on the intricate work of the chosen livelihood skill work and share in the responsibilities of managing the financial affairs of the household and the enterprise.
- f. On the other hand, there are just too many responsibilities at home, which limits the concentration of women on running the enterprise of choice, thereby lowering operational and output efficiency.
- g. There is a need for increasing awareness of gender issues in the project areas, as well as the imperatives generated by gender mainstreaming. People have begun to understand the potential to be explored in revising the roles and responsibilities of men and women.

100- The CMEI has consulted the PMIS team on the community profile along with the extensive field level outreach actions. The Project is classified as 'Effective Gender Mainstreaming' (EGM) under the Asian Development Bank's (ADB) guidelines (March 2010). The Project impact is increased economic activities and environmental protection in towns in the Tonle Sap Basin and the outcome of the project will be improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities.

101- The CMEI Gender Action Plan (GAP) has been prepared in accordance with ADB's Policy on Gender and Development (1998), ADB Operations Manual Section C2/BP (2010) Gender and Development in ADB Operations, the Government's goal to strengthen the role and social status of women through capacity building for women in all sectors, changing discriminatory social attitudes, and safeguarding women's rights to actively and equally participate in nation building as well as in coordination with the other components under the larger project.

GENDER ACTIONS	ACTIVITIES/	PERFORMANCE INDICATORS/TARGETS	RESPONSIBLE AGENCIES	STATUS
3.1 Sanitation grants to ID Poor 1 and 2, including female-headed households, if categorized as ID Poor 1 or ID Poor 2.		3.1.1 Household sanitation grants benefit at least 40% women-headed households.	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	<ul style="list-style-type: none"> • Mapping of ID Poor 1 and 2 completed
3.2 Meaningfully consultations with women in Kampong Chhnang and Pursat on priority small scale Infrastructure improvements and design (e.g., gender-specific requirements for public infrastructure, such as separate latrines for women with trash bins, if appropriate).		3.2.1 Consultations with women groups on identification of Infrastructure needs and their location. Target: 40% of Participants in consultations are women. 100% of women groups in selected localities Consulted.	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	<ul style="list-style-type: none"> • Consultations with the women groups is continual • The targeting of women is intensive for the engagement in the project action.
3.3. Capacity development and IEC materials will be gender-sensitive.		3.3.1 At least 40% of participants in CMEI activities and training are women. 3.3.2 IEC materials are checked by MPWT gender working group and PDOWA. 3.3.3 Hygiene IEC campaigns cover topics that are important for women (e.g., at least 30% of hygiene campaigns focus on menstrual hygiene and solid waste management).	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	<ul style="list-style-type: none"> • The project has consulted the MRD and the other INGOs • Collection of a wide range of IEC is completed • Key messages on WASH actions is being finalized

102- The Gender Action Plan includes specific gender actions to help ensure men and women actively participate in project activities, receive project information, and have access to opportunities during project implementation. In this report the performance indicators/targets of the plan as presented in the PAM have been reformulated based on the SMART criteria to be able to more accurately measure the level of achievement

- a. The gender action plan (GAP) will support the implementation of gender-related decisions and mandates in the CMEI process, which may include priority areas, key activities and indicators, timelines for implementation, responsible and key actors and indicative resource requirements for each activity, and to further elaborate its review and monitoring processes.
- b. The GAP seeks to advance women’s full, equal and meaningful participation and promote gender-responsive climate policy and the mainstreaming of a gender perspective in the implementation of the CMEI project

- c. Gender-responsive climate policy requires further strengthening in all activities concerning adaptation, mitigation and related means of implementation (finance, technology development and transfer, and capacity-building) as well as decision-making on the implementation of climate policies (UNFCCC).
 - d. The GAP recognizes that gender-related action is being progressed across all areas of the project and with respect to the ADB gender guidelines.
 - e. The GAP seeks to enhance the understanding and expertise of stakeholders on the systematic integration of gender considerations and the application of such understanding and expertise in the thematic areas under the CMEI project action.
 - f. The GAP aims to ensure the respect, promotion and consideration of gender equality and the empowerment of women in the implementation of the project action.
- 103- Women are increasingly seen as taking upon themselves more visible roles in community development, participating in all levels of community social affairs in central and local governments. This has been seen particularly in their participation in commune councils and in the community decision-making process. There is a need to ensure that the project is implemented in a systematic manner with a participatory approach experience gained during the project's implementation, they are now prepared and backed

5.10 Core Actions to undertake in the implementation Phase

- 104- Based on the needs assessment and inception stage consultations, the action plan has been finalised with the following key findings,
- 105- **Focus on the Community Needs:** The project focused on the identification of the needs of the project community related to capacity, knowledge, skills and systems.
- 106- **Focus on Policy and Global Standards/ Approaches:** This include the Policy, institutional and operational gaps in delivering the Resilient Recovery Process considering the Building Back Better (BBB) and Linking Relief, Recovery to Development (LRRD) especially for the most vulnerable HHs.
- 107- **Focus on Livelihoods rejuvenation:** The inception stage was used to study the livelihood options and preference of the most vulnerable households to adopt the livelihood and resilience initiative, knowledge and technology. This has strengthened the scope of enhancing and strengthening at the community/Provincial level as well as identify the linkage between local, provincial and national level entities, their institutional capacity and gaps, needs and recommend appropriate action of redressal.
- 108- **Enhance the Institutional Capacity:** Events such as flooding and drought can have devastating effects on the rural poor in Cambodia. But by providing communities with the tools and knowledge to respond to and withstand natural disasters, it becomes easier for families to reduce the impact on their lives and livelihoods and to recover when disaster strikes. Padek will help communities to strengthen their resilience and capacity to cope with natural disasters and the effects of climate change.
- 109- **Enhance Public Private Investment and Convergence opportunities:** It is difficult to meet the capital demands for social and infrastructure development in developing countries with their governments' limited budgets and ODA support. Given that the private sector accounts for a large proportion of the financial flows to developing countries, the project will explore options and pathways to ensure integration.
- 110- **Digital data gathering and information management:** The project will use digital solution for information management with the use of hand held mobile devices using open

source software solutions like kobo collect which will empower the teams to do near real-time monitoring.

5.11 Communication:

111- The project is very consciously building a credible database of information and the generation of the datasets is using the SADD- Sex Age Disaggregated data design mode. The use of social media too is being explored. The CMEI project will have its own webpage soon as well as a Facebook page to broadcast the details of the action to a wider audience.

6. Additional Actions: Needs Assessment for the Small Scale Infrastructure support programme

112- The Team Leader had a meeting with relevant stakeholders of ADB project, especially with the ADB representative for presenting about the CMEI project activities and updating about the progress of achievement including strong points, gaps and lessons learned for improving routine CMEI project activities implementation. The CMEI project was asked for a concept note on 12th July 2018 on the proposed actions regarding the Small Scale Infrastructure actions in the ADB interaction session. The CMEI project submitted a detailed concept note to the MPWT and the ADB on 31st July 2018 for the implementation of the Small Scale Infrastructure grants. A revised updated version was submitted on 16th August 2018¹. The sanitation grant concept note/proposal was developed by the CMEI staff team in very close consultations with relevant MPWT focal persons' specialization, especially with engineer for proceeding this concept note/proposal development. Given the short time frame of deadline for proposal writing, CMEI team could not make announcement for recruiting the engineer for assisting in the proposal development and used the services of a consulting engineer.

6.1 Rationale:

113- There is a strong need to address the complex challenges to urban WASH (water sanitation and hygiene) systems faced by fast-growing towns and cities (municipal zones) in a rapidly urbanising Cambodia. These changes result from population growth, rapid urbanisation and the effects of climate change. These processes place an immense strain on municipalities on key areas of Public Health, Water related infrastructures and services, including the wider sourcing areas. There is a need for an integrated systems approach in developing interrelated technological, institutional and financial solutions for sustainable urban water and sanitation management. Hence there is a strong need for the delivery support of sanitation and water management systems. This programme will cover a wide range of disciplines (e.g. sanitary engineering, urban planning & governance, hydrology, ecology, informatics, economics etc.) providing the synergy required for integrated urban water management systems. The results from this proposed intervention will also be applicable to fast-growing municipalities within Cambodia.

¹ The ADB mission meeting held on 10th September in Phnom Penh, it was agreed that the Concept note be taken up for next stage action.

6.2 Critical Need:

114- Limited access to clean water and poor sanitation are critical drivers for the spread of Diarrheal diseases, constituting a critical challenge during periods of crisis. Such diseases account for more than 40% of deaths in the acute emergency phase, and for 80% of deaths in children under two. Girls and women are particularly affected by a lack of well-designed latrines and access to safe water. Recent years have seen considerable demand from implementing agencies for innovations in the WASH programming options open to them.

6.3 Community Needs Assessment:

115- The CMEI team in Kampong Chhnang and Pursat Provinces of Cambodia from 16 to 20 July 2018 carried out an integrated Public Health and Climate Change Adaptation Needs Assessment.

6.4 Key Purpose:

116- The key purpose for the assessment were to inform the development of the concept note development along with the following actions:

- a. To gather data on WASH, CCA and Resilience knowledge, behaviours and practices in the target 6 villages which will be used to design an appropriate integrated WASH, CCA and Resilience component in the CMEI project;
- b. To gather baseline data which can be used by project staff and other stakeholders for informing the design of current and planned interventions of project in the CMEI's target areas;
- c. To support participatory processes between the HH villagers and project staff and as possible capacity building for community members/groups, Government staff and Project staff;
- d. Serve as benchmark for measuring impacts of current and planned WASH/public health & CCA project field activities implementation leading to long term Resilience.

6.5 Methodology:

117- Qualitative data was obtained from focus group discussions and direct observations done in the exploratory walks. Quantitative data was obtained through the use of a questionnaire in the household surveys.

- a. Twelve (12) focus group discussions using a guide were carried out.
- b. One hundred and thirty-five (135) poor villagers including one hundred and ten (110) women with also Muslim women, four (4) children and twenty first (21) men with also Muslim men from 6 villages in two provinces of Kampong Chhnang and Pursat participated in the discussions.
- c. Six (6) households reached for household survey interviews, questionnaires were used to obtain data.
- d. Direct and indirect observations using a guide were done through the exploratory walks in some villages.
- e. Key local authorities, NGOs and PDRD interviewed in Kampong Chhnang province.
- f. One coordination meeting conducted in Pursat province within the participation of deputy municipal governor, governmental departments, commune/sangkat chiefs and AK organisation.

6.6 Limitations:

118- The assessments in the field were taken up on a rapid basis after the meeting with ADB and given the election period, there were certain limitations that prevailed on the assessment

action. Bearing in mind that the election code of conduct was in force, the discussions with the people were kept very focused, and never in large numbers. No large meetings were organised and the team met with the people in the homes only. Despite these limitations, we are confident that the findings reflect the true and accurate needs of the ground. If there is further need for clarification, or detailed probe into certain areas, the CMEI team is confident of conducting secondary assessment post elections.

6.7 Key Findings:



- **Excreta disposal:** Open defecation was very common in these two provinces, with majority of people in Kampong Chhnang province defecating in the along the rivers and flooded water or in the rivers and flooded water they used the water for drinking. A minority (30%) of community villagers have latrines were reported. With this percentage, the HHs family in communities can properly use their toilets in both seasons (dry and raining seasons, even in flooded season). Only 43% of community villagers in Pursat province had toilets that could be flooded if the level of flooded water is high.
- **Water Supply:** During the rainy season, the majority of population had access to sufficient quantities of water but the water was likely to be microbiologically unsafe for drinking. Minority of people in communities of Kampong Chhnang province used river water whereas in Pursat province used water mostly from open wells and ponds. During the dry season most of these sources dried up making it difficult for women, girls and children to get water. A few households were using the filters. Most of the open wells and ponds were reported that perceived as unsafe for drinking.
- The water committees were formed by Cherakpheap organisation, but it was not functioning, no plan for collecting funds for operations and maintenance. On the note most of the surroundings of the open wells were unclean.

- **Solid waste disposal:** Most compounds in villages and along the paths were littered with garbage in these two provinces. There were very big piles of trash under and around the houses (big piles of trash and feces in canal) with no rubbish bins in all villages.
- **Hand washing:** The majority of households visited respondents during focus group discussion including children and adults in both provinces indicated no hand washing after defecation, before eating, before preparing food and after touching animals and after handling children’s feces. It was reported that few people washed their hands after defecation and they used water and soap. There were no hand washing facilities/tools near by the toilets, even near their houses or in the villages.
- **Common Diseases:** Dengue, malaria, diarrhea, respiratory infections and tuberculosis were cited by the community as the main causes of morbidity and mortality (one person died for one week ago because of dengue and another one person also died because of chronic diseases). Health staff cited the same diseases as the main causes of hospital attendances.

6.8 Key Recommendations:

119- A WASH/Public Health Promotion Model to be integrated in the CMEI Project was then designed based on the findings and recommendations were incorporated in the model. The same model can be used for the upcoming CMEI Project in these two provinces. The main recommendations are as followings:

120- **Community and local authority needs:**

The key needs from the community are summarized as below²

Kampong Chhnang Province	Pursat Province
<ol style="list-style-type: none"> 1. Build improved latrines for 70% of HHs family in the communities with hand washing facilities and menstrual management and repair the broken latrines as well with communities ‘contribution between 20% and 30%; 2. Dig drainages to flow out the very bad and smelling water from the compounds of villages to the lake; 3. Connect to clean water pipe for ID poor I & II HHs (service costs 100\$ per a ID poor I & II HH); 4. Decrease the price of pipe water use from 1800 riels per m³ to 1000 riels per m³; 5. Restore drainage’s garbage around 150 meters and collect big and large 	<ol style="list-style-type: none"> 1. Build improved latrines for 57% of HHs family in the communities with hand washing facilities and menstrual management and repair the broken latrines as well with communities ‘contribution between 10% and 30%; 2. Connect to clean water pipe for 41 ID poor I & II HHs (service costs 100\$ per a ID poor I & II HH); 3. Decrease the price of pipe water use from 1600 riels per m³ to 1000 riels per m³; 4. Provide 5 communal open wells, hand pumps, ponds, water filters, big water jars, water harvesting systems and big system of clean water storing for a whole village use; 5. Improvement of the existing water sources (treat/disinfected existing water sources); 6. Restore 500 meters of canal/drainage’s feces mixed with garbage and at the same time, provide trash bins;

² Please refer the detailed needs assessment

piles of garbage under houses and at the same time provide trash bins.	7. Provide one drainage of 300 meters to flow out the bad and smelling water from the compounds of villages.
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6.9 Recommendations for Complementary Actions³:

121- The key recommendations for complementary actions include:

- Community awareness raising (hand washing campaign) and training on WASH using PHAST⁴ and CLTS⁵ methodologies (especially hand washing, sanitation and hygiene promotion including personal hygiene, water borne diseases and waste management/water pollution provoked to the negative impact of their health in Kbal Hong village) to project staff, community members/groups, relevant focal persons from government and community villagers;
- Nudge community villagers towards positively changing their practices of hand washing, safe drinking water and toilets use;
- Quality participatory needs assessment in the target villages of Kampong Chhnang and Pursat for accurate data;
- Participatory planning with the communities to select hygiene practices for intervention and come up with village plans. The following hygiene practices are recommended:
 - Getting rid of feces in the compounds/public places (including around the water sources) and domestic environment. Encourage burying of feces and promote latrine use;
 - Promoting hand washing with soap after defecation or stool contact, before eating or preparing food;
 - Promoting use and maintenance of water filters;
 - Promoting use of protected water sources for drinking water;
 - Promoting cleaning of water storage containers;
- Establishment of water committees for both old and new wells as well as O&M latrine committees.
- Establishment of supply chains for spare parts.
- Creation of linkages with relevant government departments and stakeholders to solicit their support to the water committees and in case of major problem/break downs.
- Training of voluntary health community members/groups for community WASH/public health promotion. Link them with the TWG in each province, with provincial health department and provincial rural department as well as other relevant stakeholders;
- Initiation of child to child activities in the villages;
- Training of the VCDMs on the WASH/public health risks during emergencies, public health promotion before, during and after emergencies.
- Discussion with the community and facilitate the establishment of networks for filters and spare parts.

³ Please refer the annex 01 for the detailed needs Assessment

⁴ Participatory Hygiene and Sanitation Transformation

⁵ Community Led Total Sanitation

7. Risks, Opportunities, Barriers and key challenges

- 122- The **risks and opportunities** identified by communities are different in every context. For example, risks and stresses are often multiple, interlinked and complex at various scales. CMEI has classified the issues and opportunities can be classified under the following broad headings:
- **Structural:** how power is distributed and exercised in the operation of management, decision-making, service delivery, and governance structures, and the ways in which social norms, gender, representation and inclusion are addressed.
 - **Climate and environmental:** potential adverse effects due to environmental change and degradation, including loss of natural resources, pollution from effluents and energy use, hydro-meteorological and geophysical change.
 - **Infrastructural:** potential adverse effects resulting from the failure of physical structures – including buildings, roads, power supplies and protective infrastructure, such as flood protection embankments – resulting from misuse, internal weakness, and/or poor design and maintenance.
 - **Livelihood and market:** income, household food and nutrition security, control of productive assets, access to business opportunities, operation of and access to markets, fluctuation of global prices, and the ability to maintain sustainable and profitable livelihoods.
 - **Health and wellbeing:** physical, mental, spiritual and social wellbeing affecting lives and livelihoods, and social stresses that erode personal, family and communal cohesion and strength.
 - **Conflict:** physical and psychological violence, destruction of assets and dislocation of communities, breakdown or absence of governance/state structures and services and where there is no rule of law.
- 123- CMEI has identified **barriers to implementation** of adaptation measures. These include:
- Inadequate technical, financial, and institutional capacity of government agencies and of local communities for dealing with climate hazards, as well as limited coordination among the agencies and communities;
 - Limited integration of climate change issues into national policies and programs; and
 - Limited awareness of climate change issues.
 - Climate change may bring not only negative impacts but also new economic opportunities, but the lack of available information and measures to identify these opportunities hampers the country's ability to respond to a changing climate environment. Addressing the gaps identified below is central to placing Cambodia on the course of successful adaptation to climate change.
 - A better understanding of the local dimensions of vulnerability is essential for developing appropriate adaptation measures that will mitigate any adverse consequences. This requires detailed vulnerability assessments to be conducted in the most vulnerable communities.
 - Flood forecasting and communication systems are weak and should be improved in those areas that are heavily affected by floods. Feasibility studies for early warning systems are central to this goal, particularly at the province and community level.
 - There is a growing demand for detailed accounts of local adaptation to climate change to serve as a starting point for knowledge exchange on successful practices among vulnerable populations and to support rational policymaking in vulnerable areas.

- Mainstreaming disaster risk management into planning and administration requires further research on appropriate mechanisms for mainstreaming at the administrative level, including studies on the differential effects of climate variability and change on disaster vulnerability, including shifting rainfall patterns.
 - Additional research is required to properly evaluate the impacts of a changing climate on crop yields under various management scenarios.
 - Accurate and reliable local forecasts of extreme climate events are non-existent. Villagers in downstream areas essentially rely on word of mouth from upstream areas to ready themselves for floods. Observation and forecasting systems need to be installed where appropriate.
 - Meteorological information for Cambodia is sparse, and a country-wide network of hydro meteorological stations needs to be established in order to quantify long-term changes in climate, including benchmarking future climate variability and change.
 - Comprehensive vulnerability maps identifying the locations of high vulnerability could support disaster planners in preparing communities for worse-case impacts as well as help local communities take an active role in identifying appropriate response mechanisms.
 - The use of existing meteorological information is limited to specific agencies, and this information needs to be tailored to decision makers across a wider range of sectors, including water resources management.
- 124- The project faced considerable **challenges** in the Election timeframe, as we had to conduct the needs assessment on WASH and CCA. The time period of the implementation faced the national election campaign and rainy season and hence, it was difficult to take appointments with community villagers, community members, local authorities, and governmental focal persons and NGOs representatives as well. The appointments were made, changed and rejected by the local authorities, community villagers, community members and local authorities. The schedule and plan for conducting the needs assessment had to be flexible and changed a lot based on the agreement from the communities and local authorities.
- Some of appointed villagers were very busy with their political campaigns and their daily income generation/food consumption because they are very poor families;
 - Some commune council chiefs and village chiefs were very busy with their political party meetings conducted by high ranking officers from Phnom Penh and Provincial Town;
 - The list of ID poor in some villages are different between the information from the Provincial Department of Planning;
 - Mobilization of Vietnamese ID poor I and II from Kandal to Chong Kosh village;
 - The areas in Kandal and Chong Kosh villages in Kampong Chhnang province are not accessible by motorcycle because of flood and hence have proved to be very difficult for project activities implementation.
- 125- However, all PCs and CMs tried with their best to make appointments and the process of conducting the needs assessment happened and done. The needs assessment was conducted in time. The issues were identified through focus group discussions, the number of respondents were less given the heavy rains and the electoral environment. The HHs interview and observations/transit works with HHs were difficult and the individual interviews with government departments, provincial departments, local authorities, community members/groups and NGOs in Pursat province were less in number. However, the project ensured that a fair number was accessed. The resources were also limited for conducting this

kind of needs assessment. Nevertheless, the findings from the needs assessment were still detailed, accurate and very useful for our concept note.

126- It is evident from the above challenges that a sustained commitment is needed at the field level. The project CMEI is aware of this and the field staff are being continually motivated and trained. These efforts have already been initiated and will lead to better coordination and planning ensuring more robust implementation.

8. Human Interest Stories

8.1 Aspirations of a Poor women from the project

Mrs. Rith Koeun is a head household and ID poor I window living in Samrong Village, Sangkat Phsar Chhnang in Kampong Chhnang city. Her house is around 3 kilometers far away from Provincial Municipal Hall and in the flooded area where the water flows by streaming up from Tonle Sap Lake in every year. It is well known as the crowded population in this area. Furthermore, the knowledge of community villagers is very limited for waste management and sanitation practice by community households since over 30 years ago. There are no any interventions from LNGO and INGO in this village provoke the community villagers having bad practice of waste management and sanitation in their whole village.

There is actually no real progress of economic growth in this village because each family in whole community are still under the shadow of incapability to manage waste and open defecation practice in their surrounding community. There is currently a total of 305 families living in this Samrong village, most of them are farmers and official affair of states. When rice harvesting season finished, they come to Phnom Penh city or Thailand country to illegally sell their labors and they are at risk of arrest from Thai local authorities.

Based on consultation with Mr. Ung Samoeun as the Vice Chief of Samrong Village, Mrs Rith Koeun's family was selected as ID Poor I household that will benefit from the CMEI project for this case study.

Mrs Rith Koeun is 70 years old with five dependents under her responsibility. She was selected as a head family for case study. During the interview, she said that "My family just moved to live here in early 1987 and she owns only 100 square meters (5m x 20m) of land for her house. Here before was covered with inundated forest and plantation field for people doing rice cultivation and vegetable growing in dry season where we used to walk about 150-250 meters from the village. Most of families used fishing for their living conditions in both seasons. However, this area mostly was affected by flood and storm for over 10 years ago. It damaged corn-planting and farm-cropping. In every year before storm and flood coming, we spent some money to buy bamboo and wooden for pillar foundation and tie with a rope to stand up for safeguarding a strong house". She



furthermore added “The villagers used somewhat of traditional awareness to safeguard their house but they didn’t know on how to protect the climate change but they have known the coping strategy to adaptation practice of the change climate”.

She expressed more that “We were very poor after 27 years of my husband passed away, we lived in a small house on a spot of land given by government, even though we have a small farm just only 15 squares meters for planting vegetable and crop where soil is infertility with less yields for their income to support their daily living condition.

Therefore, my daughter and her husband left their 3 children with me, they went to seek job in Phnom Penh city as constructors. I need to be responsible with these 3 children for feeding and treatment. I had frequency to borrow some money from the neighbors to spend for daily food consumptive and supporting grand children to school. I then paid back to them when my daughter and son in law send monthly wage to me”.

Based on observation surrounding home and playground is no latrine (much of plastic bags and mixed-wastes) and poor personal hygiene. They used worst container to store the water for drinking (the water from clean water supply company).

Mrs. Rith Koeun also said “Nowadays, my granddaughter is become an adult, so she faces the difficulty to defecate. She still did open defecation in the inundated forest behind the village with high risk of venomous snake bit or some time she asked the neighbor for sharing latrine. She is too poor to build a low costing latrine caused the family face the poverty. Recently in August, 2018 when she heard CMEI project is starting to work in this village, Mrs. Rith Koeun is so happy and so excited if CMEI will intervene community clean environment, sanitation and personal hygiene, and capacity building on CCA, etc. She raised more “On behalf of the vulnerable people in Samrong village, we are strongly appreciated with CMEI project for targeting to help the poorest people. She will contribute small amount of budget to this project for building sample latrine. My family will be valued and admitted with high status people in community. I hope that CMEI project will keep working with us and eventually have intervention for any development activity in my community with a sustainable manner”.

Before we left, Mrs. Rith Koeun said “I would like to express my thanks to CMEI project for improving my life condition and my community with good practice and hope that this community will be good environment with sustainable manner of living standard in future”.



Prepared by Mr. Kong Sedth, Community Mobilizer CMEI Project

8.2 A vulnerable family needs support for resilience building

Case study about Mrs. Chan Nen who is ID poor I living in Samrong village, Sangkat Phsa Chhnang

Samrong Village is located in Sangkat Phsar Chhnang in Krong Kampong Chhnang and far away from Provincial Municipal Hall around 3 kilometers. It is a flooded area influenced by streaming up from Tonle Sap Lake in every year. It is well known as the crowded population area with poor waste management and open defecation by community households in the village for over 30 years ago. Furthermore, there is no NGOs intervention in this village provoked very big concern to the community villagers about poor waste management and poor sanitation in the village.

It is actually no real progress of development can begin when each HH family in the community is still under the shadow of incapability to manage waste and their open defecation practice in surrounding community. There is currently a total of 556 families are living in this Samrong village, among of them, there are 2241 people (1218 women).



Most of them are farmers and official affair of states. When the rice harvesting season finished, they come to Phnom Penh city or Thailand country to illegally sell their labors with high risk of arrest by local authorities. Her two children are nowadays studying, one is in grade 5 and other one is in grade 3. She said “my children's education is not good because my family is very poor, I can't support them to go to school.

I want to have a nice house, toilets and enough money to support my children to school, especially with enough food three times per day. She suggested to CMEI project that please provide a toilet to my family because today my family face the difficulty to defecate. I hope that CMEI project will select my family to be beneficiary for CMEI project.

Mrs. Chan Nen's family was really hard with old house. This house is nearly to collapse and no toilet as well as around the house with poor hygiene practice.

Mrs. Chan Nan said thanks to CMEI staff that came to my house and asking about my problem. So far, there is no NGO or institution to come to visit my house. No NGO do any things in my village and I hope that CMEI project will do the good work for developing my village.

Prepared by: Sak Mom | PC. Kampong Chhnang Province

8.3 A disabled person looks forward to the CMEI actions on the ground

After decades of conflict, Cambodia is a country of social dislocation and destruction of both economic and social capital for developing a destroy country. The war battle between Khmer Rouge forces and Cambodian government troops from 1975 to 1979. After Khmer rouge regime, there was a peace settlement, the presences of INGOs and NGOs (social development sector) that are working with Cambodia governmental agency to alleviate poverty.

It is actually, the alleviate poverty mechanism and real progress of development cannot begin when any communities are still under the threat of economic and lack of socio-capital supported. Herewith, the condition living of community villagers are not better.

As a disable people of Mr. Kong Sok is 56 years old. He has seven dependents under his responsibility. He is an ID poor I family living in Samrong village, Sangkat Phsar Chhnang in Krong Kampong Chhnang province. He said, “After Khmer Rouge regime in 1979, my family moved to live here until nowadays. Since 1980, I was mobilized troop soldiers by government”.



He expressed more, “I was a disable person in year 1982 where I was in the battle field in Pailin. It located in Northwest region of Cambodia. I left hospital when my injury was recovery. My lovely wife, Mrs. Pheng Nee forced me to stay home without ID of disability veteran from Provincial Department of Social Affair and Veteran. I didn’t receive any benefits from the government and I was not in the errata slip of disability pension from government. However, I got only some money or polished rice from charity people in community and spiritual support from village leaders”.

At the same time, Mrs. Pheng Nee, his wife added, “Nowadays, we are a poorest family among the poor families in the village. We have only 45 square meters (3m x 15m) to build my house and have no land for cultivation. My husband and 2 sons used fishing for income to support family. She used heart-speech out “I am very pity to my husband who is a disable people, it reality is difficult for him because he spends a lot of time going to inundated forest by boat about 300 to 350 meters far away from the village for open defecation. He would like to build a family latrine but we don’t have money caused our family is facing poverty”.

All his family’s members and the community people who have no family latrine, they defecated in inundated forest in the evening time. They sometime used urinal pot or bury defecation at the night time. There are around 40-50% adults still used inundated forest or community’s lake for their defecation practice, said Mrs. Pheng Nee.

Based on observation surrounding home and play-ground was shown that these locations had no

latrine (much of plastic bags and mixed-wastes) and poor personal hygiene.

This family (Mr. Kong Sok) used worst plastic bucket to store the water for drinking (the water from clean water supply company). Mr. Kong Sok stated affirmatively “Every day, his family used water supply of company directly for drinking, no boiled water, they are just bringing from tubal water with a plastic bucket and fetch into a small jar without cover. The members of my family had stomachs but we didn’t know what happened, the disease from food or water”.

This village mostly was affected by flood since 10 years ago, and affected by storm and big wind to damage on cultivation production in every year. He added more “The villagers used some traditional awareness to safeguard their house but they didn’t know on how to protect the climate change but they have known the coping strategy to adaptation practice of climate change”.

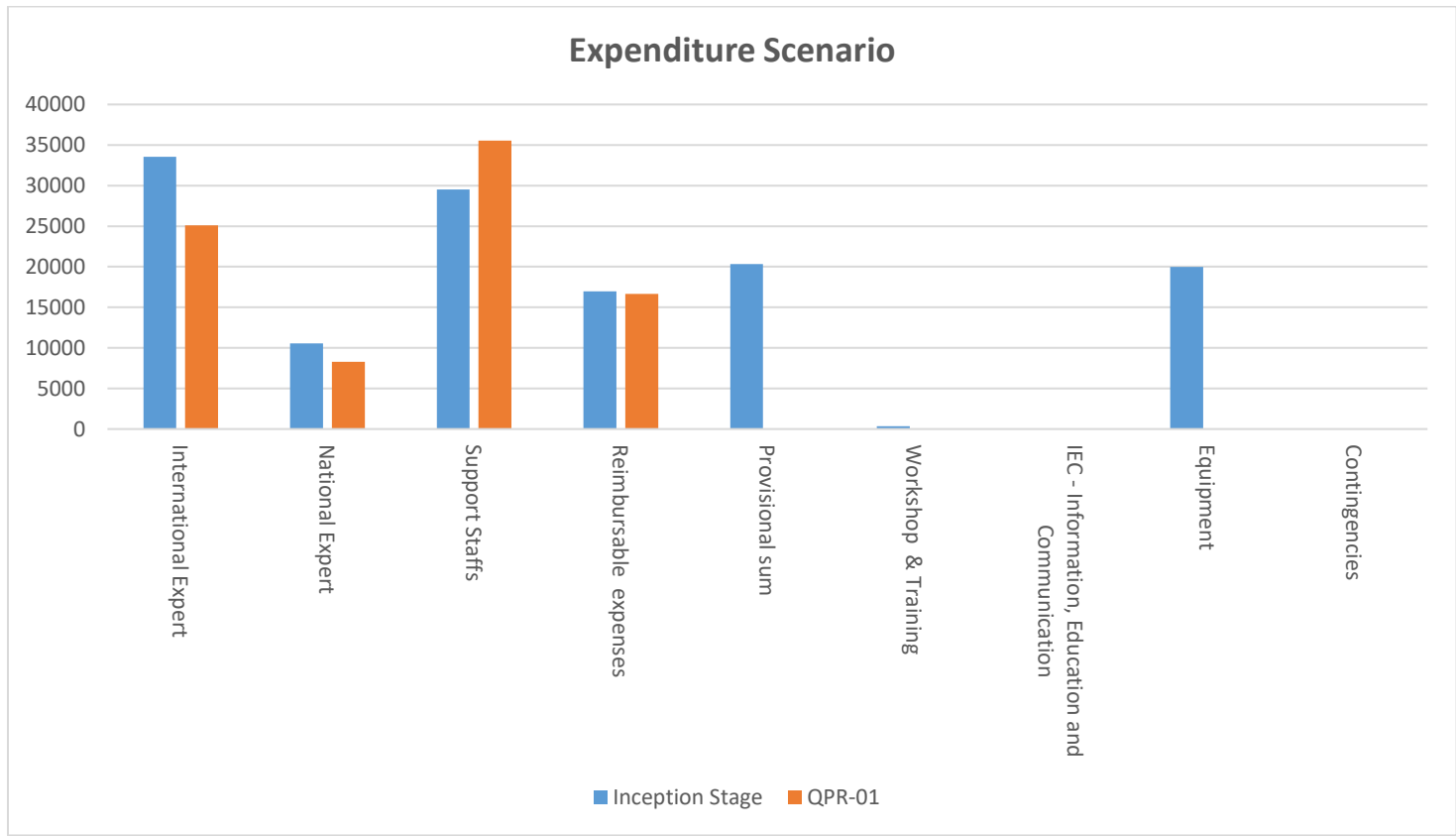
Before CMEI staff left, Mr. Kong Sok explained with a smile “I would like to express my thanks to CMEI project for giving me the opportunity to share information related to my community. As I am living in vulnerable condition and I hope that CMEI project will help us with a good environmental development to my community in a sustainable manner of living condition standard in future through capacity building and providing the physical development structure intervention”. Moreover, on behalf of community representative, we will be ready to participate (on behalf of poorest family) in some contributions of labor or small cast to the project when it is required.

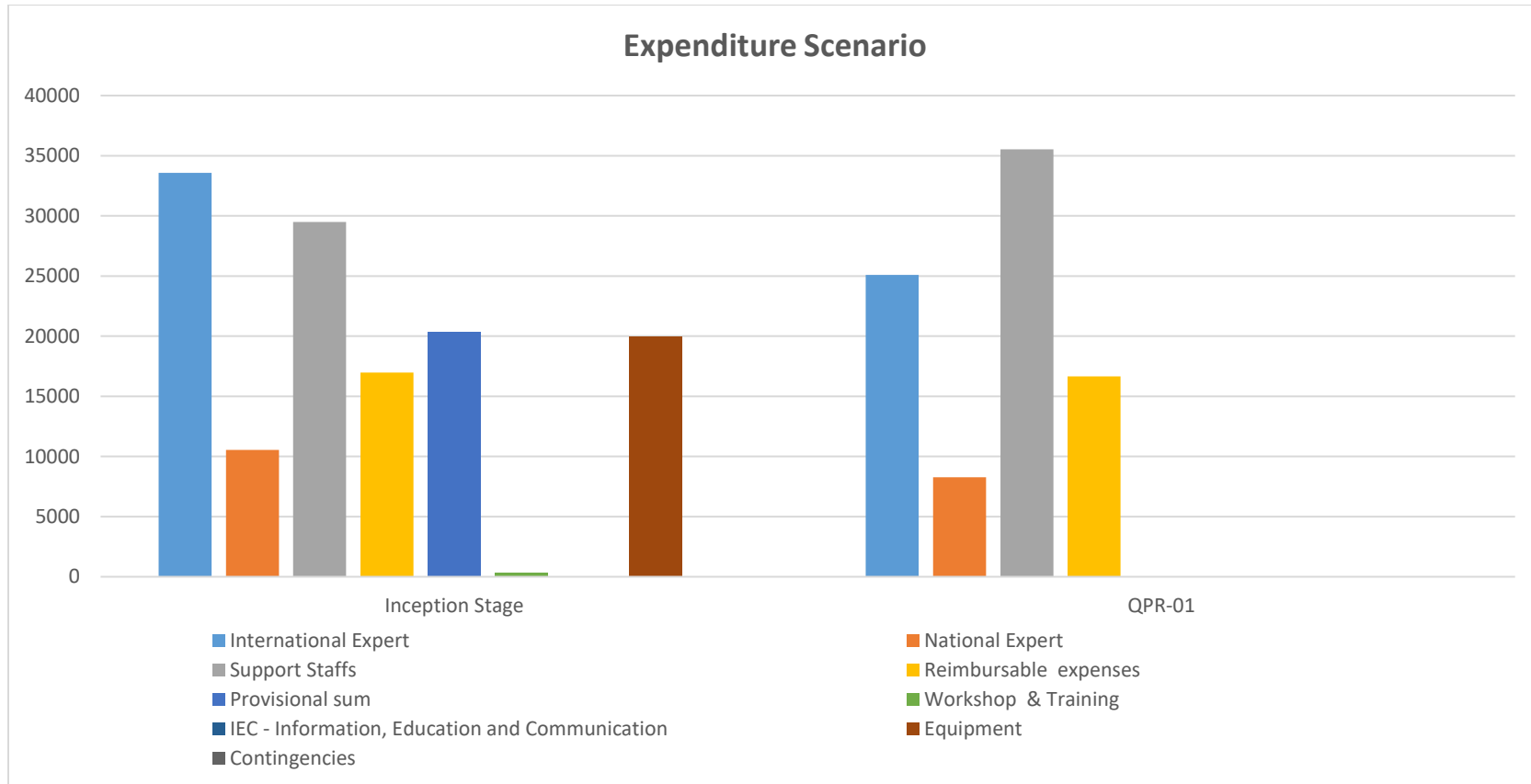


Prepared by Mr. Kong Sedth, Community Mobilizer CMEI Project

9. Fund Utilisation

127- The expenditure of the project is going as per the planned actions, the staffing is completed, the offices has been setup the key equipment's and support items have been procured. The graphs below show the scenario of expenditure for the period of the inception phase and the first quarter.





10. Project Implementation Schedule

128- The project team has defined the project schedule as per the three core outputs

	OUTPUT 01 - COMMUNITY MOBILISATION AND INSTITUTIONAL STRENGTHENING	OUTPUT 02: CAPACITY BUILDING	3. OUTPUT 03- ADVOCACY AND SUSTAINABILITY
Community engagement	Identification of vulnerable villages (poverty, minority and climate change adaptation)	Infra user committees will be formed for each small-scale infrastructure	
	Village level mass meeting before implementation	The CO will start to generate sufficient funds for their input as Community Share.	
	Regular meetings with the committees		
	Review and improve methodology through initial consultations with concerned stakeholders at village and province level for other scalable solutions		
Capacity Building	Formulation of “village CAR (Climate change adaptation And Risk reduction) committees” in targeted villages (including setting up rules and regulation, roles and responsibilities for members etc.)	Assistance in planning, implementing & supervising community environmental improvements	Formulation of O&M guideline within the management committee and Training on O&M
	Signing Memorandum of Understanding (MoU) between PADEK and CO on roles and responsibilities: a. Formation of Committees (Project Committee, Operation and Maintenance Committee) b. Setting out operation and maintenance plan	Copies/prints of the design will be given to CO for guidance	

	Formation and strengthening of village CAR to target communities	Undertake community awareness programs on climate change and sanitation (solid waste management, excreta disposal, personal hygiene, community hygiene, communicable diseases)	
	Draft of the Action Plan of village CAR Committee	Prepare Capacity Building Plan for village CAR Committee	
	Setting out CAR implementation strategy and plan for various activities of the project: a. Documentation of outcomes of meeting b. Community Motivation and Social Organization (During Implementation of project)	Capacity Building of CAR Committee (technical administration and project management)	
	Preparing capacity building plan for Village CAR committee	Hygiene awareness sessions	
	Capacity building of CAR committee (Conducting various Trainings on “technical administration and project management)	Community awareness program on climate change	
Implementation Action	CAR Committee led climate change adaptation and sanitation needs assessment in poor community including minority group	CAR committee led Climate change adaptation and sanitation needs assessments in poor communities (including minority groups)	The PADEK Technical team along with the CO will undertake a survey for the selection of suitable sites for the infrastructure actions
	Conduct WASH and CCA assessment with relevant NGOs, government institutions and communities	The PADEK Technical team along with the CO will undertake a survey for the selection of suitable sites for small scale infrastructures	Brand and Visual Identity Incl. Development of Audio Visual Materials
	Needs assessment for flood assistance	CAR committee led Needs assessments for small-scale infrastructure works on climate change adaptation and sanitation	Develop Audio Visual Materials
	Coordinate flood response on WASH	Construction of small scale infrastructure under strict supervision of Field Engineer and Project Committee	Field test Audio materials
	CAR Committee led needs assessment for small scale infrastructure work on CCA and sanitation	Work Completion certificate from CO	Roll out of Audio Visual materials

			Process Document for Strategy for local engagement and ownership for Safer Structures including development of policy paper on Safer Resilient Structures and small mitigation measures
			Develop policy paper on safer resilience community infrastructure
			Communications, IEC, Learning Events Forum
			Simple toolkits to ensure regular repair and maintenance
			Distribute IEC materials
			Prepare report on community environmental improvements and lessons
			Handover of Project Outputs to the project communities
Handholding - Management and Exit	Regular visits of the Social Organizers/engineer to the project area	Conduct training on Hygiene Promotion	Media Relations, Communications, Capacity Building and Digital Communications
		Conduct training on MEAL	Internal monitoring of safeguards, including RPs and EMPs (continuous, as per agreed safeguard documents)
		Conduct training on Digital data gathering and how to take good pictures with smart phone	
		Conduct training on CHS	

11. Human Resources

11.1 Contractual finalization

The contractual arrangements of the project have been finalized and the actions have been rolled out in time as per the agreement. Regular communication is ongoing with the Project Management Unit (PMU) of the MPWT to ensure continual information flows. The support teams are coordinating with the finance and procurement departments regularly for compliance related actions and needs.

11.2 Team mobilization and management

The team for the project has been finalized and the proposed HR structure is commensurate to the need of the project. There have been some minor role modifications to support Programme delivery. The project aims to build a cadre of local experts available for the project to tap into for need based actions. In addition to the regular roles of the actions, the project has the provision for short Term service agreements as a mode of operating to ensure timeliness and cost effectiveness. This will add a high degree of adaptiveness to the project design and delivery. Furthermore, it is suggested that the home based inputs from the international consultants be increased to maximize the efficiency of the team working across different implementation phases. The CMEI team will continually enhance the HR table for this action and will also ensure that special short time supports are availed from International Consultants when needed remotely, thereby greatly enhancing the scope of the proposed results. The proposed changes will be updated in subsequent progress reports.

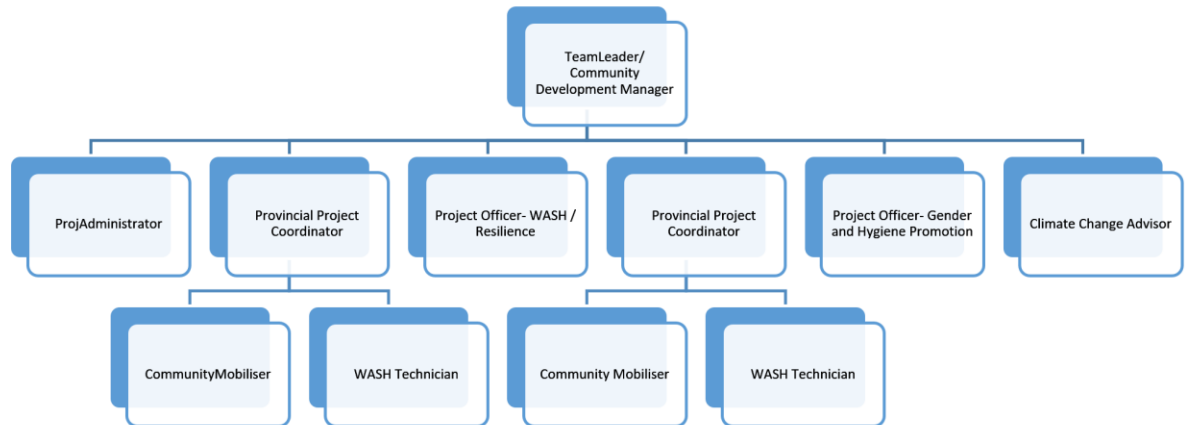


Figure 3: Management Structure of the CMEI

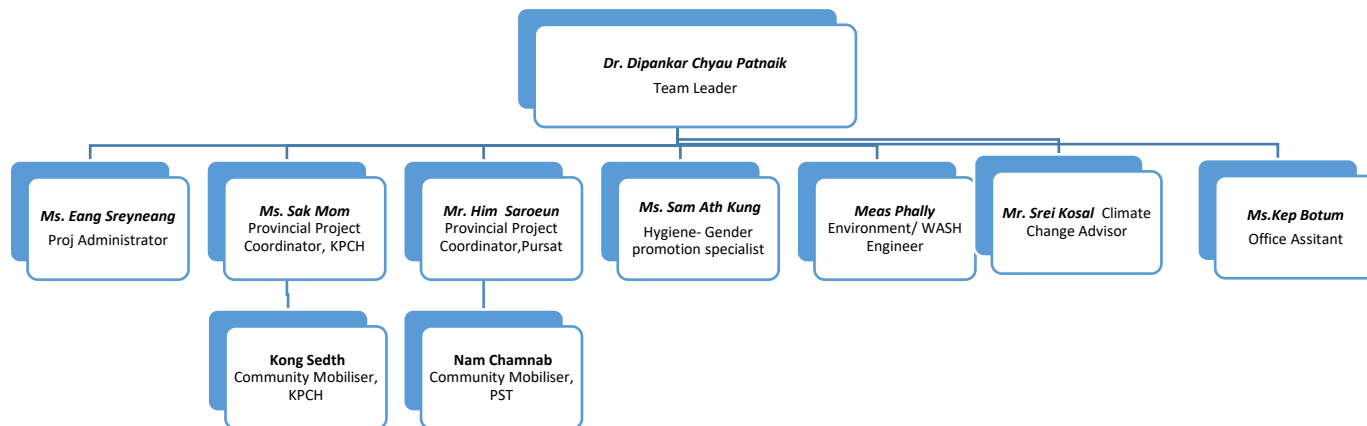
11.3 Office and Transport Logistics

The office is set up in the MPWT laboratory compound (General Department of Road Transport) with all the key IT equipment in place. The team is operational from this office and working full time.

CMEI office in MPWT Laboratory, Phnom Penh



Management Structure



11.4 List of CMEI team members and ToR

Name of the Position	Terms of Reference
<p>Team Leader /Community Development Manager</p> <ul style="list-style-type: none"> • Dr. Dipankar Chyau Patnaik- Based in Phnom Penh 	<ul style="list-style-type: none"> • Over all accountable for the management of project including the project and operations management • Responsible for managing the assign team for delivery of the project results and performance of individual team members • Report to designated PMU as well as WEDEC CEO or any other designated directors in due course • Manage seamless national level coordination and communication with the key stakeholders in MPWT and key PIU members in targeted provinces • Responsible for providing regular updates internally and

	<p>externally as agreed in the project agreement with MPWT and ADB adhering the standards, format and procedures set by ministry and ADB</p> <ul style="list-style-type: none"> • Responsible for the project compliance in accordance of WEDC, PADEK internal compliance procedures and systems • Responsible for the project compliance in accordance of ADB and MPWT compliance procedures and systems • Taking lead in setting out the strategy and project operation strategies, coordination and communication strategies • Taking lead and helping the provincial coordinators for project implementation and sub national level coordination with key stakeholders • Maintaining the good relations with in-country key stakeholders
<p>Provincial Project Coordinator</p> <ul style="list-style-type: none"> • Sak Mom - Based in Kampong Chhannag • Saroeurn Him - Based in Pursat 	<ul style="list-style-type: none"> • This role provides coordination in the field for the lead agency working closely with field staff, partners' agencies and Government Departments. • Organizing internal meetings, Leading reporting to donor, working with teams across both agencies to follow up on implementation, identifying gaps and challenges and working with teams to find a solution. • prepare the provincial work plan, implementation of work plan, Coordinate the implementation of the program, monitor field activities across the province and ensure respect of implementation deadline. • ensuring the coordination with PIU and with TL, ensuring the resource mobilization with help of administrator • Supervise adequate management of financial, logistical and program materials at the project level. • Ensure consistency of interventions between the provinces and work with the CCA, WASH coordinators and MEAL coordinators to capture lessons learnt. • Conduct ongoing evaluation of the actions taken and propose corrective measures if necessary. • Field visits and spot check. • responsible to helping community mobiliser • Support community mobilizers on pre, during and post training data collection and final reporting • Document the processes, lessons learned, best practices, case studies and other relevant information regularly • Document the progress, success stories and success cases

	<ul style="list-style-type: none"> • Ensure the target for gender equality and social inclusion as per the project document • Report work progress in regular basis with evidences of quality and work progress • Participate in relevant meetings with the local and district authorities, cluster meetings or other relevant technical groups at field level • Maintain regular communication with partner agencies and ensure that relevant information is fed into the project teams • Ensure project documentation of each activities • Ensure key commitments with communities and partners are achievable and respected
<p>Projector Administrator</p> <ul style="list-style-type: none"> • Sreyneang Eang – Based in Phon Penh 	<ul style="list-style-type: none"> • Over all accountable for the management of project including the project and operations management; • Assist the TL in setting out the strategy and project operation strategies, coordination and communication strategies; • Assist the TL in managing the assign team for delivery of the project results and performance of individual team members; • Assist the TL in providing regular updates internally and externally as agreed in the project agreement with MPWT and ADB adhering the standards, format and procedures set by ministry and ADB; • Assist the Team Leader in preparing reports and consolidating the reports prepared by all team members; • Manage coordination and communication with the key stakeholders in MPWT and key PIU members in targeted provinces; • Provide support in administrative and finance issues to ensure the effective running of the project implementation; • Drafting project correspondence and communication; • Prepare administrative, procurement and financial plans according to ADB procedures and requirements; • Provide proper accounting to the project by controlling the supporting documents for payments and prepare financial related reports; • Prepare and submit payment requests with proper documentation to MPWT-PMU; • Edit reports and other documents for correctness of form and content in financial issues according to ADB requirements;

	<ul style="list-style-type: none"> • Provide necessary financial and logistical support to the PC, TL and project consultants in conducting different project activities (training workshops, stakeholder consultations, arrangements of field visits, etc.) • Collect and keep files of project documents, expert reports and ensure general circulation of documents; • Maintain the project’s disbursement ledger and journal • Follow-up on audit recommendations (including ADB or external Audit recommendations); • Implement effective internal controls and ensure proper functioning of a client-oriented financial resources management system due to the MPWT and ADB procedures; • Contribute to preparation of periodic financial reports required by relevant national and/or donor procedures for project, donors, government and other parties involved in implementation and funding of activities due to ADB procedures; • Interact with MPWT-PMU to request funds transfer, verify financial reports, budget revisions; • Provide financial monitoring over project commitments and expenditures, and assist the Project Management in assuring proper project delivery; • Control the usage of non-expendable equipment (record keeping, drawing up regular inventories); • Assist in procurement of services and goods under the project; • Conduct financial management assessment and recommend measures to strengthen financial management capacities
<p>Climate Change Advisor Srei Kosal</p>	<ul style="list-style-type: none"> • This role provides coordination in the field for the lead agency working closely with field staff, partners’ agencies and Government Departments. • Organizing internal meetings, leading reporting to donor, working with teams across both agencies to follow up on implementation, identifying gaps and challenges and working with teams to find a solution. • Coordinate the implementation of the program, monitor field activities across the province and ensure respect of implementation deadline. • Supervise adequate management of financial, logistical and program materials at the project level. • Ensure consistency of interventions between the provinces and work with the CCA, WASH coordinators and MEAL coordinators to capture lessons learnt.

	<ul style="list-style-type: none"> • Conduct ongoing evaluation of the actions taken and propose corrective measures if necessary.
<p>Community Mobiliser</p>	<ul style="list-style-type: none"> • This role provides coordination in the field for the lead agency working closely with field staff, partners’ agencies and Government Departments. • Organizing internal meetings, leading reporting to donor, working with teams across both agencies to follow up on implementation, identifying gaps and challenges and working with teams to find a solution. • Coordinate the implementation of the program, monitor field activities across the province and ensure respect of implementation deadline. • Supervise adequate management of financial, logistical and program materials at the project level. • Ensure consistency of interventions between the provinces and work with the CCA, WASH coordinators and MEAL coordinators to capture lessons learnt. • Conduct ongoing evaluation of the actions taken and propose corrective measures if necessary.

11.5 Time schedule

129- There is no change in the proposed time schedule of the project

12. Training Designs for the next quarter

130- The project team has finalised a series of Terms of Reference for the trainings being planned for the next quarter. The first set designed is for the Participatory Vulnerability and Capacity Assessment.

1. Participatory vulnerability and capacity assessment
<p>A participatory vulnerability and capacity assessment (PVCA) empowers poor people to analyse their problems and suggest their own solutions.</p> <p>A PVCA is carried out in a community to collect, analyse and systematize information about its vulnerability in a structured way.</p> <p>Its main purpose is to:</p> <ul style="list-style-type: none"> • identify the key vulnerabilities of a particular community • understand how community members perceive risks and threats to their lives and livelihoods • analyse the resources (capacities) and strategies available to them to address or reduce these risks • help the community develop an action plan as an important output of the PVCA process. <p>If done well, it has an empowering effect by reinforcing people’s capacity for collective action, enabling a community to understand the risks it faces and identifying opportunities available to it in order to make informed decisions about its future.</p>
2. HVCA-PVCA Objectives:
<p><i>The core objectives of the actions of CMEI are addressed to have greater understanding around vulnerability, risk mitigation, climate change and hazards to provide direction of working in the target villages. After completing of the Hazard Vulnerable and Capacity Assessment (HVCA)/Participatory Vulnerable and Capacity Assessment (PVCA) Training, the participants are able to;</i></p> <ul style="list-style-type: none"> • Explain about the concept of HVCA-PVCA frame work. • Discuss the basic concepts and terms used and approaches to disaster risk management and explain the approaches to village resilience to disaster through DRR preparedness plan, Climate Change awareness, mitigation, and adaptation • Identify disaster risk and vulnerability of community in the vulnerable villages • Identify hazards and level of impacts and the use of HVCA-PVCA tools • Develop safe village action and implementation plan about the Disaster mitigation and response action, coping with drought and flood
3. Expected Outputs from Participants
<ul style="list-style-type: none"> - Target villagers well understand of HVCA-PCVA frame work and apply. - Target villagers and local authority leaders clear understand on basic concepts and the basic term of hazard, and vulnerability and capacity. - <i>Target villagers well understand about village resilience to climate change.</i> - <i>Target local authority (CCDM, DCDM and PCDM) well understands on how to use HVCA-PVCA tools and apply in community.</i> - Target local authorities in cooperation with villagers are able to develop safe village plan and implementing more effectively.

- The mechanism for drought and flood monitoring and following up are available and in places for each village
- The action and implementation plans with clear time frame are available and in places for each village

4. Methodology

Participatory training methodologies will be used to facilitate the training to encourage participants to participate actively in the training course both theories and practice. Those methods include;

- Ask questions;
- Brief presentation;
- Tell stories;
- Brainstorming;
- Explanation;
- Translation; and
- Feed-backs

5. Participants

The following are 20 expected participants from the target villages and relevant key stakeholders will be invited to participate in the training per village in Pursat and Kampong Chhnang as the follow table;

1-Table A: Number of participants in one village.

No	Description	# of participant	# of women	Others
1	Women member	2	2	
2	Minority member	2	1	1 Muslim and 1 Vietnamese
3	Parents	2	1	
4	Adolescent	2	2	
5	School children	2	1	
6	Fisherman	2	0	
7	Farmer	2	2	
8	Commune Council	2	1	
9	Potential villager	1	0	
10	Businessman	1	1	
11	Transporter	1	0	
12	Health supporter	1	1	
13	Policeman	1	0	
14	Village chef	1	0	
15	School director	1	0	

16	Disable people	1	0	
17	Elder	1	0	
	Total one village	24	12 = 50%	

Table B: Total number of participant in six villages

No	Description	# of participant	# of women	Others
1	Women member	12	12	
2	Minority member	12	6	
3	Parents	12	6	
4	Adolescent	12	12	
5	School children	12	6	
6	Fisherman	12	0	
7	Farmer	12	12	
8	Commune Council	12	6	
9	Potential villager	6	0	
10	Businessman	6	6	
11	Transporter	6	0	
12	Health supporter	6	6	
13	Policeman	6	0	
14	Village chef	6	0	
15	School director	6	0	
16	Disable people	6	0	
17	Elder	6	0	
	Total six villages	144	72 = 50%	

6. Expectations for nominated trainees

- a) Should possess a keen interest in DRR/CCA
- b) Should be able to provide at least 2 hours per week to project CMEI
- c) Should support project CMEI on a volunteer basis and
- d) Please ensure a minimum of 50% women representation

7. Facilitator and Resource Persons

- 2 facilitators from CMEI staff (2 in Pursat and 2 in Kampong Chhnang)
- 1 resource person from CMEI staff, the Climate Change Advisor.

Responsibility of the Resource Person in brief

- Develops curriculum and schedule for training HVCA/PVCA in CMEI's target villages

- Delivers direct and indirect training on HVCA/PVCA to 144 participants in cooperation with PCs and CMs
- Monitors the training process to ensure the capacity of participants improved.
- Contributes to preparation of work plans and budgets, monitoring and reporting
- Undertakes and manages research, analysis and syntheses activities, and identifies proposals and options to enhance support to programme team in adaptation and mitigation.
- Leads research on the identification of new and emerging climate change adaptation and mitigation issues
- Undertakes policy development; reviews the assessments of climate change issues and trends, preparation of evaluations or research activities and studies,
- Contributes to the development of strategic policy position papers on matters of climate change adaptation and mitigation.
- Undertakes the generation of knowledge and learning on climate change, environment and development issues.

8. Date and Venue

The HVCA-PCVA Trainings will be held based on the CMEI action plan from September to November 2018 and prepared venues in the six target villages of Pursat and Kampong Chhnang Provinces

9. Tentative Training Schedule

The tentative training schedule for HVCA-PVCA in the six target villages for local authority as below table:

No	Topics	Methodologies	Materials	Facilitators
Time/Day 1:11 September 2018				
7:30-8:00	Register	All participants participate	List of participant	Kong Sedth
8:00-8:15	Opening remark	Deliver speech to participants		CC
8:15-8:30	Introduce	Self- introduce by all participants		Sak Mom
8:30-9:00	Purpose of HVCA-PCVA	- Deliver speech to participants - Explain	-Flip-chart -Marker	Him Saroeun
9:00-10:00	General Information - Geographical Location - Resource, Hazard and Vulnerability Mapping - Demography	- Ask questions - Brainstorm - Participants participate - Hazard mapping expl - Explain	-Flip-chart -Marker -Demography template	Srei Kosal
10:00-10:15: Snack				
10:15-11:30	General Information - Geographical Location - Resource, Hazard and Vulnerability Mapping	- Ask questions - Brainstorm - Participants participate	-Flip-chart -Marker -Demography template	Srei Kosal

	- Demography	- Hazard mapping Explain		
11:1:30 Lunch Time				
1:30-3:00	Village Profile - Big events of disaster o Flood o Drought	- Ask questions - Brainstorm - Participants participate - Hazard mapping - Explain - Translate	-Flip-chart -Marker -Hazard map	Srei Kosal
3:00-3:30	Summary table of big disaster events for last 30 years in community	- Ask questions - Brainstorm - Participants participate - Note big disaster events - Explanation - Translate	-Flip-chart -Marker	Srei Kosal
3:30-3:45 Snack				
3:45-4:30	Livelihood and Hazard seasonal Calendar	- Livelihood and hazard seasonal calendar mapping - Ask questions - Brainstorm - Participants participate - Explanation - Translate	-Flip-chart -Marker	-Srei Kosal -Nam Chamap
Time/Day 2: 12 September 2018				
7:00-7:30	Review lesson on 1 st day	- Ask questions - Brainstorm - Explain	-Handout	-Him Saroeun
7:30-8:30	Institutions/NGOs have related works/working in the village	- Relationship mapping - Ask questions - Brainstorm - Participants participate - Explanation - Translate	-Flip-chart -Marker	-Srei Kosal -Kong Sedth
8:30-10:00	Gender Analysis	- Draw Gender working table	-Flip-chart -Marker	-Srei Kosal -Sak Mom

		<ul style="list-style-type: none"> - Ask questions - Brainstorm - Participants participate - Explanation - Translate 		
10:00-10:15 Snack				
10:15-11:30	Summary table on Hazard-Vulnerability- and Capacity	<ul style="list-style-type: none"> - Draw the table on Hazard vulnerability and capacity - Brainstorm - Ask questions - Participants participate - Explain - Translate 	<ul style="list-style-type: none"> -Flip-chart -Marker -HVCA map 	<ul style="list-style-type: none"> -Srei Kosal -Him Saroeun
11:30-1:30 Lunch Time				
1:30-2:00	Climate Change Event's Table	<ul style="list-style-type: none"> - Draw the table of climate change - Ask questions - Participants participate - Explain - Translate 	<ul style="list-style-type: none"> -Flip-chart -Marker -Climate Change Template 	<ul style="list-style-type: none"> -Srei Kosal -Chamnap
2:00-3:30	Disaster Risk Reduction and Resilient to Climate Change Adaptation plan	<ul style="list-style-type: none"> - Draw the table of DRR and CCA plan - Ask questions - Brainstorm - Participants participate - Explain - Write down the data and information into the box of the table - Translate 	<ul style="list-style-type: none"> -Flip-chart -Marker -DRR and CCA action plan template 	<ul style="list-style-type: none"> -Srei Kosal -Kong Sedth
3:30-3:45 Snack				
3:45-4:15	Disaster Risk Reduction and Resilient to Climate Change Adaptation plan (Continue)	<ul style="list-style-type: none"> - Draw the table of DRR and CCA plan - Ask questions 	<ul style="list-style-type: none"> -Flip-chart -Marker -DRR and CCA action plan 	<ul style="list-style-type: none"> -Srei Kosal -Him Saroeun

		<ul style="list-style-type: none"> - Brainstorm - Participants participate - Explain - Write down the data and information into the box of the table - Translate 	template	
4:15-4:30	Closing remark	Deliver speech to participants		CC

13. Annexures

- Concept Note for Small Scale supports

End of Document

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Ministry of Public Works and Transport



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CONCEPT NOTE

Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

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in association with



Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

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I. INTRODUCTION AND CONTEXT

- 1- **Country Context:** Cambodia is one of the poorest nations in South-East Asia. Approximately 70% of Cambodian households derive all or an important part of their income from agriculture and the majority of agricultural production is dependent on the monsoon rain and natural floods/recession of the Tonle Sap River and Lake. Climate change is likely to disrupt the natural cycle of the monsoonal system and the hydrological function of the interconnected Mekong-Tonle Sap River drainage system and therefore cause a significant impact on the livelihood and welfare of rural Cambodians.
- 2- In 2011, Cambodia was classified as the second most affected by extreme weather events, with a Gross Domestic Product (GDP) loss estimated at 3.1 per cent (Hireling and Eckstein, 2012), and was ranked as the 9th and 6th most vulnerable country to climate change in the World Risk Index 2011 and the Maplecroft Climate Change Vulnerability Index 2012, respectively (UNDP, 2012b). In global assessments, the Mekong basin has been classified as one of the river basins that will feel the effects of climate change most severely (AIT-UNEP RRC.AP, 2010).
- 3- **Rationale:** There is a strong need to address the complex challenges to urban WASH (water sanitation and hygiene) systems faced by fast-growing towns and cities (municipal zones) in a rapidly urbanising Cambodia. These changes result from population growth, rapid urbanisation and the effects of climate change. These processes place an immense strain on municipalities on key areas of Public Health, Water related infrastructures and services, including the wider sourcing areas. There is a need for an integrated systems approach in developing interrelated technological, institutional and financial solutions for sustainable urban water and sanitation management. Hence there is a strong need for the delivery support of sanitation and water management systems. This programme will cover a wide range of disciplines (e.g. sanitary engineering, urban planning & governance, hydrology, ecology, informatics, economics etc.) providing the synergy required for integrated urban water management systems. The results from this proposed intervention will also be applicable to fast-growing municipalities within Cambodia.
- 4- **Critical Need:** Limited access to clean water and poor sanitation are critical drivers for the spread of Diarrheal diseases, constituting a critical challenge during periods of crisis. Such diseases account for more than 40% of deaths in the acute emergency phase, and for 80% of deaths in children under two. Girls and women are particularly affected by a lack of well-designed latrines and access to safe water. Recent years have seen considerable demand from implementing agencies for innovations in the WASH programming options open to them.

II. BACKGROUND AND NEEDS ASSESSMENT

- 5- **CMEI- Community Mobilization and Environmental improvements:** The agencies PADEK and WEDC have been awarded the project output: Community Mobilization and Environmental improvements (CMEI) under the project titled “Integrated Urban Environmental Management in Tonle Sap Basin” This is part of a larger mandate to help develop the Tonle Sap basin. The Community Mobilization and Environmental Improvements (CMEI) output is working to translate Project principles into community action. This includes support for community planning and prioritization, and provision of community-driven climate-resilient urban environmental infrastructure. The involvement of local communities, including poor, vulnerable and ethnic Cham and Vietnamese, in planning, decision-making and supervision of the works will encourage local solutions and greater accountability of the services delivered. It will help to create ownership and provide benefits to those often marginalized and vulnerable.
- 6- **CMEI-WASH Approach:** The project has adopted an integrated WASH approach covering the following key action agendas

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- a) supports effective processes to manage water and sanitation systems assisting in establishment of Water Trust Funds, Drinking Water Users Associations and local networks of stakeholders, as well as help in the development of Water Safety Plans,
 - b) supports various abovementioned stakeholders in constructing and managing water and sanitation systems in project target villages; and
 - c) Ensures a civil society and govt. collaborative monitoring mechanism is in place at urban municipal level so that consumers, operators and other stakeholders can hold a constructive dialogue over management in water consumption area.
- 7- **Community Needs Assessment** : The CMEI team in Kampong Chhnang and Pursat Provinces of Cambodia from 16 to 20 July 2018 carried out an integrated Public Health and Climate Change Adaptation Needs Assessment.
- 8- **Key Purpose:** The key purpose for the assessment were to inform the development of the concept note development along with the following actions:
- To gather data on WASH, CCA and Resilience knowledge, behaviours and practices in the target 6 villages which will be used to design an appropriate integrated WASH, CCA and Resilience component in the CMEI project;
 - To gather baseline data which can be used by project staff and other stakeholders for informing the design of current and planned interventions of project in the CMEI's target areas;
 - To support participatory processes between the HH villagers and project staff and as possible capacity building for community members/groups, Government staff and Project staff;
 - Serve as benchmark for measuring impacts of current and planned WASH/public health & CCA project field activities implementation leading to long term Resilience.
- 9- **Methodology:** Qualitative data was obtained from focus group discussions and direct observations done in the exploratory walks. Quantitative data was obtained through the use of a questionnaire in the household surveys.
- Twelve (12) focus group discussions using a guide were carried out.
 - One hundred and thirty-five (135) poor villagers including one hundred and ten (110) women with also Muslim women, four (4) children and twenty first (21) men with also Muslim men from 6 villages in two provinces of Kampong Chhnang and Pursat participated in the discussions.
 - Six (6) households reached for household survey interviews, questionnaires were used to obtain data.
 - Direct and indirect observations using a guide were done through the exploratory walks in some villages.
 - Key local authorities, NGOs and PDRD interviewed in Kampong Chhnang province.
 - One coordination meeting conducted in Pursat province within the participation of deputy municipal governor, governmental departments, commune/sangkat chiefs and AK organisation.
- 10- **Limitations:** The assessments in the field were taken up on a rapid basis after the meeting with ADB and given the election period, there were certain limitations that prevailed on the assessment action. Bearing in mind that the election code of conduct was in force, the discussions with the people were kept very focused, and never in large numbers. No large meetings were organised and the team met with the people in the homes only. Despite these limitations, we are confident that the findings reflect the true and accurate needs of the ground. If there is further need for clarification, or detailed probe into certain areas, the CMEI team is confident of conducting a secondary assessment post elections.

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Key Findings:

- 11- **Excreta disposal:** Open defecation was very common in these two provinces, with majority of people in Kampong Chhnang province defecating in the along the rivers and flooded water or in the rivers and flooded water they used the water for drinking. A minority (30%) of community villagers have latrines were reported. With this percentage, the HHs family in communities can properly use their toilets in both seasons (dry and raining seasons, even in flooded season). Only 43% of community villagers in Pursat province had toilets that could be flooded if the level of flooded water is high.
- 12- **Water Supply:** During the rainy season, the majority of population had access to sufficient quantities of water but the water was likely to be microbiologically unsafe for drinking. Minority of people in communities of Kampong Chhnang province used river water whereas in Pursat province used water mostly from open wells and ponds. During the dry season most of these sources dried up making it difficult for women, girls and children to get water. A few households were using the filters. Most of the open wells and ponds were reported that perceived as unsafe for drinking.
- 13- The water committees were formed by Cherakpheap organisation, but it was not functioning, no plan for collecting funds for operations and maintenance. On the note most of the surroundings of the open wells were unclean.
- 14- **Solid waste disposal:** Most compounds in villages and along the paths were littered with garbage in these two provinces. There were very big piles of thrush under and around the houses (big piles of thrust and feaces in canal) with no rubbish bins in all villages.
- 15- **Hand washing:** The majority of households visited respondents during focus group discussion including children and adults in both provinces indicated no hand washing after defecation, before eating, before preparing food and after touching animals and after handling children’s feaces. It was reported that few people washed their hands after defecation and they used water and soap. There were no hand washing facilities/tools near by the toilets, even near their houses or in the villages.
- 16- **Common Diseases:** Dengue, malaria, diarrhea, respiratory infections and tuberculosis were cited by the community as the main causes of morbidity and mortality (one person died for one week ago because of dengue and another one person also died because of chronic diseases). Health staff cited the same diseases as the main causes of hospital attendances.
- 17- **Key Recommendations:** A WASH/Public Health Promotion Model to be integrated in the CMEI Project was then designed based on the findings and recommendations were incorporated in the model. The same model can be used for the upcoming CMEI Project in these two provinces. The main recommendations are as followings:

18- Community and local authority needs:

The key needs from the community are summarized as below¹

Kampong Chhnang Province	Pursat Province
1. Build improved latrines for 70% of HHs family in the communities with hand washing facilities and menstrual management and repair the broken latrines as well with communities ‘contribution between 20% and 30%;	1. Build improved latrines for 57% of HHs family in the communities with hand washing facilities and menstrual management and repair the broken latrines as well with communities ’contribution between 10% and 30%;

¹ Please refer the detailed needs assessment

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<ol style="list-style-type: none"> 2. Dig drainages to flow out the very bed and smelling water from the compounds of villages to the lake; 3. Connect to clean water pipe for ID poor I & II HHs (service costs 100\$ per a ID poor I & II HH); 4. Decrease the price of pipe water use from 1800 riels per m³ to 1000 riels per m³; 5. Restore drainage's garbage around 150 meters and collect big and large piles of garbage under houses and at the same time provide trash bins. 	<ol style="list-style-type: none"> 2. Connect to clean water pipe for 41 ID poor I & II HHs (service costs 100\$ per a ID poor I & II HH); 3. Decrease the price of pipe water use from 1600 riels per m³ to 1000 riels per m³; 4. Provide 5 communal open wells, hand pumps, ponds, water filters, big water jars, water harvesting systems and big system of clean water storing for a whole village use; 5. Improvement of the existing water sources (treat/disinfected existing water sources); 6. Restore 500 meters of canal/drainage's feaces mixed with garbage and at the same time, provide trash bins; 7. Provide one drainage of 300 meters to flow out the bad and smelling water from the compounds of villages.
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19- Recommendations for Complementary Actions:

- Community awareness raising (hand washing campaign) and training on WASH using PHAST² and CLTS³ methodologies (especially hand washing, sanitation and hygiene promotion including personal hygiene, water borne diseases and waste management/water pollution provoked to the negative impact of their health in Kbal Hong village) to project staff, community members/groups, relevant focal persons from government and community villagers;
- Nudge community villagers towards positively changing their practices of hand washing, safe drinking water and toilets use;
- Quality participatory needs assessment in the target villages of Kampong Chhnang and Pursat for accurate data;
- Participatory planning with the communities to select hygiene practices for intervention and come up with village plans. The following hygiene practices are recommended:
 - a. Getting rid of feaces in the compounds/public places (including around the water sources) and domestic environment. Encourage burying of feaces and promote latrine use;
 - b. Promoting hand washing with soap after defecation or stool contact, before eating or preparing food;
 - c. Promoting use and maintenance of water filters;
 - d. Promoting use of protected water sources for drinking water;
 - e. Promoting cleaning of water storage containers;
- Establishment of water committees for both old and new wells as well as O&M latrine committees.
- Establishment of supply chains for spare parts.
- Creation of linkages with relevant government departments and stakeholders to solicit their support to the water committees and in case of major problem/break downs.
- Training of voluntary health community members/groups for community WASH/public health promotion. Link them with the TWG in each province, with provincial health department and provincial rural department as well as other relevant stakeholders;
- Initiation of child to child activities in the villages;
- Training of the VCDMs on the WASH/public health risks during emergencies, public health promotion before, during and after emergencies.

² Participatory Hygiene and Sanitation Transformation

³ Community Led Total Sanitation

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- Discussion with the community and facilitate the establishment of networks for filters and spare parts.

20- Climate Change Adaptation

The key purpose of the climate change adaptation was as follows:

- a) To gather data on CC knowledge, behaviours and practices in the target 6 villages which will be used to design an appropriate and suitable courses to achieve the component in the CMEI project;
- b) To gather baseline data which can be used by project staff and other stakeholders for informing the design of current and planned interventions on CC project in the CMEI's target areas;
- c) To mark the start of a participatory process between the HH villagers and project staff and as possible capacity building for community members/groups, Government staff and Project staff;
- d) It will also serve as benchmark for measuring impacts of current and plan activities to achieve the ultimate goal project of CMEI

21- The key results of the assessment were as follows

22- Weather

- 90% of participants reported that the current weather is hotter than the last 15-20 years ago.
- 5% of participants said nothing.
- 10% of participants agreed and added that sometime was a bit cold.
- 25% of participants agreed and added that sometime it was a bit cold.

23- Wind

- 82% of participants reported that around of 15-20 years ago the number of storm were 2-3 times per year compare to last 3-5 years was 6-7 times per year, but the storm now are more and stronger than, especially wind gust .
- 80% reported that most of the storms frequently append in June and July, but sometimes happened again in August- October.
- 60% reported that most of the storms frequently append in July-August.

24- Rainfall

- In the last 3-5 years the amount of rainfall was least or much more than if compare to the 15-20 years ago?
- 80% of participants reported that the amount of rainfall in the last 3-5 years ago was least than if compare to the 15-20- years ago.
- 90% of participants reported that during the last 3-5 years ago the rainy season started in May and June and finished in November and December (irregular rain) if compare to 15-20 years ago the rain started in May and regularly finished in November and December.

25- Drought

- 90% of participants reported that drought has frequently happened during the last 3-5 years ago.
- 10% reported that sometimes drought looked normal.

26- Floods

- 85% of participants reported that flood situation during the last 3-5 years was always small if compare to 15-20 years ago.

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- 85% of participants added that even though it was small but flood considerably affected the livelihood and economy.

27- Climate Change effects on Economics livelihood and Health-Sanitation

- 90% of participants reported that due to the Climate Change the temperature was increased and reduced the amount of irrigation water.
- 90% of participants reported that climate change affected the growing of crop and reduced the yield.
- 90% of participants reported that if the temperature increased the diseases infection happened and affected to livestock such as; cattle (Foot and Mouth diseases), pig (Diarrhea), chicken (Foul Pox and New cast), duck died (New-cast)
- 50% of participants reported that the storm has frequently happened and partly destroyed of houses.
- 80% reported that the rice was flooded in water by storm.
- 80% reported that the rice yield lost.
- 50% reported that livestock dead.

28- Situation of Rainfall regime:

- 80% of participants reported that the regime of rainfall were always drizzling and affected the growing of crop due to lack of water.
- 80% of participants added that due to the lack of water it affected to the growth of crop.
- 20% reported that due to have much water the crop growth was damaged.
- 60% of them added that livestock dead.
- 80% of them added that rainfall disturbed to the daily of people for income generation.
- 70% of participants reported that the impact of climate change, drought frequently happened in community.
- 70% reported that drought caused to reduce rice yield and sometimes in some geography completely destroyed.
- 80% of participants reported that the impact of drought caused many chicken died.
- 20% of participants reported that beside chicken, some duck and few pig were also killed.
- 70% of participants reported that drought caused human diseases happened such as; diarrhoea and typhoid, especially babies.
- 85% of participants reported that due to the drought, water sources such as; lack, pond, and well were dried off.
- 100% of participants reported that during the drought villagers faced to water for human usage.
- 100% of community members reported that they have bought clean water from ANKO Company situated nearby.

29- 2.5. Impact by flood

- 80% reported that due to the climate change, the community had flood.
- 70% reported that if prolong flood has happened; it destroyed the cassava.
- 40% reported that flood destroyed lotus
- 60% reported that crop yield was reduced/ lost due to a lot of water.
- 80% reported that if flood has happened, most of chicken died.

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- 60% reported that during the flood a few kinds of diseases have happened such as; diarrhoea, typhoid, especially children.
- Some sources of water can't use due to dirty during the flooding time such as;
- 75% of participants reported that during the flood has happened, all water sources (well, pond, and lake) in community could not because dirty.
- 100% reported that all things happened during the flood were very dirty.
- During the flooding time people in community lacked of clean water used
- 100% of participants reported that during the flood happened; people were strongly needs of clean water.
- 100% reported that people bought drinking water from ANKO company 1,800 riel/Jar
- The flood brought a lot of waste (plastic, and other) into the village and around the village
- 70% reported that flood brought a lot of waste into the village and then flow out around 40-50% into the river.
- 70% added that waste, mud-soil, and puddle water mixed together created dirty environment in the village with bat smell.
- 80% added that people could not plant any crop after flooding.

30- Engineering options

The CMEI project used Participatory assessment tools and through intensive field assessments assessed the needs for the rehabilitation of existing water and sanitation infrastructure and construction of new affordable and disaster proof WASH technologies.

Schematics: Based on the WASH assessment, the project has come up with engineering solutions for the proposed areas. The annex to this report contains the detailed engineering drawings with specifications, and budget for the wash response action.

Market Survey: the project engineering team conducted market survey in the two provinces to come up with the BoQ and the rates (inclusive of transport) to aid the programming team to come up with a definite decision and aid the budget formulation. The rates are expected to remain the same for another 2 months (dependent on the prevalent situation)

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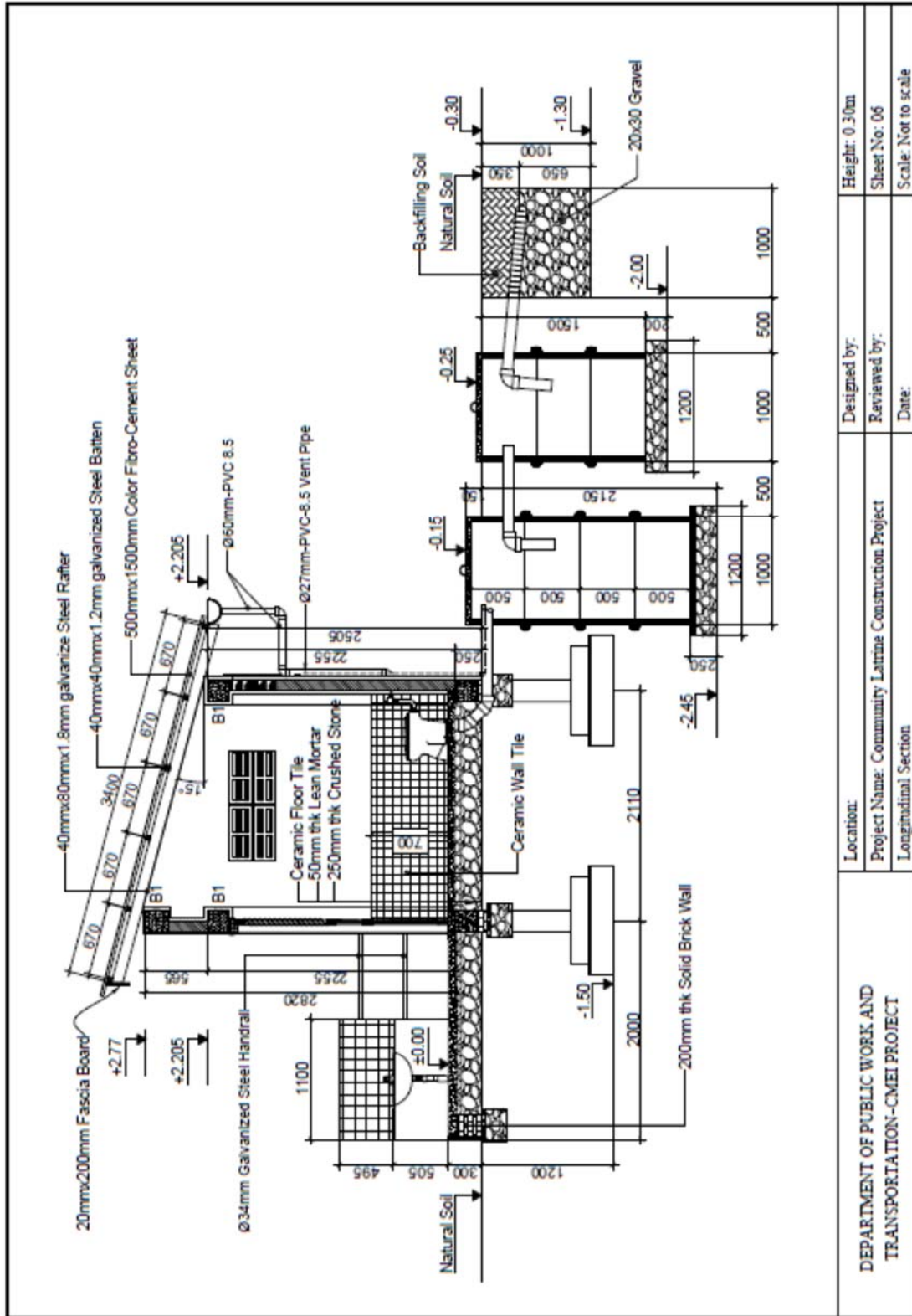
31- Latrines

The design of the latrine and the BoQ is given below- the detailed architectural and structural designs are in the annexure

Bill of Quantities of One Room Latrine-0.3m Height					
No	Description	Unit	Quantities	Unit Cost	Total Cost
				USD	USD
1	Site Clearance and Plaque of Donor				
	Site clearance	Site	1.00	100.00	100.00
	Plaque of donor	Set	1.00	50.00	50.00
2	Soil Excavation and Soil Backfilling				
	a. Soil Excavation				
	Soil excavation for footings	m3	4.80	5.00	24.00
	Soil excavation underground beams and retaining walls	m3	1.40	5.00	7.00
	Soil excavation under starting up of ramp	m3	0.32	5.00	1.60
	Soil excavation for septic tank and leach pit	m3	4.35	5.00	21.75
	Soil excavation for leach field (1.0mx2.0mx1.0m)	m3	2.00	5.00	10.00
	b. Soil Backfilling				
	Soil backfilling for footings	m3	3.24	5.00	
	Soil backfilling for septic tank and leach pit	m3	1.17	5.00	5.85
	Soil backfilling for leach field (1.0mx2.0mx0.35m)	m3	0.70	5.00	3.50
3	Compaction of 20x30 Gravel				
	20x30 gravel under footings	m3	0.80	69.00	55.20
	20x30 gravel underground beam, retaining walls and starting up of ramp	m3	1.41	69.00	97.29
	20x30 gravel under slope of ramp	m3	0.70	69.00	48.30
	20x30 gravel under platform in front of latrine	m3	0.56	69.00	38.64
	20x30 gravel under floor tiles inside latrine	m3	0.69	69.00	47.61
	20x30 gravel under septic tank and leach pit	m3	0.45	69.00	31.05
	20x30 gravel under leach field (1.0mx2.0mx0.65m)	m3	1.30	69.00	89.70
4	Lean Mortar				
	Lean mortar under footings	m3	0.12	127.10	15.25
	Lean mortar under retaining walls, ground beams and start of ramp	m3	0.21	127.10	26.69
	Lean mortar under slab of ramp	m3	0.31	127.10	39.40
	Lean mortar under floor tiles inside latrine	m3	0.18	127.10	22.88
	Lean mortar under platform in front of latrine	m3	0.24	127.10	30.50
	Lean mortar under septic tank	m3	0.03	127.10	3.81
5	Reinforced Concrete (RC) Work				
	Reinforced concrete footings	m3	0.51	250.00	127.50
	Reinforced concrete short columns	m3	0.12	250.00	30.00
	Reinforced concrete ground beams	m3	0.30	250.00	75.00
	Reinforced concrete columns	m3	0.37	250.00	92.50
	Reinforced concrete over beams and lintel	m3	0.21	250.00	52.50
6	Solid Brick Work				
	20cm thick solid brick walls underground beams	m2	0.67	42.63	28.56
	20cm thick solid brick wall under ramp and slab in front of latrine	m2	2.00	42.63	85.26
	10cm thick solid brick wall for water tank inside latrine	m2	0.95	21.31	20.24
7	Hollow Brick Work				
	10cm thick hollow brick wall	m2	13.99	11.96	167.32
8	Plastering Work				
	Plastering walls of latrine (both sides)	m2	30.00	4.48	134.40
	Plastering retaining walls and ground beams	m2	4.23	4.48	18.95
	Plastering walls of water tank inside latrine	m2	2.02	4.48	9.05
	Plastering walls for hanging lavabo	m2	2.51	4.48	11.24
9	Ventilation Block Work				
	Ventilation blocks and mortar framing outside	m2	1.29	16.00	20.64
10	Painting Work				
	Painting white lime on walls of latrine	m2	29.22	0.60	17.53
	Painting white lime on retaining walls and ground beams	m2	4.23	0.60	2.54
	Painting white lime on wall for hanging lavabo	m2	1.95	0.60	1.17

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	Painting white lime on ventilation blocks	m2	2.58	0.60	1.55
	Painting water proofing coat on walls and bottom of water tank	m2	1.84	4.00	7.36
11	Floor Tiles and Wall Tiles				
	Laying Chinese ceramic floor tiles inside latrine	m2	2.93	9.87	28.92
	Laying Chinese ceramic wall tiles for external walls of water tank	m2	1.19	9.87	11.75
	Laying Chinese ceramic wall tiles on the wall for hanging lavabo	m2	0.56	9.87	5.53
	Laying Chinese ceramic wall tiles inside latrine (0.70m height)	m2	3.42	9.87	33.76
12	Plumbing Work				
	Ø100mm PVC 8.5	m	8.00	4.00	32.00
	Ø60mm PVC 8.5 from gutter to water tank inside latrine	m	4.00	2.70	10.80
	Ø49mm PVC 8.5 from lavabo and floor drain inside latrine	m	12.00	2.00	24.00
	Ø27mm PVC 8.5 for vent pipe on top of septic tank	m	4.00	1.50	6.00
	Ø21mm PVC 8.5 for connecting with clean water source	m	4.00	1.00	4.00
	45 degree elbow for Ø100mm PVC pipe from toilet pan	PCs	2.00	2.00	4.00
	90 degree elbow for Ø100mm PVC pipe	PCs	2.00	2.00	4.00
	90 degree elbow for Ø60mm PVC pipe	PCs	3.00	0.60	1.80
	Reducing coupling socket Ø80mm to Ø60mm from gutter	PCs	1.00	1.00	1.00
	90 degree elbow for Ø49mm PVC pipe	PCs	11.00	0.40	4.40
	90 degree elbow for Ø27mm PVC pipe for vent pipe	PCs	2.00	0.30	0.60
	90 degree elbow for Ø21mm PVC pipe for clean water to lavabo	PCs	3.00	0.20	0.60
	PVC valve for Ø21mm PVC pipe for lavabo	Set	1.00	1.00	1.00
	PVC holders for Ø60mm PVC pipe	Set	4.00	0.50	2.00
	PVC holders for Ø27mm PVC pipe	Set	3.00	0.20	0.60
	PVC plug for cleaning water tank inside latrine (Ø32mm PVC pipe)	PCs	2.00	0.80	1.60
	Floor drain inside latrine	Set	1.00	0.70	0.70
	Galvanize gutter of 0.8mm thick diameter 200mm	m	3.65	6.00	21.90
	0.50mx1.50m color fibro-cement	PCs	27.00	2.60	70.20
	C40mmx80mmx1.8mm steel rafter	m	20.50	21.22	435.01
	C40mmx40mmx1.2mm steel rafter	m	26.91	4.65	125.13
	Wooden fascia board (0.2mx0.03mx9.152m)	m3	0.04	500.00	18.50
	Oil paint for painting fascia board	m	5.00	3.00	15.00
	5cm length steel screw	Pack	2.00	6.00	12.00
	3cm length steel screw	PCs	50.00	0.01	0.50
	3cm length plastic expansion anchor	PCs	20.00	0.01	0.10
	Steel gutter supporter	PCs	4.00	1.00	4.00
	Reinforced concrete ring septic tank	PCs	7.00	10.00	70.00
	Reinforced concrete cover for septic tank and leach pit	PCs	2.00	9.00	18.00
	Seating pan (for normal and disable people)	PCs	1.00	20.00	20.00
	Ø34mm galvanize grab bar	m	1.00	3.00	3.00
	Ø34mm galvanize steel handrails	m	22.30	3.00	66.90
	Stainless steel soap holder inside latrine and lavabo	PCs	2.00	2.00	4.00
	Wall Hanger with 6 Wall Hooks inside latrine	PCs	2.00	2.00	4.00
13	Wooden Door				
	2.00mx1.04m wooden door (key, hand drawer, bolt and painting)	Set	1.00	160.00	160.00
Total cost of construction materials, labor and transportation = A					2,916.84



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32- Hand pump

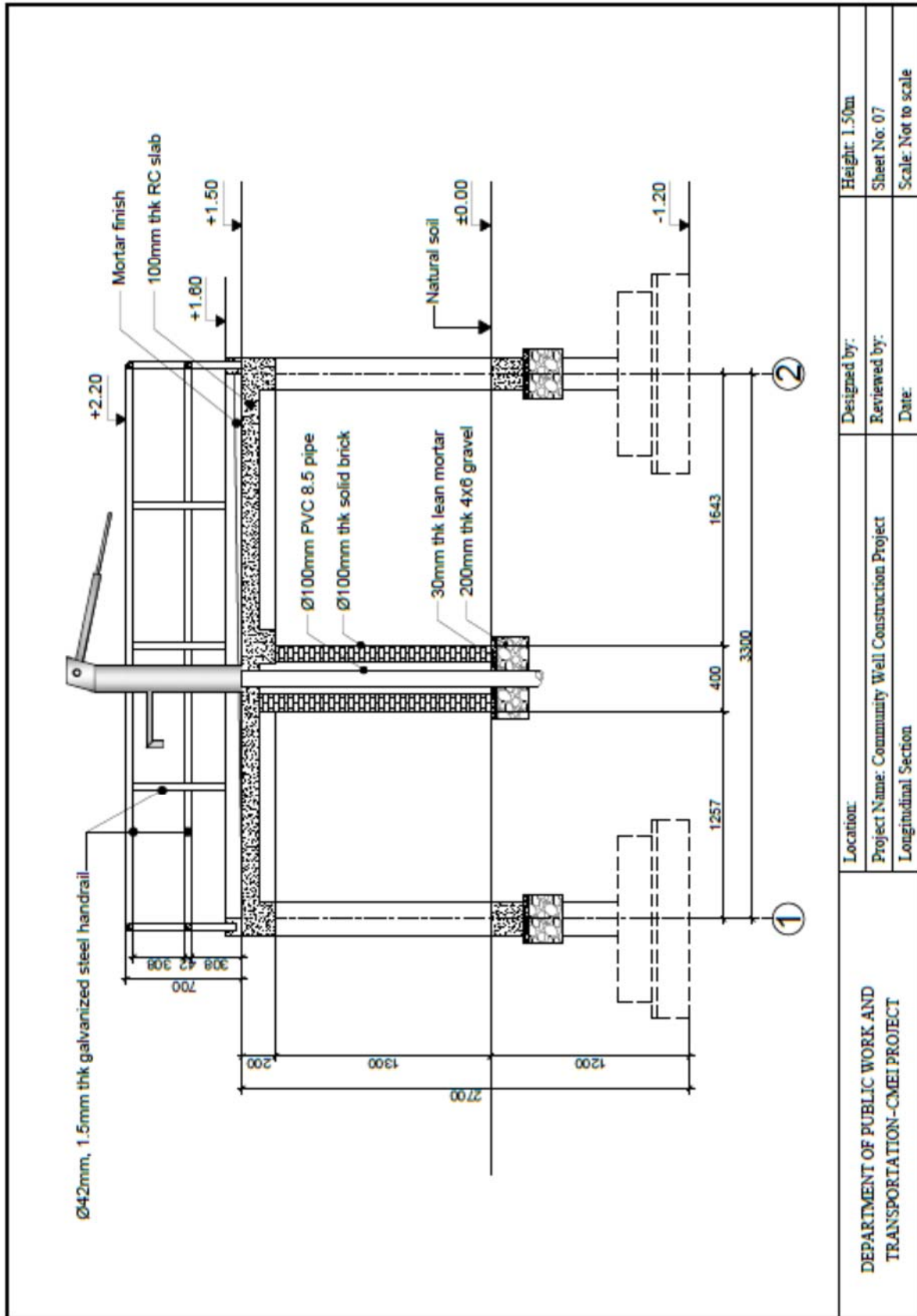
The design of the hand pump and the BoQ is given below- the detailed architectural and structural designs are in the annexure

Bill of Quantities of Hand Pump Well-1.50m Height					
No	Description	Unit	Quantities	Unit Cost	Total Cost
				USD	USD
1	Site Clearance and Plaque of Donor				
	Site clearance	Site	1.00	100.00	100.00
	Plaque of donor	Set	1.00	50.00	50.00
2	Soil Excavation and Soil Backfilling				
	a. Soil Excavation				
	Soil excavation for footings	m3	6.92	5.00	34.60
	Soil excavation underground beams	m3	1.32	5.00	6.60
	Soil excavation under solid brick wall covered PVC pipe	m3	0.06	5.00	0.30
	Soil excavation under stair footing	m3	0.11	5.00	0.55
	b. Soil Backfilling				
	Soil backfilling for footings	m3	4.68	5.00	23.40
	Soil backfilling for stair footing	m3	0.02	5.00	0.10
	Soil backfilling underground beams	m3	0.20		
3	Compaction of 4x6 Gravel				
	4x6 gravel under footings	m3	1.60	69.00	110.40
	4x6 gravel underground beams	m3	0.61	69.00	42.09
	4x6 gravel under solid brick cover PVC pipe	m3	0.05	69.00	3.45
	4x6 gravel under stair footing	m3	0.05	69.00	3.45
4	Lean Mortar				
	Lean mortar under footings	m3	0.16	127.10	20.34
	Lean mortar underground beams	m3	0.09	127.10	11.44
	Lean mortar under solid brick cover PVC pipe	m3	0.01	127.10	1.27
	Lean mortar under stair footing	m3	0.01	127.10	1.27
5	Reinforced Concrete (RC) Work				
	Reinforced concrete footings	m3	0.80	250.00	200.00
	Reinforced concrete short columns	m3	0.08	250.00	20.00
	Reinforced concrete ground beams	m3	0.41	250.00	102.50
	Reinforced concrete columns	m3	0.20	250.00	50.00
	Reinforced concrete over beams	m3	0.57	250.00	142.50
	Reinforced concrete first floor slab	m3	0.46	250.00	115.00
	Reinforced concrete stair	m3	0.43	250.00	107.50
6	Solid Brick Work				
	10cm thick solid brick walls cover PVC pipe	m2	1.64	42.63	69.91
7	Plumbing Work				
	Afridev pump, spare parts and one set of pipe	Set	1.00	200.00	200.00
	Total cost of construction materials, labor and transportation				1,416.67

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33- Community Wells

Bill of Quantities of Community Well-0.3m Height					
No	Description	Unit	Quantities	Unit Cost	Total Cost
				USD	USD
1	Site Clearance and Plaque of Donor				
	Site clearance	Site	1.00	100.00	100.00
	Plaque of donor	Set	1.00	50.00	50.00
2	Soil Excavation and Compact 4x6 Gravel				
	Soil excavation under reinforced concrete around the well & slab	m3	1.52	5.00	7.60
	4x6 gravel under reinforced concrete around the well and slab	m3	2.26	69.00	155.94
	Lean mortar under reinforced concrete around the well and slab	m3	0.52	127.10	66.09
3	Reinforced Concrete (RC) Work (Total concrete=1.77m3)				
	Ø8mm	kg	55.93	0.69	38.59
	Ø1mm ties	kg	0.30	1.43	0.43
	Cement	Bags	15.00	5.34	80.10
	Coarse sand	m3	1.00	23.75	23.75
	1x2 gravel	m3	1.54	28.75	44.28
4	Waste Water Collector Pit				
	Soil excavation under waste water collector pit	m3	0.36	5.00	1.80
	4x6 gravel under waste water collector pit	m3	0.11	26.75	2.94
	10cm thick (thk) hollow brick walls	m2	1.29	5.60	7.22
	Sand backfilling	m3	0.11	23.75	2.61
	1x2 at the bottom of the pit	m3	0.03	28.75	0.86
5	Handrail for Disable People				
	Ø42mm galvanized steel handrail for disable people	m	16.16	3.50	56.56
6	Reinforced Concrete Ring Tank Under Rovey Pump				
	Ø800mmx50mmx500mm reinforced concrete ring tank	Pcs	1.00	8.00	8.00
	Ø800mmx50mm reinforced concrete cover	Pcs	1.00	7.00	7.00
	300mmx300mmx5mm Chinese ceramic floor tile	Pcs	1.00	0.42	0.42
7	Rovey Pump (Rolling Pump)				
	Local made rovey pump (rolling pump)	Set	1.00	140.00	140.00
	Spare parts of local made rovey pump (rolling pump)	Set	1.00	20.00	20.00
	Total of Materials, Transportation and Labor Cost				814.20



DEPARTMENT OF PUBLIC WORK AND TRANSPORTATION-CMEI PROJECT	Location:	Designed by:	Height: 1.50m
	Project Name: Community Well Construction Project	Reviewed by:	Sheet No: 07
	Longitudinal Section	Date:	Scale: Not to scale

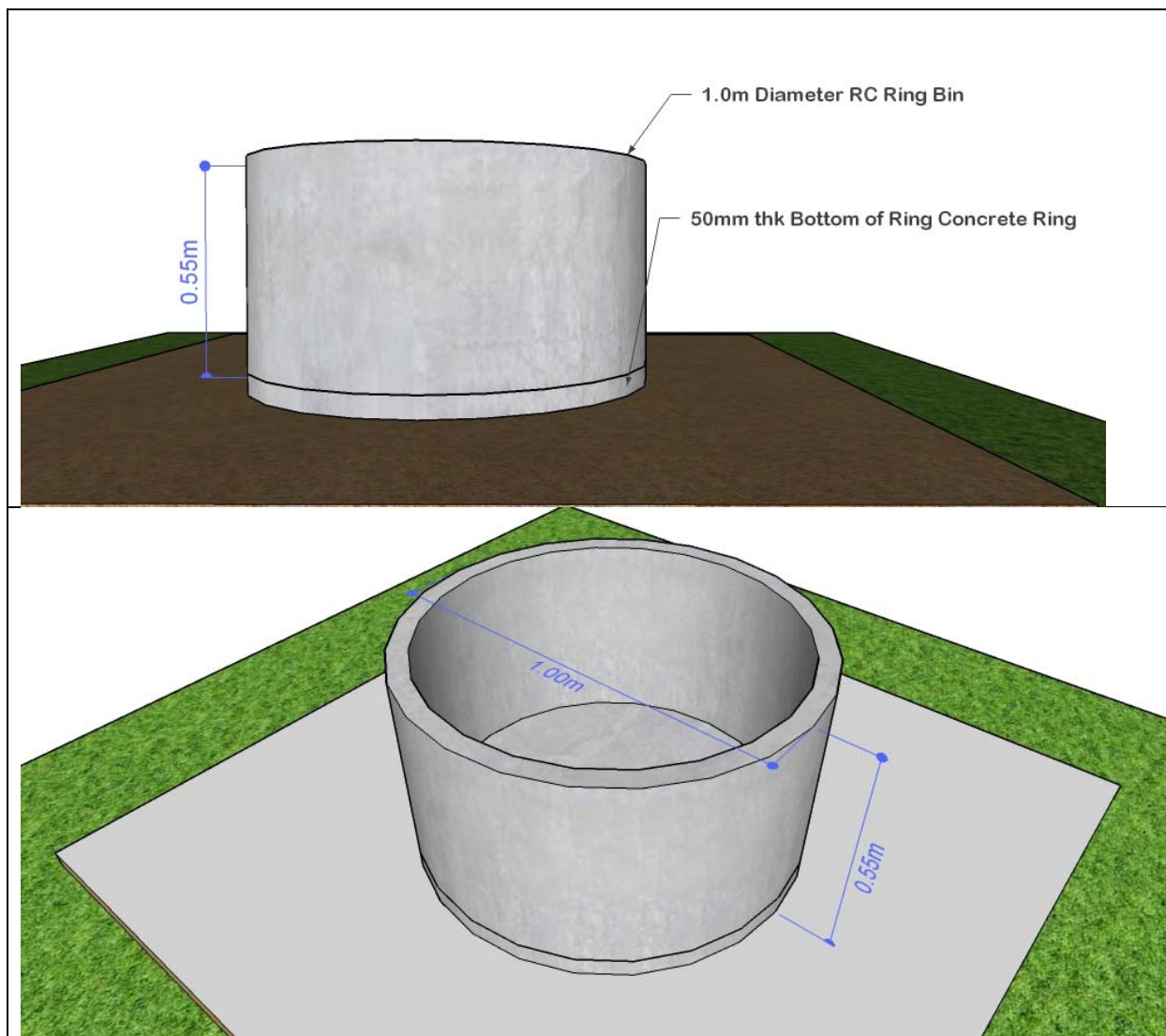
Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

34- Rubbish Bins

The project needs assessment has brought out the need for rubbish bins in the villages as shown in the illustration below. It incorporates SPHERE minimum standards and principles and adds to them where necessary.

The assessment report suggests to provide the Reinforced Concrete (RC) ring bin. The key reasons for these suggestions are:

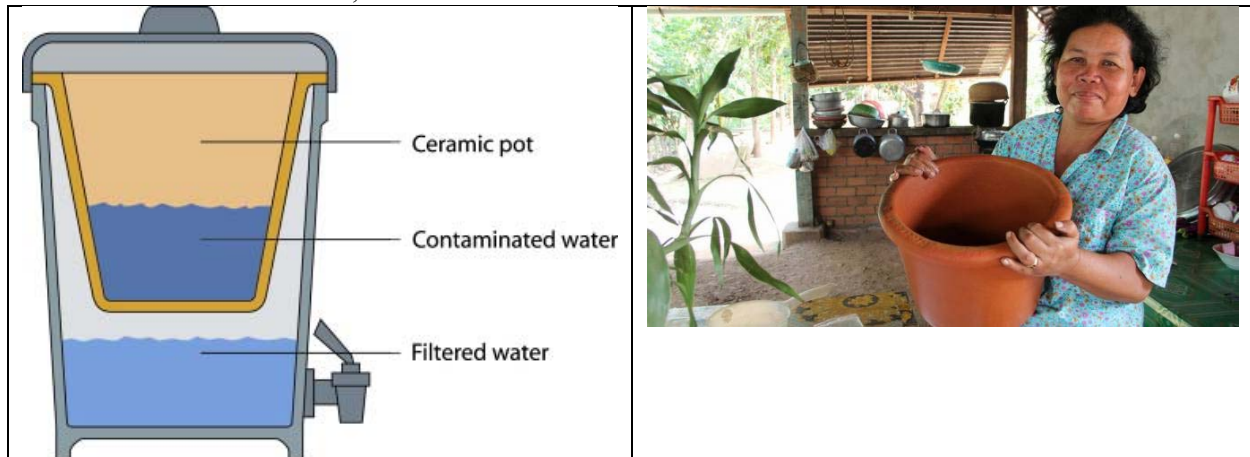
- a) With this kind of RC bin, we can burn rubbish inside at the place we put it
- b) The RC bin is more durable than tire, wood, and steel
- c) the chances of theft are very low with this heavy bin
- d) With 0.5m height, community people must burn their rubbish otherwise it will spoil and spread bad smell with batteries to over their villages
- e) We do not need supporters (concrete, woods, and steels) to support the RC bin. We mobilize community people to mount up the soil to the unflooded level and put the RC bin on the elevated soil.
- f) The cost of the RC bin is cheap about 10 to 15 US dollars



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35- Water Filters

To solve the problem of water quality and the long term durability of the apparatus, the project suggests clay burned water filter which has been proven in the past and acceptable to the communities. The sample illustrations are shown below,



III. PROPOSED PROJECT DEVELOPMENT OBJECTIVE(S)

36- **Proposed Project Objective.** The objective of the project is to increase sustainable access to safe water supply including handling, storing and using water, to improve sanitation with MRD or UNICEF minimum standard, to improve the common hygiene behaviors and to improve environmental health and hygiene with population including the ethnic most vulnerable poor in the rural municipalities of Cambodia, focused on supporting the Government in mitigating against recurrent flooding, deteriorating water quality arising from arsenic, pathogens, salinity and others and poor solid waste management

37- **Key Results** The key results of the proposed project are listed below.

- a. Increase in population with access to safe, sustainable, piped water supply
- b. Increase in population with access to safe, sustainable, point water sources
- c. Increase in population with access to improved sanitation
- d. Increased role of Private Sponsors in provision and scale up of piped rural water supply
- e. Increase in population with improved common hygiene and sanitation practices
- f. Increase in population with improved environmental health and hygiene

38- **Delivery Design:** Delivery of Small Scale Mitigation measures, Infrastructure improvements and Sanitation Grants to ID Poor 01 and 02 in the provinces of Pursat and Kampong Chhnang

IV. PRELIMINARY DESCRIPTION

39- The following summarizes the proposed key areas of support:

- a. Reduce the suffering of poor and disaster prone households through provision of sanitation and small scale mitigation supports
- b. Improve the resilience and economic wellbeing of disaster affected households by restoring livelihoods and capacity building initiatives

40- Component 1: Water Supply Schemes :

Assessment findings from Kampong Chhnang and Pursat Province in 6 villages namely Samrong, Chong Kosh, Kandal, Kbal Hong, Toul Makak and Kosh are the majority of population had access to sufficient quantities of water during the rainy season but the water was likely to be microbiologically unsafe for

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drinking. Minority of people in communities of Kampong Chhnang province used river water whereas in Pursat province used water mostly from open wells, hand pumps and ponds. During the dry season most of these sources dried up making it difficult for women, girls and children to get water. A few households were using the filters. Most of the open wells and ponds were reported that perceived as unsafe for drinking. The water committees were formed by Cherakpheap organisation, but it was not functioning, no plan for collecting funds for operations and maintenance. On the note most of the surroundings of the open wells were unclean.

41- Component 2: Sanitation Facilities

Open defecation was very common in these two provinces found from the assessment, with majority of people in Kampong Chhnang province defecating in the along the rivers and flooded water or in the rivers and flooded water they used the water for drinking. A minority (30%) of community villagers have latrines (using local materials such as zinc, palm leaves, old cloth to build wall and roof) were reported. With this percentage, the HHs family in communities can properly use their toilets in both seasons (dry and raining seasons, even in flooded season). Only 43% of community villagers in Pursat province had toilets (only some improved toilets facilities) that could be flooded if the level of flooded water is high. There is no latrine's committee for O & M in these both provinces.

42- Component 3: Environmental Health and Hygiene

The environments were polluted by big piles of trash and faeces. Most compounds in villages and along the paths were littered with garbage in these 6 villages. It furthermore has none rubbish bins in all villages after observation. That unhealthy environments affected to community villagers 'health. Most of them have dengue, malaria, diarrhea, respiratory infections and tuberculosis were cited by the community as the main causes of morbidity and mortality (one person died for one week ago because of dengue and another one person also died because of chronic diseases). Health staff cited the same diseases as the main causes of hospital attendances. The body including hands and foets and cloth of respondents and villagers, especially children who came for focus group discussion were dirty. The materials for cooking foods and drinking water as well as for using for all purposes were not clean.

43- Component 4: Capacity Building and Project Management

Trainings on WASH using PHAST and CLTS methodologies will be conducted to project staff, community members/groups, relevant focal persons from government, local authorities and voluntary health community villagers. The WASH/public health risks during emergencies and public health promotion before, during and after emergencies trainings including community awareness raising/hand washing campaign will also be conducted to the community villagers and the Village Committee for Disaster Management. Local training will be done with the technicians for water committees and Operation and Maintenance of latrines. This project sanitation grant will be managed in overall by the team leader guided by high management level with technical supports from WASH Engineer, WASH Specialist and CCA Specialist. The fields staff in both provinces will take in charge of monitoring and follow up for the routine project field activities implementation.

V. IMPLEMENTATION STRATEGY

- 44- The delivery of the small scale infrastructure and mitigation measures action will involve the CMEI project working towards empowering the local communities to assess, implement and undertake their own small-scale infrastructure programmes through training and support along with accessing government funding for development actions at the local level. The access to Sanitation Grants will ensure that water, sanitation and hygiene actions are implemented effectively, efficiently, professionally, and in accordance with the culture and practices of the local population. The project will ensure that gender, DRR and protection issues are fully taken into account and with the partners, and ensure the participation of women in decision making around public health engineering issues. The project will have engage with ethnic minority, disabled persons, children and local authorities in the entire process of project cycle design and implementation.
- 45- **Process/steps of activities before delivering sanitation grant:** The CMEI team has identified the following key steps for the delivery of the support action
- a) **Needs Assessment:**
 - i. Conduct survey/assessment of the targeted villages (poor 1&2, women, children and disabled persons. Possible contribution from HHs village);
 - b) **Technical Design**
 - i. Develop design, BOQ and bidding documents;
 - ii. Design latrines and wells;
 - iii. Develop BOQ;
 - iv. Combine design, BOQ and technical specifications;
 - c) **Bid Procedure**
 - i. Develop bidding documents;
 - ii. Develop availability of budget;
 - iii. Conduct announcement for bidding;
 - iv. Find out legal construction companies (VAT);
 - d) **Selection procedure**
 - i. Pre-select (scan and scrutinize) for 3 legal companies;
 - ii. Sell bid and submit bid (agreed with proposals that legal companies submitted);
 - iii. Dateline for submitting bids with seal and companies stamp;
 - iv. Meeting for opening seal with management committees and commune, village committee chiefs (teachers, chiefs of commune, village and old persons in the villages) using LCD presentation;
 - e) **Community Ownership**
 - i. Intensive Meetings with commune and village committees informing and sharing the final decision on selected construction procedure
 - ii. Develop contract with selected legal company and relevant commune and village committees;
 - iii. Train commune and village committees about the process of construction;
 - f) **Sustainability**
 - i. Operations and maintenance training, making O and M plans⁴, providing toolkits for small repair, creation of O & M funds with community contribution and planning for exit.

⁴ Operation and Maintenance plans

46- The project cycle of the proposed intervention

47- **Grant Sanitation/Wash Process:** The key steps in the delivery of the grant process have been identified as follows, this is based on the discussions with the various stakeholders and learning based on past works in other Cambodia and elsewhere.

- i. Check and Verify the existing data on ID Poor HHs and the HHs that need the grant support
- ii. Conduct HHs survey for WASH and HYGIENE needs collaborating with local authorities
- iii. Conduct meeting with key relevant stakeholders to check existing committee or create new structures of community committee for management and maintenance include coordination to establish bylaws/principles
- iv. Contract sign with the HHs that need WASH/HYGIENE Grant after selection
- v. Support the WASH/HYGIENE inputs or grant to HHs through implementation oversight and close monitoring and technical advisory
- vi. Monitoring and follow up on the activities of WASH/HYGIENE Grant for whole process
- vii. Case study and reporting

NOTE: In cases of large grant supports, we need to have bidding process with 7-12 steps of procurement procedures

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48- Logical Framework of Action

IMPACT	<i>Improve the living conditions of poor and disaster prone ID poor communities in Pursat and Kampong Chhnang Provinces of Cambodia</i>		
Specific Objectives/ OUTCOMES	Results/ OUTPUTS	Activities	Objectively verifiable indicators
	1. Water Supply	1. Provide clean piped water (service costs 100\$ per a HH) to ID poor I & II HHs family in communities in two target provinces. 2. Provide communal open wells, hand pumps, ponds and water tanks to target community villagers. 3. Distribute water filters, big water jars and water harvesting systems to target HHs family. 4. Improve the existing water sources (treat and disinfect the existing water sources) to target communities. 5. Decrease the price of piped water use from 1800 riels per m ³ to 1000 riels per m ³ to target ID poor I & II HHs family in communities. 6. Form the water committees with contribution from community villagers for its functioning.	# of clean pipes water connected. # of water points (open wells, hand pumps, ponds and water tanks) constructed. # water filters, water jars and water harvesting systems distributed. # of water sources improved. # of water committees formed.
	2. Sanitation Facilities	1. Build improved latrines based on MRD and UNICEF minimum standards for 70% of HHs family in Kampong Chhnang and 57% of HHs family in Pursat with contribution from the communities between 10% and 30%. 2. Repair and improve the broken and flooded latrines. 3. Form the O & M committees with contribution from community villagers for its functioning.	# of improved latrines built by MRD and UNICEF minimum standards. # of latrines improved and repaired. # of O & M committees formed with well-functioning.
	3. Environmental Health and Hygiene	1. Dig and restore canal and drainages. 2. Provide trash bins 3. Collect big and large piles of garbage under houses. 4. clean compounds in the villages	# of canal and drainages dug and restored. # of trash bins provided. # of garbage piles collected. # of compounds clean

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	4. Capacity Building	1. Conduct WASH training using PHAST and CLTS methodologies/public health promotion during DRR	# of trainings conducted.
		2. Conduct training on environmental and personal hygiene and water born disease	
		3. Conduct training on the repair of water points and latrine construction/maintenance to technicians	
		4. Conduct community awareness raising/hand washing campaign	# of campaigns and awareness raisings conducted.

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49- **Basic implementation plan:** The implementation plan is given below:

Activities/Month	1	2	3	4	5	6	7	8	9	10
Validation of needs assessment, beneficiary selection, consultation and planning meetings with partner organizations and communities	■	■								
Orientation/capacity Building of volunteers		■	■			■	■			
Preparations for field operations, user groups, Procurement, Transportation arrangements		■	■	■						
Implementation			■		■		■		■	
Monitoring			■	■	■	■	■	■		
Preparation and submission of report									■	■
Evaluation and Audit									■	

50- Team: the current CMEI team will be sufficient for the delivery of the proposed action at the central level. For the field operations, based on the detailed needs assessment, additional human resources will be deployed esp. on the engineering and technical advisory component

51- Monitoring: The implementing agency is required to perform monitoring activities of all aspects of the Agreement, which includes monitoring of program activities, financial expenditures and compliance with the terms and conditions for the funding Agreement and MPWT & ADB policies through closeout.

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VI. FINANCIALS/ CONTRACTS AWARDS AND GRANTS DISBURSAL SCHEDULE⁵

- 52- **Support Mode:** The proposed action will be a Delivery driven grant support programme (subject to MPWT- ADB approval)
- 53- **Advance fund-** given the critical need to start the action immediately, advance fund is the suggested way of grant disbursement
- 54- **Bidding Procedure:** Given the nature of the proposed intervention and the timelines, it is suggested that the single stage- one-envelope bidding procedure be followed. The key requirements of the selected agency will be as per the standard ADB norms including:
- 55- **Timeline:** 8-12 months programme (one year) Starting from October 2018 (last qtr. of 2018)

56- Bid schedule

The proposed schedule of action for the bid has been prepared with the understanding that the proposed timeline is 8-12 months with the model of funding being grant backed by robust monitoring and reporting

Activities	Schedule
CN preparation	July 2018
ADB concurrence of draft CN	Aug 2018
CN updating	Aug 2018
Consultation	Continuous
ADB/ GoC Concurrence on the CN	Aug 2018
Finalisation of the procurement process- selection of Implementing Agency	Sept 2018
Implementation of the approved updated Action (activities to be implemented in phases, coinciding with civil works)	4 th Quarter 2018– 3rd Quarter 2019
Internal monitoring (submission of quarterly reports)	2018-19 (every Qtrly)
External Monitoring (verification, quarterly monitoring reports, and evaluation study)	2019 (Qtrly)

57- Disbursal Schedule

Actions	Deliverables and Projected Timeline	Amount in USD
1 st Instalment	On signing of contract (15%) – 0 Month	TBC
2 nd Instalment	Submission of Inception Report (30%) two months from the date of the agreement	TBC
3 rd Instalment	Submission of Mid Term Report (In addition to the Qtrly Progress Report –at the end of 6 months (35%))	TBC
4 th Instalment	Completion of the project (20%)	TBC

Note:

- It is important that disbursements to the project take place at the same pace at which expenses accrue in the project accounts.
- Mandatory progress reports and/or project account reports must be submitted to and approved by MPWT before funds may be disbursed.

58- Tentative Financing

Source:	(\$m.)
BORROWER/RECIPIENT	TBC
Total	

⁵ subject to MPWT- ADB approval

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59- Indicative Budget

The Project team has worked out a draft budget indicative to the tune of the works needed in the field, The support cost will be approximately 25% of the total budget outlay

Estimated Budget in Detail				
No	Description	Qty of unit	Unit price	Amount (USD)
Programme				
P1	Start Up Actions	1	25,000	25,000
P2	Community Level Support			204,500
1.1 Water Pipes				
1.1.1	Water pipes in Kampong Chhnang	300	155	46,500
1.1.2	Water pipes in Pursat	260	100	26,000
1.2 Communal open wells				
1.2.1	Communal open wells in Pursat	4	2,750	11,000
1.3 Hand Pumps				
1.3.1	Hand pumps in Pursat	4	3,000	12,000
1.4 Ponds				
1.4.1	Ponds (5m x 10m in depth 3m) in Pursat	4	1,650	6,600
1.5 Water catchment tanks				
1.5.1	Water catchment tanks (7000m ³) in Pursat	2	1,000	2,000
1.6 Canal Restoration				
1.6.1	Restore canal in Pursat	2	10,000	20,000
1.7 Drainage Management				
1.7.1	Diq drainages in Pursat	2	9,250	18,500
1.7.2	Drainages in K. Chhnang	2	9,500	19,000
1.7.3	Restore drainage in K. Chhnang	2	7,250	14,500
1.8 Environmental Management				
1.8.1	Concrete trash bins in both provinces	144	25	3,600
1.9 Hygiene Promotion				
1.9.1	Hygiene Promotion/PHAST and CLTS training conducted by MRD	4	4,500	18,000
1.9.2	Campaigns on hand washing/communities awareness in both provinces	6	400	2,400
1.10 Water Treatment				
1.10.1	Restore/Treat/disinfect water points in Pursat	2	1,100	2,200
1.10.2	Restore/Treat/disinfect water points in KPCH	2	1,100	2,200
P2	Individual Household Level Support			1,090,500
2.1 Water Filter at Household Level				
2.1.1	Water filters in Pursat	850	25	21,250
2.1.2	Water filters in KPCH	850	25	21,250
2.2 Rainwater Harvesting Support				
2.2.1	Raining water harvesting systems in Pursat	400	35	14,000
2.2.2	Raining water harvesting systems in KPCH	400	35	14,000
2.3 Latrines				
2.3.1	Latrines attached hand washing facilities in flooded areas in K. Chhnang	850	600	510,000
2.3.2	Latrines attached hand washing facilities in Pursat	850	600	510,000
P3	Visibility	1	10,000	10,000
P4	Communication	1	15,000	15,000
P5	Monitoring and Evaluation	1	20,000	20,000
	Programme Budget			1,365,000
	Contingency -10%			210,000
	Support-25%			525,000
	Total			2,100,000

VII. CONCLUSION

60- Transition or Exit Strategy

From experience, Community participation and ownership is a central aspect of the project. It will not only ensure a smooth transition and exit of but more importantly, the sustainability of the project, especially the rehabilitation projects. When the community members are involved in the overall process – from planning, implementation, monitoring and evaluation of the project, community responsibility and accountability for the project are also ensured. Community organizations as community project holders also ensure the sustainability of the project.

61- Conclusion

It is evident from the results that the three most important WASH/public health risk factors, namely defecation in the open, drinking unsafe water and inadequate hand washing are common practices among the population within in the target areas. Almost all the villagers in all these 6 villages defecated indiscriminately, in farming fields, bushes, flooded water, by boats, along rivers and community ponds, in the rivers and in the compounds, wherever it was convenient to do so. Most of these areas were adjacent to where they got water for drinking. Feces in the water, in the public and domestic environment are the primary source of diarrheal pathogens. Latrines and burying of feces are considered to be safe ways of excreta disposal.

62- The community HHs family who had latrines would not necessarily yield health outcomes unless a critical mass of the surrounding community also used latrines and disposed of feces appropriately. At the same time, it would be challenging to promote latrine among the ID poor I & II. From the discussions they did not intend to build latrines citing lack of funds and some lands to construct latrines (it should be noted that communities tend to tell agents of what they think will bring the greatest benefits). Other reasons. Some families who were assisted with some materials for latrine construction did not construct citing lack of funds as the reason. It was more likely latrine was seen as a low priority, like everywhere else where open defecation is the norm and when the government reinforces the attitudes by giving it a low priority.

63- In both Kampong Chhnang and Pursat, the minority of community villagers washing hands with soap after defecation and before eating food. It was difficult to ascertain the behavior. Although the hand washing is simple it was learnt in other interventions that promotion of hand washing in households with limited access to water, (for example the households with access to river water) is more difficult than households with piped water. The absence of the technology makes the practice of hand washing more difficult. In some interventions alternatives have been tried to enable the households to practice the behavior, for example the “tippy tap” – a closed vessel with a spigot that provides a slow steady stream of water for washing the hands. This technology provides running water running sparingly for hand washing. Such designs can be included in the latrine design to enable hand washing immediately after defecation.

64- The sustainability of the community management on operation and maintenance of water facilities and latrines O&M is further complicated by absence of spare parts in or near the village, lack of supporting systems to support the water committees, latrines O&M and locally trained technicians, lack of referral system for major breakdowns, non-existing of a functional operation and maintenance system for the other water sources and latrines O&M in the villages, imposed financial contributions.

65- Contact Point

16th August 2018, Phnom Penh

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End of Document

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VIII. ASSESSMENT QUESTIONNAIRE

DATA – WASH/PUBLIC HEALTH PROMOTION

CMEI Project

Interview Questions for Community Members/Groups

1. Situation Analysis:

- 1.1 Describe the current situation with regard to water supply?
- 1.2 Describe the current situation with regard to excreta disposal?
- 1.2. What is the population being targeted? How are they distributed? Are they displaced?
- 1.3 What are the most common health problems in the communities? What could be the causes of these problems?
- 1.4 What are the common hygiene practices regards to water, sanitation and hand washing?
- 1.5 Do people have access to water and soap for washing hands at key times?
- 1.6 What is the local preferred method of anal cleansing?

2. Hygiene Promotion and Public Health:

- 2.1 What water, sanitation and hygiene/public health promotion activities has the organization done so far?
- 2.2 How did you carry out the activities?
- 2.3 What were the achievements and impact?
- 2.4 How did you measure?
- 2.5 What behaviours might be contributing to risks to public health?
- 2.6 What are the current practices on the key hygiene behaviours like:
 - Washing hands after defecation?
 - Method of disposal of children's faeces?
 - Practices for storage and handling of water?
 - Practices of storage and handling of food?
- 2.7 How do people dispose their solid waste?
- 2.8 Is there an understanding of the relationship between water, sanitation and disease?
- 2.9 Do the people have access to:
 - Lidded water containers?
 - Cooking utensils?
 - Bathing facilities?
 - Soap?
 - Menstrual sanitary protection?
 - Mosquito nets?
- 2.10 Are the users involved in the management and maintenance of water sources and latrines?
- 2.11 What hygiene promotion media are available and accessible to the affected population?

3. Communication and Mass Awareness:

- 3.1 Do you have any IEC materials on water, sanitation and hygiene/public health promotion?
- 3.1 Do you have any mechanisms to share information within the communities?
- 3.2 What plans do you have regarding water, sanitation and public health promotion?

4. Access to Water:

- 4.1 Does people have access to sufficient water for all purpose of use in all seasons?
- 4.2 If no, how many water sources do they need more?
- 4.3 What kinds of water source?
- 4.4 How many water sources do they already have in community?
- 4.5 Are there water committees?
- 4.6 If yes, it functions well? And
- 4.7 What is the maintenance plan in place?
- 4.8 How much water is available per person per day?
- 4.9 Is there equitable access to it?
- 4.10 How much water is available at the sources? Is it enough for long term needs?
- 4.11 Is the current water supply reliable? What may affect this (e.g. seasonality)?
- 4.12 Does a provision for drinking water for livestock need to be considered?
- 4.13 What are the water sources?

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- 4.14 Is the water source contaminated or at risk of contamination? By what?
- 4.15 Is treatment required? Is treatment possible? What type of treatment is necessary?
- 4.16 Is water likely to be contaminated during transportation and/or storage? If so, why?
- 4.17 How far are water collection points from where people live?
- 4.18 Are there any problems of accessibility for vulnerable groups, e.g. elderly, disabled, women?
- 4.19 Are there possible alternative sources? What? Where are they?
- 4.20 Are there any legal or other obstacles to using the existing or new sources? What are they?
- 4.21 What do people use to transport water? Do people have enough suitable water containers?
- 4.22 Is there a possibility of contamination during transport and storage due the containers currently in use?
- 4.22 Why is the existing water supply situation inadequate?
- 4.23 What do the local people believe is the best technical solution? Why?
- 4.24 Is there a piped network that can be expanded?
- 4.25 Is rain water harvesting feasible, in terms of rainfall abundance and cultural acceptance?
- 4.26 Are there any springs that can be used?
- 4.27 What other options are available?

5. Sanitation:

- 5.1 Does people have access to toilets while they defecate?
- 5.2 If no, how many toilets do they need more?
- 5.3 What kinds of toilets?
- 5.4 How many toilets do they already have in community?
- 5.5 Are there O&M committees?
- 5.6 If yes, it functions? And have you worked with toilets committees? Community fund raising for O&M?
- 5.7 Are people familiar with the construction of latrines and wells (any builders in the community) any local materials available for latrine construction?
- 5.8 What is your preferred latrine construction for your community villagers?
- 5.9 Is there equitable access to the existing facilities?
- 5.10 Are there facilities for hand-washing?
- 5.11 Are there any problems of accessibility for vulnerable groups, e.g. elderly, disabled, women?
- 5.12 Are the current defecation practices a threat to health? If so, how?
- 5.13 Is there sufficient space for new facilities?
- 5.14 What are the current beliefs and traditions concerning excreta disposal especially regarding women's habits and attitude towards child excreta?
- 5.15 What materials/water is used for anal cleansing? Is it available?
- 5.16 Are both men and women prepared to use communal latrines or family latrines?
- 5.17 How do women deal with menstruation? Are there materials or facilities they need for this?
- 5.18 How does the land slope and what are the drainage patterns?
- 5.19 What is the depth and permeability of the soil, and can it be dug easily by hand?
- 5.20 What is the level of the groundwater table?
- 5.21 What local materials are available for constructing toilets?
- 5.22 When does the seasonal rainfall occur? Will it affect the construction or functionality of new latrines?

6. Solid waste disposal:

- 6.1 Is solid waste a problem?
- 6.2 How do people dispose of their waste?
- 6.3 What type and quantity of solid waste is produced?
- 6.4 Can solid waste be disposed of on site, or does it need to be collected and disposed of offsite?
- 6.5 Are there medical facilities and activities producing waste? How is this being disposed of? Who is responsible?

7. Wastewater disposal

Drainage:

- 7.1 Does flooding occur? What impact does it have?
- 7.2 Do people have the means to protect their shelters and latrines from local flooding?
- 7.3 Are there any stagnant pools of standing water?
- 7.4 What are the existing methods of disposing of water from: water points, domestic waste?
- 7.5 Water from washing utensils, bathrooms, laundry etc., and livestock?
- 7.6 Is there enough slope or drainage facilities for disposal of storm water?

8. Other Agencies:

- 8.1 What are the other agencies or government departments working in water, sanitation and hygiene/public health promotion?

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

8.2 What are they doing?

8.3 Have you worked with them before?

9. Contingency Stocks:

9.1 Do you have any NFIs meant for hygiene purposes?

10. Humanitarian Response:

10.1 Have you been involved in an Emergency Response programme before? Were there any WASH/public health risks (poor sanitation, poor water supply or disease outbreaks)? How were they managed them?

11. Human Capacity

11.1 Do you have specific staff for WASH/public health promotion activities or water and sanitation?

11.2 Are they trained?

11.3 Do you have staff who can be trained and carry out the activities?

11.4 How have you worked with water committees?

11.5 Has there been any experiences with community fundraising for O&M?

12. Disaster Risk Reduction and Resilience Building:

12.1 How do these activities or plans fit in the DRR project?

Mini-assessment data – WASH/Public Health Promotion

Interview Questions for Government departments, commune and village chiefs and other WASH NGOs

1. What water, sanitation and hygiene/public health promotion activities has the organization done so far?

2. How did you carry out the activities? What were the achievements and impact? How did you measure?

3. Do you have any IEC materials on water, sanitation and hygiene/public health promotion?

4. Do you have any mechanisms to share information within the communities?

5. Do you have any NFIs meant for hygiene purposes?

6. What plans do you have regarding water, sanitation and hygiene/public health promotion?

7. How do these activities or plans fit in the Emergency Preparedness Plan?

8. Do you have specific staff for WASH/public health promotion activities? Are they trained? Do you have staff for capacity building?

9. Have you been involved in an Emergency Response programme before? Were there any WASH/public health risks (poor sanitation, poor water supply or disease outbreaks)? How were they managed them?

10. What are the most common health problems in the communities? What could be the causes of these problems?

11. What are the common hygiene practices regards to water, sanitation and hand washing?

12. Do people have access to water and soap for washing hands at key times?

13. Does people have access to sufficient water for all purpose of use in all seasons? if no, how many water sources do they need more? what kinds of water source? How many water sources do they already have in community? Are there water committees? If yes, it functions? and how have you worked with water committees? Community fund raising for O&M?

14. Does people have access to toilets while they defecate? if no, how many toilets do they need more? what kinds of toilets? How many toilets do they already have in community? Are there O&M committees? If yes, it functions? and have you worked with toilets committees? Community fund raising for O&M? Are people familiar with the construction of latrines and wells (any builders in the community) any local materials available for latrine construction? What is your preferred latrine construction for your community villagers?

15. Do you have any existing outreach workers? How active are they?

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

Household Interview for CMEI Project

Name of interviewer: -----

1	General information			
	Date of interview:	Name of Province:		
	Name of district:	Name of commune:		
2	Demographic data (disaggregated)			
	Total number of people in the household	Adult Male	<5 Male	5-15 year old Male
		Adult Female	<5 Female	5-15 year old Female
	Is your household female-headed or male headed?	Female		Male
	How many people in your family can read and write?	Female		Male
3	Drinking water supply and handling			
	From where do you obtain your drinking water?	River	Open Well	Pond/dam
		Hand pump	Rain harvested in jars	
	How many water collection containers do you have			*Approx. total Liters
	How many containers do you use every day for your whole family			*Approx. total Liters
	Observe: Number of water harvesting jars	Number of jars with cover		Number of jars not covered
	Do you have a separate container for storing drinking water			Yes No
	Can you show me how you take water from that container if you want a drink?	Uses a clean utensil		Uses dirty utensil
		Uses hand		Container has a tap
	Do you consider your drinking water to be safe for drinking?			Yes No
	Explain answer			
	Do you treat your water before drinking?			Yes No
	If yes – what treatment method do you use	Boiling		Use of household filters
		Chlorination		Other
	Observe: Is the drinking water storage container	Clean and covered		Yes No
		Clean and uncovered		Yes No
		Dirty but covered		Yes No
		Dirty and uncovered		Yes No
4	Hygiene – hand washing			
	When do you think are the important times to wash your hands	After visiting the toilet		Before eating
		Before preparing food		After handling children's excreta
		After eating		Other
	With what do you wash your hands?	Water + Soap	Water + Ash	Water Only Other
	Ask to wash your hands – were you offered soap?			Yes No
5	General household hygiene			
	Observe:			
	Is the compound littered with rubbish?			Yes No
	Are the livestock pens within the compound clean?			Yes No
	Is there a household drying rack for utensils?			Yes No
	Is there visible children excreta littering the compound?			Yes No

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

Are there visible discarded containers/tires/coconut shells that can hold water	Yes	No
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6 Latrine use & Sanitation					
Where do the adults in your family help themselves? During the day During the night	Latrine	Bushes	River	Other	
	Latrine	Bushes	River	Other	
Where do the small children (under five) defecate?					
Do women and girls have any problems in helping themselves During the day? During the night?	Latrine	Bushes	River	Other	
	Latrine	Bushes	River	Other	
What do you do with the faeces of small babies?	Dispose in latrines	Bury them	Leave for dogs to eat	Other	
Observe:					
If there is a	Family latrine	Shared latrine	No latrine		
Type of latrine	Pour flush	Dry hole	Other		
If the latrine condition is	Good	Fair	Bad		
Household Health					
Has anyone in your household been sick over the past two weeks?				Yes	No
If yes, list illness		Children < 5	Women	Men	
Which are the most common 5 diseases affecting sections of your family – list in order of severity					
		Children < 5	Women	Men	

Focus group discussion guide

- I. **Water source and use:**
 1. Where do you collect your water? (drinking, washing, cooking, watering gardens)
 2. Do the water sources change with different seasons in the year (water harvesting during rainy season etc.)?
 3. In your opinion, what would you say about the water in terms of? (taste, quality, distance, colour)
 4. Who collects the water? What do they collect it in?
 5. How long does it take to collect water?
 6. Do you transfer water to another container for storage?
 7. Are there communal water facilities? if yes, how many? what kinds? do you need more (how many?) Who manages them (any committees? function? fund raising for water committees?)
 8. In your opinion, what can be done to improve on the issues you have mentioned about your current water supply? What should the community do?

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

<p>II. Latrine Use</p> <ol style="list-style-type: none"> Are people familiar with the construction and latrine use? (any builders in the community, local materials available) What type of latrines do you have? How do you find the latrines? (Structure, cleanliness, privacy, smells etc.) Why is it that some people do not have latrine? Do women and men use the same latrines? Do young children use the latrines? Do young children wash their hands after using the latrine? 	<ol style="list-style-type: none"> Do adults wash their hands after using the latrine? Do people have access to water and soap for hand washing? Does all HH villagers in village have toilets? if no, how many toilets do you need more? what kinds of your preferred toilets? How many toilets do you already have in community? Are there O&M committees? If yes, it functions? Community fund raising for O&M? How can we persuade other people to build a latrine? How do people get health messages? Do you any mechanisms to share information within the communities?
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<p>III. Common diseases (emphasis on Dengue and diarrhoea)</p> <ol style="list-style-type: none"> What are the most common diseases at present and which are the most serious? What are the chronic diseases at present? Who gets these diseases? Men, Women, Young children older children? What do you do when someone has Dengue and diarrhoea? (Find out if people classify these separately) 	<ol style="list-style-type: none"> Who do you go to? When do you go? What do they do? What do you do if this treatment doesn't work? What causes Dengue and diarrhoea? – (Probe for other Answers) How can it be prevented? What are families and communities doing to prevent them? Does the water cause diseases?
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Exploratory walk Guide
CMEI Project

<p>Water</p> <ol style="list-style-type: none"> What are the available water sources and are they protected? <ol style="list-style-type: none"> Well Spring Rain water tank Seasonal Pond Public Stand Post Hand dug well River Who collects water? <ol style="list-style-type: none"> women children men What utensils are used for fetching water? 	<ol style="list-style-type: none"> What activities take place at or near the water source? <ol style="list-style-type: none"> washing water containers washing clothes bathing/washing watering animals other How long do people have to queue for water? How long does it take to fetch water? (round trip) – try to accompany a few people back to their houses and time how long it takes or pace the distance Is water available continuously or at specific times only – give details. Is there adequate drainage at water points?
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<p>Sanitation</p> <ol style="list-style-type: none"> Is there evidence of faecal contamination? <ol style="list-style-type: none"> Along the roads? Along the foot paths? Near the water source? In/ near the field Outside the houses / shelters? What is the contamination observed? <ol style="list-style-type: none"> infants/young children's faeces adults' faeces cow dung and/or other animal faeces other 	<ol style="list-style-type: none"> Are the latrines clean? If not are there: <ol style="list-style-type: none"> flies faeces smell lid If clean is there evidence of use e.g. path leading to it used, recent faeces Are there any urinate and hand washing facilities near to the latrine? <ol style="list-style-type: none"> water water and soap/ash Are there public toilets in public places? <ol style="list-style-type: none"> markets
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Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

<p>4. Where is it observed</p> <p>a) compounds</p> <p>b) water points</p> <p>c) defaecation areas</p> <p>d) indiscriminate</p> <p>5. How many houses / shelters have latrines?</p> <p>a) none</p> <p>b) few</p> <p>c) many</p>	<p>b) schools</p> <p>c) other</p> <p>10. How do people dispose of rubbish?</p> <p>a) burn it</p> <p>b) bury it</p> <p>c) communal rubbish tip</p> <p>d) indiscriminate disposal</p> <p>11. Is there evidence of rubbish attracting flies?</p> <p>12. Is there adequate rubbish disposal in the compound, canal and village or school/market?</p> <p>13. Is there adequate water supply in the HH, village or school/market?</p>
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Questionnaire On Climate Change assessment

1-Note of climate change situation

1.1. Weather

- Weather now is cold than before
- Weather is hot as normal
- Weather is hot than before

1.2. Wind

- Around 20 years ago the numbers of storms were.....times in one year, but now aretimes per year and most of storms are in the month.....

1.3. Rainfall

- In the last 2-3 years the amount of rainfall was least than or more if compare to the 15-20 years ago?
 - o More than
 - o The same if compare to 15-20 year ago
 - o Least than
- During the last 2-5 years, when the rainy season starts in which month and when stop the rainy season if compare to the 15-20 years ago?
 - o Now almost the rain starts from the month ofand finishes at the month of
 - o The same of 15-20 years ago. In 15-20 years ago the rain started from the month.....and ended in.....

1.4. Drought

- How about the drought during the last 4-5 years?
 - o Drought many time
 - o No existed drought
 - o Normal

1.5. Flood

- How about the flood situation if compare to 15-20 years ago?
 - o Do not consistent
 - o In the last 3- 4 years always small flood
 - o The flood is normal during the last 3- 4 years
 - o In the last 3- 4 years the flood considerable affected the livelihood and economy

2-Climate Change affected on Economics livelihood and Health-Sanitation

2.. **Weather:** Due to the climate change, if really increased of temperature on the earth,

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- What the hot weather affected to the economy and livelihood of community? Such as:
 - o Reduced the amount of water irrigation
 - o Affected to the growing of crops and reduced the yield
 - o Disease infection and livestock dead such as:
 - cattle
 - pig
 - chicken
 - others

2.2. Wind: Due to the climate change, if many storms existed,

- What it damaged to the community livelihood and economy? Such as:
 - o Fall down the houses
 - o Affected to the crops
 - o Due to the strong storm diseases infection to the crops and lost the yield
 - o A lot of livestock dead due to diseases infection
 - o Destroyed of rural infrastructure such as:
 - school
 - pagoda
 - public buildings

2.3. Situation of Rainfall regime:

Due to the climate change, the regime of rainfall is not well distributed; this change is affected to the livelihood and economy of the community? Such as;

- o Many time were drizzled and affected the growing of the crop due to lack of water
- o The number of rainfall per month is reduced and affected to the growth of the crops due to lack of water
- o A lot of number of rainfall damaged to the crop growth due to many water
- o Livestock dead
- o Human diseases infection
- o Disturb to the daily activity of people for income generation
- o Very heavy rain in one time that produced flash flood
- o Erosion and damaged the rural infrastructures
- o Affected to the crops
- o Animal lost by flash flood
- o Affected the children to school
- o Disturbed to the daily activity of people for income

2.4. Impact by Drought

- Due to the climate change, in this community existed drought or not?
 - o Never
 - o Frequently
- If existed drought, what the impact of drought to the community livelihood and economy? Cultivated crops are destroyed, such as:
 - o Rice
 - o Maize
 - o Cassava

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

- The crop yield is reduced
- Other crops

Livestock dead, such as;

- Chicken
- Pig
- Cattle

Human diseases infection the diseases are.....

Dried off the source of water such as;

- River
- Lake
- Pond
- Well

Lack of water for human usage

- Strong affected
- no affected
- People have solution

2.5. Impact by flood

- Due to the climate change, in this community have had flood or not?
 - Never
 - Has flood
- If have flood in your community what affected by flood to the community livelihood and economy? Such as: cultivated crops and animal were damaged
 - Rice
 - Maize
 - Cassava other crops
 - The crop yield is reduced due to a lot of water
 - Diseases infection and livestock dead such as;
 - Chicken
 - Pig
 - Cattle
- Human diseases infection Such as.....
- Some sources of water can't use due to dirty during the flooding time such as;
 - River
 - Lake
 - Pond
 - Well
- During the flooding time people in community lacked of clean water used
 - Strong needs
 - No lack
 - People can resolved by themselves
- The flood brought a lot of waste (plastic, and other) into the village and around the village

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

- Brought a lot of waste
- Little
- Non
- Created dirty environment in the village

3. Community awareness on climate change and disaster management

- Used to hear from others
- Used to participate in some trainings/disseminations
- People least than 50% in the community have known about this
- The percentage of people in the village used to participate in the training on climate change:
 - Least than 30%
 - Between 30% to 70%
 - More than 70%
- If people in the village participated the training on climate change, what topic they learned?
 - Climate and Weather
 - Greenhouse gases
 - Problem created by climate change
 - Impact of climate change
 - Action to mitigate the climate change
 - Climate change adaptation activity

3.2. Commune Committee for Disaster Management (CCDM):

- Member of CCDM in this commune, total..... (women.....)
- The functionality of the CCDM;
 - Active
 - No active
- Did the Commune Committee for Disaster Management participated training on Disaster Risk Reduction and Emergency Respond?
 - Never
 - Participated
- If they had participated the DRR and Emergency respond, how many member participated? They participated this training? In year.....participants, includedwomen.
- Do the CCDM have prepared the DRR plan and emergency respond plan?
 - Already done
 - Already done and updated
 - Already done but not yet update
 - In the process of preparing
 - Not yet preparing
 - No idea how to prepare this plan
- Are this CCDM has experiences in the respond of any disaster?
 - Yes
 - Never

4- Action taken for mitigating the impact of climate change to the community

Concept Note for the Delivery of Small Scale Infrastructure Improvements and Sanitation Grants to the Poor ID 01 and 02 in Cambodia

4.1. Contribution to reduce the effect of climate change

- What action taken to reduce the climate change by community members?
 - o Reduced the use of pesticide and chemical fertilizer
 - o Did not burn the solid waste, forest, or rubbish in the farm that produce smoke
 - o Did not use the old machine that emerged a lot of smoke
 - o Did not throw the waste any where
 - o Did not destroy the forest or cut the trees

4.2. Action taken to mitigate the negative impact of climate change

- What action taken by community members to mitigate the negative of climate change?
 - o Created the source of water such as Pond, small dam...
 - o Established the small scale irrigation system in the community
 - o Established the water reservoir for keeping water for using in dry season
 - o Used the short time maturity variety of crops for production
 - o Produced and promoted the usage of organic fertilizer (compost)
 - o Repaired the houses with strong condition for against the strong wind
 - o Established the drainage system to reduce the affect by flood
 - o Established dams or dikes to protect from the flood

PROCUREMENT PLAN

Basic Data

Project Name: Integrated Urban Environmental Management in the Tonle Sap Basin Project- TBC
Project Number:-TBC
Country: Cambodia
Project Procurement Classification:
Project Procurement Risk:
Project Financing Amount: \$2,100,000
ADB Financing: \$2,100,000
Date of First Procurement Plan: 15 August 2018

Approval Number:
Executing Agency: Ministry of Public Works and Transport
Implementing Agency: CMEI (PADEK-WEDC)
Project Closing Date: 31 July 2019
Date of this Procurement Plan:

NA

A. Methods, Thresholds, Review and 10-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and services		
Method	Threshold	Comment
International Competitive Bidding for Goods	US\$ 1,000,000 and Above	
National Competitive Bidding for Goods	Between US\$ 100,001 and US\$ 999,999	The first NCB is subject to prior review, thereafter post review.
Shopping for Goods	Up to US\$ 100,000	
International Competitive Bidding for Works	US\$ 3,000,000 and Above	
National Competitive Bidding for Works	Between US\$ 100,001 and US\$ 2,999,999	The first NCB is subject to prior review, thereafter post review.
Shopping for Works	Up to US\$ 100,000	

Consulting Services	
Method	Comment
Consultant's Qualification Selection for Consulting Firm	
Quality- and Cost-Based Selection for Consulting Firm	
Quality-Based Selection for Consulting Firm	

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 12 months.

General Description	Estimated value USD	Procurement	Review (Prior)	Bidding	Advertisement Date (quarter/year)	Comments

Water Pipes in Kampong Chhnang	46,500	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Water pipes in Pursat	26,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Communal open wells in Pursat	11,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Hand pumps in Pursat	12,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Ponds (5m x 10m in depth 3m) in Pursat	6,600	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Water catchment tanks (7000m ³) in Pursat	2,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Restore canal in Pursat	20,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document

Dig drainages in Pursat	18,500	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Drainages in Kampong Chhnang	19,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Restore drainage in Kampong Chhnang	14,500	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Concrete trash bins in both provinces	3,600	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Hygiene Promotion/PHAST and CLTS training conducted by MRD	18,000	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Campaigns on hand washing/communities awareness in both provinces	2,400	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y Bidding Document
Restore/Treat/disinfect water points in Pursat	2,200	NBC	Prior	-	Q4/2018	Prequalification of Bidders: N Domestic Preference Applicable: Y

						<i>Bidding Document</i>
Restore/Treat/disinfect water points in Kampong Chhnang	2,200	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Water filters in Pursat	21,250	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Water filters in Kampong Chhnang	21,250	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Raining water harvesting systems in Pursat	14,000	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Raining water harvesting systems in Kampong Chhnang	14,00	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Latrines attached hand washing facilities in flooded areas in Kampong Chhnang	510,000	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i> <i>Bidding Document</i>
Latrines attached hand washing facilities in Pursat	510,000	NBC	Prior	-	Q4/2018	<i>Prequalification of Bidders: N</i> <i>Domestic Preference Applicable: Y</i>

Consulting Services							
General	Estimated	Number of Contracts	Recruitment	Review (Prior)	Advertisement	Type of Proposal	Comments
Engineering		5	Selection of Individual Consultant	Prior	Q4 / 2018	EOI	Assignment: National
Community mobilization		6	Selection of Individual Consultant	Prior	Q4 / 2018	EOI	Assignment: National

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package	General Description	Estimated Value	Estimated Number of	Procurement	Review	Bidding Procedure	Comments

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

1. Awarded and Ongoing Contracts

Goods and Works

Package	General	Estimated	Awarded Contract	Procurement	Advertisement Date (quarter/year)	Date of ADB Approval	Comments
None							

Consulting Services

Package	General	Estimated	Awarded Contract	Procurement	Advertisement Date (quarter/year)	Date of ADB Approval	Comments
None	Project Management and Implementation -CMEI						

D. National Competitive Bidding

A. Regulation and Reference Documents

1. *The procedures to be followed for national competitive bidding shall be those set forth for the "National*

Competitive Bidding" method in the Government's Procurement Manual issued under Sub-Decree Number 74

ANKR.BK, updated version dated 22 May 2012 with the clarifications and modifications described in the following paragraphs. These clarifications and modifications are required for compliance with the provisions of the Procurement Guidelines.

2. *For the procurement of ADB financed contracts under National Competitive Bidding (NCB) procedures, the use of harmonized national bidding documents (NCB and National Shopping) developed in consultation with development partners including ADB, is mandatory except where the Government and ADB have agreed to amendments to any part of the documents. The Procurement Manual also advises users to check the ADB website from time to time for any update on ADB documents, which form the basis, among others, of the existing harmonized national bidding documents.*

B. Procurement Procedures

1. Application

3. *Contract packages subject to National Competitive Bidding procedures will be those identified as such in the project Procurement Plan. Any change to the mode of procurement of any procurement package in the Procurement Plan shall be made through updating of the Procurement Plan, and only with prior approval of ADB.*

2. Sanctioning

4. *Bidders shall not be declared ineligible or prohibited from bidding on the basis of barring procedures or sanction lists, except individuals and firms sanctioned by ADB, without prior approval of ADB.*

3. Rejection of all Bids and Rebidding

5. *The Borrower shall not reject all bids and solicit new bids without ADB's prior concurrence. Even when only one or a few bids is/are submitted, the bidding process may still be considered valid if the bid was satisfactorily advertised and prices are reasonable in comparison to market values.*

4. Advertising

6. *Bidding of NCB contracts shall be advertised on the ADB website via the posting of the Procurement Plan. Borrowers have the option of requesting ADB to post specific notices in the ADB website.*

C. Bidding Documents

5. Use of Bidding Documents

5. *The Standard National Competitive Bidding Documents provided with the Government's Procurement Manual shall be used to the extent possible both for the master bidding documents and the contract-specific bidding documents. The English language version of the procurement documents shall be submitted for ADB review and approval in accordance with agreed review procedures (post and prior review) as indicated in the Procurement Plan. The ADB-approved procurement documents will then be used as a model for all procurement financed by ADB for the project.*

6. Bid Evaluation

6. *Bidders shall not be eliminated from detailed evaluation on the basis of minor, non-substantial deviations.*

7. *A bidder shall not be required, as a condition for award of contract, to undertake obligations not specified in the bidding documents or otherwise to modify the bid as originally submitted.*

7. Employer's Right to Accept or Reject Any or All Bids

8. *The decision of the Employer to accept or reject any or all bids shall be made in a transparent manner and involve an obligation to inform of the grounds for the decision through the bid evaluation report.*

8. ADB Policy Clauses

9. *A provision shall be included in all NCB works and goods contracts financed by ADB requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have them audited by auditors appointed by ADB.*

10. *A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that the Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the contract in question.*

11. *A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB stating that ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or any integrity violation in competing for, or in executing ADB-financed contract.*