ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

Climate Change adaptation through protective small-scale infra-structure interventions in coastal settlements of Cambodia

Submitted by the
United Nations Human Settlements Programme (UN-Habitat)

UN HABITAT
FOR A BETTER URBAN FUTURE

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PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular
Country/Cities:	Cambodia
Title of Project/Programme:	Climate change adaptation through protective small-scale infrastructure interventions in coastal settlements of Cambodia
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	United Nations Human Settlements Programme (UN-Habitat)
Executing Entities:	Ministry of Environment, National Committee for Sub-National Democratic Development
Amount of Financing Requested:	US$ 5,000,000

Project Summary

The proposed project's main objective is "to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions". It is structured around the following components:

Component 1: Comprehensive vulnerability/baseline assessment and action plans completed in the target provinces and communes (USD 500,000)

Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas (USD 500,000)

Component 3: Resilience built through small-scale protective and basic service infrastructure and natural assets (USD 3,000,000)

Component 4: Knowledge and awareness enhanced and sustainability ensured (USD 170,512)

1. Project Background and Context

The problem

Climate change is a major challenge for reaching national development goals
In recent years, the Kingdom of Cambodia was among the countries most affected by extreme weather events in the Asia Pacific region.[1] The Country constantly ranks among the most vulnerable countries in the world according to the annually published Climate Risk Index[2], as well as the Climate Change Vulnerability Index[3]. Between 1991 and 2014, extreme hazards, floods and storms led to the deaths of over 1500 people[4] and caused economic losses amounting to more than US$ 235 million. Figures show that the country's vulnerability to extreme weather events such as floods, and cyclones cause most losses in terms of both mortality and economic losses.[5]

Cambodia's climate change vulnerability mainly originates in its geography and high dependence on the agriculture sector. The country also shows a severe lack of coping capacity with regard to its physical infrastructure and institutions, stemming from limited financial, technical and human resources.[6] Coastal zones, as well as nationwide infrastructure are amongst the most affected in the country.[7] This also affects the fast-growing tourism sector, especially in coastal areas, on which the economy increasingly relies. Rising sea levels can potentially impact coastal systems in multiple ways, including flood and storm damage, inundation, loss of wetlands, erosion, saltwater intrusion, and rising water tables.[8]

In addition, there is growing risk that severe weather events will impact Cambodia. Climate Change therefore makes it more and more difficult for Cambodia to continue achieving its main national development priority, i.e. to significantly reduce poverty rates while simultaneously fostering economic growth at a yearly rate of seven per cent, as outlined in its National Strategic Development Plan (NSDP) 2014-2018.[9] And although Cambodia

[1] Global Climate Risk Index, 2015. Online at https://germanwatch.org/en/9531
[2] Global Climate Risk Index, 2016, p. 23. Online at https://germanwatch.org/fr/download/13503.pdf
[3] Climate Change and Environmental Risk Atlas 2015. Online at https://maplecroft.com/portfolio/new-analysis/2014/10/29/climate-change-and-lack-food-security-multiply-risks-conflict-and-civil-unrest-32-countries-maplecroft/
[4] Global Climate Risk Index, 2016, p. 23, online at https://germanwatch.org/fr/download/13503.pdf. UNISDR Global Risk Assessment 2017, online at http://www.preventionweb.net/countries/khm/data/. The International Disaster Database (EM-DAT), 2017, online at http://www.emdat.be/country_profile/index.html
[5] Index for Risk Management (INFORM) Country Risk profile for Cambodia, 2017. Online at http://www.inform-index.org/Countries/Country-profiles/iso3/KHM
[6] INFORM Country Risk profile for Cambodia, 2017. Online at http://www.inform-index.org/Countries/Country-profiles/iso3/KHM
[7] Cambodia's Intended Nationally Determined Contributions, p. 2. Online at http://www4.unfccc.int/submissions/INDC/Published%20Documents/Cambodia/1/Cambodia's%20INDC%20to%20the%20UNFCCC.pdf
[8] Second National Communication to the UNFCCC, p. xv. Online at http://unfccc.int/resource/docs/natc/khmnc2.pdf
[9] National Strategic Development Plan 2014-2018, p. 4. Online at http://www.mop.gov.kh/LinkClick.aspx?fileticket=XOvSGmpI4tE%3d&tabid=216&mid=705

managed to graduate from the status of low income country to lower-middle income country in 2016[10] as intended by its NSDP[11], the uncertainty and intricacy of increasing climate change risks and threats significantly hampers economic growth and development potential in the future.[12]

Climate change projections and expected impacts

Climate change projections

Cambodia's climate is governed by a monsoon weather cycle, with a wet season between May to November that is dominated by heavy rainfall and average temperatures of 28ºC and a dry season from November to May, with an average maximum temperature of 38ºC in April and an average minimum temperature of 17ºC in January. Over the last decades, mean temperatures in Cambodia have increased significantly, a trend that is predicted to continue with projected increases in monthly averages between 0.013ºC and 0.036ºC per year by 2099 with higher predictions for locations at low latitudes.[13]

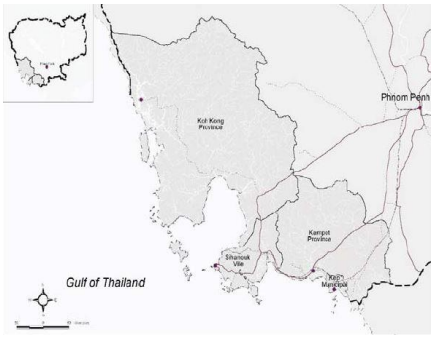
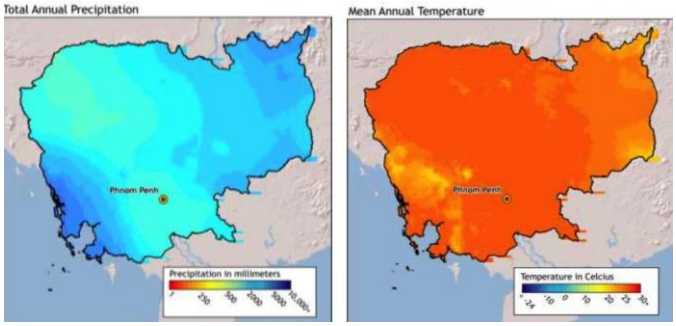


Figure 1 Cambodia coastal areas. *Source*: *Cambodia Coastal Situation Analysis, 2011, p. 6. Online at http://cms daa.iucn.org/downloads/cambodia_coastal_situation_analysis_final.pdf*

Rainfall varies within the country and is strongly influenced by topography, declining in the central plains, and increasing in the upland areas. However, rainfall is heaviest along the 435km coastline stretching from Koh Kong Province bordering Thailand in the west, Sihanoukville Municipality which contains Cambodia's largest deep-water sea port, Kampot Province bordering Vietnam to the East, and Kep Province (see Figure 1~~fig 1~~). While lowlands may receive average annual rainfall of 1400mm per year, data shows that rainfall within coastal areas can be as high as 4000mm per year or higher (see Figure 2~~fig 2~~).[14]

[10] The World Bank, 2017. Online at http://data.worldbank.org/?locations=KH-XN
[11] National Strategic Development Plan 2014-2018, p. 4.
[12] Cambodia Climate Change Strategic Plan 2014-2023, p. xv. Online at http://www.bb.undp.org/content/dam/cambodia/docs/EnvEnergy/CCCAProjects/Cambodia%20climate%20change%20strategic%20plan%202014-2023.pdf
[13] Cambodia Climate Change Strategic Plan 2014-2023, p. 8.
[14] Heng Chan Thoeun, 2015, p. 63. Online at http://dx.doi.org/10.1016/j.wace.2015.02.001



Notes: Shows rainfall patterns (left) and temperature distributions (right) for Cambodia taking 1960-1990 averages. Source: The World Bank Group, 2011, p. 3. Online at: www.worldclim.org/current

Figure 2 Annual Climate Baseline for Cambodia.

Although evidence of climate change impacts on rainfall patterns remains inconclusive, predictions for average annual rainfall clearly indicate further changes in rainfall for Cambodia in the medium- to long-term. Projections show evidence to suggest that rainfall between the months of June to August will most likely increase in the northwest, while there is a decreasing trend projected for the northeast of the country.

Due a history of civil conflict, there are only very few long-term historical datasets available for climate observations in Cambodia. The Intergovernmental Panel on Climate Change (IPCC), however, provides an overview of forecasting trends from 21 climate models for Southeast Asia. This summary states that i) for the period 2081-2100 temperatures will likely increase in the range of 1.5ºC to 3.7ºC; ii) while the number of hot days and nights will increase, cold days and nights will likely to become less frequent; iii) rainfall will most likely increase with projections ranging from a decrease of 2% to increases of up to 15%, with projected increases in the intensity of precipitation; iv) sea-levels in the region are forecasted to rise between 0.18 and 0.56cm by the year 2100, though some research has projected sea-level rises in the region of around 1 metre.[15]

Expected impacts

Due to its vulnerability to the effects of drought, floods and sea level rise, Cambodia's agriculture, human lives and assets were severely damaged by floods and droughts between 2000 and 2010.[16] The 2011 floods resulted in economic losses of around 4% of the Gross Domestic Product (GDP)[17]. Likewise, the 2013 floods caused economic losses of around US$356 million, of which US$153 million was the estimated value of the destruction of physical assets (damage) in the affected areas, and US$203 million the estimated losses in production and economic flows.[18]

Increases in sea levels are especially alarming for Cambodia's coastal areas that are already experiencing severe seawater intrusion, beach erosion, high tides, and frequent

[15] See for example Rahmstorf, S., 2007 and Ananthaswamy, A., 2009.
[16] MoE et al. (2013), p. 187.
[17] 2011 GDP (current US$) amounted to US$12.83 billion (World Bank, online at http://data.worldbank.org/country/cambodia). The 2011 flood resulted in total economic losses of around US$0.521 billion (EM-DAT country profile).
[18] Cambodia's Intended Nationally Determined Contributions, p. 3.

storm surges. Additional impacts such as land subsidence in the region may even further intensify its effects.[19] Especially low-lying areas such as coastal settlements, seaports, coastal fisheries, mangrove forests, and tourism facilities would equally be affected. As an example, research by the Danish International Development Assistance found that around 56% of the low-lying south-western coastal city of Koh Kong would be submerged by a one-metre rise in sea-levels. This finding equally holds true for other areas along the coastline of Cambodia (see fig 3).[20]

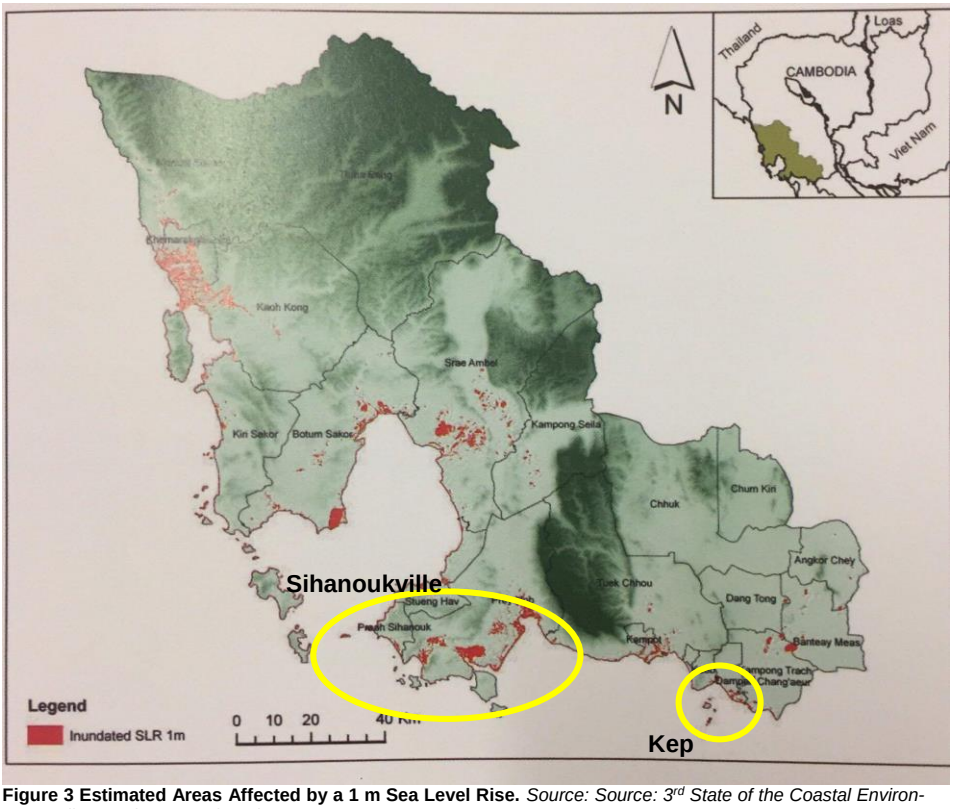


Figure 3 Estimated Areas Affected by a 1 m Sea Level Rise. *Source: Source: 3rd State of the Coastal Environment, Climate Change and Socio-Economy Report 2013*

Cambodia's coastal provinces already suffer from salinization of surface and groundwater resources due to storms and droughts.[21] The rise in sea levels will only exacerbate these problems. Further, sea-level rise is expected to go hand in hand with an increase in

[19] Erban, L.E., Gorelick, S.M. and Zebker, H.A., 2014, p. 1. Online at http://iopscience.iop.org/article/10.1088/1748932 6/9/8/084010/pdf

[20] Danish International Development Assistance, 2008, p. 15. Online at https://www.weadapt.org/sites/weadapt.org/files/legacy-new/placemarks/files/Cambodia.pdf

[21] National Adaptation Programme of Action to Climate Change (NAPA), 2006, p. 4. Online at http://unfccc.int/resource/docs/napa/khm01.pdf

coastal erosion that may have major impacts on the frequency of flooding of economically vital coastal infrastructure such as coastal resorts and harbours, significantly hampering tourism potential. Likewise, an increase in sea-levels is likely to worsen inundation from storms and storm surges.

The above impacts clearly demonstrate the importance for the country of building resilience to natural disasters and prepare vulnerable areas accordingly so that the impact of climate change risks and disasters are minimized to the most possible extents. This will be vital for Cambodia to continue its path along increasing economic growth rates and to be able to protect its citizens, especially those living in coastal areas.

Economic context

> **Climate change is already causing economic losses but the government faces challenges in terms of financial resources and technical capacity to respond.**

According to most recent statistics published by the World Bank, in 2015 Cambodia's Gross National Income (GNI) amounted to US$1,070 per capita, growing at 7 per cent per year. This trend is slightly decreasing with forecasted GDP growth rates of 6.9 to 6.8 per cent for the years 2017 and 2018, respectively.[22]

Cambodia's economy is narrowly based however, and driven by four main sectors: garment manufacture, tourism, construction and agriculture, with three of those predominantly urban sectors, heavily dependent on building resilient settlements and infrastructure. The economy of the target communes reflects the national economy and is, due to its coastal location, especially dependent on the tourism, construction and agriculture sectors. Productive share in Cambodia is relatively evenly distributed, with its services sector as the largest contributor at 37.8% of total gross output, followed by the industry sector at 31.3% and the agriculture sector at 30.9%. Intermediate inputs as a share of total cost of production in Cambodia is on average almost equally divided, i.e. 50% comes from domestic resources while the other half is imported.

At the sectoral level, Cambodia's industry sector depends more on domestic sources with respect to their inputs than on imports, while on the other hand its services sector depends more on imported inputs, specifically the transportation, communication and trade sectors. Similar to its production distribution data, Cambodia's GDP heavily depends on both the agriculture and services sectors that accounted for more than three quarters of the country's total GDP in recent years. The tourism sector shows high annual growth rates with high shares in total GDP.[23] The direct contribution of the sector to GDP was around US$2.3 billion (13.5% of total GDP) in 2015, and is forecast to rise by 6.3% per annum between 2016-2025, to US$4.58 billion (12.4% of total GDP) in 2025. Total contribution

[22] The World Bank, 2017. Per capita GNI is displayed using the World Bank's Atlas method, which smoothens a country's GNI per capita by price variations and exchange rate fluctuations, taking into account the year of observation and the two previous years. It further adjusts the country's own and the international rate of inflation, with the international inflation rate being the euro area, the United Kingdom, the United States and Japan since 2001. Online at http://databank.worldbank.org/data/reports.aspx?source=2&country=KHM

[23] Cambodia Climate Change Strategic Plan 2014-2023, p. xv.

to GDP amounted to US$5.09 billion (29.9% of GDP) in 2015, and is forecasted to rise by approximately 6.5% annually to US$10.32 billion (28.0% of GDP) in 2025. In 2014, the total contribution of tourism to employment, including jobs indirectly supported by the industry, was 26.4% of total employment (2,221,500 jobs). This is expected to rise by 3.3% per annum to 3,199,000 jobs in 2025 (32.6% of total).[24] In the same year tourism investment was US$0.4 billion, or 15.6% of total investment. It is expected to rise by 6.4% per year within the next decade to US$0.8 billion in 2025 (14.1% of total).

The share of foreign visitors in 2015 amounted to nearly 15% of total visitors to the coastal area.[25] Securing continued economic, employment as well as investment growth will heavily dependent on the country's resilience along its coastal lines. Visitors to Preah Sihanouk and Kep have increased year by year. Based on the Provincial Investment Programme report, 2,032,881 tourists visited Preah Sihanouk in 2016, a 16.65 percent increase compared to 2015. As for Kep, visitors increased from 761,206 in 2015 to 1,079,493 in 2016.

Both provinces recognize tourism as an important industry and both provinces have a great potential for eco-tourism, with nature, livelihood, and community-based tourism activities. However, the tourism sector is also affected by climate change, especially beach erosion, as described in the Environmental Section below. For adaptation to climate change, natural resource enhancement and preservation is therefore necessary, as well as improvement of drainage and the management of water supply, sewage and waste. This will benefit tourism potential directly but also the poor and vulnerable, especially from livelihoods and basic services perspective.

Social context

> **Although the government recognizes the importance of resilience to natural disasters in the poor communities, they face limited financial resources and human capacity as well as comprehensive data sets.**

Cambodia has a total population of 15.58 million (of which around 51.3 per cent are women) and this figure is growing at a rate of 1.6 per cent annually. Urban areas are growing much more rapidly at 2.6 per cent each year.[26] This is one of the main reasons for the country's increasing demographic pressures over the past years. According to the Fragile States Index, in 2016 Cambodia was one of the few countries in the region that were labelled a high warning status with regard to its state of development, which even marginally worsened within the last decade.[27] And although the country has a relatively high share of payments to labour in relation to its GDP compared to its neighbouring

[24] Word Travel and Tourism Council, Economic Impact 2015 Cambodia. Online at https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/cambodia2015.pdf
[25] Cambodia Tourism Statistics Report, 2015, p. 5.
[26] Displays data for the most recent available year 2015. The World Bank, World Development Indicators, 2017. Online at http://databank.worldbank.org/data/reports.aspx?source=2&country=KHM
[27] The Fund for Peace 2017. Online at http://library.fundforpeace.org/library/fragilestatesindex-2016.pdf

countries,[28] uneven economic development only shows slightly improving trends.[29] While household poverty rates are highest in the north-east of the country, overall poverty rates remain high in the coastal area (Figure 4, left), especially considering its higher population density.

The population density map (Figure 4, right) shows that along the coast the cities of Sihanoukville, Kampot and Kep (from left to right) are among the most populated areas. The country's coastal population faces challenges such as low levels of education and poor health and basic infrastructure services. It further shows an on-going deterioration of inequality between the mid-1990s and 2007, despite an overall poverty reduction.

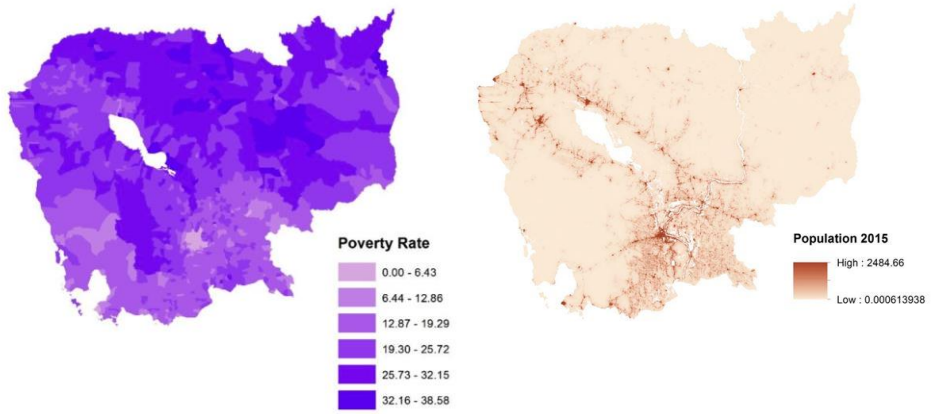


Figure 4 Distribution (%) of household poverty rates by districts and population density in 2015. *Source: Left: own illustration based on the United Nations Office for the Coordination of Humanitarian Affairs, 2015. Online at Open Development Cambodia. Right: Own illustration based on adjusted UN data from World POP. Online at World POP.*

[28] 56% of its economic gains are invested into labour force. Secretario, F. et al. 2009, p. 9. Online at http://depocenwp.org/modules/download/index.php?id=62

[29] The Fund for Peace 2017.

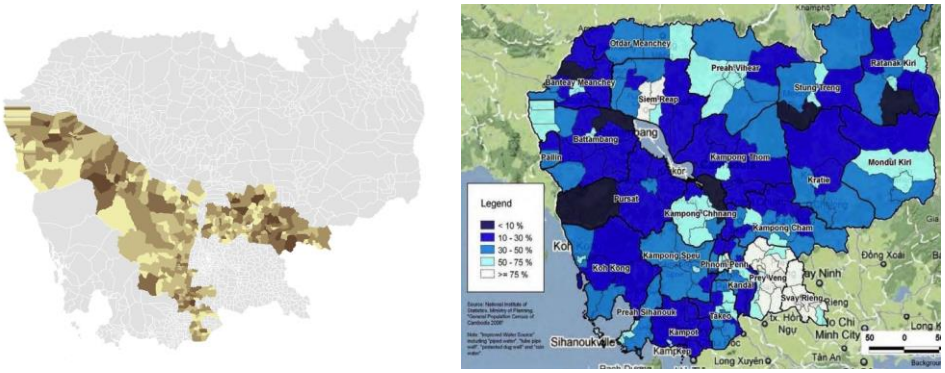


Figure 5 Water and sanitation coverage in 2016 (left) and percentage of households with access to improved water sources in 2010 by district. *Note: Water and sanitation is displayed from low to high coverage in light and darker colours, respectively. Source: Left: own illustration based on WaterSHED data for its sanitation and hygiene project, covering 5,801 villages, from 527 communes across 58 districts. Online at Open Development*. Right: *Japan International Cooperation Agency, 2010, p. iv. Online at JICA*

The expected impacts of climate change in coastal regions jeopardize poverty reduction and health targets, because hazards are likely to increase in frequency and intensity. This is due to the fact that poor communities predominantly live in high-risk areas and already lack access to basic services. Especially the frequency of storms and inundation, which are projected to increase with climate change, create disruptive situations and conditions for the spread of water- and vector-borne diseases, limit access to clean water and food, flood and expose unsafe sanitation facilities, and isolate the population from health and other emergency services and responses. Notwithstanding advances in water, sanitation, and hygiene over recent years, the aforementioned issues are a present danger and cause loss of life and have long-lasting impacts on poverty and food security. Approaches to deliver these services need to become sensitive to the impacts of climate change and related hazards. As a means to significantly reduce vulnerability, citizens need to get access to resilient basic infrastructure services such as clean water, sewage, roads, electricity, or telecommunication, to name a few, and improving their resilience to natural disasters.

In a 2005 survey jointly compiled by the Global Environment Facility (GEF), the United Nations Development Programme (UNDP) and the Ministry of Environment (MoE) of Cambodia, respondents from different provinces around the country stated that during major natural disasters the main source of water for household consumption were wells (58%), ponds (14%), streams (12%) and rivers (9%).[30] As further evident from Figure 5 (right hand side), the overall percentage of households that can access improved water sources is still low, ranging in most districts between 10 and 30 per cent. With regard to the coastal zone, while in Sihanoukville between 30 and 50 per cent of households have access to improved water sources, Koh Kong and Kampot are in line with the national

[30] The study represents responses by villagers from 17 provinces surveyed. Source: MoE, GEF and UNDP (2005), p. 13. Online at http://camclimate.org.kh/en/documents-and-media/library/category/29-vulnerability-and-adaptation.html?download=54:a-survey-of-rural-cambodian-households-vulnerability-and-adaptation-march-05

trend of low access, while Kep does not have any access to piped water, a situation which continues today. Figure 5 (left hand side) further depicts information on the access to latrines and water filters from a 2016 project assessment. The lack of available data in this regard for most parts of the country shows the vital need for continued work, including assessments.

Although the government intends to expand and improve basic infrastructure services throughout the country, the development and implementation of effective climate change strategies is constrained by limited financial resources and human capacity, a lack of reliable and comprehensive data sets, research to support greenhouse gas inventories, and vulnerability assessments. Natural disasters, intensified by climate change, have major impacts on basic services and need to be consequently addressed through adaptation measures as a means to alleviate poverty and foster economic growth.

In line with the government's Nationally Determined Contribution (NDC) under the Paris Agreement on Climate Change, an approach to establish this should focus on the resilience of coastal zones and infrastructure more generally as they are among the areas impacted most severely by climate change.

Environmental context

> **Sea level rise due to climate change and changes of the mangrove systems accelerate coastal erosion and reduce the climate change resilience.**

As specified by the Ministry of Environment (MoE et al., 2013), forests play an important role in maintaining the country's ecosystems as well as a source of various non-timber forest products. 27 per cent of Cambodian land is categorized as protected forest area. In Preah Sihanouk, 26 per cent of the land is categorized as protected forest area. In Kep this figure is 7 per cent (see Figure 6, left).

However, forestry was drastically exploited in the last few decades due to illegal logging, encroachment, and economic land concessions. 16.1 per cent of national forest cover has decreased between 1965 and 2010, and it annually decreased 0.52% of forest coverage between 2002 and 2010.[31] This figure is one of the highest in the world.

Deforestation is also happening in coastal areas, especially mangrove forests (see Figure 6, right). IUCN (2011) identified that approximately 3,500 to 4,000 hectares of former mangrove lands were converted to salt farms in Kampot Province and Kep Municipality, even though salt pans negatively affect mangrove growth and soil fertility. Moreover, a study by the Ministry of Environment (MoE et al. 2014) shows that mangroves in Prey Nob District in Preah Sihanouk Province are under threat by salt, charcoal use, and industrial development.

[31] MoE, GEF and UNEP (2013), p. 31.

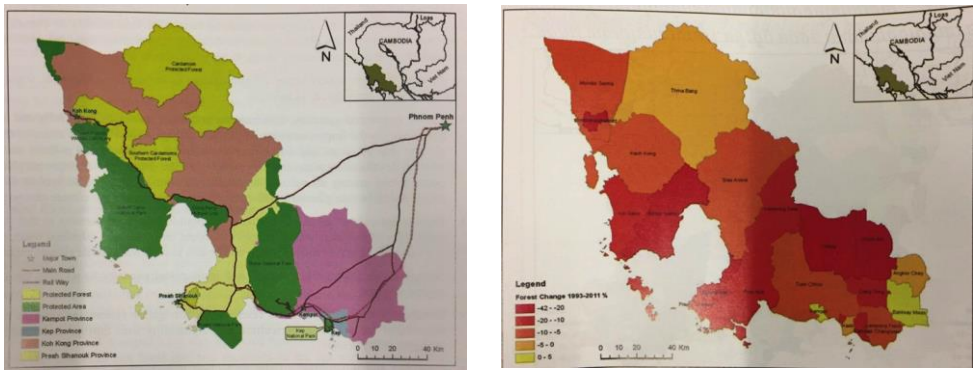


Figure 6: Land use of the Coastal Zone of Cambodia (left) and Percent reduction in forest area on district level from 1993 to 2011 (right). *Source: 3rd State of the Coastal Environment, Climate Change and Socio-Economy Report 2013*

Besides that, an estimated 3,446 hectares of area in Preah Sihanouk province and 343 hectares of Kep province will be below mean sea level if the sea level rises by 1 metre in the future. The study by the Ministry of Environment (MoE et al) also estimated that 3,530 hectares of mangroves in Preah Sihanouk and 13 hectares in Kep are located within 1 metre above today's mean sea level. Therefore, simultaneous occurrence of changes of the mangrove systems and sea level rise will accelerate coastal erosion as well as reduce the adaptive capacity to climate change of the coastal ecosystem.[32]

Severe environmental degradation has taken place throughout the coastal area of Cambodia – especially in areas where there has been investment in infrastructure and tourism. Besides that, the often-informal nature of the target settlements creates environmental problems, especially in waste management. Moreover, the combined effects of sea-level rise, coastal flooding and on-shore development issues (especially disposal of wastewater) are causing coastal erosion.

Figure 7: Mangrove deforestation in Preah Sihanouk (left), Exposed roots due to beach erosion and sea level raise in Preah Sihanouk (middle) and Erosion and solid waste in mangrove forest in Kep (right). *Source: UN-Habitat/Field photos.*

[32] MoE, GEF and UNEP (2013), p. 190.

Focus of the Proposal

As described detail in the following section, the main objective of the proposed project is to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete climate change adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions. To achieve this objective, this project focuses its actions on highly vulnerable settlements in Kep and Preah Sihanouk provinces, in the coastal area of Cambodia. In Kep Province, the project will target five sangkats/communes[33] with a total of 36,684 beneficiaries. In Preah Sihanouk province the project will target ten sangkats/communes with a total of 47,902 beneficiaries. Further details can be found in Annex 1 – Beneficiaries.

The most problematic climate hazards identified in the target areas are strong winds, sea level rise, storm surges, floods, strong waves, seawater intrusion and droughts, leading to coastal erosion, low agriculture production, destroyed houses, slowdown of fishing activities, damaged roads and dikes, lack of clean water supply, poor sanitation, health issues and threatening the development of eco-tourism.

Figure 8. Fallow rice fields after salinization.

Figure 9. Insufficient and damaged water gate to protect rice fields from saltwater intrusion.

The catalogue of intended sub-projects represents the resilience-building interventions for the target communes and can be found in Annex 5. The catalogue is the direct result of the a rapid vulnerability assessment conducted during the full proposal development (Annex 1), and reflects the findings of the in-depth community consultations (see Part II Section H.) looking at community vulnerabilities, community needs (especially of women, youth and disabled people, and the small Muslim minority) and a screening of cost-effectiveness of interventions (see Part II Section C) and potential environmental and social impacts (see Part II Section K).

[33] Note that sangkats and communes are the same level of local government. A unit of local government is referred to as a Sangkat in urban areas and a commune in rural areas.

Figure 10: Re-construction of commune house after strong wind with limited resilience to impact.

Figure 11: Family suffers financial restrains to re-build a resilient housing after strongs winds destroyed their house 7 years ago.

Figure 12: Informal housing along canal for freshwater

The following table 1 gives a brief overview of the target areas, the climate hazards they are exposed to, the effects on the communes, the underlying vulnerability and barriers to adapt these communes faces. This table has been compiled through a combination of secondary data and consultations undertaken by the formulation mission for this concept note, which is detailed further in Part II Section H. A more detailed set of priorities of resilience building intervention can be found in the action planning (Annex 1.B.) and in the catalogue of intended sub-projects (see Part II Section A and Annex 5)

Table 1: Summary of target locations and vulnerability.

Target communes	Climate Change Issue	Effects on community	Underlying vulnerability/ Barriers to adapt	Resilience building interventions prioritized by commune
4 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh) and 1 Sangkat in Sihanoukville: Sangkat Muoy). All 5 communes of Kep Province: Angkaol, Pong Tuek, Prey Thom, Kep and Ou Krasar.	Strong Winds	Destroyed houses; Destruction of households and shelter for animal Destroy of rice crops Coastline erosion; Poorly designed fisher boats capsize Limited ability to evacuate or shelter	Poor infrastructure; Poor house conditions; Financial difficulties to re-construct house Limited education and skills Low rice production; Deforestation	Resilient Housing
Prey Nob District				Weather station
All communes of Prey Nob District. To be repaired in Sangkat Muoy				Broadcasting weather patterns and early warning system
7 communes in Prey Nob District (Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Prey Nob, Ou Oknha Heng) and 1 Sangkat in Sihanoukville (Sangkat Muoy). 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar	Droughts	Lack of water supply; Insufficient clean water supply; Decline of fish production Salted surfaces Contaminated ground water and freshwater; Damaged roads, dams and canals;	Poor sanitation and health issues; Health issues; Limited irrigation; Decline of agricultural production Lack of basic services (especially water); Unaffordable water pricing Low fish production Limited education and skills No access to safe drinking water	Fresh water reservoir Rain water harvesting Water gates to existing reservoirs

3 communes in Prey Nob District: Prey Nob, Oknha Heng, Boeng Taprom. 3 communes in Kep Province: Angkaol, Kep and Ou Krasar	Floods	Decline of tourists Damaged roads and dams and canals; Water pollution/contaminated ground water, Damaged houses Contamination of freshwater	Low income that affect to livelihood due to no tourists; Bad infrastructure and water management; Lack of sanitation; Health issues; Limited education and skills	Canal
2 communes in Prey Nob District: Tuek L'ak and Veal Rinh				Dam
4 communes in Prey Nob District: Tuek Thla, Samakki, Samrong, Boeng Taprom				Water gates
6 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Boeng Taprom. Ecotourism in the Kampong Smach protected area. In Kep: Angkaol mangrove forest	Natural asset protection	Decline of tourists Low fish production; Low rice production; Contaminated ground water; Strong coastal winds Coastline erosion;	Low income that affect to livelihood due to no tourists; Decline of biodiversity Poor infrastructure Poor sanitation and health issues	Demarcation of and access to eco-tourism Reforestation of eco-tourism
4 communes in Prey Nob District: Prey Nob, Ou Oknha Heng, Boeng Taprom. 2 communes in Kep Province: Angkaol and Pong Tuek,	Sea-level rise, erosion, salinization	Decline in tourists due to shrinking of beach and loss of land Low fish production; Loss of agricultural land. Low rice production; Unfertile soil Contaminated ground water; Coastline erosion;	Low income that affect to livelihood due to no tourists; Decline of biodiversity Poor infrastructure Poor sanitation and health issues Poor management of natural resources like forests; Limited education and skills	Protective infrastructure e.g. road, dam

		Decline of biodiversity and eco-systems		
In Sihanoukville: Sangkat Muoy	Wastewater flooding, bank and soil pollution	Damaged roads and dams and canals; Contaminated ground water; Lack of water supply; Poor sanitation and health issues	Bad infrastructure; Insufficient clean water supply; Poor house conditions; Lack of sanitation; Health issues Limited education and skills	Sewage system Drainage system Wastewater system

Figure 13. Solid waste blocks sewers and drains

Figure 14. Livelihood with less sanitation in vulnerable houses near solid waste

Figure 15. Flood in Preah Sihanouk

Table 2: Population of target communes per district.

Municipality/ District	No.	Name of Sangkat/commune	Total Population*	Female population	Location
Prey Nob	1	Tuek Thla	5,455	2,720	Coastal
	2	Tuek L'ak	4,413	2,198	Coastal and River
	3	Samakki	3,641	1,919	Coastal and River
	4	Veal Rinh	10,717	5,636	Coastal and River
	5	Samrong	6,683	3,334	Coastal and River
	6	Prey Nob	7,944	3,976	Coastal and River
	7	Ou Oknha Heng	9,006	4,559	Coastal and River
	8	Boeng Taprom	7,917	4,025	Coastal and River
		Sub-total	55,776	28,367 (50.85%)	
Preah Sihanouk Municipality	1	Koh Rong	1,693	791	Coastal Area, Island
	2	Sangkat Muoy	18,613	9,308	Coastal, informal settlement
		Sub-total	20,306	10,099 (49.73%)	
Kep Municipality and Damnak Changeur	1	Angkaol	8,566	4,280	Coastal
	2	Pong Tuek	10,987	5,574	Coastal
	3	Prey Thom	8,521	3,994	Coastal
	4	Kep	4,917	2,358	Coastal
	5	Ou Krasar	7,772	3,738	Coastal
	15	Sub-total	40,763	19,944 (48.92%)	

*Note: there are no indigenous people or ethnic minorities in the target areas.

In addition to above Table 2, Table 3 below, shows the poverty rate and the percentage of people whose primary water source is considered unsafe, for communes in Preah Sihanouk and Kep Province, according to the vulnerability assessment carried out by the Ministry of Environment in 2015. It clearly shows that a lack of access to safe water is a critical underlying vulnerability.

Figure 17. Beach erosion caused by sea-level rising and coastal storms.

Table 3: Poverty level and people with unsafe water.

Municipality/ District	No	Name of Sangkat/ commune	Sensitivity				Over-all vulnerability Index
			Poverty (%)	Unsafe water (%)	No. with unsafe water	Total Sensitivity	
Prey Nob	1	Tuek Thla	20.2	50.5	2,754	67	5
	2	Tuek L'ak	20.1	47.6	2,100	62	5
	3	Samakki	19.2	70.3	2,559	61	5
	4	Veal Rinh	26.3	24.5	2,625	47	3
	5	Samrong	19.8	91.8	6,134	73	3
	6	Prey Nob	18.6	96.1	7,634	56	5
	7	Ou Oknha Heng	18.0	71.0	6,394	76	5
	8	Boeng Taprom	12.6	77.8	6,159	54	4
Preah Sihanouk Municipality	1	Koh Rong	23,7	70.6	1,195	72	2
	2	Sangkat Muoy	0.0	55.6	10,348	30	1
					Total: 47,902		
Kep Municipality and Damnak Changkor	1	Angkaol	18.5	77.1	6,604	67	5
	2	Pong Tuek	18.5	88.5	9,723	66	4
	3	Prey Thom	14.3	90.9	7,745	57	4
	4	Kep	6.4	99.1	4,872	50	3
	5	Ou Krasar	18.8	99.6	7,740	63	4
	15				Total: 36,684		
					Total beneficiaries 84,586		

According to the community consultations in 14 communes undertaken in the development of this proposal, people face serious challenges in terms of accessing water, due to the need to buy water from tankers or in bottles from other areas. The consultation also identified that several climatic impacts and hazards cause water pollution as well as contaminate ground water resources. This means that providing year-round, clean water supplies to the target populations will also bring economic benefits in terms of reducing household expenditures on water.

Figure 18. Unsightly and smelly water discharge along the beach in Preah Sihanouk.

Meanwhile, a lack of protective ecosystem and infrastructure and high exposure to storms and coastal flooding means that people regularly lose assets. Damage to houses is common and during consultations, officials also highlighted frequent damage to adjacent agricultural lands, restricting food supplies, and therefore, increasing food prices. These effects result

in people to either borrow or invest whatever household savings they have in rebuilding houses or making make-shift flood defences.

Community consultation also identified some possible interventions to build resilience in each province. As shown in Table 4, although it is limited, both of Preah Sihanouk and Kep raised several types of possible interventions in order to enhance climate change adaptation.

The number of people without access to safe water was taken as a proxy for the number of beneficiaries. This is because, based on the initial assessment work conducted, people without access to safe water also typically lived in houses that are not resilient to storms and/or live in areas prone to flooding and sea-level rise. The estimation of the total number of beneficiaries is intended to be conservative. The number of beneficiaries is expected to rise during the project implementation.

Table 4: Possible adaptation building interventions in Preah Sihanouk and Kep.

	Preah Sihanouk	Kep
Knowledge	- Provide vocational training on various topics including water, sanitation and hygiene promotion and resilient housing	- Provide vocational training on various topics including water, sanitation and hygiene promotion and resilient housing
Physical	- Improve infrastructure (drainage system, agricultural irrigation) - Provide resilient housing models and designs - Enhance water supply systems	- Improve infrastructure (drainage system, agricultural irrigation) - Provide resilient housing models and designs - Enhance water supply systems
Natural	- Conserve, protect and enhance natural resources and biodiversity - Implement environmental management activities (e.g. reforestation and water pollution improvement)	- Increase number of trees in coastline - Conserve and protect natural resources and biodiversity

A catalogue of intended sub-projects per commune based on in-depth community consultation can be found in Annex 5.

2. Project Objectives

Main objective

The proposed project's main objective is to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions.

To accomplish this, a comprehensive baseline vulnerability assessment and action plans in the target settlements is required. Secondly, communes need to be able to plan for

resilience and play an active role in the construction and maintenance of basic resilient systems and to enhance their livelihoods (in line with ecotourism). The third component is to implement adaptation measures: constructing climate and disaster resilient infrastructure systems in human settlements, strengthen the resilience of existing infrastructure systems and protect and/or enhance protective ecosystems.

Specific objectives (also 'project components' in the following table 5):

- Component 1: Comprehensive vulnerability / baseline assessment and action plans completed in the target communes and provinces.
    - This is in line with AF outcome 1: Reduce exposure and vulnerability to climate-related hazards and threats with a particular view to community level resilience
- Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas.
    - This is in line with AF outcome 3: Strengthen awareness and ownership of adaptation and climate risk reduction processes and capacity
- Component 3: Resilience built through small-scale protective and basic service interventions (see catalogue of intended sub-projects in Annex 5)
    - This is in line with AF outcome 4: Increase adaptive capacity with relevant development and natural resource sectors,
    - AF outcome 5: Increase ecosystem resilience in response to climate change and variability-induced stress,
    - AF outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted area.
- Component 4: Knowledge and awareness enhanced and sustainability ensured
    - Project implementation is fully transparent. All stakeholders are informed of products and results and have access to these for replication.
    - Support provided to the National Committee for Sub-National Democratic Development to continue and upscale adaptation actions in the target area of this project and beyond by accessing further finance

3. Project Components and Financing

Table 5: Project components and financing.

Project Components	Expected Concrete Outputs	Expected Concrete Outcomes	Amount (US$)
Component 1 Comprehensive vulnerability / baseline assessment and action plans completed in the target communes and provinces	Output 1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP.	Outcome 1. Institutional capacity increased at the provincial and commune level to reduce vulnerability of target communities through vulnerability and disaster risk reduction assessments, action planning and training that will enable adaptation actions in infrastructure, natural assets, water and livelihoods (including eco-tourism) (Aligned with AF outcome 2)	**150,000** (3.6 %)
	Output 1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) aggregated, if possible		**200,000** (4.8 %)
	Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.		**150,00** (3.6 %)
	Total:		**500,000 (12%)**

Component 2 Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas	Output 2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets. (Aligned with AF output 2.2.)	Outcome 2. Community, commune and provincial level capacity built to design, monitor, manage and maintain climate resilient community assets with maximum economic co-benefits including leveraging eco-tourism potential, environmental and social co-benefits with particular emphasis on women, youth, older people and other people in vulnerable situations	**150,000** (3.6 %)
	Output 2.2 Community, commune and provincial level capacity built to monitor and manage community infrastructure and built protective natural assets designed under 2.1.		**150,000** (3.6 %)
	Output 2.3. Community, commune and provincial level capacity built to maintain community infrastructure and built protective natural assets designed under 2.1.		**200,000** (4.8 %)
	Total:		**500,000 (12%)**
Component 3 Resilience built through small-scale protective and basic service infrastructure and natural assets	Output 3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	Outcome 3. At least 84,586 people have access to protective natural and social assets and/or benefit from physical infrastructure to reduce the climate vulnerability. (AF outcome 4 and 5)	**3,000,000** (72 %)
	Total:		**3,000,000 (72 %)**
Component 4	Output 4.1.	Outcome 4.	102,307

Knowledge and awareness enhanced and sustainability ensured	Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	Project implementation is fully transparent and national capacity to pilot climate change adaptation projects and establish capacity for climate adaptive policy making strengthened. All stakeholders are informed of activities, results and best practice and have access to these for replication.	(2.4%)
	Output 4.2. Capacity to replicate the project's objective in-line with NCD implementation enhanced		**68,205** (1.6%)
	Total:		**170,512** (4 %)
			4,170,512
5. Project/Programme Execution cost (9.5 %)			**437,788**
6. Total Project/Programme Cost			**4,608,300**
7. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable) (8.5 %)			**391,700**
Amount of Financing Requested			**5,000,000**

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	06-2018
Mid-Term Evaluation	06-2020
Project/Programme Closing	06-2023
Terminal Evaluation	09-2022

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components

The target areas chosen for the project are characterised by high levels of exposure to multiple climate change related hazards; sea-level rise, salinity, erosion, storm surges, flooding and droughts, and underlying vulnerability to those hazards driven by a lack of

access to resilient basic services such as water and sanitation, tenure insecurity and high levels of poverty driven by low incomes.

To achieve the project's overall objective, which is 'to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions', the project takes a horizontally and vertically integrated approach to improving and strengthening basic service infrastructure through improved capacity, better local-level planning and community-level implementation.

The actions taken by the project will be targeted to benefit the poorest and most vulnerable people in two of Cambodia's most climate change vulnerable provinces. To do this, a combination of soft and hard measures is proposed to ensure that resilience at the household and commune level is strengthened sustainably. Soft measures include vulnerability assessments and action plans, designed to target the most vulnerable settlements and design and implement the most necessary actions, and improved understanding and capacity at the commune and district level, to subsequently sustain actions and replicate them elsewhere through better planning which will mobilise national and international finance.[34] This also goes along with the 'action priorities' defined in Cambodia's Nationally Determined Contribution of "promoting and improving the adaptive capacity of communities, especially through community based adaptation actions (..) and, "strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections, and mainstreaming of climate change into sector and sub-sector development plans". Concrete measures will be investments in small-scale protective and basic service infrastructure and natural assets designed to increase people's resilience.

The specific needs of women, people with disabilities and youths will be considered at all stages of the project. Inclusiveness will be achieved through engaging representatives of these vulnerable groups in community and stakeholder consultations in planning and through a community-based approach. In short, by applying the people's process – where community groups are formed and sustained throughout all stages of the project and through which communities participate in project implementation and monitoring.[35]

The components of the project are as follows:

Component 1: Comprehensive vulnerability/baseline assessment and action plans completed in the target communes/districts

[34] The National Committee for Sub-National Democratic Development, which is an executing agency on this project, is currently applying to be a GCF direct access entity.

[35] Development driven by people/Support Paradigm: when people stays at the centre of development planning process, the resource can be optimized with greater utility impacting larger number of people: http://sopheapfocus.com/wp-content/uploads/2010/06/Picture-31.png People's process of development can be witnessed through the evolvement of people's desire to improve their lives. Humans developed their settlement from living in caves, then building shelters, and now home. Along this settlement evolution, they had also established certain norms, standards, and a mutual understanding surrounding their community. That is called the people's process of development.

Vulnerability assessments at the sub-national level are identified as a priority action (under objective 2) under the Climate Change Action Plan 2016-2018, and strategic objective 2 of the Cambodia Climate Change Strategic Plan 2014-2023. Also output 4.1.5 of the IP3-III commits to "climate change, social services, and led projects implemented with the focus to then integrate into government systems".
To do this, and to support the broader objective of building capacity at the sub-national level, the project conducts vulnerability assessments to establish a comprehensive vulnerability baseline, establish indicators of vulnerability, and ultimately contribute towards leveraging national climate finance that is evidence-based, targeted and in-line with local needs and sub-national and national priorities

In line with Adaptation Fund Outcome 1 and national government priorities (See Section D, below) this component will focus on laying the ground work for reducing vulnerability to climate change related hazards, with a focus on community-level resilience in the target communes/districts by:

- ☐ Conducting climate change vulnerability assessments in the 2 target provinces
- ☐ Producing action plans that identify and prioritise resilience investments, including consideration of impacts on eco-tourism.
- ☐ Integrate the findings of the assessments and action plans with the commune investment plans
- ☐ Assessing environmental and social risks and developing a plan to ensure compliance with the Adaptation Fund's environmental and social policy and UN-Habitat's Environmental and Social Safeguards System.
- ☐ Conducting a willingness to pay/infrastructure revenue survey to ensure that, where possible, infrastructure generates revenue that can be used to re-invest in operation, maintenance and upgrading.

The core elements of Component 1 are building capacity at provincial and commune level to conduct vulnerability assessment and develop climate change action plans in line with the 15 Environmental and Social Principles of the Adaptation Fund and the ESMP.
As shown in Part II. Section D, Table 10, conducting vulnerability assessments and developing action plans for climate change is in line with, and an outcome of the 'priority activities' of Cambodia's Nationally Determined Contribution under the UNFCCCC.

The project proposal identifies a catalogue of intended sub-projects (see below, under Component 3 and in Annex 5), based on a rapid-vulnerability assessment and three sets of community consultations. The steps undertaken to define the proposed interventions are reflected in Figure 20 and in the narrative under component 3. Throughout the rapid-vulnerability assessment the existing climate threads and hazards of each commune were identified and led to the evidence-based development of the action planning. Taken as baseline, the intervention of the action planning were screened against the Environmental and Social Safeguards of the Adaptation Fund that informs component 3 in a way that the catalogue of intended sub-projects is not anticipated to alter fundamentally the nature of the interventions under component 3.

Building on the conducted comprehensive RVA and environmental and social risk screening the vulnerability assessment under Component 1 is required to assess climate change historical trends and projects, infrastructure analysis, ecosystems, the socio-economic structure of the provinces, and the spatial profile. This will provide the evidence basis for the action plans under output 1.3. which will include a more detailed cost-benefit analysis. To date, the rapid-vulnerability assessment conducted for the development of this proposal, responds to the commune profile and is based on demographic data received through commune council consultations. The vulnerability assessment conducted under Component 1 will gather a wider range of data, perform deeper analysis and develop a comprehensive vulnerability index.

Beyond this, the vulnerability assessment will provide the evidence basis for the action plans that will lead to the selection of the most-appropriate, feasible, cost-effective and environmentally and socially safe interventions based on the catalogue of intended sub-projects. Although the environmental and social safeguard risk screening per intended sub-project identifies the target communes, it is still necessary to localize the most-effective intervention based on hazard mapping, the ecosystem analysis and the findings of the land use management assessment. The aim is to develop strong action planning, in which the sub-projects are mutually re-enforcing.

It will also clear to what extent the combination of sub-projects (either geographically, or by doing several at the same time), will reduce the transaction costs (such as procurement and administration) associated with each intervention, promoting efficiency. This cost-effectiveness focused approach enables the project to invest in more adaptation actions, increasing the number of beneficiaries and improving the cost per beneficiary ratio. To give an example, the community consultation showed in one case, that the development of a canal in Kep Commune will reduce the potential for floods in Ou Krasar Commune. It is then to assess, if and to what extent flood prevention measures are needed in Ou Krasar Commune. Hence, the vulnerability assessment will undertake a spatial analysis that will inform an effective and localized plan for actions per selected sub-project.

In-depth vulnerability assessments and action planning in line with government and commune processes is required to grasp all issues and needs. This increases ownership, institutionalise and sustain the process and identified priority interventions. The vulnerability assessment and adaptation action planning will be guided by the Planning for Climate Change (P4CC) framework[36], which provides guidance on assessing vulnerability and implementing adaptation options. P4CC's principles are to be strategic; meaning implementation should make the best use of the resources (financial, human and time) available, values-based; meaning that actions should be based on what matters most to communities, participatory; that the project should engage as many different stakeholders as possible throughout the project cycle, and integrated; meaning it should align with other plans and policies insofar as possible. This is especially important in the Cambodian context, given the need and government preference for alignment with the commune and district investment plans, as opposed to stand-alone climate change plans.

[36] https://unhabitat.org/books/planning-for-climate-change-a-strategic-values-based-approach-for-urban-planners-cities-and-climate-change-initiative/

This component has been included in the project because it means the interventions implemented under Component 3 will be based on scientific evidence and rigorous planning. Specifically, UN-Habitat's P4CC approach ensures that activities are feasible, effective and acceptable to communities, and is thus a participatory approach. Moreover, the action planning phase also enhances the ability of UN-Habitat and the executing partner to ensure compliance with the Environmental and Social Policy of the Adaptation Fund. Further details of compliance with this are provided in Section K.

Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas;

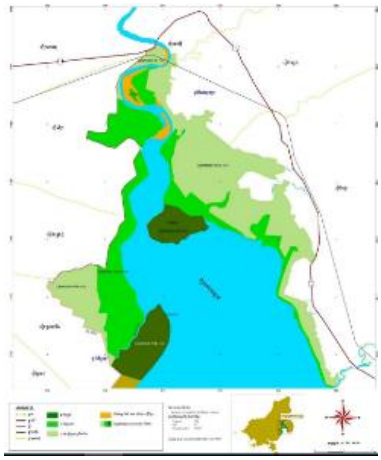
In line with Adaptation Fund Outcome 3 and ongoing priorities under the NCDD programme (See Section D), this component will strengthen awareness and ownership of the climate change adaptation process in local government (district and commune level) through increased capacity. This will be done by:

- ☐ Developing/refining guidelines on district/commune level Vulnerability Assessment and action planning, including for eco-tourism
- ☐ Developing guidelines for the operation and maintenance of small-scale protective and basic infrastructure and natural assets
- ☐ Community-level training to construct, maintain and operate community-scale infrastructure and natural assets. There will be at least 1 initial training and 2 follow-up trainings in each community, as the project will work with 15 settlements, there will be a total of 45 trainings in total at community level. There will also be at least 2 provincial/district level training in each province.

This component is required to execute Component 3 in a way that is efficient and sustainable. Component 2 will begin as the action planning under Component 1, Output 1.3. is completed. When Output 1.3 is complete, the exact details of the infrastructure to be constructed/repaired will have been reconfirmed. Capacity building under Component 2 will ensure that communities and sub-national government have the capacity to construct, maintain and operate community-scale infrastructure. It will also codify the knowledge on

Figure 19. Kampong Smach protected mangrove forest.

building and operating community-scale infrastructure into guidelines. Component 2 therefore creates the knowledge and capacity basis to implement Component 3 in a participatory and sustainable manner.



Component 3: Resilience built through small-scale protective and basic service infrastructure and natural assets:

In line with Adaptation Fund Outcomes 4, 5 and 6 and Cambodia's NDC this component will increase resilience through a mix of green and concrete measures. This will include year-round water supply, flood/coastal flood protection, resilience to strong winds, sanitation, ecosystem based adaptation options including mangrove forests on the mainland.

3 rounds of in depth community consultation and a conducted comprehensive rapid vulnerability assessment in all target areas led to the development of the following evidence-based action planning in Kep Province and Preah Sihanouk:

Commune/ Sangkat of Kep Province	Main Climate Change Impact	Activities		
Angkaol	1. Strong winds (more than 100 HH in 2013 and 20-30 per year)	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. Sea water floods	2.1. Protective infrastructure (road or dam)		
	3. SLR and beach erosion	3.1. Erosion vulnerability assessment and hazard map	3.2. Protective infrastructure (road)	

Pong Tuek	1. Strong winds (20-30 HH per year)	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. SLR and salinization	2.1. Advocacy on reforestation of the coastline	2.2. Protective infrastructure (canal, fresh water reservoir)	2.3. Salt-resilient crops for agriculture
	3. Beach erosion	3.1. Erosion vulnerability assessment and hazard map	3.2. Protective infrastructure (road)	
Prey Thom	1. Drought	1.1. Fresh water reservoir		
	2. Lack of water supply	2.1. Rain water harvesting	2.2. Piped water supply	2.3. Advocacy esp. to children and women about health issues of unsafe water
	3. Strong wind (60 HH destroyed per year)	3.1. Advocacy on planting more trees	3.2. Demonstration of resilient housing design	
Kep	1. Flood	1.1. Improvement of flood-protective 3-4 km long canal (shared with Ou Krasar commune)		
	2. Drought	2.1. Water supply from Kampot is a goal of the CIP for 2022, but water shortage is an urgent issue of today		
	3. Strong wind (20 HH destroyed per year)	3.1. Advocacy on planting more trees	3.2. Demonstration of resilient housing design	
Ou Krasar	1. Strong wind	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. Unsafe water	2.1. Awareness on health issues to unsafe water and how to avoid		
	3. Drought	3.1. Rehabilitation of irrigation and capacity to harvest water during dry season	3.2. Drought-resilient crop for agriculture	

Commune/Sangkat	Main Climate Change issue	Activities

of Preah Sihanouk Province				
Tuek Thla	1. Drought	1.1. Rehabilitate reservoir located in one village to improve the water supply for the whole year		
	2. Flood	2.1. Build water gate for existing reservoir		
	3. Strong wind	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme weather events and EWS	3.3. Demonstration of resilient housing design and training of local craftsmen
Tuek L'ak[37]	1. Drought	1.1. Build a reservoir or dam with water gate to keep water		
	2. Flood	2.1. Assess possible infrastructure like canals to channel rain water		
	3. Strong wind	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme weather events and EWS	3.3. Demonstration of resilient housing design and training of local craftsmen
	4. Decline of mangroves	4.1. Make eco-tourism areas accessible	4.2. Demarcation of areas for eco-tourism	
Samakki	1. Flood	1.1. Repair the water gate		
	2. Strong wind (100 HH per year destroyed in Tuek Thla,	2.1. Advocacy on planting more trees	2.2. Weather station, broadcasting extreme weather events and EWS	2.3. Demonstration of resilient housing

[37] Natural protected area of Kampong Smach involving 6 communes of Prey Nob District (Tuek Lak, Samakki, Veal Renh, Ou Oknha Heng, Samrong and Boeng Taprom).

	Tuek L'ak and Samakki)			design and training of local crafts-men
	3. Drought (Jan-May no drink-ing water. It needs to be bought costly from neighbour-ing communes)	3.1. Build dam and water gate that keeps water for 100 ha of land during the dry season		
	4. Decline of mangroves	4.1. Make eco-tour-ism areas accessible	4.2. Demarcation of areas for eco-tourism	
Veal Rinh	1. Strong wind	1.1. Advocacy on planting more trees	1.2. Weather station, broadcasting extreme weather events and EWS	1.3. Demonstra-tion of resil-ient housing design and training of local crafts-men
	2. Drought (Jan-May no drink-ing water. It needs to be bought costly from neighbour-ing communes)	2.1. Improve access to drinking water by building dam or channel water through canals		
	3. Flood	3.1. Channel floods through canals and water gates		
	4. Decline of mangroves	4.1. Make eco-tour-ism areas accessible	4.2. Demarcation of areas for eco-tourism	
Samrong	1. Drought	1.1. Build water gate to channel and harvest rain water		
	2. Flood	2.1. Repair roads that were damaged by floods	2.2. Build water gate to channel rain water during heavy rain-falls	
	3. Strong winds	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme weather events and EWS	3.3. Demonstra-tion of resil-ient housing design and training of

				local crafts-men
	4. Decline of mangroves	4.1. Make eco-tour-ism areas accessible	4.2. Demarcation of areas for eco-tourism	
Prey Nob	1. Drought	1.1. Rehabilitation of canals in Oknha Heng could keep the water chan-nelled in Prey Nob		
	2. Flood (affects esp. the market, the source of regular income of the people)	2.1. Rehabilitation of canals in Oknha Heng can avoid floods in Prey Nob	2.2. Build drainage system and sanitation system esp. around the market	
	3. SLR	3.1. Improve 8km of road to protect the road to the gar-ment factory from SLR		
Ou Oknha Heng	1. Salinization	1.1. Rehabilitation of protected dam along 3 villages in order to avoid sea-water intrusion of the rice fields	1.2. Improvement of canals across the communes	
	2. Drought	2.1. Rehabilitation of canal to provide fresh water during dry season	2.2. Build barriers for animals to avoid con-tamination of fresh water reservoirs	
	3. Decline of mangroves	3.1. Make eco-tour-ism areas accessible	3.2. Demarcation of areas for eco-tourism	
Boeng Taprom	1. Flood	1.1 Rehabilitate the canal to channel floods and harvest fresh-water in the dry season		
	2. Salinization	2.1. Rehabilitate the canal to protect fresh-water from sea-water intrusion	2.2. Build dam (or protective infrastruc-ture) to mitigate SLR	
	3. Decline of mangroves	3.1. Make eco-tour-ism areas accessible	3.2. Demarcation of areas for eco-tourism	
Sangkat Muoy	1. Drought	1.1. Build water pipelines. Esp. peo-ple living on the	1.2. Wastewater sew-age system can also avoid contamination of rain water, which	

		hill-side cannot access water during the dry season. Approx. 500 HH have no access to safe drinking water.	otherwise goes straight into the sea. But difficult to implement due to land ownership issues.	
	2. Strong wind	2.1. Advocacy on planting more trees	2.2. Demonstration of resilient housing design and training of local craftsmen	
	3. Lack of drainage system and wastewater management system	3.1. Build wastewater treatment plant	3.2. Channel drainage to redirect the water flow	

Based on three rounds of consultations, as outlined in Figure 20, with communities and communes, provincial and national governmentduring which an evidence-based rapid vulnerability assessment was conducted, on the comprehensive action planning above and on the environmental and social risk screening (see Annex 5) the following commensurate catalogue of intended sub-projects has been prepared:

I. Resilient to strong winds

- ☐ Resilient housing (all communes in Kep Province. Teuk Thla, Teuk La'k, Samakki and Veal Rinh communes and Sangkat Muoy of Preah Sihanouk Province
- ☐ Automatic weather station with enhanced broadcasting and early warning system (EWS in all communes in Prey Nob District, weather station in Prey Nob District Hall of Preah Sihanouk Province)

II. Adaptation to droughts by enhancing freshwater supply (7 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Prey Nob, Ou Oknha Heng and 1 Sangkat in Sihanoukville: Sangkat Muoy. 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar)

- ☐ Water gates on existing reservoirs to improve water management
- ☐ Rainwater harvesting

III. Flood prevention measures (Samaki, Teuk Thla and Teuk La'k communes, Prey Nob District, Preah Sihanouk province)

- ☐ Canal
- ☐ Dam
- ☐ Watergates on canals to channel floods

IV. Adaptation through enhanced Eco-Tourism (6 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Boeng Taprom could benefit of eco-tourism in the Kampong Smach protected area. 1. Mangrove forest in the in Kep: Angkaol)

- ☐ Demarcation of and access to natural assets
- ☐ Reforestation

V. Sea level rise and salinization (In Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng Taprom. In Kep Province: Angkaol and Pong Tuek)

- ☐ Protective infrastructure in the coastal area

VI. Wastewater flooding, bank and soil pollution (Sangkat Muoy)

- ☐ Enhanced wastewater drainage and management system

Due to the projected climate change impacts and disasters already occurring in coastal areas, life, health, assets and livelihoods can only be protected through physical interventions (with the support of the soft interventions above). Interventions will be selected looking at their resilience building impact, cost-effectiveness, risks and sustainability, but will lead to protection against coastal erosion, storms and floods (i.e. mangroves, zoning/protection or other protective infrastructure), reduction of droughts and improvement of

health (i.e. water supply and sanitation) and in line with above, increased resilience of livelihoods and eco-tourism. Hence, the vulnerability assessment under Component 1 will identify the potential of combining sub-projects in a way complementary to addressing climate change hazards in the most cost-effective, appropriate and environmentally and socially safe way as described above.

The project will be both innovative and efficient by using, where possible, the People's Process as a means to implement activities. The People's Process mobilises people in the target areas to take decisions regarding their resilience, play an active role in the implementation of the measures and support them in doing so.[38] By doing this, communities/beneficiaries have greater ownership of the process of building resilience, and implementation costs are reduced.

Component 4: Knowledge and awareness enhanced and sustainability ensured

This component will ensure the project implementation is fully transparent, all stakeholders are informed of products and results and have access to these for replication. Moreover, this component will also contain specific activities to further replicate and scale up the knowledge and awareness. This is done through:

- ☐ Lessons learned and best practices are captured and disseminated both with the project area and beyond, including at national level, to enhance replication potential
- ☐ Advocacy platform built at the national level, with other stakeholders working on local level climate change adaptation work, including UNDP and UNCDF
- ☐ Support provided to the National Committee for Sub-National Democratic Development to prepare a direct access proposal to other multilateral climate finance institutions, including the Green Climate Fund, to continue and upscale adaptation actions in the target area of this project and beyond.[39]

The proposed project also plans to contribute for providing lessons learned on the draft of eco-tourism policy through the project implementation. As the concept of eco-tourism[40] includes components to enhance minimize impact and financial benefits for natural resource preservation and local communities, the project intervention able to benefit for promoting eco-tourism in Cambodia by supporting development of the draft of eco-tourism policy.

[38] See this brief example from Myanmar, for example - http://unhabitat.org.mm/wp-content/uploads/2015/03/UN-Habitat-Myanmar_Brochure.pdf

[39] This will be in line with the 'Means of Implementation' defined in Cambodia's NDCs. (NDC, Chapter 5, p 11.)

[40] The framework of ecotourism includes the following seven components: (1) involves travel to natural destinations; (2) minimizes impact; (3) builds environmental awareness; (4) provides direct financial benefits for conservation; (5) provides financial benefits and empowerment for local people; (6) respects local culture; and (7) supports human rights a democratic movements (Honey, 2008)

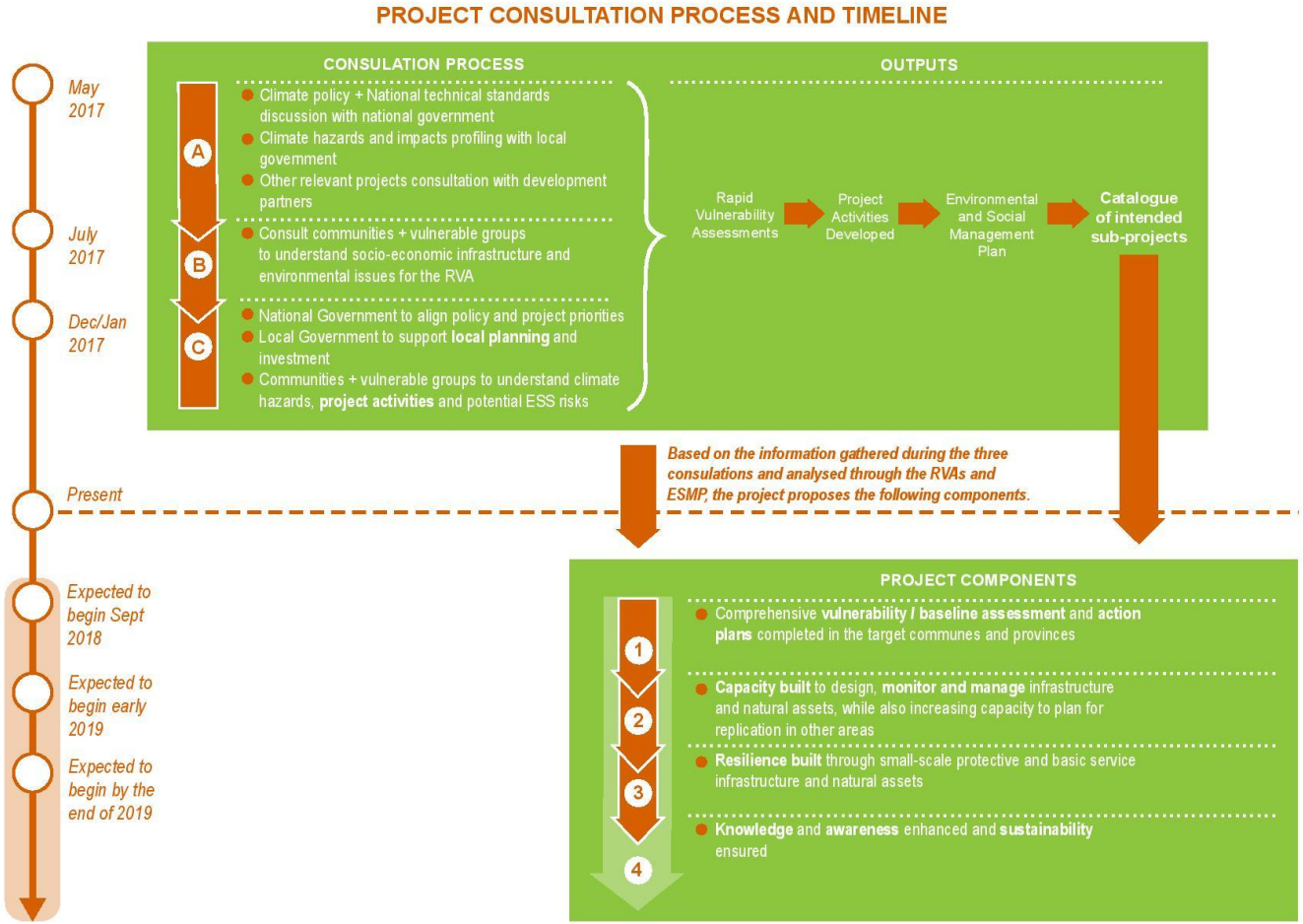


Figure 20. Ratio of the evidence-based selection of interventions under the catalogue of sub-projects.

Table 6: Concrete Interventions in target commune and AF Environmental and Social Principle triggered (*corresponding to prioritized resilience building interventions in table 1.)*. See supporting interventions required for appropriate use/sustainable management and maintenance and environmental and social risks in Annex 5 in detail

Concrete interventions		**Target commune**	**Estimated cost (US$) and cost-effectiveness of direct beneficiaries (area within the commune)**	**AF Environmental and Social Principle triggered**
Resilience to main climate hazards	Sub-Project (for more details see environmental and social risks screening sheets in annex 5)			
Resilience to strong winds	Resilient housing	In Kep Province: All 5 communes In Prey Nob: Tuek Thla, Tuek La'k, Sameakki and Veal Rinh communes In Sihanoukville: Sangkat Muoy	1,500 USD per household* 600 Units Assumed Beneficiaries 3,000 Assumed female beneficiaries: 1,500 Cost per beneficiary: 300 USD Total: 900,000 USD	AF Principle 2,3,4,5,6,13
	Automatic weather station with enhanced broadcasting and early warning system	EWS in all communes in Prey Nob District, weather station in Prey Nob District Hall of Preah Sihanouk Province	Weather station: 30,000 USD 1 Units Assumed Beneficiaries 18.180 Assumed female beneficiaries: 9,090 Cost per beneficiary: 1.65 USD Total: 30,000 USD	No risks

			EWS: 3,000 USD 8 Units Assumed Beneficiaries 18,180 Assumed female beneficiaries: 9,090 Cost per beneficiary: 1.32 USD Total: 3,000 USD.	
Resilience to droughts	Water gates on existing reservoirs to improve water management	7 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Prey Nob, Ou Oknha Heng. In Sihanoukville: Sangkat Muoy. 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar	15,100 USD 5 Units Assumed Beneficiaries 30,453 Assumed female beneficiaries: 15,226 Cost per beneficiary: 2.48 USD Total: 75,500 USD	AF Principles 2, 3, 6, 12, 13
	Rainwater harvesting		140 USD per system 2,000 Units Assumed Beneficiaries 10,000 Assumed female beneficiaries: 5,000 Cost per beneficiary: 28 USD Total: 280,000 USD	AF Principles 2, 3, 4, 6, 12, 13
	Piped water supply		368 USD per connection 2,000 Units Assumed Beneficiaries 10,000	AF Principles 2, 3, 4, 5, 8, 12, 13

			Assumed female beneficiaries: 5,000 Cost per beneficiary: 73.60 USD Total: 736,000 USD	
Flood prevention measures	Canal	3 communes in Prey Nob District: Prey Nob, Oknha Heng, Boeng Taprom. 3 communes in Kep Province: Angkaol, Kep and Ou Krasar	10,500 USD per 1000 m 6 Units Assumed Beneficiaries 19,752 Assumed female beneficiaries: 9,876 Cost per beneficiary: 3.19 USD Total: 63,000 USD	AF Principles 4, 8, 9, 10, 12, 13
	Dam	2 communes in Prey Nob District: Tuek L'ak and Veal Rinh	13,500 USD per 1000 m 6 Units Assumed Beneficiaries 4,725 Assumed female beneficiaries: 2,362 Cost per beneficiary: 17.14 USD Total: 81,000 USD	
	Water gate on canals	4 communes in Prey Nob District: Tuek Thla, Samakki, Samrong, Boeng Taprom	15,100 USD 6 Units Assumed Beneficiaries 8,803 Assumed female beneficiaries: 4,401 Cost per beneficiary: 10.29 USD Total: 90,600 USD	

Adaptation through eco-tourism, (including enhancement of the marine protected area)	Demarcation and access to natural asset	6 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Boeng Taprom could benefit of eco-tourism in the Kampong Smach Protected Area. 1. Mangrove forest in the in Kep: Angkaol)	100 USD per pole 500 Units Assumed Beneficiaries 14,468 Assumed female beneficiaries: 7,234 Cost per beneficiary: 3.46 USD Total: 50,000 USD	AF Principles 3,6,9
Increase and conserve marine resources and biodiversity in order to improve livelihood of the people	Reforestation		1 USD per tree 1500 Units Assumed Beneficiaries 14,468 Assumed female beneficiaries: 7,234 Cost per beneficiary: 1.04 USD Total: 15,000 USD	
Resilience to SLR, beach erosion and salinization	Protective Infrastructure	In Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng Taprom. In Kep Province: Angkaol and Pong Tuek	13,500 USD per 1000m 6 Units Assumed Beneficiaries 18,257 Assumed female beneficiaries: 9,128 Cost per beneficiary: 4,44 USD Total: 81,000 USD	AF Principles 2,3,4,6, 8,9,10,12,13
Wastewater flooding, bank and soil pollution (Sangkat Muoy)	Drainage system and Wastewater management system	In Sihanoukville: Sangkat Muoy	10,500 USD per 1000m 10 Units Assumed Beneficiaries 2,070	AF Principles 2, 3, 4, 6, 8, 12, 13 and 15

			Assumed female beneficiaries: 1,035 Cost per beneficiary: 50.72 USD Total: 105,000 USD	

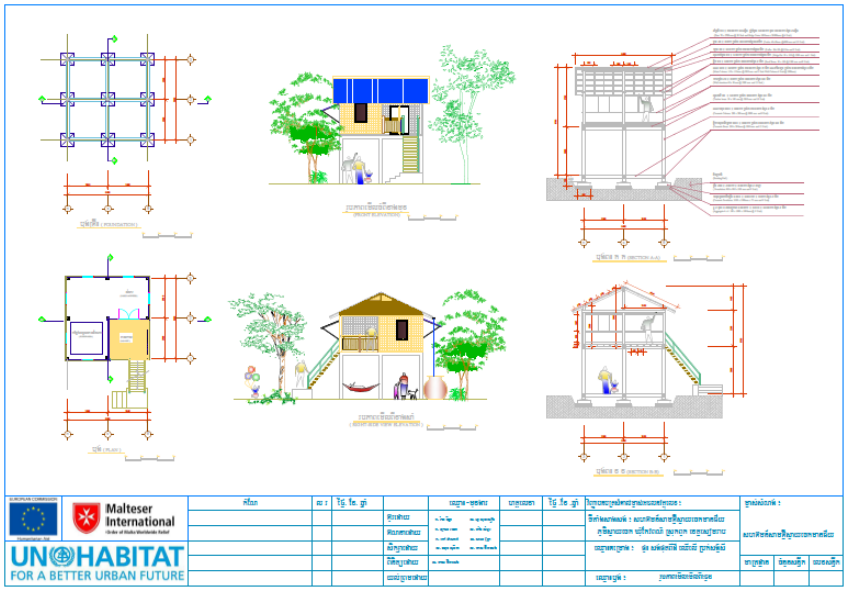


Figure 21. Example of a resilient housing design used by UN-Habitat in Cambodia.

B. Economic, social and environmental benefits

According to the consultations undertaken in the development of this concept note, people face serious economic challenges in terms of accessing water, due to the need to buy water from tankers or in bottles from other areas. The consultation also identified that several climatic impacts and hazards cause water pollution as well as contaminate ground water resources. This means that providing year-round, clean water supplies to the target populations will also bring economic benefits in terms of reducing expenditures on water.

Meanwhile, a lack of protective infrastructure and high exposure to storms and coastal flooding means that people regularly lose assets. Damage to houses is common and during consultations, officials also highlighted frequent damage to adjacent agricultural lands, restricting food supplies, increasing prices and meaning people to either borrow or invest whatever household savings they have in rebuilding houses or making make-shift flood defences.

The project will bring numerous social benefits. Women and youth will be involved specifically in the assessment, planning and implementation of all components. Component 1 will conduct specific, women-only consultations, for example[41], while activities implemented under Component 3 will specifically include women because communities themselves will be in charge of construction and maintenance.

The project will also bring environmental benefits beyond the adaptation benefits foreseen. Possible waste management actions undertaken under Component 3 will have local environmental benefits as the target areas are polluted with both solid and liquid waste, while this component will also seek to use local materials, where possible.

Table 7: Economic, Social and Environmental Benefits.

Type of benefit	Baseline	With/after project
Economic	Tourism, which provides employment to over a quarter of Cambodia's workforce, is threatened by climate change Households face high costs to buy water in bottles or tankers from other areas Households face damage and financial losses as a result of various climate change related hazards, primarily floods and storms	Areas with significant potential for tourism development will be protected, more resilient and have more robust ecosystems that are necessary to continue to support tourism development and thus greater levels of employment Target areas will have access to year-round, safe water supply, removing the need to buy externally sourced water Flood defences, protection and improved drainage will all contribute to reducing and eliminating loss and damage occurring because of climate change hazards

[41] Possible reference to the Myanmar VA here, where women-only consultations were undertaken

		Using the people's process as a means to implement the concrete components of the project will directly contribute to higher incomes and have the co-benefit of improving vocational skill levels, which will enable people to earn higher wages.
Social	Regular floods, storm damage and poor sanitation and water supply as well as water pollution/ contamination due to climatic impacts cause, and make worse pre-existing drivers of vulnerability, such as disease, poverty and migration	Improved protective infrastructure will have the co-benefit of protecting agricultural areas and other service infrastructure, which will also benefit livelihoods. "Year-round water supply will improve hygiene and nutrition and have a positive co-benefit on health. As described in the economic benefit section, the actions will have numerous livelihood co-benefits, which will contribute to reducing poverty.
	Poor quality housing and infrastructure in the target areas further drives vulnerability, and create additional challenges such as a lack of safety, while facilitating the spread of disease.	Alignment with the commune/district investment plans and increased capacity for officials at those levels to plan for and manage climate resilient investments will ensure that infrastructure and settlements are more resilient in the long term.
	Increasing inequality in Cambodia, including in coastal areas shows that the poorest are not sharing in the proceeds of the country's rapid economic growth	The project will use the vulnerability assessment and action planning process conducted in Component 1 to ensure that actions target the poorest and most vulnerable, including women, youth and the elderly. While the project does not work in indigenous areas, it will ensure inclusion of minority Muslim communities that exist in the area.
	The communities do not have adequate capacity benefit from eco-tourism.	The communities including the poor and vulnerable areas increase capacities and opportunities to gain income from eco-tourism.
Environmental	Severe environmental degradation has taken place throughout the coastal area of Cambodia – especially in areas where there has been investment in infrastructure and tourism	"Soft interventions in Koh Rong will include capacity building on maintenance of the marine protected area, which provides critical ecosystem services to poor and otherwise vulnerable people onshore
	The often-informal nature of the target settlements creates environmental problems, especially	Improvements in waste-water management will occur as a result of the project investments. Otherwise, the capacity

in waste-water management	building undertaken under component 2 will strengthen commune/district investment planning capacity to ensure that these underlying environmental concerns are addressed
The combined effects of sea-level rise, coastal flooding and on-shore development issues (especially disposal of wastewater) is causing coastal erosion	Better onshore management of water will contribute to reducing coastal erosion effects

C. Cost effectiveness

The proposed project maximises cost effectiveness in a number of ways:

Maximising concrete over soft

The project will maximise the amount of investment in concrete interventions over soft ones. Around 72% of the components' budget will be directed to concrete investments. This maximises the direct beneficiaries of the project. Where the project makes investments in soft activities, these will be either a) directly supportive of the concrete investments (i.e. training in installation or operation and maintenance), or b) investments to strengthen commune/district level planning – which will help to sustain and replicate the benefits of the project, and make more effective use of national finance in the future. This approach maximises the adaptation benefits per dollar invested; a greater soft component focus would risk not translating into adaptation benefits, while a greater concrete focus may risk not building sufficient capacity to sustain or replicate them.

Choosing Cost effective investments

Much work has already been conducted to assess vulnerability and plan for actions, thus making Component 1 lower cost and faster to implement. Under Component 1, when the project undertakes action planning, cost effectiveness, adaptation-cost effectiveness, 'time to adaptation benefits' and 'no-regret' will all be factors in refining and prioritising the proposed investments. This is standard practice according to UN-Habitat's well-established Planning for Climate Change methodology.[42] This means that cost-effectiveness, adaptation effectiveness and development effectiveness are all part of the action planning process. UN-Habitat also has experience of conducting cost-benefit analysis of specific project options, where their immediate benefit is not clear.[43]

A cost effectiveness analysis has been prepared and is presented in Annex 7. This shows the estimated unit cost, total cost and cost per beneficiary. Through this, we see that many of the proposed activities under Component 3 offer a very low cost per beneficiary ratio. However, even where activities – such as resilient housing – have a higher cost per beneficiary ratio, we expect them to bring greater long-term adaptation benefits, which

[42] See UN-Habitat (2014), Planning for Climate Change: A Strategic, Values-based Approach for Urban Planners, p.109 - https://unhabitat.org/books/planning-for-climate-change-a-strategic-values-based-approach-for-urban-planners-cities-and-climate-change-initiative/

[43] See for example this example for urban ecosystem-based adaptation options conducted in Fiji - http://www.fukuoka.unhabitat.org/projects/voices/pacific_islands/detail07_en.html

will be confirmed through a cost-benefit analysis during the implementation of activities under Component 1 of the project. It should also be noted that across the project area, multiple people will benefit from multiple activities, and that activities will be mutually re-enforcing. Therefore, it is not expedient to strictly compare the cost effectiveness of the proposed actions in the catalogue against each other, as in some cases, such as the various flood prevention measures, the effectiveness of the actions is contingent upon other, supporting actions. This cost-effectiveness focused approach, by combining sub-projects into packages as described under Component Part 1 in Part II. Section A, enables the project to invest in more adaptation actions, increasing the number of beneficiaries and improving the cost per beneficiary ratio.

Cost effective implementation

UN-Habitat will implement the concrete components of the project through the People's Process where possible. This implementation approach has been shown to reduce implementation costs by 20-30 per cent over the life of the project by using community labour instead of external contractors, and by procuring local materials where they are available.

All investments are proposed and designed to be resilient. UN-Habitat will ensure that it does not select the cheapest options, but the most cost-effective. This means that if resilient infrastructure has a higher investment cost for a demonstrated longer lifespan and/or greater adaptation benefits it will be chosen over options with a lower initial cost.

The alternative implementation model to the People's Process is to use external contractors, which, as highlighted above, is more expensive and less likely to foster local ownership.

The catalogue of intended sub-projects has been identified during the full proposal development stage, but their suitability and effectiveness will be re-examined during the vulnerability assessment and action plans that will be conducted under Component 1 of the project. They will be technically finalized through community and expert consultations (as a result of the activities under Component 1). Their cost-effectiveness will be re-assessed as part of the action planning process (undertaken under Output 1.3). In the participatory approach taken to action planning, stakeholders will be asked to rate potential actions according to their cost-effectiveness (besides resilience building benefits and risks). The actions will also be subject to a cost-benefit analysis exercise. Meanwhile, procurement will be conducted according to Ministry of Economy and Finance guidelines to ensure that equipment is procured transparently and at the lowest possible cost (see table 9 below). Re-evaluating the actions proposed under this project through a comprehensive vulnerability assessment and action planning process also ensures that investments are the most appropriate, with the greatest adaptation benefits, which also ensures their cost-effectiveness.

Using D&D structure for efficiency

The project will work closely with the National Committee for Sub-National Democratic Development – the government body responsible for investment planning at the commune and district level. Working through this body helps to ensure that investments are effectively programmed where they are most needed and do not duplicate infrastructure development through national/on-budget finance.

Consultations with government stakeholders – Ministry of Environment, local officials in both provinces and NCDD itself, show that when local investment projects take this approach, they are most cost effective, better aligned with national priorities and reduce duplication, compared with 'direct execution' type projects that bypass NCDD.

The alternative to this would be to bypass the official government structure for local investment and work either through the Provincial Department of Environment (DoE) or by direct execution. However, local DoEs have minimal experience of management of this level of investment in local investment, and do not have the requisite management procedures in place, while direct execution would not deliver the same level of local ownership, institutional capacity building or replication.

The table 8 below summarises the types of concrete intervention to be implemented by the project, possible alternative actions, and the cost-effectiveness of these. This is a preliminary analysis that will be re-confirmed during the action planning stage under Output 1.3.

Table 8: Brief cost effectiveness analysis of proposed adaptation options.

Proposed Action	Cost effectiveness criteria		Alternative action	Cost effectiveness criteria	
Resilient housing	Future cost of climate change	✓	Relocation	Future cost of climate change	✗
	Project efficiency	✓		Project efficiency	✗
	Community involvement	✓		Community involvement	✗
	Cost/feasibility	✓		Cost/feasibility	✗
	Environmental and social safeguarding risks	Less risk		Environmental and social safeguarding risks	More risk
An automatic weather station and with enhanced broadcasting and early	Future cost of climate change	✓	Taking no action	Future cost of climate change	✗
		✓		Project efficiency	✗

warning system	Project efficiency			Community involvement	✗
	Community involvement	✓		Cost/feasibility	✓
	Cost/feasibility	✓		Environmental and social safeguarding risks	✓
	Environmental and social safeguarding risks	Less risk			
Rehabilitation of fresh Water Reservoir Water gates on existing reservoirs to improve water management Rainwater Harvesting Enhancing the coverage and quality of piped water supply network	Future cost of climate change	✓	New water treatment plant	Future cost of climate change	✓
	Project efficiency	✓		Project efficiency	✗
	Community involvement	✓		Community involvement	✓
	Cost/feasibility	✓		Cost/feasibility	✗
	Environmental and social safeguarding risks	Less risk		Environmental and social safeguarding risks	More risk
Flood prevention measures: Canals Dams Water gates	Future cost of climate change	✓	New drainage infrastructure	Future cost of climate change	✓
	Project efficiency	✓		Project efficiency	✗
	Community involvement	✓		Community involvement	✗
	Cost/Feasibility	✓		Cost/feasibility	Higher cost/ feasible
	Environmental and social safeguarding risks	✓		Environmental and social safeguarding risks	Same risks

Adaptation through eco-tourism, (including enhancement of the marine protected area)	Future cost of climate change	✓	Alternative livelihoods	Future cost of climate change	✗
	Project efficiency	✓		Project efficiency	✓
	Community involvement	✓		Community involvement	✓
	Cost/feasibility	✓		Cost/feasibility	✓
	Environmental and social safeguarding risks	Less risk		Environmental and social safeguarding risks	Less risk
Resilience to SLR and salinization through protective infrastructure in the coastal area	Future cost of climate change	✓	Building sea walls	Future cost of climate change	✓
	Project efficiency	✓		Project efficiency	✗
	Community involvement	✓		Community involvement	✗
	Cost/feasibility	~		Cost/feasibility	✗
	Environmental and social safeguarding risks	Less risk		Environmental and social safeguarding risks	More risk
Enhanced wastewater drainage and management	Future cost of climate change	✓	Relocating informal settlements	Future cost of climate change	✗
	Project efficiency	✓		Project efficiency	✗
	Community involvement	✓		Community involvement	✗
				Cost/feasibility	✗

	Cost/feasibility	~		Environmental and social safe-guarding risks	More risk
	Environmental and social safe-guarding risks	Less risk			

Table 9: Proposed intervention cost-effectiveness rationale (further details can be found under Annex 5 and 7).

Concrete interventions		**Target commune**	**Estimated cost (US$) and cost-effectiveness of direct beneficiaries (area within the commune) (see Annex 7)**	**Alternative interventions and rationale why priority interventions/activities have been selected from a cost-effectiveness perspective (in line with table 8)**
Resilience to main climate hazards	Sub-Project (for more details see environmental and social risks screening sheets in Annex 5)			
Resilience to strong winds	Resilient housing	In Kep Province: All 5 communes In Prey Nob: Tuek Thla, Teuk La'k, Sameakki and Veal Rinh communes In Sihanoukville: Sangkat Muoy	1,500 USD per household* 600 Units Assumed Beneficiaries: 3,000 Assumed Female Beneficiaries: 1,500 Cost per beneficiary: 300 USD Total: 900,000 USD	The alternative intervention would be to relocate people affected by strong winds. This would lead to buying nearby hazard-free land. However, it would be difficult to guarantee that this land will not be affected by strong winds in the future and would require building resilient housing from scratch. This would not be cost-effective, would bring more environmental and social safeguard risks and the adaptation effectiveness of relocation is not proven.
	Automatic weather station with enhanced broadcasting and early warning system.	EWS in all communes in Prey Nob District, weather station in Prey Nob District Hall of Preah Sihanouk Province.	Weather station: 30,000 USD 1 Units Assumed Beneficiaries 18,180 Assumed Female Beneficiaries: 9,090 Cost per beneficiary: 1.65 USD	The alternative action to a weather station/EWS would be business as usual/taking no action. The weather station/EWS is a cost-effective, unique action, and no other action can result in the same end benefit.

			Total: 30,000 USD EWS: 3,000 USD 8 Units Assumed Beneficiaries 18,180 Assumed Female Beneficiaries: 9,090 Cost per beneficiary: 1.32 USD Total: 3,000 USD.	
Resilience to droughts	Water gates on existing reservoirs to improve water management	7 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Prey Nob, Ou Oknha Heng. In Sihanoukville: Sangkat Muoy. 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar	15,100 USD 5 Units Assumed Beneficiaries 30,453 Assumed Female Beneficiaries 15,226 Cost per beneficiary: 2.48 USD Total: 75,500 USD	A new water treatment plant would make more water available to people and would therefore provide adaptation to droughts. However, water treatment plants are prohibitively expensive, more complex in terms of engineering, and would have higher levels of environmental and social risk.
	Rainwater harvesting		140 USD per system 2,000 Units Assumed Beneficiaries 10,000 Assumed Female Beneficiaries 5,000 Cost per beneficiary: 28 USD Total: 280,000 USD	

	Piped water supply		368 USD per connection 2,000 Units Assumed Beneficiaries 10,000 Assumed Female Beneficiaries: 5,000 Cost per beneficiary: 73.60 USD Total: 736,000 USD	
Flood prevention measures	Canal	3 communes in Prey Nob District: Prey Nob, Oknha Heng, Boeng Taprom. 3 communes in Kep Province: Angkaol, Kep and Ou Krasar	10,500 USD per 1000 m 6 Units Assumed Beneficiaries 19,752 Assumed Female Beneficiaries: 9,876 Cost per beneficiary: 3.19 USD Total: 63,000 USD	The alternative action to prevent flash floods due to heavy rainfall would be to build an efficient drainage infrastructure. However, this would not reflect the community consultation and priority to channel flash floods to capture fresh water. The alternative would have a much higher cost-per beneficiary ratio. Building a drainage system is very complex from an engineering perspective, but feasible and of same risk as the prioritised interventions.
	Dam	2 communes in Prey Nob District: Tuek L'ak and Veal Rinh	13,500 USD per 1000 m 6 Units Assumed Beneficiaries 4,725 Assumed Female Beneficiaries: 2,362 Cost per beneficiary: 17.14 USD Total: 81,000 USD	

	Water gate on canals	4 communes in Prey Nob District: Tuek Thla, Samakki, Samrong, Boeng Taprom	15,100 USD 6 Units Assumed Beneficiaries 8,803 Assumed Female Beneficiaries: 4,401 Cost per beneficiary: 10.29 USD Total: 90,600 USD	
Adaptation through eco-tourism, (including enhancement of the marine protected area)	Demarcation and access to natural asset	6 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Samakki, Veal Rinh, Samrong, Boeng-Taprom could benefit of eco-tourism in the Kampong Smach protected area. 1. Mangrove forest in the in Kep: Angkaol)	100 USD per pole 500 Units Assumed Beneficiaries 14,468 Assumed Female Beneficiaries: 7,234 Cost per beneficiary: 3.46 USD Total: 50,000 USD	Alternative livelihoods would risk being a less effective option, because at this stage it is not clear what the livelihoods would be and whether they would be climate resilient or generate sufficient income for the people. They also may require people to move to other areas, creating migration issues. Hence, the alternative is not in line with environmental and social safeguards.
Increase and conserve marine resources and biodiversity in order to improve livelihood of the people	Reforestation		1 USD per tree 1500 Units Assumed Beneficiaries 14,468 Assumed Female Beneficiaries: 7,234 Cost per beneficiary: 1.04 USD Total: 15,000 USD	
Resilience to SLR, beach	Protective Infrastructure	In Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng	13,500 USD per 1000m 6 Units	The alternative action would be to build one or more sea walls. However, building sea walls is

erosion and salinization		Taprom. In Kep Province: Angkaol and Pong Tuek	Assumed Beneficiaries 18,257 Assumed Female Beneficiaries: 9,128 Cost per beneficiary: 4,44 USD Total: 81,000 USD	expensive, and would have a much higher cost-per beneficiary ratio. Building sea walls is also very complex from and engineering perspective and carries greater environmental and social risk, especially in terms of damage to the environment, as the wall would affect the sea bed and ocean ecosystem.
Wastewater flooding, bank and soil pollution (Sangkat Muoy)	Drainage system and Wastewater management system	In Sihanoukville: Sangkat Muoy	10,500 USD per 1000m 10 Units Assumed Beneficiaries 2,070 Cost per beneficiary: 50.72 USD Total: 105,000 USD	The alternative intervention would be to relocate people living informally in Sangkat Muoy. This would require buying nearby hazard-free land. However, it would be difficult to find suitable land close to the existing settlement, and the cost of relocating a community of this size would be prohibitive, while relocation would be an environmental and social safeguard risk and would likely be politically sensitive.

D. Consistency with national or sub-national strategies

The project has been designed to align with national and sub-national development policies, strategies and plans on development, climate change and disaster resilience and decentralization reform.

As Goal 13 of the Sustainable Development Goals and Article 1-5 of the Paris Agreement on Climate Change[44] indicate, global society is committed to adapt to climate change and reduce its impact. In support of this aspiration, the Royal Government of Cambodia also adopted several policies and strategies to reduce the impact of climate change by enhancing the adaptive capacity and resilience of climate change, such as the Cambodia Climate Change Strategic Plan (CCCSP) (2014-2023), the Climate Change Action Plan (CCAP), and the Nationally Determined Contribution (NDC). To align with these global and national climate goals and plans, the proposed project aims to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions.

The National Strategic Development Plan (NSDP) (2014-2018) is the primary national development strategy. In the NSDP, the Royal Government of Cambodia (RGC) outlines actions related to the national prioritized policies to implement the Rectangular Strategy Phase III (See Figure 10) This strategy puts good governance as the core, with four other elements, including poverty reduction through economic development (Element 3) and institutional capacity and governance at both national and sub-national level (Element 4). Decentralization and deconcentration (D&D) reforms for improving capacity of the sub-national levels as well as expanding their mandate is one of key priority actions. The Cambodian government has also set environmental sustainability as one of their prioritized actions. Actions on environmental sustainability include reducing the impact of climate change by enhancing the adaptive capacity and resilience to climate change, particularly through the implementing the Cambodia Climate Change Strategic Plan (CCCSP) (2014-2023).

[44] Cambodia entered the Paris Agreement on Climate Change into force on 18th of March 2017. See. http://unfccc.int/paris_agreement/items/9444.php

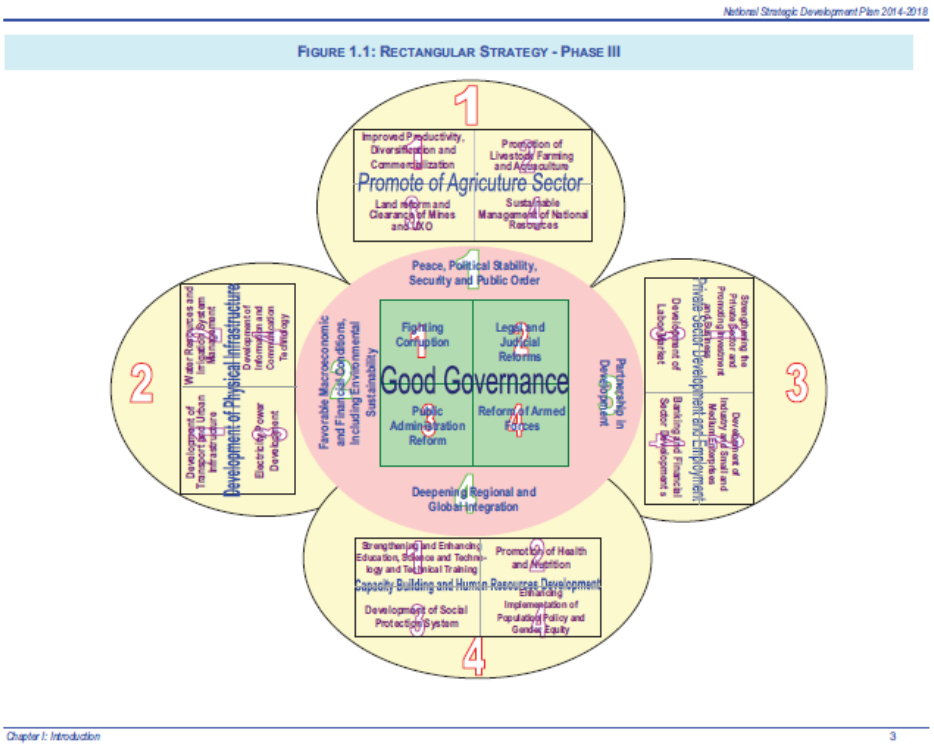


Figure 21. The Rectangular Strategy Phase III.

The CCCSP details Cambodia's strategic response to climate change, and forms the basis of the Nationally Determined Contribution. It will be implemented, in the initial stage, through the Climate Change Action Plan (CCAP). The CCCSP's vision is to develop "towards a green, low-carbon, climate-resilient, equitable, sustainable and knowledge-based society". To achieve its vision, Royal Government of Cambodia (RGC) sets eight strategic objectives. Among the eight strategic objectives, this project aligns with strategic objectives (SO) 2, 3, 5, and 7. Strategic Objective 2 aims to reduce sectoral, regional, gender vulnerability and health risks to climate change impacts through existing and new vulnerability and risk assessments (strategy a). It also aims to improve coastal zones and protected areas (strategy g). Strategic Objective 3 pursues climate resilience of specific locations including protected areas. Encouraging eco-tourism is highlighted as one of the most cost-effective approaches for addressing climate change (strategy b). Strategic Objective 5 aims to improve capacities, knowledge and awareness on climate change responses through trainings, while Strategic Objective 7 targets strength of "institutions and coordination frameworks for national climate change responses" through mainstreaming climate change into national and sub-national development plans (strategy a).

The CCAP was finalized in 2016 to guide the initial phase of implementation of the CCCSP, with 17 initial actions identified by the Ministry of Environment. Action 2 of the CCAP is to implement national and sectoral climate change vulnerable assessment. Testing specific management options to handle climate change is also included in Action 3. Action 11 aims to promote and improve the adaptive capacity of communities to respond to climate change. Finally, Action 13 is capacity building of national institutions coordinating the implementation of climate change response. These actions (2, 3, 11 and 13) are addressed by this project.

The Nationally Determined Contribution (NDC) refers back to the CCCSP as the means of implementation of Cambodia's goals. The NDC identifies that national vulnerability to climate change is caused not only by geography and high reliance on agriculture sector but also by lack of financial, technical, and human capacities. Infrastructure and coastal zones are recognized as one of most vulnerable sectors by climate change. The NDC also raises the profile of increased adaptive capacity to address climate change as a priority.[45] Cambodia has therefore selected a number of 'priority actions', giving prominence to ones with climate change impact mitigation co-benefits. The project address the following priorities through its components as follows:

Table 10: Aligning NDC Priorities with Proposed Project Components.

NDC – Priority Actions	**Project Component, Output and intended sub-project**
Promoting and improving the adaptive capacity of communities, especially through community based adaptation actions.	Component 1, Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.
Restoring the natural ecology system to respond to climate change.	Component 3, Output 3.1. - intended sub-project: Adaptation through enhanced eco-tourism
Implementing management measures for protected areas to adapt to climate change.	Component 2, Output 2.2. Community, commune and provincial level capacity built monitor and manage infrastructure and to build protective natural assets.
Strengthening early warning systems and climate information dissemination.	Component 3, Output 3.1. – intended sub-project: Weather Station with enhanced broadcasting and early warning system

[45] Cambodia's NDC to the UNFCCC, p.4

Developing and rehabilitating the flood protection dykes for agricultural and urban development.	Component 3, Output 3.1. – intended sub-project: Flood prevention measures
Increasing the use of mobile pumping stations and permanent stations in responding to mini-droughts, and promoting groundwater research in response to drought and climate risk.	This project identified following alternatives to address resilience to droughts under component 3, Output 3.1.: Intended sub-projects: Water gates on existing reservoirs to improve water management of freshwater reservoir Rainwater harvesting Enhancing the coverage and quality of the piped water supply network

In addition to its comprehensive development and climate change policy framework, the Cambodian government has placed significant emphasis on decentralization and deconcentration (D&D) reform, which promotes transformation of responsibilities and functions of government from national level to sub-national level. In Cambodia's NSDP, the government aims at the "[p]rovision of power and duties to manage and perform all respective functions in line with the principles of local autonomy and local accountability to the maximum level". The Law on Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans, also known as the Organic Law, specifies implementation structure and function of the National Committee for Democratic Development at Sub-National Level (NCDD). The NCDD reviews existing responsibilities and functions of ministries and other bodies and identifies functions to be transferred to sub-national level including financial resource and capacity building for management in accordance with the Organic Law. By working with NCDD to channel local investments, the project is aligning with and strengthening the decentralization process and the main body, the NCDD that manages this. Planning at the sub-national level (province, district/municipality and sankgat/commune is governed by the Three-Year Implementation Plan Phase III of the National Program for Sub-National Democratic Development, commonly referred to as the IP3-III. This programme includes a component on Service Delivery and Local Development (IP3-III Component 4) and particularly Outcome 4.2[46] on improving service delivery. This project will strengthen the implementation of the IP3-III.

In terms of plans at the sub-national level, 6 cities, including Kep and Sihanoukville, are starting to work with the Global Green Growth Institute (GGGI) to develop green city strategic plans, under the framework of the emerging national strategic plan for green secondary cities. The project will partner with GGGI to ensure the alignment of this initiative with the proposed project.

[46] NCDD (2017) Three-Year Implementation Plan Phase III of the National Program for Sub-National Democratic Development, p.5

Table 11 summarises how the project aligns with policies, strategies and plans of the Cambodian government. The main objective of the project is to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions. To achieve its main objective, the project consists of four components; Component 1 is comprehensive vulnerability/baseline assessment and action plans completed in the target communes/districts as prioritized in **CCCSP** and action 2 of **CCAP**. Component 2 is Capacity built to design, monitor and manage infrastructure, while also increasing capacity to plan for replication in other areas, in line with the CCCSP, NSDP, the Organic Law and the IP3-III. The project also supports the national deconcentration and decentralisation in the implementation process because it enhances capacity of sub-national levels for their independent climate change adaptation strategies in the future. Component 3 is resilience built through small-scale protective and basic service infrastructure and ecosystems, which aligns with the priorities of the CCAP and NDC. Component 4, Knowledge and awareness enhanced and sustainability ensured aligns with CCCSP and the NSDP in their aims to increase capacity.

The table shows overlap measures among national plans and strategies. Although not limited to its activities, this project mainly focuses on what the RGC set as their priority measures.

Table 11: project alignment with government priorities

Measure	NSDP (2014-2018)	CCCSP (2014-2023)	NDC	CCAP	The Organic Law	IP3-III (2018-2020)	The national strategic plan for green secondary cities
❑ Implement vulnerability assessment		x		x			x
❑ Develop action plans for enhancing the climate and disaster resilience		x		x			x
❑ Enhance capacity of sub-national level on climate change adaptation, and ecosystem resilience	x		x		x	x	
❑ Study, design and build small-scale protective and basic service infrastructure (water supply etc.)	x		x	x			
❑ Promote deconcentration and decentralization	x				x	x	

E. Compliance with relevant national technical standards and the Environmental and Social Policy of the Adaptation Fund

Table 12: Compliance with National Technical Standards.

Expected concrete output/intervention	Relevant rules, regulations, standards and procedures	Compliance, procedure and authorizing offices	AF ESP Principles at risk, if national technical standards are not applied.	Mitigation of Risk
1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP.		As there is no national technical standard defining capacity building at provincial and commune level to conduct vulnerability assessment and climate change action plans the component has the potential to set standards and define authorizing officials	Principle 2, 3, and 5	All principles will be taken into account when developing vulnerability assessment and action planning
1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) disaggregated, where possible.		As above	No risk	
1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and envi-	Guidelines for Integrating Climate Change into Commune Development Planning (MoE/CCCA) Effective Mechanisms for Climate Change Mainstreaming in sub-	Extensive coordination between UN-Habitat, MoE, NCDD and relevant department and commune officials will take place to ensure that climate action	No risk	

ronmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	national planning (MoE/CCCA) Green City Planning Methodology (MoE/GGGI) Guidelines for Commune Development Plans and Investment Plans (NCDD)	plans are integrated into CIPs. NCDD will play as authorization office, while MoE will provide a capacity building on integration of climate change to commune investment plans through commune planning committees		
2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets	X Close alignment with IP3-III	MoE will take a lead to developing/refining the guidelines and then train to NCDD Officials to take action at district/commune level through planning committees.	Principle 2, 3, and 5	Participatory -design/planning/rehabilitating – monitoring/managing and - maintenance will ensure quorum of women, elderly and vulnerable groups, where possible. (AF 2,3,5, and 6) All Principles will be taken into account when capacity building is conducted, thus ensure compliance
2.2. Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	Guidelines on provincial/district/commune project operations Close alignment with IP3-III	NCDD will provide the specific guideline to target authorities for operation and maintenance based on existing guidelines and then train commune planning and investment committee.	Principle 2, 3, and 5	See above

		MoE will provide technical assistance and monitoring.		
2.3. Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1.	Commune planning and investment project guidelines for infrastructure projects Close alignment with IP3-III	NCDD will train Commune planning and investment committees for project implementation, monitoring and also to ensure people's participation in maintaining the basic infrastructure.	Principle 2, 3, and 5	
3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	National Housing Policy	The project will target the most vulnerable groups in line with the first goal of the National Housing Policy, which is "to provide general people esp. low- and medium income households and vulnerable groups with access to decent housing or improving a house to ensure the right to adequate housing.	Principle 2,3,4,5,6,8,9, 10,12 and 13 have been triggered	See Annex 5, screening of catalogue of intended subprojects for detailed mitigation measures
	Law on Water Resource Management Article 11	Every Person has the right to use water resources for his/her vital human need.		
	Drinking Water Quality Standards (Ministry of Industry, Mines and Energy)	NCDD will liaise with provincial department of Industry, Mines and		

	Sub-Decree #27 on Water pollution Anukret # 86 on Construction Permit	Energy to ensure compliance with drinking water quality standards. NCDD will liaise with provincial department of Environment NCDD will liaise with provincial department of Provincial and Municipal administration		
	Sub-decree #72 on Environmental Impact Assessment Process	NCDD will work closely with MoE to ensure the environmental impact assessment undertaken with fully participation from local authorities based on sub-decree. NCDD will be responsible for conducting the assessment, while MoE will be responsible for TA.		
	Procurement Manual for Externally Financed Projects/Programs in Cambodia (MoEF – established under sub-decree)	NCDD will supervise to target commune planning and investment committees to ensure the implementation of infrastructure projects successfully		

	The compliance depends on the exact nature of the infrastructure to be constructed, however, relevant standards could include: EIA, Procurement process, local planning process and operation and maintenance procedure. Technical Guidelines for Commune/Sangkat (2009). Fund's projects which consist of 3 parts (Part 1: Assessment and designs; Part 2: Technical designed standard, construction, equipment /materials and works; Part 3: Monitoring and Evaluation) (2009)	NCDD will play as the authorization office to facilitate the project committees at the target areas to ensure the full participation for planning, construction and maintenance of resilient infrastructure project. NCDD will ensure the technical guidelines will apply for all infrastructure projects at the Commune/Sangkat targets in cooperation with technical departments.		
4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	Not relevant		Principle 2	All principles will be taken into account during capacity building
4.2. Capacity to replicate the project's objective inline with NDC implementation enhanced	Not relevant		No risk	

Ensuring effective and successful compliance with National Technical Standards is a vital component of ensuring effective implementation of environmental and social safeguard measures. In some cases, as demonstrated in Table 12, national technical standards are

a legal requirement. For example, under Output 3.2, compliance with Sub-decree #72 on Environmental Impact Assessment Process is a legal requirement, and therefore complying with the requirements of this Sub-decree is also essential for Environmental and Social Policy Principle #1; Compliance with the Law[47]. However, national technical standards do not give the project all the tools to comply with the Adaptation Fund's Environmental and Social Policy, or UN-Habitat's Environmental and Social Safeguard system. As such, additional safeguarding measures are outlined in Section K, below. These safeguarding measures, outlined in Section K, will complement the national technical standards, where they exist, and augment them where they do not.

F. Duplication with other funding sources

The sites selected for this project were chosen because of their high vulnerability and inability to adapt to climate change, as well as because the Royal Government of Cambodia has identified the coastal zone as a priority area. However, the target sites are also characterised by minimal other work by development partners in climate change (other donor initiatives were discussed during national and local consultations and are summarised in Section H, below).

Nevertheless, projects have been identified through the consultation mission and through institutional knowledge of UN-Habitat, thanks to its long history of operations in Cambodia. Table 13 below summarises other relevant projects that are either ongoing, recently completed, or about to start in Cambodia. Historical projects are not included.

Table 13: Other relevant projects to the proposed project.

Relevant projects/programme	Lessons learned	Complimentary potential	Project Timeline and budget
Vulnerability Assessment and Adaptation Programme for Climate Change in the Coastal Zone of Cambodia Considering Livelihood Improvement and Ecosystems, implemented by UNEP, executed by Ministry of Environment, funded by GEF-LDCF.	There is a feeling from a number of stakeholders that this VA is insufficient for planning of local investments for adaptation.	The current project will utilise the findings of the vulnerability assessment carried out by the UNEP project in Prey Nob district (this is the only overlapping target district) and expand on it.	$1.6 million, 2012-2015

[47] Adaptation Fund (2016) Guidance Document for Implementing Entities on Compliance with the Adaptation Fund Environmental and Social Policy

Building climate resilience of urban systems through Ecosystem-based Adaptation (EbA) in the Asia-Pacific region, implemented by UNEP, executed by Ministry of Environment, funded by LDCF.	The UNEP EbA project has not yet started, and will likely begin implementation sometime in 2018. It is proposed to keep a 'green/brown complementarity' between these two projects.	UN-Habitat is an implementing partner on the UNEP project, which enables it to ensure complementarily potential.	To begin in 2018. $1.5 million (Cambodia component).
"Strengthening Climate Information and Early Warning Systems to Support Climate-Resilient Development in Cambodia", implemented by UNDP, executed by Ministry of Water Resources and Meteorology, funded by GEF-LDCF.	The UNDP project does not work in the same target areas as this project. The UN-Habitat concept note formulation mission met UNDP to discuss this project (section H).	The projects will share an implementation modality (through NCDD).	$4.9 million, 2014-2017.
Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced sub-national Climate Change Planning and Execution of Priority Actions, implemented by UNDP, executed by Ministry of Environment and Ministry of Planning, funded by GEF-LDC.	As above.	As above.	$4.5 million, 2017-2019.
Pilot Programme for Climate Resilience (PPCR), Implemented and funded by ADB, executed by Ministries of Environment, Rural Development and Planning.	The implementation/infrastructure component of PPCR doesn't overlap target areas with the proposed project.	UN-Habitat is a partner in a small component of PPCR, so is well placed to coordinate lessons learned at the national level.	$85 million, 2009-2019.

Cambodia Climate Change Alliance, implemented by UNDP, executed by Ministry of Environment and funded by the EU, SIDA and DANIDA.	The UN-Habitat concept note formulation mission met with the CCCA programme and agreed full information sharing (see Section H, below).	The proposed project will invite a representative of the CCCA programme to be on the management board, as CCCA is meant to be a coordinating programme for all climate change related projects in Cambodia.	$8.9 million, 2010-2017
Green Secondary City Planning, implemented by GGGI.	This project will be implemented in Kep and Sihanoukville. GGGI will be a non-resource partner in this project, and will also take an observer position on the board, to ensure coordination.	The actions taken in this project will be shared with GGGI, who will incorporate their lessons learned in the overall city plans for Kep and Sihanoukville.	Unknown, 2015-2019
Fishery Conservation and Mangrove Protection in Preah Sihanouk and Kep Provinces, implemented by the International Union for the Conservation of Nature (IUCN).	IUCN is currently working with MoE to establish a protected karst landscape in Kampot Province and its first marine protected area around the Koh Rong Archipelago.	IUCN partners with the Ministry of Environment in May 2017, through a memorandum of understanding, providing complementarity potential.	2016 to Ongoing
Partnerships for Environmental Management in the Seas of Southeast Asia, an intergovernmental organization operating in East Asia to foster and sustain healthy and resilient oceans, coasts, communities and economies across the region.	The activities have focused on a different area of Preah Sihanouk city than this project, as well as water use and supply management in Stung Hav District, which neighbours the target district of this project. PEMSEA has also established protection and management of 1,060 hectares of mangrove areas, including in Prey Nob District.	UN-Habitat has worked with PEMSEA previously, including during the Sihanoukville climate change vulnerability assessment work undertaken in 2011, and has good relationships with the organisation and its work.	2006 to ongoing

Mangrove planting in Fishery Communities – implemented by the Fisheries Action Coalition Team (FACT).	FACT is implementing small-scale mangrove works in Prey Nob district.	The work is small scale and limited to mangrove, however, FACT has lengthy experience which the project can draw upon.	2016 to Ongoing
Marine Protected Area related activities on Koh Rong island (Implemented by a coalition of NGOs, including Fauna and Flora International, CARE, SONGSA Foundation and IUCN.	The Marine Protected Area was established by Government Declaration No. 364 dated 16 June 2016.	The experience of implementing these projects will inform activities implemented in Koh Rong. However, this project does not directly work on strengthening the marine protected area around Koh Rong, and therefore there is no direct overlap.	2016 to Ongoing
Small scale NGO Actions in the Tumnup Rolok area.	Three small NGOs: Peur un Sourire d'Enfant (PSE), Operation Enfant du Cambodia (OEC) and M'lob Tapang have small scale education programmes in the area.	These projects are small scale and primarily relate to education, thus no direct linkage exists.	Ongoing

G. Learning and knowledge management

Component 4 of the proposed project addresses knowledge management and sustainability. This will capture the practical experiences of the field and feed into the policy decision-making besides sharing the project achievements to a wider external audience.

The participatory approach to implementation will promote building knowledge at the local level, including on planning (at local government level) and on technical/vocational skills for constructing and maintaining small-scale resilient infrastructure (both at local government and community level). There will be direct and ongoing sharing of lessons from the project implementation sites, while the project will also use a participatory monitoring process, which will enable the beneficiary communities under Component 3 to work directly with the project's monitoring and evaluation officer, to highlight issues in delivery and to strengthen adaptation benefits, including in replication and sustaining the project's gains. As the Cambodian government wishes to promote eco-tourism, by the end of the project, a case-study compilation will be developed including lessons learned, best practices and a suggested model to scale up the promotion of eco-tourism at community level to other areas, for dissemination through the Ministry of Tourism, MoE, NCDD and other stakeholders as well online, in order to support training and knowledge management.

At the national level, other vulnerable districts and communes will be able to derive lessons learned from the project. Information will be consolidated in reports and the tools and guidelines will be for developing resilient infrastructure. By partnering with NCDD, and executing through MoE and NCSD (an inter-ministerial coordinating body), a linkage will be created with other, relevant government ministries, such as the Ministry of Water Resources and Meteorology, and the Ministry of Rural Development, which will facilitate wider dissemination. As part of the sustainability/exit strategy, the project will develop participatory monitoring processes, which will trigger institutional learning processes, participation, knowledge exchange and replication and scale-up of good practices.

UN-Habitat is part of a number of international dissemination mechanisms. The Knowledge Centre on Cities and Climate Change (in short: K4C) provides a knowledge management platform for Climate Change and Human Settlements interventions. It is proposed to use this platform (as well as the UN-Habitat website) to disseminate the lessons learned from this project. UN-Habitat will also work to integrate knowledge generated from the project with the knowledge management component of the CCCA programme, and through the 'camclimate' website[48]. The agency is also coordinating the UN System representation on human settlements at the Conference of the Parties (CoPs).

To ensure lessons and experiences of the project can reach target audiences at the local, national and international levels, a communication plan will be established in the inception phase of the project. This will create a larger vision of which stakeholders the project will reach and how and through which channel(s) to reach them. For example, local people can be effectively reached through leaflets and local radio, which is popular in Cambodia, while social media can reach more broadly citizens all over Cambodia, in addition to printed media (articles in national and local newspapers), non-printed medias (television, national radio). The use of social media would be particularly relevant to reach the youth population (aged 15-24), which represents 20.6% of the total population of Cambodia.[49]

Table14: Learning and knowledge management.

Expected Concrete Outputs	Learning objectives (lo) & indicators (i)	Knowledge products

[48] http://www.camclimate.org.kh

[49] http://cambodia.unfpa.org/sites/default/files/pub-pdf/Flyer_Cambodia_Youth_Factsheet_final_draft_%28approved%29.pdf

Output 1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP. **Output 1.2.** Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) disaggregated, where possible. **Output 1.3.** Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	(lo) Comprehensive and up-to-date vulnerability assessments and action plans prepared, which enable local government officials at the commune, district and provincial level to plan more effectively for resilience, taking into consideration environmental and social safeguards and prioritising the needs of the poorest and most vulnerable. i Number of local government stakeholders involved in the process Number of risks/hazards identified Number of projects generated and incorporated into commune investment plans.	Climate change vulnerability assessments in two provinces and 15 communes. Action plans in 2 provinces and 15 communes, which generate a list of sub-projects and re-confirm the actions to be implemented under Component 3 of this project. Maps detailing hazards in each target commune.
Output 2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets. **Output 2.2.** Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1. **Output 2.3.**	Lo – provincial governments, commune officials and communities themselves gain knowledge of how to plan for, construct, manage and maintain infrastructure, resilient houses and natural assets that will make them more resilient to climate change i – Number of officials trained Number of community level management committees/structures established.	A set of guidelines produced that covers step-by-step the process of designing, planning, monitoring and managing small scale infrastructure and protective natural assets for resilience. Training materials under each output (books, slides etc).

Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1.		
Output 3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	Lo – Provincial and commune officials and communities will have enhanced knowledge of operating infrastructure and protective natural and social assets to enhance resilience. i – Number and types of infrastructure constructed and protective natural/social assets built/rehabilitated.	Documentation of good practices, effective designs and lessons learned.
Output 4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general. **Output 4.2.** Capacity to replicate the project's objective in-line with NDC implementation enhanced.	lo – Government at all levels and people within and beyond the project target area have enhanced knowledge of how to adapt to climate change, including best practices for vulnerability assessment, cost effective actions and environmental and social safeguards. Government at the national level also has enhanced capacity to replicate and scale up the project's benefits, and mobilise additional resources. i – A database of lessons learned New projects developed that replicate and upscale	Documentation of lessons learned Project proposals.

	the current project's benefits.	

H. Consultative process

In development of this project, UN-Habitat undertook several joint missions by the country office and a representative of the Regional Office for Asia and the Pacific to consult national and local stakeholders from 8th to 12th of May 3rd to 7th July and 11th to 16th of December 2017. Table 15 provides an overview of stakeholders consulted and the outcomes of these consultations.

The meetings at the national level between **8th to 12th of May 2017** focused primarily on alignment with national priorities (as identified in Section D), coordination (and avoiding duplication) with other development partner initiatives (outlined in Section F), the implementation modality and the target districts and communes. There was also discussion of the climate hazards and underlying vulnerabilities, and the types of vulnerabilities the project should address.

Figure 22. Procincial level consultation with department of Environment,Tourism, Public Work and Transport, Fishery Administration, Provincial NCDD Advisor and Women's Affairs of Kep Province.

At the local level in both provinces, discussions with local officials went into greater detail on the priority areas, the development challenges/underlying vulnerabilities they face and the climate hazards. The local level meetings also discussed various adaptation options and investments that are required in the target areas. The meetings with officials of Preah Sihanouk and Kep Provinces identified the proposed climate change projects reflected in the Commune Investment Plan (CIP) that is the official priority investments at the commune level. The Commune Investment Plans offer 'pre-packaged' actions that could enhance alignment between the project and government priorities. Finally, the meetings helped the project design team understand the priorities of the different line departments at provincial level.

The consultation mission also met with other key actors in climate change adaptation and mitigation, including UNDP, the Global Green Growth Institute (GGGI) and UNEP (in Bangkok).

The second consultation mission took place from the **3rd to the 7th of July 2017,** and discussed in more detail possible actions and identified the target number of beneficiaries. The objective was to understand the local climate change impacts/effects per commune, (the lack of) community coping mechanism/barriers to building resilience, specific resilience building needs and interest and concerns regarding the proposed project in general.

The results are displayed in Annex 1 and inform the background and context section.

Further in-depth discussions with the executing entities, provincial and commune stakeholders were held during a mission from **11th to 15th of December 2017** to develop the full proposal through a robust stakeholder engagement process, to complete the rapid vulnerability assessment, outline preliminary action plans and develop further the environmental and social safeguards screening and management plan.

Figure 23. Consultation with department of Environment,Tourism, Public Work and Transport, Fishery Administration, Provincial NCDD Advisor and Women's Affairs of Preah Sihanouk and commune councils of Prey Nob Districts.

The purpose of this mission on national level was to reach agreement with the Executing Entities about the project modality, which is outlined in detail in Part III. Section A.

The mission also held in-depth discussions with Provincial stakeholders in both target Provinces. These meetings contributed in several ways to reiterate the support of provincial officials for the project and highlighted several adaptation concerns and underlying vulnerability issues. The meeting revealed potential adaptation actions listed in the Commune Investment Plan, reflecting the priority investments at the commune level and the line departments at provincial level (see Annex 7).

Figure 24. Consultation of vulnerable families after strong winds damaged housing and destroyed houshold.

Through consultation with the target commune councils and vulnerable groups, the mission reconfirmed the issues discussed with provincial level stakeholders and also understood the local issues and smaller scale interventions not covered by the Commune Investment Plan. These meetings also reconfirmed acceptance by the communes, outlined alternative options for increasing resilience and potential environmental and social risks and impacts of the interven-

tions. A rapid screening of the suggested commune interventions against the Environmental and Social Safeguards and cost-effectiveness concerns identified the potential adaptation actions, which are listed in Annex 5 as catalogue of intended sub-projects.

Table 15: Stakeholder Consultations Held.

Stakeholder, incl. role/function	Consultation objective	Outcome	Conclusion
Ministry of Environment/National Council for Sustainable Development (NCSD)	• Re-confirm focal point support • Establish preferred target areas • Ensure coordination with other, ongoing adaptation activities and policy alignment	• MoE/NCSD has agreed to support the project formulation • The target areas named in this concept note were agreed • Information was exchanged on existing and planned initiatives in the target area, as highlighted in Section F	MoE/NCSD as the designated authority will approve the project
	• Agree on project modality and responsibility of implementation	• Arrangement modalities can be found in Part III. Section A; Project Arrangements	
National Committee for sub-national Democratic Development	• Establish NCDD interest in being an executing entity • Agree in principle the modality for channelling funds to the local level • Gain understanding on integrating climate change adaptation into commune and district level plans • Understanding existing technical standard, rules, and regulations	• NCDD agrees to be an executing partner • Funding for local investments would be channelled through the NCDD mechanism • The project contains provisions to mainstream climate change into commune/district planning • The project follows NCDD's	NCDD will also provide written agreement to be an executing partner

	• Agree on project modality and responsibility of implementation	Technical Guidelines for Commune/Sangkat (2009) • Arrangement modalities can be found in section III. A, project arrangements	
Local officials in Preah Sihanouk Province	• Agree target sites • Understand climate change vulnerability and highlight possible adaptation investments	• Target sites agreed • A clear picture of vulnerability and possible actions established	The long-list of target communities is listed in Part I – summary of the project
	• Agree on role in organigram • Identify climate change adaptation projects of the Commune Investment Plans (CIP) of the target Province	• An updated and agreed organigram was provided • Climate change adaptation projects of each commune received (Annex 7)	
	• Collect missing data for rapid vulnerability assessment	• Missing data for rapid vulnerability assessment collected	
Communes councils and vulnerable groups in Preah Sihanouk Province	• Understand the local climate change impacts/ effects per commune and (the lack of) community coping mechanisms/barriers to building resilience • Understand specific resilience building needs and interest as well as concerns • Understand trend and impacts of	• Insufficient data and relevant documents were collected	The collected data of target communities is listed in Annex 1 – summary of the community consultation

	tourism on the communities		
	• Understand the main climate change issues, the impacts of vulnerable groups and climate actions prioritized by the commune council and vulnerable groups that are not reflected by the CIP	• Developed a catalogue of intended sub-projects based	Annex 5 reflects the catalogue of intended sub-projects
Local officials in Kep Province	• Agree target sites • Discuss climate change vulnerability and highlight possible adaptation investments • Understand provincial priorities of climate change adaptation projects based on the Commune Investment Plan	• Target sites agreed • A clear picture of vulnerability and possible actions established • A list of climate change adaptation projects of the Commune Investment Plan received (Annex 7)	The long-list of target communities is listed in Part I – summary of the project
Commune council and vulnerable groups in Kep Province	• Understand the local climate change impacts/ effects per community and (the lack of) community coping mechanisms/barriers to building resilience • Understand specific resilience building needs and interest as well as concerns • Understand trend and impacts of tourism on the	• Insufficient data and relevant documents were collected	The collected data of target communities is listed in Annex 1 – summary of the community consultation

	communities • Understand the main climate change issues, the impacts of vulnerable groups and climate actions prioritized by the commune council and vulnerable groups that are not reflected by the CIP.	• Developed a catalogue of intended sub-projects based	Annex 5 reflects the catalogue of intended sub-projects
UNDP	• Gain experience from UNDP on the implementing modality for multilateral climate finance projects	• Agreement that national execution with funds for local investment channelled through NCDD is effective	No formal further action, but ongoing dialogue to continue
	• Improve alignment with the Cambodia Climate Change Alliance, and other climate change projects	• Confirmation that UNDP has no ongoing activities in the target area, and that the proposed project complements ongoing UNDP initiatives	
UNCDF	• Ensure alignment with support provided to NCDD and commune/district planning	• Agreement that the commune/ district planning component does not duplicate	No formal further action, but ongoing dialogue to continue
GGGI	• Increase alignment with GGGI/MoE's green secondary cities planning work, which will take place in Sihanoukville and Kep	• Agreement that GGGI will be a partner, and that there will be information flow to ensure that investments made under this project will be part of the planning work undertaken by GGGI	GGGI will be a non-financial partner in the project (i.e. no funding from this project)

UNEP	• Ensure synchronicity with the UNEP coastal adaptation project, which also worked in Prey Nob, and the forthcoming urban Ecosystem Based Adaptation project, which will also work in Kep	• The UNEP project has been concluded. All relevant reports regarding this project have been passed to UN-Habitat (and MoE/NCSD). • The urban EbA project is yet to start. The proposed project will only work on small-scale infrastructure in Kep	No formal further action, but ongoing dialogue to continue

In Cambodia, UN-Habitat has been implementing projects that support and strengthen policy interventions, institutional capacity building and community empowerment related to water and sanitation, climate change adaptation, disaster risk management, gender mainstreaming and youth development, housing and urban planning both national and subnational level. The following section elaborates Table 15, detailing further the consultations that took place with government agencies at the national and sub-national level and development partners during the three consultation missions that supported the formulation of the project.

Consecutive meetings during each mission were held with the executing entities, Ministry of Environment (MoE)/NCSD and the NCDD, to discuss target areas, appropriate small-scale infrastructure interventions, the overall policy environment and the implementation modality. MoE recommended Prey Nob in Preah Sihanouk province and both the municipality and district in Kep province[50]. There was also extensive discussion of the Tumnup Rolok area of Sangkat Muoy of Sihanoukville City, which is also a high priority because it is exposed to climate hazards with little access to basic services. Possible actions were discussed, although final decisions on actions should be made after assessment the target areas. The discussions reconfirmed that MoE would be the main executing partner for the soft interventions in Components 1, 2 and 4, but that the NCDD would be the modality to channel funds for local investments.

The meeting with the United Nations Capital Development Fund (UNCDF) clarified that the NCDD is the key organization for fund-flow mechanisms and investment at the sub-national level in Cambodia. UNCDF advised that MoE should execute policy and capacity building components, and does not have a comparable mechanism to channel funds for local investment. As outlined in Part III Section A, this means that MoE is the executing agency for Components 1, 2 and 4 of the project, while NCDD is the executing agency for Component 3.

[50] Kep Province is made up of 1 municipality and 1 district

Climate change resilience and environment is the largest portfolio of UNDP in Cambodia. UNDP also recommended that the project should have a strong linkage with the NCDD. The meeting also discussed the technicalities of capacity building at the local level, with UNDP recommending that local officials take a place on the project board.

The NCDD agreed with selection of Prey Nob because the rural area still suffers from strong winds, droughts and ocean and river flooding, affecting the agriculture as main source of income. NCDD highlighted the use of vulnerability maps, developed in conjunction with MoE and Ministry of Planning and passed this information on to the UN-Habitat team. NCDD reconfirmed their ability and willingness to manage funding flow for local investments, and recommended this is done in line with NCDD procedures and procurement. NCDD recommended that continued communication take place to ensure alignment with the broader district and commune planning processes. NCDD also confirmed that they are applying to be a GCF direct access entity. In applying to become a GCF direct access entity, NCDD has developed its Environmental and Social Safeguard Policy ensuring compliance with the Green Climate Fund's ESS policy and the eight Performance Standards of the International Finance Corporation. Consequently, this will ease compliance with the Environmental and Social Policy of the Adaptation Fund and the Environmental and Social Safeguard policy of UN-Habitat, because NCDD has existing capacity on implementing projects in accordance with internationally recognised ESS standards, and makes NCDD and effective executing partner in this project.

The mission met with the Global Green Growth Institute (GGGI), which is implementing activities under the framework of the Green Urban Development Programme. This programme produced the green city strategic plan, which is now officially adopted and has been incorporated into the environmental law and code. GGGI is also developing a national strategic plan for green secondary cities, and develop green strategic plans for 6 cities, likely including Kep and Sihanoukville. GGGI is also developing an overall framework at the national level and planning at the city level. These combined works provide scope for alignment with the proposed project.

UN-Habitat met with officials from Preah Sihanouk province, including representatives from the Department of Environment, the Fisheries Administration, NCDD and the Provincial Hall Administrative Department. The meetings confirmed that Prey Nob district as well as soft interventions for Koh Rong Island would benefit from the project. Necessary interventions for Prey Nob could including resilient housing, flood protection, especially to protect from saline intrusion, and a lack of access to drinking water in the dry season. There is limited donor footprint in these areas with no donors currently investing in resilient housing, protective infrastructure or water supply. The participants agreed with the proposed mechanism of project implementation, which partners with MoE for national policy development and trainings while partnering with NCDD for fund-flow of investment. This mechanism is also identified to match with the national strategic plan and the IP3-III.

The meeting with provincial officials in Kep included representation from the Department of Environment, Department of Tourism, Fisheries Administration, Department of Water

Resources and Meteorology, Department of Public Works and Transport, the Provincial NCDD Advisor and the Department of Administration under Provincial Hall. Like in Preah Sihanouk, people also face significant issues with water supply and water shortages because there is no piped water system in the city, especially along the coast, where ground water is saline. Despite receiving ample rainfall, rainwater harvesting is very limited in Kep as effective water storage tanks are expensive beyond the means of most households – especially the poorest. Additional issues faced by the poorest include a lack of waste management and sanitation facilities, poor house construction affected by strong winds and tenure insecurity. This means that in Kep, interventions under Component 3 should likely focus on water supply, which could include rainwater harvesting, extending water supplied by wells, and water management and on resilient housing. These activities would be confirmed by the assessment and action plans that would take place in Component 1.

UN-Habitat conducted community consultation in the communities of Preah Sihanouk and Kep Province. Based on the guide on community-level vulnerability assessments and action planning, requisite data including community profiles and tourism were collected through interviews and relevant documents. All of collected data were summarized in Annex 1. Further in-depth consultations were held with the commune councils of 14 target communes[51], including vulnerable groups. These consultations identified the climate change hazards per commune and helped to understand the necessary and prioritized adaptation action planning in each commune, beyond and independent from the small-scale interventions addressed in the Commune Investment Plans. Thus creating the baseline for the proposed catalogue of intended sub-projects screened for compliance with the Environmental and Social Policy of the Adaptation Fund, presented in Annex 5.

I. Justification

The proposed project components, outcomes and outputs fully align with national and local government/institutional priorities, with identified community and vulnerable groups needs and with five of the Adaptation Fund's seven outcomes as stated in the Adaptation Fund results framework. This alignment has resulted in the design of a comprehensive approach in which the different components strengthen each other and in which outputs and activities are expected to fill identified gaps in Cambodia's climate change response.

The project aims to maximize the funding amount for the local investment component (Component 3); funding allocation to the other (softer) components is required for complementarity/support for Component 3 and sustainability and quality assurance of the project. The table 16 below provides a justification for funding requested, focusing on the full cost of adaptation reasoning, by showing the impact of AF funding compared to no funding (baseline) related to expected project outcomes.

[51] Because the project will not implement the concrete component in Koh Rong and logistical constrains, the mission from 11th to 16th of December 2017 did not visit the Koh Rong commune, an island about 27 km from the mainland

Table 16: Project Justification.

Out-comes/planned activities	Baseline (without AF)	Additional (with AF)	Comment and alternative adaptation scenarios
Output 1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP.	Local authorities have limited understanding of the impacts of climate change and/or limited ability to assess its impacts or plan responses to it.	Local government is aware of climate change and its impact, and understands the process of assessing vulnerability and planning adaptation actions.	Without increased awareness local officials/planners will not be able to make effective planning decisions and will not incorporate environmental and social safeguards, leading to maladaptation in the future.
Output 1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) disaggregated, where possible.	Little evidence of the impacts of climate change exists in the target area, and where it does, the information is either obsolete or not routinely used in local planning.	Evidence generated on climate change and effective adaptation actions that enables local decision makers to plan for and implement actions.	Without an evidence basis for adaptation, actions such as infrastructure development would not consider climate change and would thus be less effective.
Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Princi-	No evidence based adaptation options exist at present in the target areas, and as such there is no alignment with local planning through the D&D process.	Adaptation options generated that are actionable and incorporated into local planning systems, with enhanced understanding of generating local revenue from infrastructure, and identifying additional sources of finance.	This outcome follows on from Outcomes 1.1 and 1.2 – without this process there would either not be adaptation actions identified, or those identified would not be evidence based, and would be less likely to effectively target the poorest and most vulnerable in a way that considers environmental and social safeguards.

ples of the Adaptation Fund and the ESMP.			
Output 2.1 Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets.	Capacity building is still in an early stage at present, and while NCDD has a structure in place to support, additional capacity is required to plan for the impacts of climate change.	Capacity is enhanced, enabling the implementation of adaptation actions identified as a result of work undertaken in Component 1. 16,917 community members – 20% of the total beneficiaries have been trained on planning, operation and maintenance. 200 government officials from the provincial and district levels have also been trained.	Capacity building, ongoing under the support of NCDD, is currently slowing. This means urgent action required to adapt to climate change will not be forthcoming.
Output 2.2 Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	Capacity building for monitoring and managing is still limited especially at the commune-level. Additional capacity is required to monitor and manage for the impacts of climate change.	Strengthened capacity of target communes to respond rapidly to extreme weather events assessed under Output 1.2.	Communes and communities, especially, do not effectively monitor and manage small scale infrastructure, meaning it is more likely to be damaged by extreme events, and environmental and social safeguards are less likely to be observed.
Output 2.3: Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1.	No capacity built to maintain community infrastructure and protective natural assets.	Strengthened capacity of target provinces to respond rapidly to extreme weather events assessed under Output 1.2.	Communities and communes especially will not have the capacity to effectively maintain infrastructure, and as a result will be more sensitive to the impacts of climate change
Output 3.1. Protective natural	Most people in the target areas are	People in the target communities have	Without undertaking actions

and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1	exposed to floods, storms, strong wave, sea-level rise or drought (or a combination of these), and do not have protective infrastructure.	increased their resilience to climate change and underlying vulnerability has been reduced through improved protective and basic service infrastructure.	through the People's Process, adaptation actions would not be participatory or generate the levels of local ownership achieved by this project, while there would be a greater risk of environmental and social harm as an unintended consequence of adaptation actions.
Sub-project, project Number and location	**Vulnerability Baseline**	**Adaptation Benefit resulting from the project**	**Alternative scenario without action**
1. Resilient Housing in • Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh	Strong Wind	A total of 3,000 beneficiaries (1,500 female) will benefit from an implemented resilient housing design. Through trainings of local craftsmen in each commune and sharing the design and approach for resilient housing, the sub-project will be replicable and ensures a self-sustaining and rapid resilience to strong wind beyond the project.	Relocation of affected communities which leads to buying nearby hazard-free land without having the reassurance that bought land will stay hazard-free. Due to lack of resilient housing design also a re-build housing is most likely to be affected by strong winds.
2. Weather Station with enhanced broadcasting and early warning system in all 8 communes of Prey Nob	Strong Wind	The analysis of collected climate data can forecast weather patterns on which the agricultural and fishing sector rely on. Alerting emerging strong winds will give the affected communities time to shelter housing, households and stables adequately. Sirens will alert 18,180 beneficiaries (of which 9,090 are female) to rescue themselves	No collection of climate data is possible and leads to inaccurate or impossible weather forecasting. The lack of knowledge of upcoming strong wind makes it difficult for the most vulnerable to prepare housing, household and stables which leads to a greater loss and damage and greater economic impact.

		out of the houses	
3. Water gates on existing reservoirs to improve water management of freshwater reservoir in 7 communes in Prey Nob District (Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Prey Nob, Ou Oknha Heng) and 1 Sangkat in Sihanoukville (Sangkat Muoy). 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar	Drought	By channelling freshwater in times of heavy rains approx.. 30,453 beneficiaries (of which 15,226 are female) can benefit of access to drinking water. Water gates will avoid contamination of freshwater with brackish and salt water and protect also rice fields from becoming unfertile.	The listed communes suffer lack of drinking water during the drought period from January to May. The communes have to buy water in tanks from adjacent communes which led to pricing of water and financial restrains for the most vulnerable. No action will make water a unaffordable trade good that exacerbates the financial situation of the most poorest. Further, uncontrolled opening of water gates led already to contamination of channelled freshwater which affected access to freshwater canals and contaminated field fice fields.
4. Rainwater harvesting in 7 communes in Prey Nob District (Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Prey Nob, Ou Oknha Heng) and 1 Sangkat in Sihanoukville (Sangkat Muoy). 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar	Drought	Rainwater collecting ponds, jars and rain gutter for assumed beneficiaries 10,000 (of which 5,000 are female) will collect about 80 % of the annual rainfall that falls on the catchment area. Rainwater harvesting measures will avoid chronical drinking water shortages during the dry season.	The listed communes suffer lack of drinking water during the drought period from January to May. The communes have to buy water in tanks from adjacent communes which led to pricing of water and financial restrains for the most vulnerable. No action will make water an unaffordable trade good that exacerbates the financial situation of the poorest.
5. Enhancing the coverage and quality of the piped water supply network in Kep: Prey Thom and Kep and in Tuek Thla and Sangkat Muoy of Preah Sihanouk	Drought	Rehabilitation o damaged piped water supply infrastructure and the design of a piped water supply network assumes to benefit 10,000 persons (of which 5,000 are female) by providing	Especially people on the hill-side of Sankat Muoy cannot access water during the dry season. Hence, approximately 500 households have no access to safe drinking water during the drought period from January to May. The community has to buy water in

		safe drinking water.	tanks from adjacent communes which led to pricing of water and financial restrains for the most vulnerable. No action will make water an unaffordable trade good that exacerbates the financial situation of the most poorest. Additionally, a steep slope from highland to the sea causes already mixing of polluted water with rainwater that flows straight into the sea.
6. Canal, 7. Dam and 8. Water gates on canals to channel floods in Sammeakki, Tuek Thla and Tuek L'ak communes, Prey Nob District, Preach Sihanouk province	Flood	The dam (assuming 4,725 beneficiaries of which 4,362 are female) prevents water from the sea and river estuary entering surrounding settlements and agricultural land. Canals (assuming 19,752 beneficiaries of which 9,876 are female) will channel flash floods caused by heavy rainfalls and collect freshwater in an accessible way for the communities. Water gates (assuming 8,803 beneficiaries of which 4,402 are female) additionally avoid salt-water intrusion of agricultural land and freshwater canals. This jointly will avoid property damages due to floods and avoids water-logged settlements.	Without the set of intervention esp. women will suffer from destruction of household goods and housing. Elderly and disables people have limited ability to evacuate themselves as the settlement is waterlogged during the floods. People relying on agriculture or groundwater will suffer intensified salt-water intrusion and contamination of freshwater and crop fields.

9. Demarcation of and access to natural assets and 10. Reforestation in 6 communes of Prey Nob District: Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Boeng Taprom could benefit of eco-tourism in the Kampong Smach protected area and 1. Mangrove forest in Angkaol of Kep Province	Degradation of protected nature	The demarcation of protected natural assets will raise awareness to its protective status, allows access to the protected nature and regulates use of the protected area in compliance with the law (Article 23 of Cambodia 'Protected Area Law). Tourism will be transformed into sustainable eco-tourism operated by established local women-led business groups. Reforestation will restore the biodiversity and strengthen the adaptive capacity of a mangrove forest to climate change hazards (like sea-level rise, salinization, natural barrier for coastal winds and erosion etc.) Community-based tree nurseries can lead to upscaling eco-tourism engagement. Together with the women-led business groups this will also improve the economic situation of the target communes of which a number of 14,468 assumed beneficiaries (among them 7,234 female) will benefit from.	Illegal deforestation of mangrove forests for agriculture already led to salinization of rice fields which now are fallow and unfertile. Though the area is classified as protected natural land the lack of awareness of the regulations and behavioural approaches to protect the target mangrove forests and its waters will lead to further deforestation and degradation of biodiversity of flora and fauna as well as a higher vulnerability to climate change impacts like sea-level rise, salinization, natural barrier for coastal winds and erosion etc. due to loss of protective natural barriers.
11. Protective infrastructure for Sea-level Rise and salinization such	Sea-level rise, salinization	Protective infrastructure will prevent 18,257 assumed beneficiaries (of	Continuous sea-level rising leads to loss of land and salinization of already lim-

as roads, dams etc. in Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng Taprom and in Kep Province: Angkaol and Pong Tuek		which 9,128 are female) from sea-level rise and salinization of coastal settlements, seaports, costal fisheries, mangrove forests, groundwater, freshwater reservoirs and agricultural land. As this intervention has the potential to b packaged with project number 6 and 7, it will also prevent the target communes from flooding.	ited groundwater, freshwater reservoirs and contaminates agricultural fields which then become unfertile. Limited protective infrastructure further affect the national highway with floods and reduce the mobility of people and transport of goods. Loss of beaches and public land will exacerbates the decrease of tourism as main pillar of income. Loss of unique habitats due to sea-level rising.
13. Enhanced wastewater management and drainage systems in Sangkat Muoy of Sihanoukville	Wastewater flooding, bank and soil pollution	Wastewater management and drainage system will prevent from waterlogged and contaminated informal settlements and the spread of waterborne diseases. It aims to prevent contamination of soil and river banks with wastewater and avoids wastewater flowing unfiltered into the sea of which 2,070 assumed beneficiaries (1,035 female) will benefit of.	The increase of heavy rainfalls leads to floods that mixes with untreated wastewater. Through flash floods contaminated wastewater leads to waterlogged informal settlements, in which the most vulnerable poor are dwelling. The setting for waterborne diseases will affect the community that mostly has no access to adequate medical treatments which then exacerbates the underlying vulnerability of the informal settlers of health risks and financial restrains for adequate medical treatment. Additionally, the Additionally, a steep slope from high-land to the sea causes mixing of all kinds of polluted water with rainwater and flows unfiltered into the sea polluting soil and river banks.
Output 4.1. Project activities, results and best practice regarding community resilience to climate	Knowledge dissemination on climate change is still in the early stages, and there are no mechanisms for	Knowledge will be enhanced and the likelihood of follow up finance for additional investment will be increased.	The dissemination of climate change related information will continue to be limited, and would be less likely to reach both policy makers and communities.

change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	further/follow-up financing.		
Output 4.2. Capacity to replicate the project's objective in-line with NDC implementation enhanced	Due to funding constraints, NCDD has limited human resource and financial capacity to replicate and upscale the benefits of the project.	Enhanced capacity to access additional private, national and international finance for climate change adaptation to replicate and upscale benefit of the project, while also improving the application of Environmental and Social Safeguards throughout project preparation and implementation with reduced external technical assistance.	Donor agencies are withdrawing support to NCDD, which means it would not have, or will be able to develop, the human resource and financial capacity to replicate and upscale the project's benefits and climate change adaptation initiatives more generally.

J. Sustainability

Institutional

The project aligns with the Cambodian government's planning and implementation mechanism and strengthens it. This is because the local investments will be channelled through the NCDD, which is also responsible for planning (including investment planning) at the commune and district level. As a result of the project, the target communes and districts will be better able to plan for small-scale resilient investments, while the NCDD will be enabled to replicate the knowledge gained from the project to other areas of the country (as NCDD has a national mandate). Through sub-national NCDD officers in each target province and capacity building through component 2, operation and maintenance become coherent, efficient and sustainable. UN-Habitat will further design an exit strategy addressing all institutional levels to ensure the long-term and sustainable benefits of this project. Table 17 outlines the maintenance arrangements per intended subproject.

Table 17: Sustainable Maintenance arrangements per intended sub-project.

Intended sub-project	Maintenance Arrangement	Maintenance cost
Resilient Housing Design	UN-Habitat will train local craftsmen on resilient housing design under Component 2. Based on the vulnerability assessment on households of target communes 500 households will be pilot models for replication. Maintenance after renovation is the responsibility of each beneficiary, with support from commune councils and provincial government.	Training under component 2 Maintenance of housing: Covered by beneficiary It is expected that no further costs but the maintenance of the houses will occur.
Weather Station and automatic EWS	Maintenance of the weather station and EWS will be done by the Department of Water Resources and Meteorology, Preah Sihanouk Province. Capacity building under component 2 will ensure that provincial staff is trained on maintenance.	Capacity building: under component 2 After implementation Covered by Department of Water Resources and Meteorology in Prey Nob District
Rehabilitation/building of dam, canal and/or water gates to mitigate floods and droughts depended on the location	Capacity building of technical advisors of the Department of Water Resources and Meteorology in Prey Nob District and Kep Province on maintenance of dams, canals and/or water gates based on freshwater management plan (resilience to droughts) and flood prone hazard map (resilience to floods) developed under action planning of component 1.	Capacity building: under component 2 After implementation, maintenance cost will be covered by Department of Water Resources and Meteorology in Prey Nob District
Rainwater harvesting	Capacity building of community on management and maintenance of rainwater harvesting systems, especially to avoid contamination of freshwater. Capacity building for provincial staff of Department of Water Resources and Meteorology in Prey Nob District and Kep Province to check	Capacity building: under component 2 Regular changing of filtersystems after implementation covered by Department of Water Resources and Meteorology in Prey Nob District

	water quality and change filter-system regularly.	
Piped water supply network	Capacity building of community to report issues with piped water supply to commune and provincial authority. Capacity building of commune council to manage piped water supply network. Capacity building of technical advisors and provincial staff of Department of Rural Development and Department of Public Works and Transport on maintaining piped water supply network	Department of Rural Development and Department of Public Works and Transport
Demarcation of natural protective assets and reforestation	Capacity building of community on mangrove tree nursing Capacity building of community and commune to renovate damaged polls in time and benefit from eco-tourism	Capacity building: under component 2 Revenue of eco-tourism can be re-invested for maintenance
Protective infrastructure for SLR and salinization	Capacity building of community, commune and technical advisors and provincial staff of Department of Land Management, Urban Planning and Construction on monitoring and maintaining protective infrastructure	Capacity building: under component 2 Maintenance: Department of Land Management, Urban Planning and Construction
Wastewater management and drainage system	Capacity building of community, commune and technical advisors and provincial staff of Department of Public Works and Transport on monitoring and maintaining´ small-scale wastewater treatment plant and drainage system based on wastewater and surface flooding hazard map developed under action planning (Component 1)	Capacity building: under Component 2 Maintenance: Department of Public Works and Transport

Social

By implementing the project through the People's Process methodology, whereby people take ownership for the design and construction of the infrastructure that they will ultimately be beneficiaries of, there will be greater social sustainability because people will take

ownership of their adaptation infrastructure. In implementing the projects, communities will gain greater awareness of climate change and adaptation, and vocational skills to build, operate and maintain infrastructure.

Economic

Adaptation is a highly important economic activity in the target areas. In most of the target settlements, people rely on tanker-supplied or bottled water, which is expensive, and have no adaptive capacity to climate change hazards. This project will enable people to access water in a sustainable manner at much lower cost, will build resilience to strong winds, droughts, floods, SLR, salinization and soil pollution. This frees-up household income for other purposes. The project also makes an important contribution to economic sustainability because it focuses, *inter alia,* on building/rehabilitating protective natural assets in areas important for tourism and eco-tourism, which is an important contributor to Cambodia's economy, especially in coastal regions.

Financial

By securing institutional sustainability through NCDD (as described above) there is a greater chance of securing financial sustainability. There are three main ways this can occur. Firstly, NCDD is responsible for supporting communes and districts undertake planning (including investment planning). This means that the project design supports mobilisation of national finance – which is critical to national ownership of adaptation actions; enabling provinces and districts (and municipalities to plan for operation, maintenance and replication). With regard to operation and maintenance (O&M), working with NCDD means also that it is easy to integrate the maintenance and upkeep of infrastructure into provincial government budged. Secondly, the project will conduct a detailed study in its inception phase on willingness to pay for small scale infrastructure. Because the exact nature of the infrastructure to be constructed will be determined in the project's inception phase, under Component 1, it is not possible to determine the exact nature of financial sustainability at community scale. However, if the project were to construct water infrastructure, for example, a small tariff could be levied on users, which would be managed by communities themselves, with the proceeds contributing to maintenance and upgrading. Once action plans have been completed under Component 1, a study will be conducted to review local financial sustainability models, which will then be implemented, with the agreement of beneficiaries, when the infrastructure is completed. Finally, NCDD is applying to become a GCF direct access entity, which will unlock significant funding opportunities for communes and districts throughout the country, including the ones targeted in this project. To that end, budgetary provision has been made in this project to support a proposal to GCF to mobilise further funding to finance additional actions/upscaling of the actions proposed in this project.

Environmental

The project will make use of local materials, where possible. Part of the soft interventions of the project will be implemented in a marine protected area (Koh Rong) and as such, activities undertaken in this area will make special consideration of the delicate environment. The rest of the project is also implemented in the coast; a sensitive environmental location. The project will also make provisions for the protection of the environment

through its safeguarding procedures. As shown in Section K, below, the project will ensure the protection of natural habitats, conservation of biological diversity, prevention of emissions that cause climate change, and prevent pollution and promote resource efficiency. Capacity building on operation and maintenance will ensure that the benefits for the environment will not retrograde.

K. Environmental and social impacts and risks

Table 18: Overview of the environmental and social impacts and risks identified as being relevant to the project.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		X
Access and Equity		X
Marginalized and Vulnerable Groups		X
Human Rights		X
Gender Equity and Women's Empowerment		X
Core Labour Rights		X
Indigenous Peoples	X	
Involuntary Resettlement		X
Protection of Natural Habitats		X
Conservation of Biological Diversity		X
Climate Change		X
Pollution Prevention and Resource Efficiency		X
Public Health		X
Physical and Cultural Heritage	X	
Lands and Soil Conservation		X

As shown in Table 18 the project seeks full alignment with Adaptation Fund's Environmental and Social Policy (ESP), and will also be screened according to UN-Habitat's Environmental and Social Safeguards System and policy. This section briefly describes the initial analysis of environmental and social impacts of the project based on the ESP.

Components 1 (Institutional level strengthening to reduce vulnerability in human settlements), Component 2 (Building capacity at the community, commune and provincial level) and Component 4 (Knowledge and awareness enhanced and sustainability ensured) consist of soft activities. The Adaptation Fund's ESP says, "Those projects/programmes with no adverse environmental or social impacts should be categorized as Category C.[52] All activities under Components 1, 2 and 4 are 'soft' activities will not cause direct, indirect transboundary and cumulative impacts to environment and society.

[52] Adaptation Fund Environmental and Social Policy, paragraph 28, Page 8

All concrete activities in the project will be undertaken under Component 3. These activities carry the risk of causing environmental and social impacts. As the activities implemented under the project will be local and small scale, it is deemed that they are not 'Category A' risks. In regard to the ESP and UN-Habitat's Environmental Social Safeguard System, the project will ensure that especially AF principles 2, 3 and 5 are reflected through quotas of vulnerable and focused groups and through community participation throughout the project. All activities implemented under Component 3 are, therefore, Category B or C. The capacity building undertaken under Component 2 will emphasise environmental and social safeguards and minimizing risk. Moreover, the using the People's Process as a means to implement means that communities will manage the planning and construction of infrastructure, be trained on environmental and social risks and therefore will be incentivized to minimize environmental and social impact. This is because, under the People's Process, communities themselves are the planners, constructors and beneficiaries of the small-scale infrastructure, rather than contractors. Contractors have less incentive to minimise environmental and social risks, because they are not the end users of the infrastructure in question.

The checklist shown in Table 18 has been prepared, based on initial consultations. In accordance with the Adaptation Fund Environmental and Social Policy, and UN-Habitat's Environmental and Social Safeguards System standards. This is further elaborated in Table 19 and the environmental and social management plan in Part III. Section C.

Table 19: ESP Risks and Mitigation Measures (more details on probability and impact of each risk per sub-project can be found in Annex 5).

Adaptation Fund Environmental and Social Principle	Identified Potential Risks	Mitigation Measures
Compliance with the Law	Possible conflicts over land ownership. This principle always applies but the risk is not significant (i.e. low) (see Part II. Section E). The catalogue of intended sub-projects has designed the interventions as such that EIA are not required by national law. This has been confirmed by government authorities Failure to comply with laws relating to procurement procedures.	Only citing infrastructure on public land. Engagement with Department of Land Management, Urban Planning and Construction at the provincial level Integrating legal compliance into all training.
Access and Equity	That certain groups are denied access to infrastruc-	Community management with rules ensuring that

	ture, or that preferential access is given to others. The significance of the risk is small (i.e. low).	equal access is guaranteed.
Marginalized and Vulnerable Groups	Initial consultations indicate that there are a small number of immigrants in some of the target areas, who are vulnerable to discrimination. The significance of the risk is small (i.e. low).	Community management with rules ensuring that equal access is guaranteed, including for migrant populations, where appropriate.
Human Rights	Human rights breaches can arise from denying access to water and other basic services, or from land conflicts, for example. The significance is low as most of the interventions have been confirmed to be implemented on public land where tenure arrangements are cleared. It is medium for the piped water supply network and high for beach erosion interventions as it targets inter alia informal settlements.	See measures of other risk categories.
Gender Equity and Women's Empowerment	Women could be denied access to infrastructure, or prevented from making critical decisions. The significance of the risk is small (i.e. low).	Quotas for female participation in decision making at all levels.
Core Labour Rights	Labour rights may not be respected when contracting communities. The significance of the risk is small (i.e. low).	All community contracts must be scrutinised to ensure they comply with both Cambodia law and international standards.
Indigenous Peoples	The community consultation has not identified indigenous people in the target area. As noted in Part II. Section H, 'Cham' Muslims'	Integration of any indigenous population where appropriate. As above for marginalised and vulnerable groups.

	are not considered as indigenous people, and will be equally recognised through the People's Process, where possible.	
Involuntary Resettlement	Possible eviction arising from conflicts over land ownership. Mostly not triggered expect with low significance for flood prevention measure, and high significance for intervention on beach erosion.	See above for compliance with the law.
Protection of Natural Habitats	Damage to local ecosystems, including forests, rivers and coastlines from infrastructure construction. The significance of the risk is small (i.e. low), apart from the sub-project on wastewater management and drainage systems where significance is medium.	Incorporating protection of habitats and ecosystems into action planning. Designing infrastructure so that it complements nature.
Conservation of Biological Diversity	See Protection of Natural Habitats. The significance of the risk is small (i.e. low).	See Protection of Natural Habitats.
Climate Change	Triggered with medium significance in sub-project wastewater management and drainage system as wastewater treatment plants can emit GHG emissions	Closed circulation system of wastewater treatment plant
Pollution Prevention and Resource Efficiency	Construction of infrastructure generates waste. The significance of the risk is small (i.e. low).	Incorporating waste management and disposal into design.
Public Health	Water infrastructure could be open to contamination,	Incorporating public health considerations (especially

	spreading water-borne diseases. The significance of the risk is small (i.e. low).	relating to water contamination) into training under Component 2.
Lands and Soil Conservation	See Protection of Natural Habitats. The significance of the risk is small (i.e. low).	See Protection of Natural Habitats.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangements for project management

The following mechanisms for project execution, coordination and oversight have been agreed in close consultation with the Ministry of Environment (MoE), as the national designated authority to the Adaptation Fund, its inter-ministerial body the National Council for Sustainable Development (NCSD), and the National Committee for Sub-national Democratic Development (NCDD).

The Ministry of Environment in conjunction with the NCSD, will be the lead government entity to execute components 1, 2 and 4 of the project. As the lead government agency responsible for climate change, the MoE, with the NCSD supporting coordination across the government system, will be well placed to execute the project and ensure its lessons learned can be adapted and replicated integrated throughout government.

The National Committee for Sub-national Democratic Development (NCDD) is the inter-ministerial mechanism for promoting democratic development through decentralisation and deconcentration reforms throughout Cambodia, and is located in the Ministry of Interior. NCDD has the mandate in the Cambodian Government system to channel financial support from external donors to the sub-national level for investment, as outlined in its IP3-III 2018-2020 document. Because of this, NCDD will be the lead executing entity for Component 3.

Further information can be found in Annex 7.

UN-Habitat is the multilateral implementing entity (MIE) and will provide project management support, oversight and will act as the secretariat of the Project Management Committee. It will also be part of the team that implements the project, where it will provide technical knowledge and expertise based on its experience implementing other climate change projects in Cambodia and the Asia-Pacific region. The agency will further oversee compliance with its Environmental and Social Safeguard System and the Environmental and Social Safeguard Policy of the Adaptation Fund.

Legal and Financial Arrangements

UN-Habitat and the Ministry of Environment will sign a joint Memorandum of Understanding (MoU) as a legal commitment to implement the project.

UN-Habitat will sign separate Agreements of Cooperation with the Ministry of Environment/NCSD and the National Committee for Sub-National Democratic Development. This agreement will be the legal basis to transfer funds to the executing entities in the project. These agreements will be reviewed by the Project Management Committee and will specify in significant detail the activities to be implemented, the timeframe and deliverables required.

The Permanent Secretary, MoE/NCSD, and the Director General, NCDD will authorise payments against the contractual agreements upon recommendations from the Project Team, consisting of the UN-Habitat representative and the Director of the Climate Change Department.

Project Governance

At the national level, the Project will be supported by a **Project Management Committee** (PMC). The PMC will be formed to oversee and keep abreast of project progress and facilitate the implementation of the project, including overseeing and cooperating with the project team, the technical advisory group, the local steering committees and the project oversight group.

The PMC will be chaired by the Secretary General, MoE/NCSD, and vice-chaired by the Director General, NCDD. UN-Habitat will provide the secretariat function of the PMC. A representative of the UN-Habitat Regional Office for Asia and the Pacific will also be a member of the PMC. Other members of the PMC will be representatives of the following; the Climate Change Department, MoE, the Provincial Governments of Preah Sihanouk Province and Kep Province, the Ministry of Water Resources and Meteorology, the Ministry of Women's Affairs and Ministry of Land Use. Observer members of the committee will representatives of the UN Capital Development Fund and the Global Green Growth Institute.

The PMC will: (1) approve annual work plans and review key project periodical reports; (2) will review and approve the contractual agreements, including workplans, with a particular emphasis on environmental and social safeguards, budgets and payment schedules; (3) review any deviations and consider amendments to workplans and contractual arrangements.

The PMC will meet at least once per year throughout the project implementation and whenever needed to fulfil the above functions. The PMC will also convene adhoc meetings to address serious Environmental and Social safeguard risks, if these arise

Project Oversight, incorporated into the PMC, is led by the responsible officer in UN-Habitat's Regional Office for Asia and the Pacific (ROAP) under the guidance of the Regional Director and supported by Project Management Officers (financial management and administration) and UN-Habitat's Headquarters (HQ) Monitoring and Evaluation Unit, the Programme Division including the Climate Change Planning Unit, and the External Relations Division, in particular the Advocacy, Outreach and Communications will ensure project management compliance in accordance with UN-Habitat and AF standards and requirements.

The **Project Team** will be comprised of the Project Manager, the Technical Advisor, NCDD, and the Director of the Department of Climate Change, the Director of Marine and Coastal Conservation, and the Administration Unit, MoE. The Project Team will be responsible for managing project activities and ensuring compliance with all commitments contained in this project document, such as the 15 Environmental and Social Safeguards Principles of the Adaptation Fund, the Environmental and Social Management Plan (see Part III. Section E), as well as providing day-to-day support to the

executing entities. The Project Team will also take the lead in monitoring through periodic visits to the intervention sites, and generating learning from the project. The Project Team will develop a Monitoring and Evaluation Plan during the project's inception phase, which will be distributed to targeted stakeholders, and reported to the PMC.

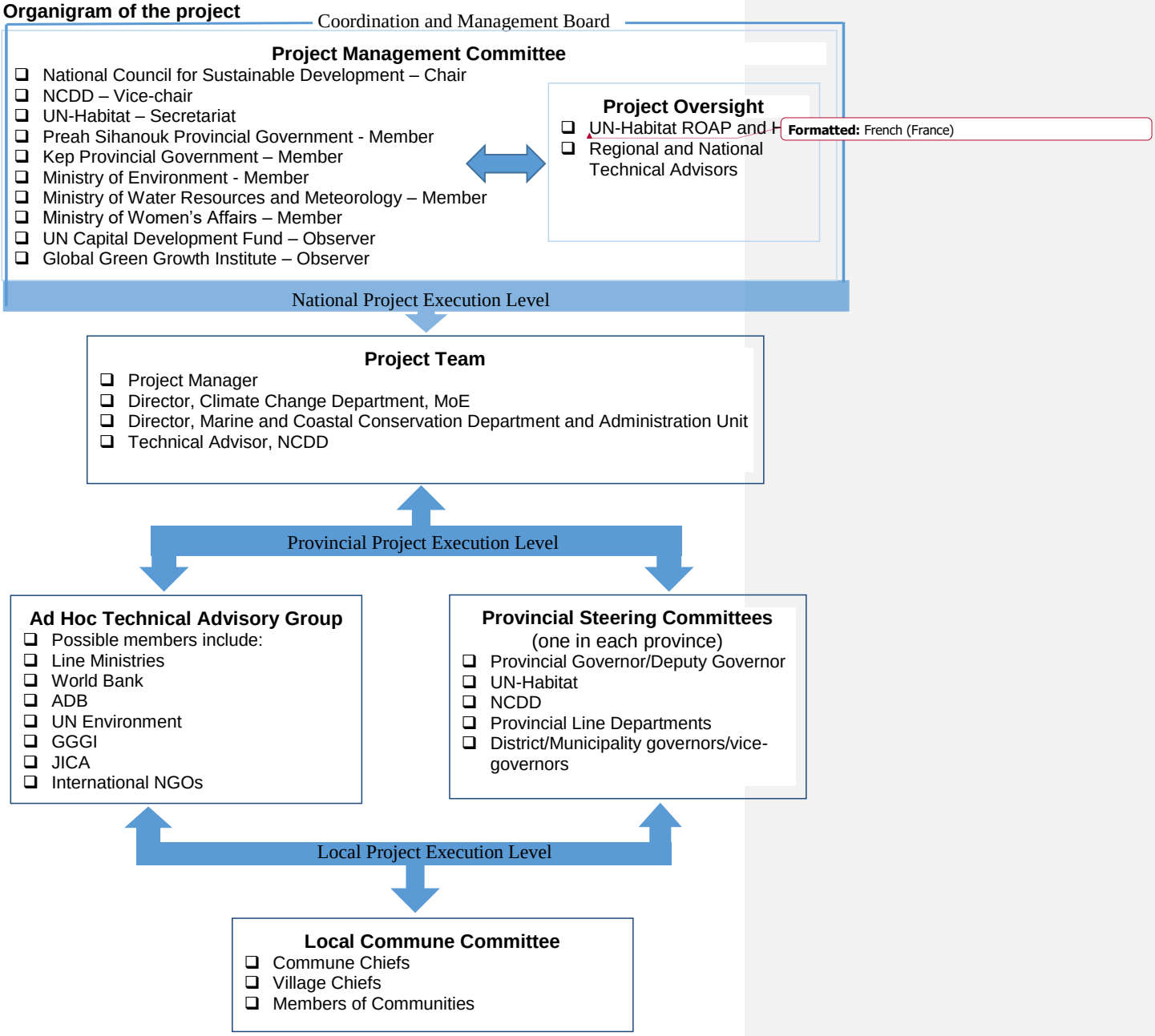
To assist the Project Team and PMC, an **ad hoc technical advisory group** will be formed to provide guidance and support relating to technical issues, such as climate change/resilience, spatial/urban planning, settlements upgrading, basic service/infrastructure delivery and vulnerable and marginalised people. The main objective of the ad hoc technical advisory group is to provide the Project Team and PMC with up-to-date know-how and guidance on best practice. This will also be an important forum for clarifying development processes, identifying entry points for strategic planning and reform, and identifying needs for capacity building. The ad hoc technical advisory group will have a flexible membership, with participation from Cambodian government line ministries, the World Bank, Asian Development Bank, UNDP, JICA, UN Environment, and international NGOs, where appropriate.

In support of sub-national implementation, **Provincial Steering Committees (PSCs)** will be formed, with one committee in each province. These will bring together sub-national government representatives, community representatives and UN-Habitat. The Provincial Steering Committees will fine tune local work plans, review project activities and approve these in line with the environmental and social safeguards, review project outputs (related to the locality) and provide a coordination mechanism at the sub-national level, while also reporting to the PMC. The Provincial Steering Committees will meet at least twice per year and as required. The Provincial Advisor to NCDD and the Provincial Hall Administration Office will co-chair the PSCs. UN-Habitat will ensure that the executing entities, PMC and PSC are fully trained on the 15 Environmental and Social Principles of the Adaptation Fund, the Environmental and Social Management Plan and know their responsibilities (Part III. Section C). These stakeholders will also be fully briefed on monitoring and evaluation methods further described in Part III. Section D. Local steering committees are important because of the Cambodia's government's commitment to make local government more accountable to the people[53]

Local Commune Committee will be based on the above process and support mechanisms, and will be led by communities where possible, with direct support from technical line departments at the Provincial and District level, and MoE/NCSD and NCDD, as executing entities. The local government will then provide further support for the sustainability of the project by, for example providing additional supporting infrastructure and linking the interventions with future planning.

[53] According to the IP3-III, sub-national government is responsible for SNAs stimulate local development, provide essential social and municipal services, and invest in small-scale infrastructure which makes a difference in people's lives. – p.2

Organigram of the project



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B. Measures for financial and project risk management

The status of financial and project risks, including those measures required to avoid, minimize, or mitigate these risks, will be monitored throughout the project (as discussed in Section D: arrangements for monitoring, reporting and evaluation)

Table 20: Financial and project management risks, significance of risks and measures to manage/mitigate risks.

	Category and risk	Rating: Impact/ Probability 1: Low 5: High	Management/mitigation Measure
1.	Environmental/social: Current climate and seasonal variability and/or hazard events result in infrastructure construction delays or undermine confidence in adaptation measures by local communities	Impact: 3 Prob: 2	❑ Current climatic variability will be taken into account in the planning and execution of project activities and especially into project Component 3: where possible, infrastructure will be mainly constructed in the dry season/non-cyclone season ❑ Criteria for the selection of infrastructure projects at the community level will provide incentives for communities to cooperate towards long-term resilience because they are based on the outcomes of the climate change vulnerability and disaster risk assessments which looks especially at long-term trends and impacts.
2.	Institutional: Loss of government support (at all levels) for the project (activities and outputs) may result in lack of prioritization of AF project activities.	Impact: 4 Prob: 1	❑ Establishment of a project management committee and the overall participatory and inclusive project design will improve national, municipal and beneficiary level ownership throughout and thus enhance government support for project implementation. ❑ UN-Habitat will enter into legal agreements (MoUs and AoCs) to ensure implementing entities will deliver project activities and outputs. UN-Habitat will facilitate planning processes to deliver these outputs at all levels of government and in communities. ❑ Government staff working on climate change, environment, disaster management, land use and housing will be strongly networked into the project (e.g. involvement assessments and plan development). ❑ National Elections will be held in 2018. Whilst the project has buy in at the political level, it is well anchored within the bureaucracy. Furthermore, AoCs and MoUs will be agreed for the entire project period
3.	Institutional: Capacity constraints of local institutions may limit the effective implementation of interventions	Impact: 2 Prob: 1	❑ The project has a strong capacity building and training component, designed to promote effectiveness and sustainability at the community and municipal and national government levels (Component 1, 2 and 4).
4.	Institutional/social Lack of commitment/buy-in from local communities may result in delay	Impact: 2 Prob: 1	❑ Community stakeholders have been consulted during the full project development phase to ensure their buy-in into the AF project. ❑ A bottom-up approach integrating the community into

	at intervention sites.		the AF project's implementation phases – including community contracting - will be followed. ❑ Community groups are formed and sustain throughout all stages of the project. Where possible, the community will have an active role through the 'People's Process' that ensures ownership of the project particularly through community participation in project implementation and monitoring
5.	Institutional/social: Disagreement amongst stakeholders with regards to adaptation measures (infrastructure) and site selection.	Impact: 3 Prob: 2	❑ Adaptation measures and intervention sites will be selected using an agreed upon list of criteria to ensure the selection is transparent and equitable. ❑ There will be a participatory approach to the project, particularly with regards to climate change vulnerability and disaster risk assessments and related to this, the planning and selection of adaptation measures and site selection.
6.	Institutional: Communities may not adopt activities during or after the AF project, including infrastructure maintenance	Impact: 2 Prob: 2	❑ The interventions will be institutionalized within the ministries, local government bodies and communities to ensure sustainable delivery of (post-) project implementation, including formal agreements for infrastructure maintenance (at national level) and infrastructure user fees (where feasible) at the community level. Given the commitment of the national government and the policy alignment of this project, and the direct reporting mechanisms of local government to national government, it can be assumed that such agreements will be honoured. ❑ Officials of sub-national (provincial, district/municipality and commune/sangkat) level will support the participating communities beyond the project implementation ensuring community level governance support as well as support for maintenance. ❑ Capacity building and training of communities will be undertaken to improve their awareness and understanding of the benefits of the activities, including infrastructure maintenance (Component 4). ❑ Communities will be involved in project implementation/decision making throughout the project. In depth community consultations will take place at the start of the project/during the Vulnerability assessments (Component 1).
7.	Financial: Complexity of financial management and procurement. Certain administrative processes could delay the project execution or could lack integrity	Impact: 3 Prob: 2	❑ Financial management arrangements have been defined during project preparation. ❑ UN-Habitat's control framework, under the financial rules and regulations of the UN secretariat, will ensure documentation of clearly defined roles and responsibilities for management, internal auditors, the governing body, other personnel and demonstrates prove of payment / disbursement. ❑ NCDD has an established mechanism to channel funding to the sub-national level, established in the NCDD Administration and Financial Manual, and further elab-

			orated in the Commune/Sangkat Fund Project Implementation Manual. These guidelines are reinforced by the Ministry of Economy and Finance Procurement Methods and Procedures of District/Municipality/Khan Administrations as per Sub-Decree 324 MEF-BRK dated April 1st 2013. This strong legal and normative framework for sub-national financial management minimizes risks arising from sub-national execution and procurement. ❑ Procurement will be done by the executing entities as agreed through Agreements of Cooperation. The project manager and the project team have a certifying role (for key procurements / expenditures). All expenditures/costs/payments will be paid in USD. Hence, there is no risk of exchange rate fluctuation.
8.	Institutional: Delays in project implementation, and particularly in the development of infrastructure interventions	Impact: 1 Prob: 2	❑ The ownership by the Government has been high during the preparation phase which will reduce this risk. ❑ Partnerships with key government agencies and infrastructure and community resilience project planning will start early on – in tandem with the community action planning. Institutional arrangements will be put in place well before the finalization of community action plans. ❑ Lessons learned from other relevant projects (see Part II, Section F), done by MoE and NCDD are incorporated in the project design.
9.	Institutional: A lack of coordination between and within national government Ministries and Departments.	Impact: 1, Prob:2	❑ The Project Management Committee under the leadership of MoE/NCSD is to ensure coordination. Should UN-Habitat observe coordination problems, the agency will try to resolve issues directly with concerned parties and or the PMC.
10.	Legal Delays or barriers in gaining approval for infrastructure and housing due to delays in the development process or due to land tenure issues.	Impact 4 Prob 1	❑ During the project preparation phase the proposed infrastructure identified is located on state public land. This means that conflicts over land tenure are not envisaged. ❑ The PMC and the LSC are tasked to ensure close collaboration with the provincial line departments of Environment, Tourism, Public Work and Transport, Administration and Sub-National NCDD Advisors.

C. Measures for the management of environmental and social risks

The proposed project seeks to fully align with the Adaptation Fund's Environmental and Social Policy (ESP). For that purpose, environmental and social risks and impacts of the project and related activities need to be identified and addressed (so that the project does not unnecessarily harm the environment, public health or vulnerable communities). As described in Part II. Sections E and K, systematic screening and assessment has been done based on broad consultation with national and local government

stakeholders, a wide range of other concerned stakeholders and the target communities. The project design has benefitted from this process.

To ensure that remaining risks are well managed the project management and governance (Part III. Section A), Monitoring and Evaluation (Part III. Section D) fully take the management of environmental and social risks into account. In addition, an Environmental and Social Management Plan (ESMP)[54] will be put in place to ensure full compliance with the Adaptation Fund's ESP.

The ESMP, developed for this project, and detailed in Annex 4, identifies measures and actions that reduce potentially adverse environmental and social impacts to acceptable levels. The plan includes compensatory measures, if applicable. Specifically, the ESMP:

(i) Identifies and summarizes all anticipated adverse environmental and social impacts in line with the Adaptation Fund's ESP principles;

(ii) Describes mitigation measures, both from the perspective of mitigating risks at each activity and from the perspective of upholding all ESP principles;

(iii) Describes a process which supports the screening and assessment of all project activities and the conditions under which screening and mitigation action is required;

(iv) Clearly assigns responsibilities for screening, assessment, mitigation actions and, approval and monitoring;

(v) Takes into account, and is consistent with, other technical standards required for the project in particular those that relate to national law.

A detailed environmental and social assessment has been conducted as part of the project formulation in the target provinces and their communes.

Based on this information (i.e. community and climate change adaptation criteria) and the assessment of environmental and social risks in each intended sub-project identified in the catalogue , communities and local government officials will be asked to rate activities during the action planning process as part of the multi-criteria analysis. This is the essence of the execution of component 1, where the selection and design of sub-projects will be based on a comprehensive/ detailed information and inputs derived from a planning approach where all relevant stakeholders will be involved, including communities and vulnerable and marginalized groups. In this way, all risk can be captured, and the design will be appropriate for the target communities and groups and involvement will strengthen maintenance options and sustainability. For the activities under Component 1, but also for all other activities; those under Components 2, 3 and 4, the ESP will be upheld by ensuring that:

[54] Adaptation Fund Environmental and Social Policy, paragraph 27, Page 7.

(i) All MoUs and Agreements of Cooperation with Executing Entities will include detailed reference to the ESMP and in particular the 15 ESP Principles.

(ii) The ToR of Committees and Advisory Groups, project personnel and focal points will include detailed reference to the ESMP and in particular the 15 ESP Principles.

(iii) All key Executing Entity Partners will receive training / capacity development to understand the 15 Principles, the ESMP and in particular their responsibilities. This will include members of the Project Management Committee, the Local Steering Committees and the Communities.

(iv) A Monitoring and Evaluation Framework will be developed by the project management team and presented for approval to the Project Management Committee.

(v) All project activities will be screened against the 15 environmental and social risks. This will be done in spite of any previous screening that may have already been done during the project design phase. In addition to upholding the ESP of the Adaptation Fund and to familiarize all project stakeholders with the 15 ESP principles, this will also ensure that all stakeholders fully take ownership of the environmental and social safeguards procedures of the project and that any activity that may have been altered or not yet assessed in detail are captured.

(vi) A grievance mechanism is also part of the plan. This will allow any affected stakeholder to raise concerns, anonymously if they wish, to the community leaders the local steering committee, the project team or the PMC. Modalities for raising grievances will include a postal address to which community members can write in any language and an email address on the project's website and a confidential telephone number. In addition to the grievance mechanism, local staff will be trained to have an 'open-door' policy with communities, so that communities can discuss any aspect of the project at any time. This less formal mechanism will also enable project staff to listen to communities' concerns or ideas and promote them in the implementation of the project. More formal consultations and workshops, held at local and national levels throughout the project implementation will also serve as a means for stakeholders to raise concerns or suggests with the project's implementation.

Annex 4 provides details on this process and the tools that will ensure participation, assign responsibilities for risk screening and assessment, mitigation measures and monitoring and grievance mechanisms.

D. Arrangements for monitoring, reporting and evaluation

The AF project will comply with formal guidelines, protocols and toolkits issued by the AF, UN-Habitat and the Royal Government of Cambodia. Annex 6 defines a more detailed Monitoring and Evaluation Framework, in which the Monitoring and Evaluation (M&E) of progress in achieving project results will be based on targets and indicators established in the Project Results Framework (see also below). Besides that, the status of identified environmental and social risks, UN-Habitat's Environmental and Social Safeguard System and the ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks, will be monitored throughout the project (at the activity level and through annual project performance, mid-term and terminal reports). The same applies to financial and project management risks and mitigation measures. Annex 6 further reflects the AoC-partner in charge monitoring activities and ensuring milestones.

Monitoring and Evaluation Framework

UN-Habitat will ensure the timeliness and quality of project implementation. The oversight and general guidance of the project will be provided by the Project Management Committee. UN-Habitat will ensure that the project team and the key national executing partners are fully briefed on the M&E requirements.

Activities for Component 3 will be detailed through consultation with the local stakeholders through their Sub-National NCDD Advisors and with the participation of the local authorities (in line departments and commune councils). Local indicators and targets will be reviewed and fine-tuned during the planning workshop. This exercise will facilitate participatory, results-based monitoring by the communes themselves.

Activities related to other components will be planned and monitored by the Project Team and approved by the Project Management Committee.

Audit of the project's financial management will follow UN finance regulations and rules and applicable audit policies.

The M&E plan will be implemented as proposed in the table 21 below.

Table 21: Monitoring and Evaluation Plan.

Type of M&E Activities	Responsible Parties	Time Frame	Reporting
Inception Workshop and Report	National Team Leader Project Team Project Management Committee UN-Habitat ROAP	Workshop: within first two months of start Report: within first quarter	Inception Report
Periodic status/ progress reports	National Team Leader Project Team	Quarterly	Quarterly Report
Mid-Term and Final Evaluation	National Team Leader Project Team UN-Habitat ROAP Project Management Committee External Consultants	Mid-Term: At least 3 month before the end of the first half of the implementation phase Final: At least three	Mid-Term and Final Evaluation Report

		months before the end of project implementation	
Project Terminal Report	National Team Leader Project Team UN-Habitat ROAP Local consultant	At least three months before the end of the project	Terminal Report
Audit	UN-Habitat ROAP National Team Leader Project Team	As per UN-Habitat regulations	Audit Reports
Community consultations / workshops / training	National Team Leader Project Team	Within one week after each event	Documentation
Visits to field sites	UN-Habitat ROAP Project Management Committee Government representatives	Every six months	Field Report

For the M&E budget and a breakdown of how implementing entity fees will be utilized in the supervision of the M&E function, please see the detailed budget (Part III, Section G). For related data, targets and indicators, please see the project proposal results framework (Part III, Section E).

Participatory monitoring mechanisms (involving different levels of government and communes) will be put in place for the collection and recording of data to support the M&E of indicators. The vulnerability assessments and action planning processes will generate data that will be collected and presented in a geo-tagged database. Whilst this process is to inform programming, it also provides a solid baseline for monitoring. Provincial and commune data collection will further be entered into this database and as such strengthen monitoring. The communes will be involved in data collection and in community consultations in data analysis. This will allow beneficiary communes to work directly with the project's M&E mechanism, to highlight issues in project delivery and to strengthen adaptation benefits, including in replication and sustaining the project's gains. Data collected will include marginalized groups (e.g. women) aggregated (if possible). Project site visits will be jointly conducted based on an agreed schedule to assess project progress first hand.

The project team will develop an **M&E Plan** during the project's inception phase, which will be distributed and presented to all stakeholders during the initial workshop. The emphasis of the M&E plan will be on (participatory) outcome/result monitoring, project risks (financial & project management risks and environmental social safeguard risks) and learning and sustainability of the project. Periodic monitoring will be conducted through visits to the intervention sites.

UN-Habitat will ensure that the project team and the key national executing partners are fully briefed on the M&E requirements to ensure that baseline and progress data is fully collected and that a connection between the Knowledge Management component and M&E is established. The Agreements of Cooperation will also reflect these.

NCDD will subsequently provide clear guidance to all executing partners, in particular the local governments on how to support the M&E plan. The Agreements of Cooperation will also reflect these roles.

An Annual Project Performance Review (PPR) will be prepared to monitor progress made since the project's start and in particular for the previous reporting period. The PPR includes, but is not limited to, reporting on the following:

- Progress on the project's objective and outcomes – each with indicators, baseline data and end of project targets (cumulative);
- Project outputs delivered per project outcome (annual);
- Lessons learned/good practice;
- Annual Work Plan and expenditure;
- Annual management;
- Environmental and social risks (i.e. status of implementation of ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary;
- Project financial and management risks (same as per above).

An independent **Mid-Term after 2 years of inception and Terminal Evaluation** will take place as the last activity before the operational closure of the project in accordance with Adaptation Fund guidance and following UN-Habitat practices based on the OECD DAC framework. The Mid-Term and the terminal evaluation will focus on the delivery of the project's results, as initially planned and then reflected in the M&E framework, including the implementation environmental and social mitigation measures (and as corrected after the Mid-Term Evaluation, if any such correction took place). The mid-term and terminal evaluation will assess the impact and sustainability of results, including their contribution to capacity development and the achievement of adaptation benefits.

The **reports** that will be prepared specifically in the context of the M&E plan are:

(i) the M&E plan,
(ii) the project inception report,
(iii) the Annual-, and terminal project performance reports and
(iv) the technical reports.

For the M&E budget and a breakdown of how implementing entity fees will be utilized in the supervision of the M&E function, please see the detailed budget (Part III. Section G). For related data, targets and indicators, please see the project proposal results framework (Part III, Section E).

E. Project proposal results framework

Table 22: Project results framework with indicators, their baseline, targets, risks & assumptions and verification means.

Expected Result	Indicators	Baseline data	Targets	Risks & assumptions	Data collection method	Frequency	Responsibility
Project objective: Enhance the climate and disaster resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions.							
Project component 1: Comprehensive vulnerability / baseline assessment and action plans completed in the target communes and provinces							
Outcome 1 Institutional capacity increased at the provincial and commune level to reduce vulnerability of target communities through vulnerability and disaster risk reduction assessments, action planning and training that will enable adaptation actions in infrastructure, natural assets and livelihoods (including eco-tourism) (Aligned with AF outcome 2)	No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks (Aligned with AF indicator 2.1.) N	0 provinces and communes developed vulnerability and disaster risk reduction assessments[55], action planning and training that will enable adaptation action for the target community.	2 provinces and 15 communes have generated assessments and plans to address climate change and risk reduction vulnerability (AF indicator 2.1)	R – General planning capacity limitations prevent the integration of climate change concerns A – Core team ensures awareness on assessing systems, including infrastructure and natural assets, and planning for adaptation	Review of all provincial and commune level plans and actions	Baseline, and end	UN-Habitat and Executing entities
Output 1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the	No. and type of trainings conducted to strengthen capacity on vulnerability assessments and climate change action planning on commune and provincial level	0 No training conducted to strengthen capacity on vulnerability assessments and climate change action	2 trainings on provincial and 15 trainings on commune level conducted	R – Trained officials retire or leave the provincial/commune level government. A – core of officials from sub-national	Training reports	Baseline, mid-term and end	UN-Habitat and Executing entities

[55] Vulnerability assessments have been produced for Sihanoukville municipality (UN-Habitat, 2011) and Prey Nob District (UNEP, 2015), but none target the provinces as a whole or the commune level

ESMP.	(Aligned with AF Indicator 2.1.1)	planning on commune and provincial level		government can be retained, trained throughout the project and will continue to implement beyond the life of the project			
Output 1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas and the protected marine Park in Koh Rong, including marginalized groups (e.g. women) disaggregated, where possible.	Number of climate change vulnerability and disaster risk reduction assessments produced (AF indicator 2.1)	1 VA (from 2011) in Sihanoukville City, and 1 in Prey Nob district. No VA for Kep	2 Provinces (including 15 communes have developed vulnerability assessments	R – Limited human resource capacity and high workloads delay vulnerability assessment A – Output 1.1. as a training module to enhance expertise	Collect and review documentation from province and commune authorities	Baseline, mid-term and end	UN-Habitat and Executing entities
Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	No of provincial and commune level climate change adaptation plans completed identifying the most cost-effective and environmental and social actions, actions in line with the 15 Principles of the Adaptation Fund and the ESMP. This includes, as appropriate, actions on water infrastructure and terrestrial and marine natural assets,	0 action plans developed or approved at provincial and commune level	2 provincial 15 commune level climate change adaptation action plans	R – Limited capacity on commune level to undertake complex planning A – Support by Implementing Entity can be provided to plan	Review of completed plans	Baseline, mid-term and end	UN-Habitat and Executing entities

	use and management of protective infrastructure, livelihoods, needs to enhance eco-tourism and gender and inclusivity considerations These action plans will include a prioritized short list of actions. (AF Indicator 3.1.1)						
Activities 1.1.1 Conduct province/commune wide trainings on vulnerability and risk reduction assessment and climate change adaptation planning actions in line with the 15 Principles of the Adaptation Fund and the ESMP. 1.2.1 Conduct vulnerability assessments on provincial and commune level that identify the most vulnerable people and places, and provide an evidence basis for action planning, while also considering the adaptation potential of terrestrial and marine eco-tourism 1.3.1 Develop province/commune wide climate change adaptation plans, including cost-benefit analysis, -rescreening against the environmental and social management plan and which prioritise the most cost-effective adaptation investments.				Milestones ▪ Trainings on vulnerability assessment and climate change action plans conducted (project month 3) ▪ Climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning (project month 8) ▪ Climate change adaptation plans developed (project month 10) ▪ Project Steering Committee Meeting (project month 6, 12)			
Project Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas							
Outcome 2 Community, commune and provincial level capacity built to design, monitor, manage and maintain climate resilient community assets with maximum economic co-benefits including leveraging eco-tourism potential, environmental and	Number of community, commune and provincial level training on capacity to plan, construct and maintain resilient water and protective infrastructure and natural assets enhanced (in line with	0 trainings have been conducted at any level on designing, monitoring and maintaining climate resilient infrastructure	45x community/commune-level trainings and two provincial level trainings 20% of total beneficiaries will be trained 200 government officials trained	R – No consistency in quality of trainings. A – Focal point on community, commune and provincial level can as-	Post-training survey	Baseline, mid-term and end	Executing entities

social co-benefits with particular emphasis on women, youth, older people and other people in vulnerable situations	eco-tourism enhancement potential) (AF indicator 3.)			sure quality of training			
Output 2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets. (Aligned with AF output 2.2.)	No of beneficiaries covered by adequate climate change adaptation and risk-reduction systems identified in the action plans developed under 1.3.	0 people of community level covered by adequate risk-reduction systems	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	R – Limited basic knowledge of communities means technical training ineffective A – Focal point on community level can assure quality of trainings, mentoring, and that training has the appropriate technical content	Post-training survey	Baseline, mid-term and end	Executing entities and UN-Habitat
Output 2.2. Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	No. of staff on commune level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	0 staff on commune level have been trained to monitor and manage community infrastructure	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	R - Provincial staff workloads diminish their ability to attend training A – Focal point on commune level can assure quality of trainings and mentoring	Post-training survey	Baseline, mid-term and end	UN-Habitat and Executing entities
Output 2.3. Community, commune and provincial level capacity built to maintain community infrastructure and to build	No. of staff on provincial level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	0 staff on provincial level have been trained	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on	R – No consistency in quality of trainings. A – Focal point on provincial level can	Post-training survey	Baseline, mid-term and end	UN-Habitat and Executing entities

protective natural assets designed under 2.1.			climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	assure quality of trainings and mentoring			
Activities 2.1.1. Training to design/ plan/ rehabilitate infrastructure and to build protective natural assets assessed under 1.2 and 2.2.1. Training to monitor and manage community infrastructure and to build protective natural assets designed under 2.1. 2.3.1. Training to maintain community infrastructure and to build protective natural assets designed under 2.1. 2.3.2. Produce a guideline/manual covering all the training elements in Component 2				Milestones ▪ Training to design, plan and rehabilitation plans of infrastructure and protective natural assets (project month 12) ▪ Design, plan and rehabilitation strategy for physical infrastructure and protective natural asset (project month 15) ▪ Training to monitor and manage community infrastructure and to build protective natural assets (project month 21) ▪ Training to maintain community infrastructure and to build protective natural assets (project month 21) ▪ Guideline produced covering all the training components (project month 24) ▪ Assessments conducted / awareness (project month 24 (50%), 36 (100%)) ▪ Households and communities trained (project month 24-40%, 36-80%, 48-100%)			
Project component 3: Resilience built through small-scale protective and basic service interventions							
Outcome 3 At least 84,586 people have access to protective natural and social assets and /or benefit from physical infrastructure to reduce the climate vulnerability. (AF outcome 4 and 5)	No of people that benefit from climate change resilient infrastructure, access to natural assets and improved livelihood options to withstand conditions resulting from climate variability and change	84,586 people have been assessed as vulnerable to climate change impacts	100% of the vulnerable population (84,586 people) of which at least 50 percent women have access to resilient infrastructure and/or protective natural assets	R – Delay in implementing infrastructure A – Agreement of Cooperation will stipulate timeframe for implementing infrastructure	Field site inspections photo documentation and data base and geo-tacked community monitoring report	Baseline, mid-term and end	UN-Habitat

Output 3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types) (AF indicator 4.1.2.) No. and type of protective natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets) (AF indicator 5.1.)	3 protective infrastructures in Kep Province, 8 protective infrastructures in Preah Sihanouk	At least 20 pieces of infrastructure and 500 resilient houses constructed/rehabilitated to protect people and support resilience The infrastructure interventions can include protective dams, canals, water infrastructure, weather, broadcast and early warning infrastructure and protective natural assets. (for further information see the catalogue of intended sub-projects)	R – Divergent outcomes of prioritized intervention between Commune Investment Plan and community needs A – Assessment and action planning conducted under component 1 and joint provincial and community consultation will identify the most appropriate intervention	Assessment report of the vulnerable assets	Baseline, mid-term and end	UN-Habitat
Activities 3.1.1. Constructing and rehabilitating infrastructure and protective natural assets in the two provinces and 14 of the 15 communes[56] that the project will implement in				Milestones ▪ Infrastructure/natural assets constructed / developed (project month 12 (2 pilot projects), 24 – 30%, 36-80%, 48-100%)			
Project component 4: Knowledge and awareness enhanced and sustainability ensured							
Outcome 4 Project implementation is fully transparent and national capacity to pilot climate change adaptation projects and establish capacity for climate adaptive policy making strengthened.	All stakeholders are fully informed about a transparent project implementation process	84,586 people in the target area have experienced climate change related hazard but are unaware of the infrastructure and protective natural assets require to protect them	100% of project beneficiaries (84,586 people) can identify climate change hazards and understand how infrastructure and protective natural assets benefit them	R – Narrow dissemination of project activities A – Government supports roll out	Media coverage of project online, print and broadcasted through TV and radio. Stakeholder group meetings and workshops	Baseline, mid-term and end	UN-Habitat and Executing entities

[56] There will be no concrete interventions funded directly in Koh Rong

All stakeholders are informed of activities, results and best practice and have access to these for replication.							
Output 4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	No of project activities and results are captured and disseminated through appropriate information for the beneficiaries, partners and stakeholders and the public in general	0 regular dissemination of resilience building activities	At least daily broadcasts of weather information as well as at least 1 planning guideline, web presence, 3 case studies and 10 newspaper articles produced	R – Narrow dissemination of project activities A – Government supports roll out	Online and in print	Regular	UN-Habitat and Executing entities
Output 4.2. Capacity to replicate the project's objective in-line with NDC implementation enhanced	No of national staff with increased capacity to replicate the project's objective in-line with NDC implementation increased.	NCDD and MoE has <10 staff with capacity to replicate	30 staff have the capacity to replicate the project, and at least 1 further funding proposal developed	R – Other donors withdraw support for MoE/NCDD A – There will be a conducive economic and financial climate to enable replication and upscaling	Policy briefs/recommendations for further plans and actions at national and sub-national level; Training reports, proposals	Baseline, mid-term	UN-Habitat and Executing entities
Activities 4.1.1. Develop guidelines, web presence, case studies and articles detailing the project's implementation and benefits. 4.2.1. Capacity training to replicate the project's objective in-line with NDC implementation ' 4.2.2. Developing further funding proposals to support the replication and upscaling of the project's benefits				Milestones ▪ Web presence established (project month 12) ▪ Advocacy material produced (regularly - project months 12, 24, 36, 48) ▪ Training on capacity to replicate project's objective in line with NDC implementation – project month 42			

Table 23: Activities and milestones

Activity	Year 1				Year 2				Year 3				Year 4			
1.1.1 Conduct province/commune wide trainings on vulnerability and risk reduction assessment and climate change adaptation planning actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	X															
1.2.1 Conduct vulnerability assessments on provincial and commune level that identify the most vulnerable people and places, and provide an evidence basis for action planning, while also considering the adaptation potential of eco-tourism		X														
1.3.1 Develop province/commune wide climate change adaptation plans, including cost-benefit analysis, -rescreening against the environmental and social management plan and which prioritise the most cost-effective adaptation investments.				X												
2.1.1 Training to design/ plan/ rehabilitate infrastructure and to build protective natural assets assessed under 1.2				X												
2.2.1. Training to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.							X									
2.3.1. Training to maintain community infrastructure and to build protective natural assets designed under 2.1.							X									
2.3.2. Produce a guideline/manual covering all the training elements in Component 2								X								
3.1.1. Constructing and rehabilitating infrastructure and protective natural assets in the two provinces and 14 of the 15 communes[57] that the project will implement in				X				X				X				X
4.1.1 Develop guidelines, web presence, case studies and articles detailing the project's implementation and benefits				X				X				X				X
4.2.1. Capacity training to replicate the project's objective in-line with NDC implementation '				X				X				X				X
4.2.2. Developing further funding proposals to support the replication and upscaling of the project's benefits				X				X				X				X

[57] There will be no concrete interventions funded directly in Koh Rong

F. Project alignment with the Adaptation Fund results framework

Table 24: Project alignment with the Adaptation Fund results framework

Project Outcome	Project Outcome cator	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Outcome 1 Institutional capacity increased at the provincial and commune level to reduce vulnerability of target communities through vulnerability and disaster risk reduction assessments, action planning and training that will enable adaptation actions in infrastructure, natural assets and livelihoods (including eco-tourism)	No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	**Outcome 2:** Reduced exposure at national level to climate-related hazards and threats	2.1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	**500,000** (12 %)
Outcome 2 Community, commune and provincial level capacity built to design, monitor, manage and maintain climate resilient community assets with maximum economic co-benefits including leveraging eco-tourism potential, environmental and social co-benefits with particular emphasis on women, youth, older people and other people in vulnerable situations	Number of community, commune and provincial level training on capacity to plan, construct and maintain resilient water and protective infrastructure and natural assets enhanced (in line with eco-tourism enhancement potential)	**Outcome 3** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	2.1. No and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	**500,000** (12%)
Outcome 3 At least 84,586 people have access to protective natural and social assets and /or benefit from physical infra-structure to reduce the climate vulnerability.	No of people that benefit from climate change resilient infrastructure, access to natural assets and improved livelihood options to withstand conditions resulting from climate variability and change	**Outcome 4:** Increased adaptive capacity within relevant development and natural resource sectors	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	**3,000,000** (72%)

	No of people that benefit from climate change resilient infrastructure, access to natural assets and improved livelihood options to withstand conditions resulting from climate variability and change	**Outcome 5**: Increased ecosystem resilience in response to climate change and variability-induced stress	5.1. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	
		Outcome 6: Diversified and strengthened livelihoods & sources of income for vulnerable people in target areas.	6.2. Percentage of targeted population with sustained climate-resilient livelihoods	
Outcome 4 Project implementation is fully transparent and national capacity to pilot climate change adaptation projects and establish capacity for climate adaptive policy making strengthened. All stakeholders are informed of activities, results and best practice and have access to these for replication.	All stakeholders are fully informed about a transparent project implementation process	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomics and environmental losses	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	**170,512** (4 %)
Project Output	**Project Output Indicator**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Output 1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP.	No. and type of trainings conducted to strengthen capacity on vulnerability assessments and climate change action planning on commune and provincial level	***Output 2.1*** Risk and vulnerability assessments conducted and updated at a national level	2.1.1. No. and type of projects that conduct and update risk and vulnerability assessments	**150,000**
Output 1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune	Number of climate change vulnerability and disaster risk reduction assessments produced	***Output 2.1*** Risk and vulnerability assessments conducted and updated at a national level	2.1.1 No. and type of projects that conduct and update risk and vulnerability assessments	**200,000**

level in target areas including marginalized groups (e.g. women) disaggregated, where possible.				
Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	No of provincial and commune level climate change adaptation plans completed identifying the most cost-effective and environmental and social actions, actions in line with the 15 Principles of the Adaptation Fund and the ESMP. This includes, as appropriate, actions on water infrastructure and natural assets, use and management of protective infrastructure, livelihoods, needs to enhance eco-tourism and gender and inclusivity considerations These action plans will include a prioritized short list of actions.	Output 3: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability	3.1.1 No of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	**150,000**
Output 2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets	No of beneficiaries covered by adequate climate change adaptation and risk-reduction systems identified in the action plans developed under 1.3.	Output 2.2: Targeted population groups covered by adequate risk reduction systems	2.1.2 Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	**150,000**
Output 2.2. Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	No. of staff on commune level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	Output 2.1. Risk and vulnerability assessments conducted and updated at a national level	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events	**150,000**

Output 2.3. Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1.	No. of staff on provincial level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	Output 2.2. Targeted population groups covered by adequate risk reduction systems	2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from target institutions increased	**200,000**
Output 3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	No of people that benefit from climate change resilient infrastructure and improved livelihood options to withstand conditions resulting from climate variability and change (by type of assets)	***Output 4:*** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	**3,000,000**
	No. and type of protective natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	***Output 5:*** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	
Output 4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	No of project activities and results are captured and disseminated through appropriate information for the beneficiaries, partners and stakeholders and the public in general	***Output 3*** Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1. No and type of risk outlets in the local press and media that have covered the topic.	**102,307**
Output 4.2. Capacity to replicate the project's objective in-line with NDC implementation enhanced	No of national staff with increased capacity to replicate the project's objective in-line with NDC implementation increased.	Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No, type and sector of policies introduced or adjusted to address climate change risks	**68,205**

Table 25: Indicative Core Indicator Targets

Adaptation Fund Core Indicators	Indicative Targets	Comments
1 Number of Beneficiaries	84,586	This only measures beneficiaries of the direct adaptation actions (Component 3)
2. Early Warning Systems	2	There is no local early warning system in place, but local people receive warming of hazards from Ministry of Water Resources and Meteorology through TV, media and local authorities.
3. Assets Produced, Developed, Improved, or Strengthened	20 infrastructures 500 resilient houses	Annex 5 identifies a catalogue of intended sub-projects, which will be further specified/adjusted during vulnerability assessment and action planning in component 1.
4. Increased income, or avoided decrease in income	8,917	Beneficiary households participating in the project. Community infrastructure is expected to directly (contracting) contribute to income generation as well as indirectly through improved livelihood opportunities
5. Natural Assets Protected or Rehabilitated	2	Mangrove forest at the coastal adaptation site of Angkaol commune in Kep Province and the protected area of Kampong Smach involving 6 communes of Prey Nob District.

Methodology to apply: https://www.adaptation-fund.org/wp-content/uploads/2016/04/AF-Core-Indicator-Methodologies.pdf

G. Detailed budget

Table 26: Budget overview

Programme component	Outputs	Activity	Total budget	Year 1	Year 2	Year 3	Year 4	Notes
Comprehensive vulnerability / baseline assessment and action plans completed in the target communes and provinces	1.1. Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP.	1.1.1. Conduct province/commune wide trainings on vulnerability and risk reduction assessment and climate change adaptation planning actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	$150,000	$90,000	$60,000	$0	$0	A
	1.2. Integrated climate change vulnerability and disaster risk reduction assessments (including, maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) disaggregated, where possible,	1.2.1. Conduct vulnerability assessments on provincial and commune level that identify the most vulnerable people and places, and provide an evidence basis for action planning, while also considering the adaptation potential of eco-tourism	$200,000	$150,000	$50,000	$0	$0	B
	1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP,	1.3.1. Develop province/commune wide climate change adaptation plans, including cost-benefit analysis, -rescreening against the environmental and social management plan and which prioritise the most cost-effective adaptation investments,	$150,000	$90,000	$60,000	$0	$0	C
	Project component total		**$500,000**	**$330,000**	**$170,000**	**$0**	**$0**	
Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas	2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets	2.1.1. Training to design/ plan/ rehabilitate infrastructure and to build protective natural assets assessed under 1.2.	$150,000	$50,000	$100,000	$0	$0	D
	2.2. Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	2.2.1. Training to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	$150,000	$30,000	$100,000	$20,000	$0	E
	2.3. Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2,1,	2.3.1. Training to maintain community infrastructure and to build protective natural assets designed under 2.1. and 2.3.2. Produce a guideline/manual covering all the training elements in Component 2.	$200,000	$30,000	$120,000	$50,000	$0	F
	Project component total		**$500,000**	**$110,000**	**$320,000**	**$70,000**	**0**	
Resilience built through small-scale protective and basic service interventions	3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1	3.1.1. Constructing and rehabilitating infrastructure and protective natural assets in the two provinces and 14 of the 15 communes that the project will implement in	$3,000,000	$50,000	$600,000	$2,100,000	$250,000	G
	Project component total		**$3,000,000**	**$50,000**	**$600,000**	**$2,100,000**	**$250,000**	

Knowledge and awareness enhanced and sustainability ensured	4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general,	4.1.1. Develop guidelines, web presence, case studies and articles detailing the project's implementation and benefits	$102,307	$30,692	$30,692	$30,692	$10,231	H
	4.2. Capacity to replicate the project's objective in-line with NDC implementation enhanced	4.2.1. Capacity training to replicate the project's objective in line with NDC implementation and 4.2.2. Developing further funding proposals to support the replication and upscaling of the project's benefits	$68,205	$20,461	$20,461	$20,461	$6,822	I
	Project component total		**$170,512**	**$51,153**	**$51,153**	**$51,153**	**$17,053**	
Project Activities Total			**$4,170,512**	**$541,153**	**$1,141,153**	**$2,221,153**	**$267,053**	
Programme execution		Project Team Leader (part-time)	$228,900	$32,700	$65,400	$65,400	$65,400	J
		Office staff and technical support	$55,400	$9,8000	$15,200	$15,200	$15,200	K
		Office facilities	$61,989	$13,200	$16,263	$16,263	$16,263	L
		Travel related to execution	$65,112	$18,084	$15,676	$15,676	$15,676	M
		Mid- and End-Term Evaluation	$26,387		$ 13,193		$13,193	N
Programme execution total			**$437,788**	**$73,784**	**$125,732**	**$112,539**	**$125,733**	
Total Programme Cost			**$4,608,300**	**$614,937**	**$1,266,885**	**$2,333,692**	**$392,786**	
Programme cycle management		PSC 7 Percent (on total operational budget including components below) approx. 7,1 percent	$325,010	$32,511	$65,023	$178,813	$48,663	O
		Evaluation support cost (HQ)	$10,000	$1,500	$2,800	$3,900	$1,800	P
		Project Support Costs (ROAP) - Project Management Committee Meetings - IE staff salary / supervision of reports etc. - Project supervision missions	$56,690	$7,190	$11,500	$30,000	$8,000	Q
Programme cycle management total			**$391,700**	**$41,201**	**$79,323**	**$212,713**	**$58,463**	
Amount of Financing Requested			**$5,000,000**	**$656,138**	**$1,346,208**	**$2,546,405**	**$451,229**	

Table 27: Budget Notes

Project item	Budget description and related output	Description of expenditures	
Outcome 1, Total: $500,000			
A	**Contractual services, workshops, materials & goods and travel** Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans in line with the 15 Principles of the Adaptation Fund and the ESMP,	Main partners MoE/ NCSD, local governments Climate Change Assessment Expert (int.): Community Mobilizer, GIS support, enumerators Training Communication (data for tablets/GIS etc.) Laptops (2), printer Transport (travel/per diem) City consultations Production of maps, printing of assessments etc.	 USD 50,000 USD 20,000 USD 25,000 USD 5,000 USD 5,000 USD 15,000 USD 20,000 USD 10,000
B	**Contractual services, materials & goods and travel** Integrated climate change vulnerability and disaster risk reduction assessments (including maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) aggregated, if possible,	Main partner MoE/NCSD Urban Planner/DRR expert (int): Training Planners Transport (travel/per diem)	 USD 50,000 USD105,000 USD 20,000 USD 25,000
C	**Contractual services, workshops, materials & goods and travel** Provincial and commune level climate change adaptation plans developed to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP,	Main partners MoE/NCSD, local governments Climate Change Planner: Local Planners, GIS support, enumerators Training Transport (travel/per diem) City consultations Production of maps, printing of plans etc.	 USD 50,000 USD 20,000 USD 25,000 USD 20,000 USD 20,000 USD 15,000
Outcome 2, Total: $500,000			
D	**Contractual services, workshops, materials & goods** Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets, Targeted population of com-munity groups covered by adequate climate change adaptation and risk reduction systems identified in the action plans developed under 1.3. (Align with AF output 2.2)	Main partner NCDD Climate Change Planning/Assessment Expert: Capacity Development Expert Initial training Layout and printing	 USD 50,000 USD 30,000 USD 50,000 USD 20,000
E	**Contractual services, workshops, materials & goods** Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1 Strengthened capacity of target communes to respond rapidly to extreme weather events assessed under 1.2 (Align with AF output 2.1.)	Main partner MoE Climate Change Assessment Expert: Community Mobilizer, GIS support, enumerators Training Rental of drone, tablets Communication (data for tablets/GIS etc.) Transport (travel/per diem) Production of maps and documents	 USD 50,000 USD 25,000 USD 50,000 USD 5,000 USD 5,000 USD 10,000 USD 5,000
F	**Contractual services, workshops, materials & goods** Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1 Strengthened capacity of tar-get provinces to respond rap-idly to extreme weather events assessed under 1.2 (Align with AF output 2.1)	Main partners MoE Climate Change Planner: Local Planners, Community Mobilizers, Facilitators Transport (travel/per diem) Community consultations Production of maps, printing of plans etc.	 USD 50,000 USD 30,000 USD 10,000 USD100,000 USD 10,000
Outcome 3 Total: $3,000,000			
G	**Contractual services for the design and construction of infrastructure**	Main partners NCDD and other Ministries, local government	

	Protective natural and social assets and /or physical infra-structure strengthened/built to reduce climate vulnerability in line with the action plans under 1.3 and designs under 2.1	Implementation of concrete climate action in direct response to community action plans Adaptation options and indicative costing are presented in detail in Table 9 Based on vulnerability, resilience impact, need (poverty and other socio-economic indicators) interventions at the community and household level will be selected – as based on decisions of the Project Management Committee and the Local Steering Committees,	USD3,000,000
Outcome 4 Total: $170,512			
H	**Contractual services, materials & goods** Project activities, results and best practice regarding com-munity resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general,	Main partners MoE/NCSD Knowledge Management and Advocacy Expert Project and Community Advocacy Material dev & printing Community government dialogue mechanism Settlements Summit Videos, TV, radio Facebook, Twitter, website Computer / printer / communication	 USD 30,000 USD 12,000 USD 5,000 USD 15,000 USD 18,000 USD 15,000 USD 15,000
I	**Contractual services, workshops, materials & goods** Capacity to replicate the project's objective in-line with NDC implementation enhanced	Main partner NDCC Regional workshop (climate change component) Regional advocacy material for local governments	 USD 34,100 USD 34,105
Programme execution, Total: $437,788			
J	Project manager	Project manager (UN-Habitat)	USD228,900
K	Office support staff	Office support staff (in support of financial mgt. and admin)	USD 37,800
L	Office facilities	Office facilities (rental co-share and office appliances and supply)	USD 37,441
M	Travel related to execution	Travel related to execution (project manager)	USD 32,836
N	Mid- and End-Term Evaluation	Evaluation (external evaluation at end of project)	USD 26,387
Programme cycle management, Total: **$391,705**			
O	PSC 7 Percent (on total operational budget including components below) approx. 7 percent	Project Support Cost[58]	USD 325,010
P	Evaluation support cost (HQ)	Evaluation support cost – Evaluation Unit (UN-Habitat HQ) [59]	USD 10,000
Q	Project Support Costs (ROAP)	Project Management Committee Meetings IE staff salary / supervision of reports etc. Project supervision missions	 USD 56,690

[58] General Assembly Resolution 35/217 of 17 December 1980, the Memo of the UN Assistant Secretary-General, Controller of 8 June 2012, Cost recovery: Programme Support Costs and UN-Habitat's Cost Allocation and Recovery Policy 2012. Programme Support Costs cover **Variable indirect costs** which are defined as all costs incurred by the organization as a function and in support of its activities, projects and programmes that cannot be traced unequivocally to specific activities, projects or programmes. These costs typically include services and administrative units, as well as their related system and operating costs. These costs include but are not limited to: (i) the central administration of human, financial, physical and ICT resources; (ii) staffing, facilities, equipment, activities and legal liabilities… UN-Habitat's policy stipulates: 10%: standard rate for country projects which are predominantly operational 7%: rate for projects under the umbrella of the United Nations Delivering as One, other United, Nations Joint Programmes as well as multi-donor trust funds and EC funded projects. The rate exceeds 7% (the absolute minimum rate, as UN-Habitat's accounting system will recognize other components of the project cycle management as operational costs and 7% will be applied. However total Programme Cycle Management Fee does not exceed 8.5%.

[59] UN-Habitat's Evaluation Policy of 17 February 2016 stipulates that in addition to the actual evaluation costs, each project above USD 1,000,000 is levied with an evaluation fee of USD 10,000 which provides for specific evaluation support from UN-Habitat's Evaluation Unit before, during and after the evaluation – whilst this cost will only be applied in the last year, it is spread over the entire project period.

Table 28: Summary of the M&E costs

Type of M & E activity	Responsible parties	Source and Budget USD	Time frame
Measurements of means of verification (baseline assessment and M&E plans)	Project Manager; Project team	From project execution: 20,000	First quarter of year 1
Direct Project Monitoring and Quality Assurance including progress and financial reporting, project revisions, technical assistance and risk management	Project Manager; With inputs from Project team; Provincial and district-level government, community level monitoring	From project execution: 20,000	Half-yearly and annually, Building on provincial and district level assessments and community level monitoring,
Independent terminal evaluation)	Project Manager; Project team; Provincial and district-level government and community-level monitoring UN-Habitat M&E Section and external consultants (from project execution and project cycle management)	From project cycle management: 10,000 and project execution 20,000	At end of project implementation
Project management committee meetings	Project Manager; Project team Project management committee	From project execution: 5,000	Inception meeting within first 2 months and bi-annual PB meetings (and sub-committee meetings)
Travel	UN-Habitat ROAP;	From project cycle management: 10,000	Quarterly, half-yearly and annually and as needed
Total		From project execution: 75,000 From project cycle management: 20,000 Total: 85,000	

H. Disbursement schedule

Table 29: Disbursement schedule

	Year 1	Year 2	Year 3	Year 4	Total
Milestone	1st disbursement – upon agreement signature Milestones (by end of year) - Inception workshop report - 2 trainings on provincial and 15 trainings on commune level on vulnerability assessment and climate change action plans conducted - 2 provinces (incl. 15 communes) have developed vulnerability assessments - - 2 provinces (incl. 15 communes) have developed climate change adaptation plans	2nd disbursement – One Year after project start ▪ Upon First Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) - 2 provincial governments integrate assessment findings into Commune Investment Plans - 20% of the total beneficiaries and 200 government officials from provincial and commune level trained to design, monitor and manage on climate change adaptation and risk reduction systems - Guidelines produced covering all the training components - 2 sets of provincial hazard maps - Commune-level resilience, recovery and up-	3rd disbursement - Two years after project start ▪ Upon Second Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) - 50% of strengthened households and community livelihood strategies in relation to climate change impacts, - 80% of infrastructure/natural assets constructed / developed - Advocacy materials produced - Steering Committee	4th disbursement – Third Year after Project Start ▪ Upon Third Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) - Advocacy materials produced - Regional advocacy - 100% of infrastructure/natural assets constructed / developed - Steering Committee	

	- 2 pilot project for infrastructure/natural assets developed (5%) - Website established - Advocacy materials produced - Steering Committee	grading plans in 15 communes, - Adaptation and risk reduction assessments and awareness activities for 7 (50%) target communes -10% of household and community livelihood strategies strengthened in relation to climate change impacts (16 total), - 30% of infrastructure/ natural assets developed - Advocacy materials produced - Steering Committee			
Schedule date	June 2018 1st project month	June 2019 12th project month	June 2020 24th project month	June 2021 36th project month	
A, Project Funds (US$)	USD 580,000	USD 1,200,000	USD 2,350,000	USD 40,512	USD 4,170,512
B, Programme Execution	USD 85,000	USD 127,000	USD 125,000	USD 100,788	USD 437,788
C, Programme Cycle Mgt.	USD 50,000	USD 85,000	USD 220,000	USD 36,700	USD 391,700
(B+C) MIE Fee (US$)	USD 135,000	USD 212,000	USD 345,000	USD 137,488	USD 829,488
Total	USD 715,000	USD 1,412,000	USD 2,695,000	USD 178,000	USD 5,000,000

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

Record of endorsement on behalf of the government[60] *Provide the name and position of the government official and indicate date of endorsement, If this is a regional project/programme, list the endorsing officials all the participating countries, The endorsement letter(s) should be attached as an annex to the project/programme proposal, Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

H.E. Dr. Tin Ponlok *Secretary General* *National Council for Sustainable Development* *Royal Government of Cambodia*	Date*:* January 11, 2018

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

KINGDOM OF CAMBODIA
Nation Religion King

National Council for Sustainable Development
General Secretariat
No: 001 GSSD

Phnom Penh, 11 January 2018

To: The Adaptation Fund Board Secretariat
c/o Global Environment Facility Secretariat
1818H Street, NW, MSN P-4-400
Washington DC, United State of America
Email: secretariate@adaptation-fund.org
Fax: +1 2025223240/5

Endorsement for "Climate Change adaptation through protective small-scale infrastructure interventions in Cambodian coastal settlements" proposal

Dear Sir/Madam,

In my capacity, as Designated Authority for the Adaptation Fund in Cambodia, I confirm that the above national project is in accordance with the Royal Government of Cambodia national priorities, especially with the specific commitments to the Cambodia Climate Change Strategic Plan (2014-2023), in implementing adaptation activities to reduce the adverse impacts and risks posed by climate change in Cambodia.

Accordingly, I am pleased to endorse the above project proposal for support from the Adaptation Fund. If approved, the project will be implemented by the United Nations Human Settlements Programme (UN-Habitat) and executed by the National Council for Sustainable Development (NCSD), the Ministry of Environment and the National Committee for Sub-National Democratic Development. Several other line ministries/departments, identified sub-national authorities and non-governmental organizations will also be involved in the implementation of this project.

The project proposal builds on the relevant provincial, municipal/district and community-level climate vulnerability and local development plans/strategies. As such the project is based on a large number of in-depth consultations with Government and beneficiary communities. In close collaboration with key national Government entities and sub-national authorities, the proposal aims to support and build resilience to climate change for housing, infrastructure, environment and livelihoods through participatory planning and implementation with respect to the needs of woman, youth, elderly and other vulnerable groups.

Further, the proposal builds on the long-standing collaboration between NCSD, the Ministry of Environment and UN-Habitat. Hence, my institution is grateful for the direct support in this regard.

I sincerely hope that this proposal will be considered favorably by the Adaptation Fund.

Yours sincerely,

Tin Ponlok
Secretary General
NCSD/Ministry of Environment

Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans including Rectangular Strategy Phase III (2014-2018) with a vision to 2030, National Strategic Development Plan (2014-2018) with a vision to 2030, Cambodia Climate Change Strategic Plan (2014-2023), National Policy on Green Growth and National Green Growth Strategic Plan (2013-2030), Sectoral Climate Change Strategic Plans and Action Plans (2014-2018), National Adaptation Program of Action for Climate Change (2014-2023), National Program for Sub-National Democratic Development (2010-2019) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
 **Rafael Tuts** Director, Programme Division UN-Habitat
Date: 12th January 2018 | Tel. and email: +254-20-762-3726 Raf.Tuts@un.org
Project Contact Person: Laxman Perera, Human Settlements Officer
Tel: +81-92-724-7121 Email: Laxman.Perera@un.org

Annex 1.

A. Summary of Results from Community Consultation in Kep and Preah Sihanouk Provinces

I. Kep Province

Kep province is located on low land close to the sea. Storm surge, flood and sea water intrusion were the main concerns raised during the field mission. Rice production has been affected by floods, groundwater has been contaminated by see water, poor houses have been destroyed by storms, and the coastline has been eroded by sea level rise and strong waves.

Kep province is highly vulnerable to climate change, especially in Angkaol commune. Storms are predominant concerns, while floods, saline intrusion (as influenced by sea level rise) and coastline erosion are as additional concerns. The highest vulnerabilities relates to agriculture (rice fields and salt farms). The vulnerability affects social welfare (and public health, economic growth and livelihoods), and unique habitats and ecosystems. Cultivated land is known to be vulnerable to saline intrusion in low land areas. The production of rice and crops are reduced due to poor soil quality and salinity. Storm surge causes disturbance to daily living and destruct agriculture production.

There are five target communes/ sangkat in Kep province as below information:

1. Beneficiaries

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Number of villages/Communities	4	7	3	2	2
2	Total population	8,566	10,987	8,521	4,917	7,772
3	Number of Female	4,280	5,574	3,994	2,358	3,738
4	# of age 0-17	3,288	4,579	2,969	2,111	3,011
5	# of age 18-60	4,729	5,668	5,112	2,262	4,239
6	# of > age 60	549	740	440	544	522
7	# of indigenous people	0	0	0	0	0
8	# of disabled population	108	169	78	98	97
9	# of immigrants	397	1,373	240	160	407
10	# of informal settlements	20	25	260	13	23
11	# of households	1,835	2,481	1,917	1,074	1,610

12	Poverty rate (%)	18,04	11,66	11,41	9,30	16,09
13	How many people (percent) will benefit from the following interventions in the community: Main climate change impacts and risks need are: Storm, flood, Saline intrusion, drought					
	Physical/structural interventions (roads, bridges, agriculture irrigation, water supply facilities, drainage system, houses)	80%	80%	50%	50%	80%
	Trainings	50%	50%	50%	30%	50%
	Communication	100%	100%	100%	100%	100%
	Information	100%	100%	100%	100%	100%
14	Early warning systems in place covering different types of hazards (e.g. floods, cyclones, storms, droughts, etc.)	There is no local early warning system in place but they receive warming system from Ministry of Water Resources and Meteorology through TV, media and local authorities.				
15	Existence of drainage and sewage system	No system in place		There is only partial drainage system at downtown but no system at outskirt areas.		
16	Existence of different groups (ethnic, women, elderly, disabled, youth) who are treated differently. If so, how?	There is no different groups established. They are under the supervision and management of Commune's children and women committee.				
17	Participation of women in decision-making process. If no, why?	Yes, women have participated in decision-making in all level but they have very limited capacity.				
18	Responsible person to take elderly, disabled people and children	Children and Women Committee has established in each commune in order to be responsible for elderly, disable people and children but they have very limited fund to support them.				
19	Main livelihoods / sources of income in community?	From tourism, fishery, salt farms, agriculture and animal raising.				

2. Climate change – impacts, barriers for adaptation and possible interventions analysis

No.	Name of Sangkat/commune	Most problematic climatic hazard	Effects	Factors stopping your community from coping with current impacts	Prioritized activities/ infrastructure to enhance adaptive capacity

1 2 3 4 5	Angkaol Pong Tuek Prey Thom Ou Krasar Kep	• Storm surge • Flood and sea water intrusion • Sea level rise and strong waves • Drought • Beach erosion • Water pollution	• Low rice production • Contaminated ground water • Destroyed houses • Slow down fishing activities • Damaged roads and dikes • Coastline erosion • Lack of water supply • Poor sanitation and health issues	• Bad infrastructure • Limited irrigation • Insufficient clean water supply • Limited of education and skills • Lack of sanitation • Health issues • Poor management of natural resources like forests • Poor houses	• Improve road condition and drainage system • Agriculture irrigation • Trees plantation on coastline • Water supply by digging new ponds and wells • Conserve and protect natural resources and biodiversity • Resilient houses models • Environmental management activities, e.g. planting trees, improve sanitation • Provide vocational training on various topics

Note: Climate hazards, effects, coping barriers and priority interventions have been consolidated because they are similar in each Sangkat/commune.

3. Strengthened institutional capacity

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Having a structured plan for hazard risk reduction/ climate change adaptation	Yes, the structured plan in place but there is no facilities and financial assistance as well as limited capacity on climate change adaptation and resilience.				
2	Experience of the municipality on specialist training (for risk reduction and resilience)	There is no/limited capacity/experience at municipality or provincial level on specialist training. Usually, national specialists provide these such trainings.				
3	Having a CC and resilience plan incorporated into planning schemes	Yes, commune development plan has been elaborated climate change but limited implementation due to no fund and capacity.				
4	Reporting awareness of exposure to at least one key hazard	No, local community could not make a report on this matter due to lack of capacity. National and provincial officials have assisted on this report.				

4. Assets produced, developed or strengthened (Health issues related to climate change)

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar

1	# of households to report an occupant with diarrhoea in last 3 months in this settlement	0	0	0	0	0
2	# of households to report an occupant with malaria/ dengue last year	0	0	0	0	0
3	Existence of drainage issues that may give rise to mosquito borne diseases	Yes	Yes	Yes	Yes	Yes
4	Main health problems/ issues	No major health issues but lack of sanitation and hygiene cause of health problem to children and women. Blood pressure and liver function are main health issue for older people.				

5. Urban development and housing

No.	**Name of Sangkat/commune**	**Angkaol**	**Pong Tuek**	**Prey Thom**	**Kep**	**Ou Krasar**
1	# of dwellings with 'average' or 'poor' quality walls	1,363	1,423	1,282	660	938
2	# of overcrowded dwellings	43	17	28	8	37
3	# of dwellings, which have been trained on enhancing dwelling resilience	0	0	0	0	0

6. Physical Infrastructure

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Are the streets and roads in this settlement planned and paved?	y	y	y	y	y
2	How many schools are there in this settlement? Are they built in a resilient manner?	7	7	5	2	4 (1 high school damaged by strong wind)
3	How many hospitals/health posts are there in this settlement? Are they built in a resilient manner?	1	2	1	0	1
4	Are the necessary protective infrastructures in place (e.g. dams and walls) to reduce impact of flooding, storms, etc. in this community?	0; small canal to receive water from Pong Tuek 2 dams to avoid salt water intrusion into rain fields	1	Shared with Ou Krasar, only 20% has been used by Prey Thom; 1 reservoir.	0	1 irrigation dam; floods destroyed dam
5	Does this settlement have an operational drainage system? Is it sufficient to drain precipitation and avoid flooding?	n	n	n	n	n
6	How many pagodas/mosques	3	5	3	3	2

7. Water resources and infrastructure

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	# of households with toilet	1,618	1,627	1,125	605	1,162
2	% of households using following types of toilets: 1) Shared community toilet 2) Share neighbours 3) Connected to septic tank 4) Straight pipe 5) Connected to town sewerage system	90% - Straight pipe 10% - Septic tanks	90% - Straight pipe 10% - Septic tanks	80% - Straight pipe 20% - Septic tanks	70% - Straight pipe 30% - Septic tanks	80% - Straight pipe 20% - Septic tanks
3	Average type of toilet: 1) Water seal	90% - Pit 10% - Flush	90% - Pit 10% - Flush	60% - Pit 40% - Flush	60% - Pit	70% - Pit 30% - Flush

	2) Flush 3) Pit				40% - Flush	
4	% of households with toilet discharging directly into the environment (unimproved pit toilet or straight pipe to sea/river/etc,)	100%	100%	100%	100%	100%
5	Main water resource for livelihood	Surface water (ponds), ground water (wells), and rain water				
6	# of households that own (not shared) formal water connection with meter	162	1,658	459	439	537

8. Waste and waste infrastructure

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Existence of regular waste collection by council or private organization	No	No	No	Yes	No
2	% of households to dispose waste in river, creek, or sea	10%	15%	15%	5%	10%
3	% of households to burn or bury waste	90%	85%	85%	20%	90%

9. Natural assets protected or rehabilitated

No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Does this settlement report issues with pollution/ environmental degradation (e.g. coral or mangroves)? And how many people affected - livelihoods	Yes, local settlement report issues with pollution and environment degradation that affected to majority of people in the city, particularly fisherman.				
2	Has any steps been taken in this settlement to improve/ maintain/reduce impacts on natural assets? And how many people affected - livelihoods	Due to no financial assistance, there is no major action taken place. Individual people have taken care for themselves. There is around 20-30% of population affected their livelihood.				
	Main environmental problems **(Choose Top 3)** 1) River flooding 2) Coastal Flooding (saltwater intrusion) 3) Surface Flooding (rainwater) 4) River Bank Erosion (soil disappearing) 5) Inland erosion 6) Coastal Erosion (beach disappearing) 7) Pollution (dirty air, dirty water, dirty soil)	1. Coastal Flooding (saltwater intrusion) 2. Decline in Mangrove areas 3. Surface Flooding (rainwater) 4. Freshwater for drinking and usage		1. Drainage (e.g. blocked drains) 2. Sanitation (problems with toilet) 3. Decline in Mangrove areas 4. Surface flood		

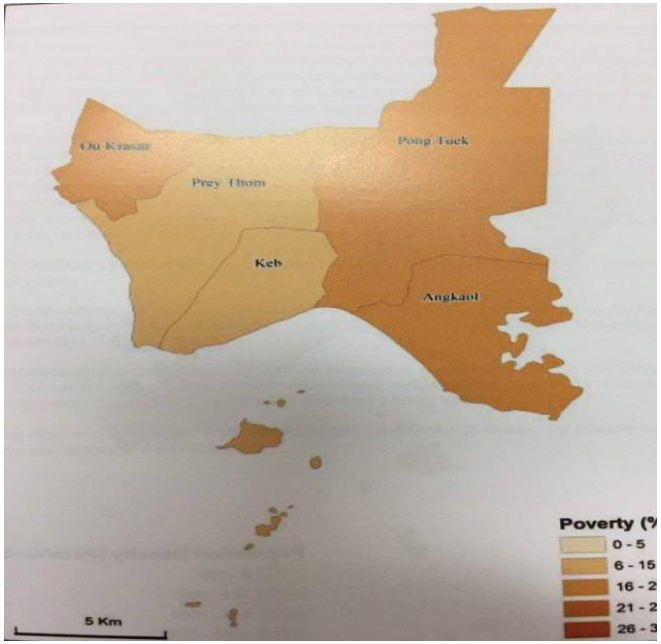
	8) Rubbish (waste management) 9) Drainage (e.g., blocked drains) 10) Sanitation (problems with toilet) 11) Decline in Mangrove areas 12) Plant Disease 13) Insects or bugs (flies, mosquitoes)		

10. Improved policies & regulations

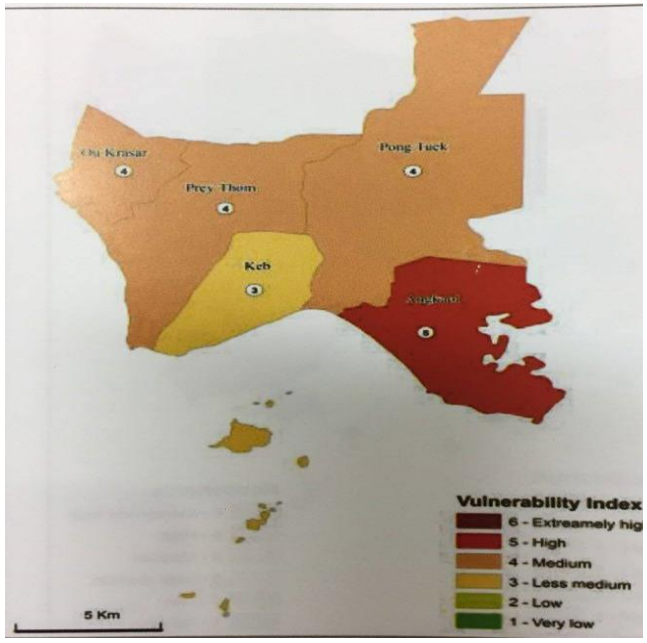
No.	Name of Sangkat/commune	Angkaol	Pong Tuek	Prey Thom	Kep	Ou Krasar
1	Does the sangkat/commune has the necessary building regulations for resilient development? Are they enforced properly in this community?	There are building regulations from national that has applied for nationwide usage. They are enforced by technical line department of land management, urban planning and construction. However, there is very limited information on the resilient development in those regulations.				
2	Have any policies been introduced or adjusted in your municipality to address climate change?	There is no local policy to address climate change but they implement the national climate change action plan and NAPA. Commune development plan and investment programme have also addressed climate change and disaster risk reduction.				

11. Community vulnerability and risk map

Poverty Map of Kep Province by Commune



Overall Vulnerability of Kep Province by Commune



II. Preah Sihanouk Province

Several climate change issues were discussed during the field consultation. Concerns included erratic rainfall, sea water intrusion on rice fields and ground water, storms and storm surge destroying rice and crop production, and waste management.

Households: Poor households living in homes built with zinc and thatched roofs, located on low lands along the coastline, are sensitive to storm surge and sea level rise. These CC exposures also affect drinking water, sanitation, health and livelihoods. Drought or erratic rainfall is also main issues that can affect water supplies and drinking water when the dry season lasts longer than usual. The capacity

of these people to recover from extreme weather is still limited. Additionally, the management of solid water is also an issue, as it was found that the waste was floated during the floods.

There are 10 target communes/ sangkat in Preah Sihanouk as below information:

1. **Beneficiaries**

No.	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Sa-makki	Veal Rinh	Sam-rong	Prey Nob	Ou Ok-nha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Number of Villages/communities	4	4	3	3	5	5	5	6	2	3
2	Total population	5,455	4,413	3,641	10,717	6,683	7,944	9,006	7,917	1,693	18,613
3	Number of Female	2,720	2,198	1,919	5,636	3,334	3,976	4,559	4,025	791	9,308
4	# of age 0 - 17	2,133	1,728	1,620	3,850	2,474	2,909	3,696	2,170	611	7,316
5	# of age 18 - 60	2,930	2,182	1,724	6,007	3,795	4,163	4,834	4,847	985	10,324
6	# of > age 60	392	503	297	860	414	872	476	900	97	973
7	# of indigenous people	0	0	0	0	127	0	0	0	0	0
8	# of disabled population	25	25	19	80	37	42	115	83	7	46
9	# of immigrants	551	178	101	628	223	340	139	464	526	5,582
10	# of informal settlements	45	13	0	40	17	42	21	5	330	160
11	# of households	1,169	963	1,044	1,967	1,352	1,608	1,688	1,503	427	4,094
12	Poverty rate (%)	20.2	20.1	19.2	26.3	19.8	18.8	18.0	12.6	23.7	11.7
13	How many people will benefit from the following interventions in the community: The main climate change impacts and risks need to be focused are: storm surge, strong waves, sea water intrusion, ground water, pollution, drinking water, waste and flood.										
	Physical/structural interventions (roads, dikes, water supply facilities, market, irrigation, drainage system, houses)	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
	Trainings	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	Communication	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	Information	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

14	Early warning systems in place covering different types of hazards (e.g. floods, storms, drought etc.)	There is no local early warning system in place but they receive warming system from Ministry of Water Resources and Meteorology through TV, media and local authorities.
15	Existence of drainage/sewage system	There is limited drainage system available only in the downtown
16	Existence of different groups (ethnic, women, elderly, disabled, youth) who are treated differently. If so, how?	There are no different groups established. They are under the supervision and management of Commune's children and women committee
17	Participation of women in decision-making process. If no, why?	Yes, women have involved all level of decision-making but they have limited knowledge and experience.
18	Responsible person to take elderly, disabled people and children	There are provincial, district and commune disaster committees and red-cross committee's responsibilities.
19	Main livelihoods / sources of income in community?	Fishery, agriculture, industry, poultry/animal raising, building construction and tourism

2. Climate change - Trend analysis

No,	Municipality/ District	Name of Sangkat/commune	Most problematic climatic hazard	Effects	Factors stopping your community from coping with current impacts	Prioritized activities/ infrastructure to enhance adaptive capacity
1	Prey Nob	Tuek Thla	• Storm surge • Strong waves • Sea water intrusion • Ground water • Pollution • Drinking water • Waste management • Flood, and • Sea level rise,	• No tourists to visit • Destroyed houses • Damaged roads and dikes • Low fish production • Low rice production • Contaminated ground water • Coastline erosion • Lack of water supply	• Low income that affect to livelihood due to no tourists • Bad infrastructure • Insufficient clean water supply • Poor house conditions • Lack of sanitation • Health issues • Poor management of natural resources like forests • Limited irrigation	• Improve road condition • Provide clean water supply • Provide proper drainage system • Conserve and protect natural resources and biodiversity • Provide resilient house models • Environmental management activities, e.g. planting trees, improve sanitation
2		Tuek L'ak				
3		Sameakki				
4		Veal Renh				
5		Samrong				
6		Prey Nob				
7		Ou Oknha Heng				
8		Boeng Taprom				
9	Sihanoukville	Koh Rong				
10		Sangkat Muoy				

				• Poor sanitation and health issues	• Limited of education and skills	• Provide vocational training on various topics • Agriculture irrigation

3. Strengthened institutional capacity

No.	Municipality/ District	Prey Nob								Sihanoukville	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Sa-makki	Veal Rinh	Sam rong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Having a structured plan for hazard risk reduction/ climate change adaptation	Yes, there is a structured plan in place but very limited operation/function due to no capacity and fund.									
2	Experience of the municipality on specialist training (for risk reduction and resilience)	No specialist training from the municipality/district level to support the communities. They are from provincial and national level with limited supported.									
3	Having a CC and resilience plan incorporated into planning schemes	Yes, all plans such as commune, district/municipality, and provincial development plans have addressed climate change adaptation and resilience. However, the implementation is limited due to low capacity and financial support.									
4	Reporting awareness of exposure to at least one key hazard	Yes, there is a report on disaster happened in the areas such as storms and flood.									

4. Assets produced, developed or strengthened (Health issues related to climate change)

No.	Municipality/ District	Prey Nob								Sihanoukville	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Sa-makki	Veal Rinh	Sam-rong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	# of households to report an occupant with diarrhoea in last 3 months in this settlement	0	0	0	0	0	0	0	0	0	0
2	# of households to report an occupant with malaria/ dengue last year	0	0	0	0	0	0	0	0	0	0

3	Existence of drainage issues that may give rise to mosquito borne diseases	Yes, there is drainage issues such as bad smell, pollution, mosquito and bad living environment
4	Main health problems/ issues	There are skin diseases, mosquito borne diseases and high blood pressure

5. Urban development and housing

No.	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Samakki	Veal Rinh	Samrong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	# of dwellings with 'average' or 'poor' quality walls	973	879	854	1,399	1,187	1,392	1,438	1,342	373	3,157
2	# of overcrowded dwellings	30	23	47	50	11	7	30	10	29	46
3	# of dwellings, which have been trained on enhancing dwelling resilience	0	0	0	0	0	0	0	0	0	0

6. Physical Infrastructure

No.	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Samakki	Veal Rinh	Samrong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Are the streets and roads in this settlement planned and paved?	y	y	y	y	y	y	y	y	n	20%
2	How many schools are there in this settlement? Are they built in a resilient manner?	4	3	3	2	3	3	3	5	2	3
3	How many hospitals/health posts are	0	3	1	1	0	1	0	1	1	1

	there in this settlement? Are they built in a resilient manner?										
4	Are the necessary protective infrastructures in place (e.g. dams, walls) to reduce impact of flooding, storms, etc. in this community?	0	1	0	1	2	3	0	1	0	0
5	Does this settlement have an operational drainage system? Is it sufficient to drain precipitation and avoid flooding?	n	n	n	n	n	n	n	n	n	n
6	How many Pagodas/Mosques exist?	2 Mosques	1 Pagoda	2 Pagodas	2 Pagodas	5 Pagodas	2 Pagodas and 2 Mosques	2 Pagodas and 3 Mosques	2 Pagodas and 3 Mosques; 50 % of the people are Cham Muslims	1 Pagoda	1 Pagodas

7. Water resources and infrastructure

No	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Samakki	Veal Rinh	Samrong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	# of households with toilet	455	702	724	1,433	794	1,254	777	760	318	3,757
2	% of households using following types of toilets:	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight pipe – 100%	Straight	Straight pipe – 70%

	1) Shared community toilet 2) Share neighbours 3) Connected to septic tank 4) Straight pipe 5) Connected to sewerage system									pipe – 100%	Septic tank – 30%
3	Average type of toilet: 1) Water seal 2) Flush 3) Pit	Flush	Flush	Flush	Flush	Flush	Flush	Flush	Flush	Flush	Flush
3	% of households with toilet discharging directly into the environment (unimproved pit toilet or straight pipe to sea/river/etc.)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	Main water resource for livelihood	Surface water, underground water, ponds, wells, and rainwater									
4	# of households that own (not shared) formal water connection with meter	872	598	905	1,955	877	965	698	1,225	95	3,043

8. Waste and waste infrastructure

No.	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Samakki	Veal Rinh	Samrong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Existence of regular waste collection by council or private organization	No	No	No	No	No	No	No	No	No	No

2	% of households to dispose waste in river, creek, or sea	20%	20%	20%	10%	20%	20%	20%	20%	10%	15%
3	% of households to burn or bury waste	80%	80%	80%	90%	80%	80%	80%		90%	85%

9. Natural assets protected or rehabilitated

No.	**Municipality/ District**	**Prey Nob**								**Sihanoukville**	
	Name of Sangkat/ commune	Tuek Thla	Tuek L'ak	Sa-makki	Veal Rinh	Sam-rong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Does this settlement report issues with pollution/ environmental degradation (e.g. coral or mangroves)?	Yes, local settlement report issues with pollution and environment degradation that affected to majority of people in the communities.									
2	Has any steps been taken in this settlement to improve/ maintain/reduce impacts on natural assets?	There is very limited implementation because no fund support. Community people have taken care for themselves. There is around 50% of population affected their livelihood.									
	Main environmental problems **(Choose Top 3)** 1) River flooding 2) Coastal Flooding (saltwater intrusion) 3) Surface Flooding (rainwater) 4) River Bank Erosion (soil disappearing) 5) Inland erosion 6) Coastal Erosion (beach disappearing) 7) Pollution (dirty air, dirty water, dirty soil)	• Decline in Mangrove areas • Drainage (e.g., blocked drains) • River flooding, coastal flooding (saltwater intrusion), surface flooding (rainwater)								• Deforestation • Pollution/ Rubbish/ Drainage/ Sanitation • Coastal Erosion	

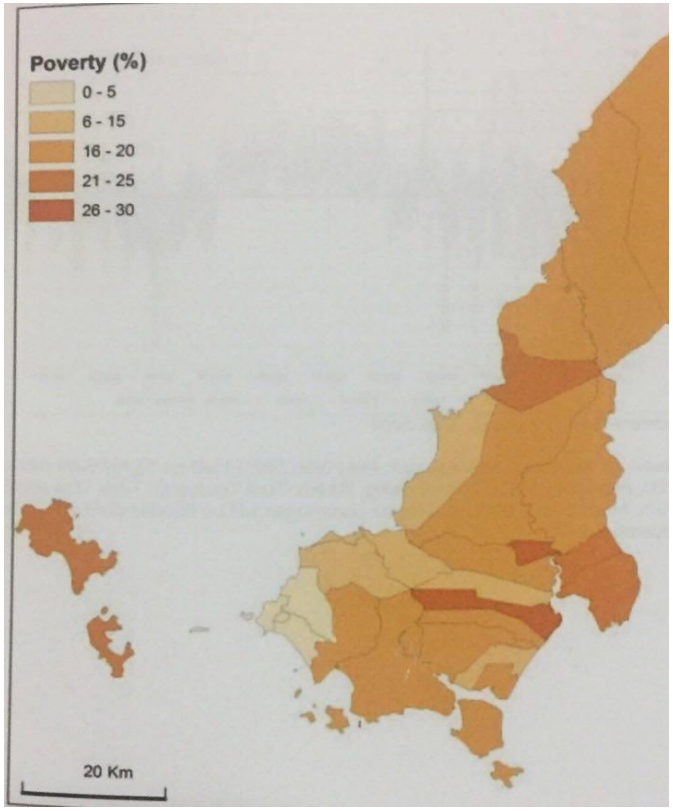
	8) Rubbish (waste management) 9) Drainage (e.g. blocked drains) 10) Sanitation (problems with toilet) 11) Decline in Mangrove areas 12) Plant Disease 13) Insects or bugs (flies, mosquitoes)		

10. Improved policies & regulations

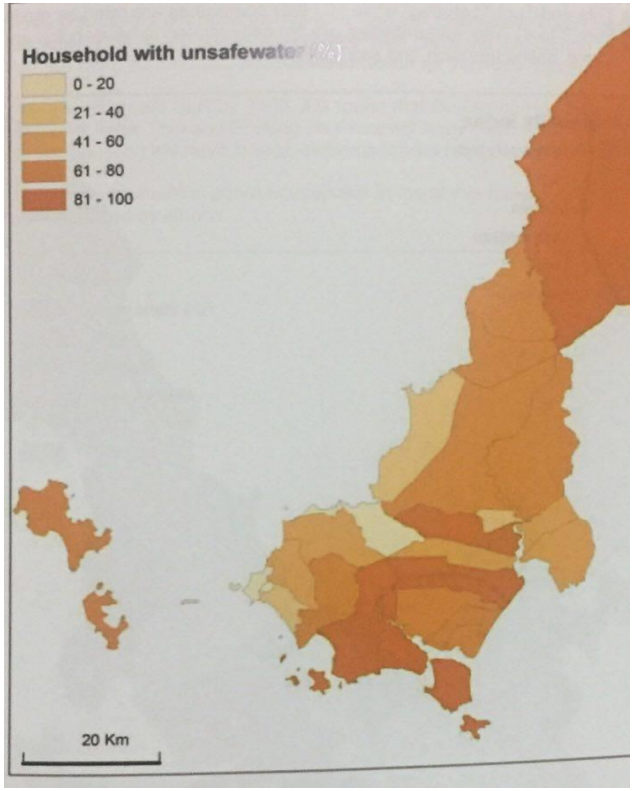
No.	Municipality/ District	Prey Nob								Sihanoukville	
	Name of Sangkat/commune	Tuek Thla	Tuek L'ak	Samakki	Veal Rinh	Samrong	Prey Nob	Ou Oknha Heng	Boeng Taprom	Koh Rong	Sangkat Muoy
1	Does the sangkat/commune has the necessary building regulations for resilient development? Are they enforced properly in this community?	No, they don't have a local building regulation. So people in the community to build their houses based on their experience and practice. However, the Ministry of Land Management, Urban Planning and Construction has issued all necessary building regulations that applied for nationwide implementation. But those regulations may not include the resilient development.									
2	Have any policies been introduced or adjusted in your municipality to address climate change?	There is no local policy to address climate change, but they implement the national climate change action plan and NAPA. Commune development plan and investment programme have also addressed climate change and disaster risk reduction.									

11. Community vulnerability and risk map

Poverty Map of Preah Sihanouk Province by Commune



Household with unsafe water of Preah Sihanouk Province by Commune



B. Action Planning

Prognoses of interventions based on in-depth community consultation in target provinces. Information in below tables established the basis to identify the catalogue of intended sub-projects.

I. In Kep Province

Commune/ Sangkat of Kep Province	Main Climate Change Impact	Activities		
Angkaol	1. Strong winds (more than 100 HH in 2013 and 20-30 per year)	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. Sea water floods	2.1. Protective infrastructure (road or dam)		
	3. SLR and beach erosion	3.1. Erosion vulnerability assessment and hazard map	3.2. Protective infrastructure (road)	
Pong Tuek	1. Strong winds (20-30 HH per year)	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. SLR and salinization	2.1. Advocacy on reforestation of the coast-line	2.2. Protective infrastructure (canal, fresh water reservoir)	2.3. Salt-resilient crops for agriculture
	3. Beach erosion	3.1. Erosion vulnerability assessment and hazard map	3.2. Protective infrastructure (road)	
Prey Thom	1. Drought	1.1. Fresh water reservoir		
	2. Lack of water supply	2.1. Rain water harvesting	2.2. Piped water supply	2.3. Advocacy esp. to children and women about health issues of unsafe water
	3. Strong wind (60 HH destroyed per year)	3.1. Advocacy on planting more trees	3.2. Demonstration of resilient housing design	
Kep	1. Flood	1.1. Improvement of flood-protective 3-4 km long canal		

		(shared with Ou Krasar commune)		
	2. Drought	2.1. Water supply from Kampot is a goal of the CIP for 2022, but water shortage is an urgent issue of today		
	3. Strong wind (20 HH destroyed per year)	3.1. Advocacy on planting more trees	3.2. Demonstration of resilient housing design	
Ou Krasar	1. Strong wind	1.1. Advocacy on planting more trees	1.2. Demonstration of resilient housing design	
	2. Unsafe water	2.1. Awareness on health issues to unsafe water and how to avoid		
	3. Drought	3.1. Rehabilitation of irrigation and capacity to harvest water during dry season	3.2. Drought-resilient crop for agriculture	

II. In Preah Sihanouk Province[61]

Commune/Sangkat of Preah Sihanouk Province	Main Climate Change issue	Activities		
Tuek Thla	1. Drought	1.1. Rehabilitate reservoir located in one village to improve the water supply for the whole year		
	2. Flood	2.1. Build water gate for existing reservoir		
	3. Strong wind	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme	3.3. Demonstration of resilient housing design

[61] Because the project will not implement the concrete component in Koh Rong and logistical constrains, the mission from 11th to 16th of December 2017,where actions were identified, did not visit the Koh Rong commune, an island about 27 km from the mainland

			weather events and EWS	and training of local craftsmen
Tuek L'ak[62]	1. Drought	1.1. Build a reservoir or dam with water gate to keep water		
	2. Flood	2.1. Assess possible infrastructure like canals to channel rain water		
	3. Strong wind	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme weather events and EWS	3.3. Demonstration of resilient housing design and training of local craftsmen
	4. Decline of mangroves	4.1. Make eco-tourism areas accessible	4.2. Demarcation of areas for eco-tourism	
Samakki	1. Flood	1.1. Repair the water gate		
	2. Strong wind (100 HH per year destroyed in Tuek Thla, Tuek L'ak and Samakki)	2.1. Advocacy on planting more trees	2.2. Weather station, broadcasting extreme weather events and EWS	2.3. Demonstration of resilient housing design and training of local craftsmen
	3. Drought (Jan-May no drinking water. It needs to be bought costly from neighbouring communes)	3.1. Build dam and water gate that keeps water for 100 ha of land during the dry season		
	4. Decline of mangroves	4.1. Make eco-tourism areas accessible	4.2. Demarcation of areas for eco-tourism	
Veal Rinh	1. Strong wind	1.1. Advocacy on planting more trees	1.2. Weather station, broadcasting extreme weather events and EWS	1.3. Demonstration of resilient housing design and training of local craftsmen

[62] Natural protected area of Kampong Smach involving 6 communes of Prey Nob District (Tuek Lak, Samakki, Veal Renh, Ou Oknha Heng, Samrong and Boeng Taprom).

	2. Drought (Jan-May no drinking water. It needs to be bought costly from neighbouring communes)	2.1. Improve access to drinking water by building dam or channel water through canals		
	3. Flood	3.1. Channel floods through canals and water gates		
	4. Decline of mangroves	4.1. Make eco-tourism areas accessible	4.2. Demarcation of areas for eco-tourism	
Samrong	1. Drought	1.1. Build water gate to channel and harvest rain water		
	2. Flood	2.1. Repair roads that were damaged by floods	2.2. Build water gate to channel rain water during heavy rainfalls	
	3. Strong winds	3.1. Advocacy on planting more trees	3.2. Weather station, broadcasting extreme weather events and EWS	3.3. Demonstration of resilient housing design and training of local craftsmen
	4. Decline of mangroves	4.1. Make eco-tourism areas accessible	4.2. Demarcation of areas for eco-tourism	
Prey Nob	1. Drought	1.1. Rehabilitation of canals in Oknha Heng could keep the water channelled in Prey Nob		
	2. Flood (affects esp. the market, the source of regular income of the people)	2.1. Rehabilitation of canals in Oknha Heng can avoid floods in Prey Nob	2.2. Build drainage system and sanitation system esp. around the market	
	3. SLR	3.1. Improve 8km of road to protect the road to the garment factory from SLR		
Ou Oknha Heng	1. Salinization	1.1. Rehabilitation of protected dam along 3 villages in order to avoid sea-water intrusion of the rice fields	1.2. Improvement of canals across the communes	

	2. Drought	2.1. Rehabilitation of canal to provide fresh water during dry season	2.2. Build barriers for animals to avoid contamination of fresh water reservoirs	
	3. Decline of mangroves	3.1. Make eco-tourism areas accessible	3.2. Demarcation of areas for eco-tourism	
Boeng Taprom	1. Flood	1.1 Rehabilitate the canal to channel floods and harvest fresh-water in the dry season		
	2. Salinization	2.1. Rehabilitate the canal to protect fresh-water from sea-water intrusion	2.2. Build dam (or protective infrastructure) to mitigate SLR	
	3. Decline of mangroves	3.1. Make eco-tourism areas accessible	3.2. Demarcation of areas for eco-tourism	
Sangkat Muoy	1. Drought	1.1. Build water pipelines. Esp. people living on the hill-side cannot access water during the dry season. Approx. 500 HH have no access to safe drinking water.	1.2. Wastewater sewage system can also avoid contamination of rain water, which otherwise goes straight into the sea. But difficult to implement due to land ownership issues.	
	2. Strong wind	2.1. Advocacy on planting more trees	2.2. Demonstration of resilient housing design and training of local craftsmen	
	3. Lack of drainage system and wastewater management system	3.1. Build wastewater treatment plant	3.2. Channel drainage to redirect the water flow	

Annex 2:

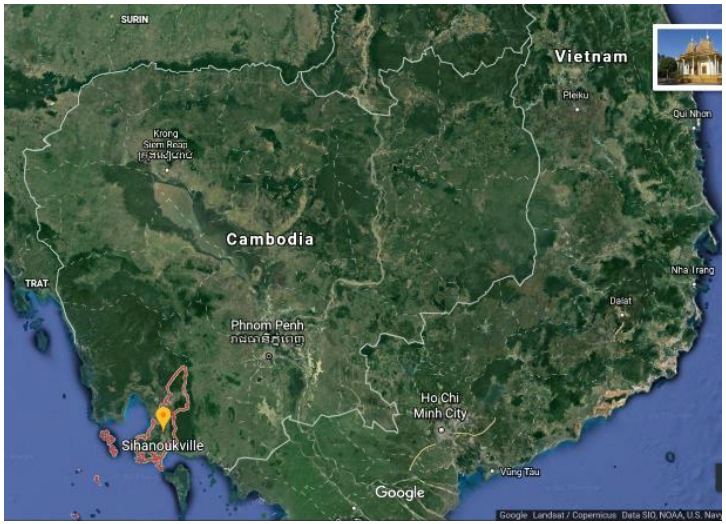
I. Compliance with National technical standards and NDC

Key challenges of project component	Priorities of National Climate Change related plans	Priorities of Nationally Determined Contribution (NDC)
There is a need to develop an integrated approach and policy and operational level to effectively address climate change.	NSDP (2014-2018) - Prepare necessary policies and legal frameworks, such as the Law on Roads, Law on Ports, and the Law on Road Transport. - Prepare a Master Plan for Urban Infrastructure Development. - Adopt and use the Royal Decree and Sub-Decree on the Establishment of a Committee for Land Management and Urban Planning at all levels for land management plan in municipalities and provinces. - Push to adopt and implement integrated strategy for developing Cambodia's coastal zones and Preah Sihanouk Master Plan.	- NDC (and its future revisions) are to be an integral part of the climate change architecture of Cambodia. Hence its implementation will be aligned with that of Cambodia's national climate change policy, and not create unnecessary duplication. - Cambodia intends to support the initial delivery of the NDC mainly through the implementation of the Cambodia Climate Change Strategic Plan (CCCSP) (2014 – 2023). - There are a number of existing and planned domestic processes for delivering, supporting, and monitoring climate change policy in Cambodia. It is clear that these strategies and plans will need to be revised once the timeframes expire, after having assessed the progress achieved under them.
There is a need to ensure that buildings constructed in urban and rural areas are cyclone resistant**.**	NSDP (2014-2018) - Continue to adopt the National Housing Policy. - Prepare and adopt the Construction Law, construction standards, sub-decrees, and legal policy documents related to the construction work.	-
There is a need to strengthen the role of local governments in building resilience.	NSDP (2014-2018) - Strengthen technical and institutional capacity to promote the mainstreaming of climate	- Promoting and improving the adaptive capacity of communities and restoring the natural ecology system to respond to climate change.

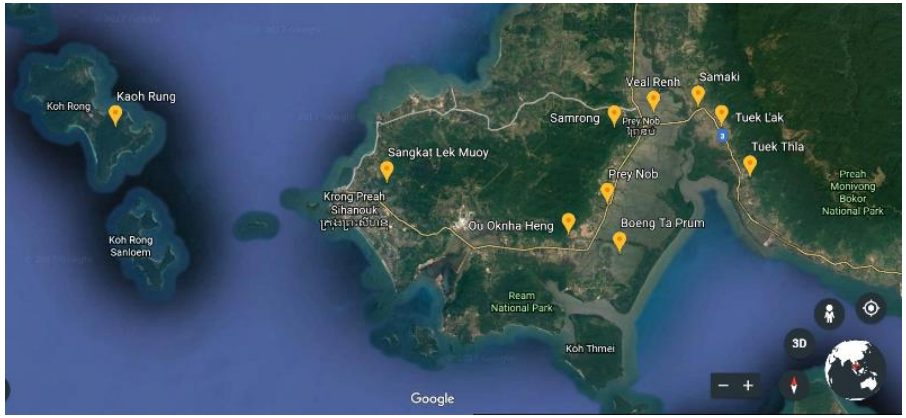
	change response into the policies, laws and plans at national and sub-national level.	- Strengthening climate information and early warning systems.
There is a need for greater understanding of the impacts of climate change in order to better plan for long term development.	CCCSP (2014-2023) - Enhance awareness for climate change response.	- Promoting groundwater research in response to drought and climate risk. - Developing crop varieties suitable to Agro-Ecological Zones (AEZ) and resilient to climate change (include coastal zones).
There is a need to ensure climate change mitigation and adaptation become a part of the national and sub national development planning and budgetary process.	CCCSP (2014-2023) - Promote integration of the CCCSP into other national strategies (e.g. NSDP) - Mainstream climate change into national and sub-national development plans and the NSPS.	- Promoting and improving the adaptive capacity of communities, especially through community based adaptation actions, and restoring the natural ecology system to respond to climate change. - National grid connected renewable energy generation (solar energy, hydropower, biomass and biogas) and connecting decentralised renewable generation to the grid. - Off-grid electricity such as solar home systems, hydro (o, mini and micro). - Reducing emissions from waste through use of bio-digesters and water filters.
There is a need to increase the resourcing of adaptation and mitigation measures**.**	CCCSP (2014-2023) - National climate change financing mechanisms shall support CCCSP. - The Climate Finance Sub-group of the Climate Change Technical Team (CCTT) leads the development of a national climate change. CCAP (2016-2018) - The multi-donor modality consisting of SIDA, UNDP and EU (USD 12,8 M for 2014-2019) - The dedicated/global funds for climate change (i.e. CIF, GEF, AF, and UN-REDD) - Dedicated/global funds for climate change are expected to play a more important role as	- Cambodia requires support in the form of financing, capacity building, and technology transfer to implement the actions set out in this NDC.

	their funding scales are expected to get larger. - Key bilateral partners supporting MOE (i.e., GIZ, USAID, JICA, KOICA, UKAID, and SIDA)	
There is a need to strengthen partnerships at all levels for building resilience for climate change.	NSDP (2014-2018) - Continue to provide technical support to the councils of all municipalities, districts, khans, communes, and sangkats in the preparation of master plans and land use plans. CCCSP (2014-2023) - Strengthen partnerships between development partners, civil society, the private sector and the Government. - Improve the national weather monitoring and forecasting systems and develop partnerships for creating downscaled models of future climate. - Develop a knowledge management centre for facilitating access to up-to-date information for climate change responses.	- Strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections, and mainstreaming of climate change into sector and sub-sector development plans.

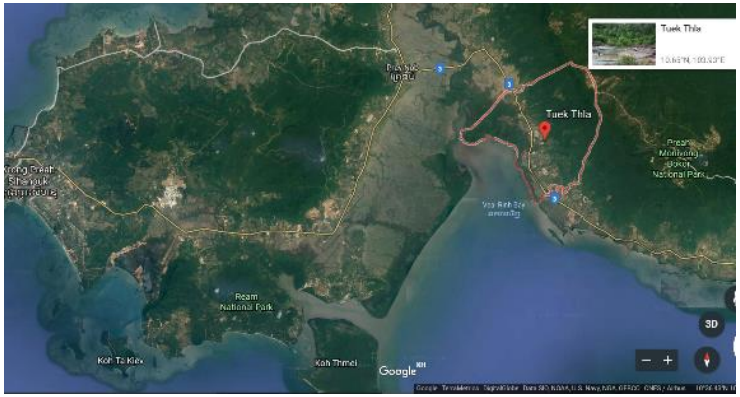
C. Locations of target Communes and Sangkats in Preah Sihanouk and KepProvince



1. **Location of Preah Sihanouk Province in Cambodia.**



2.All target communes and sangkats in Preah Sihanouk.



3. Commune Tuek Thla commune in Prey Nob District.

4. Location of Tuek L'ak commune in Prey Nob District.

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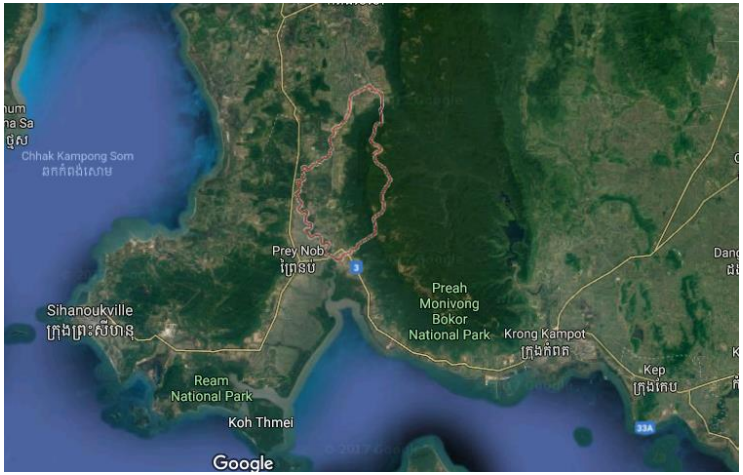
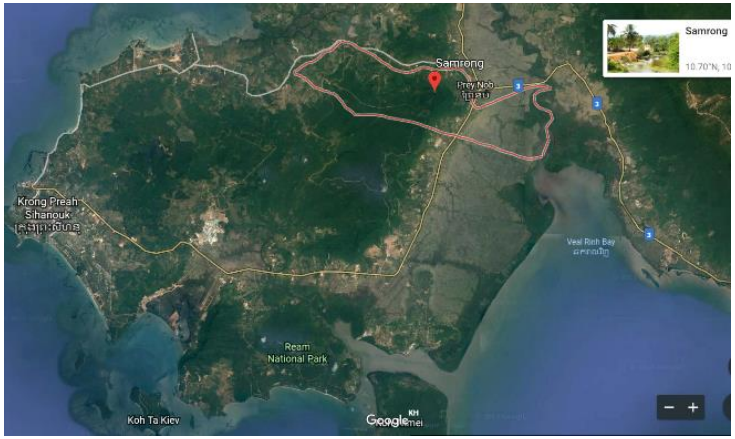


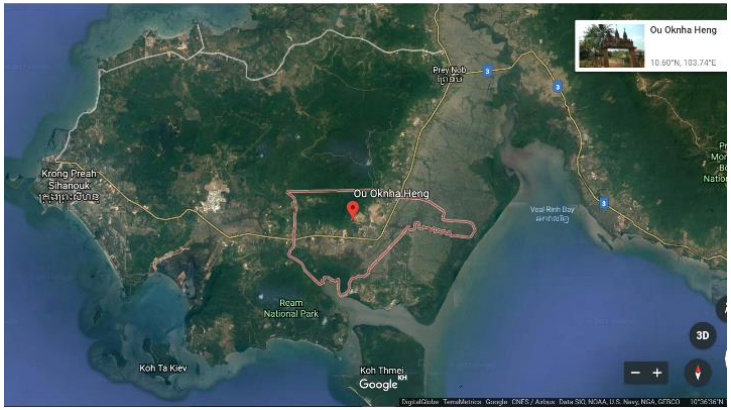
5. Location of Samakki commune in Prey Nob District.

6. Location of Veal Renh commune in Prey Nob District.



7. Location of Samrong commune in Prey Nob District.

8. Location of Prey Nob commune in Prey Nob District.

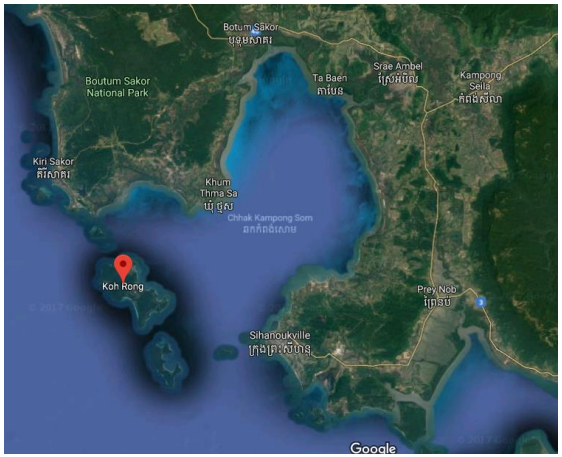


9. Location of Ou Oknha Heng commune in Prey Nob District.

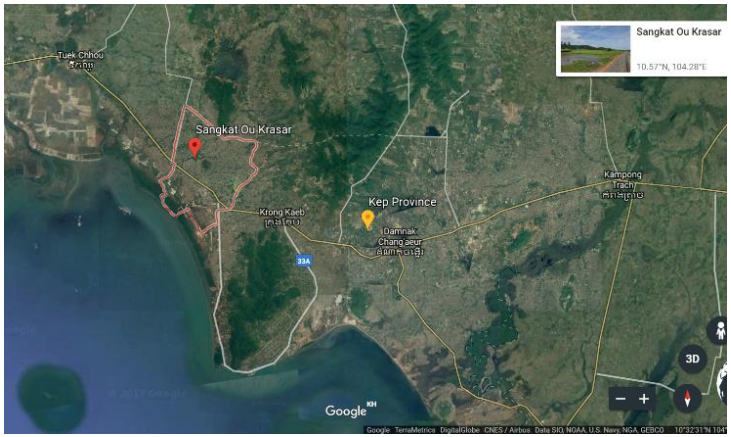
10. Location of Boeng Taprom commune in Prey Nob District.

11.Location of Sangkat Muoy in Sihanoukville.

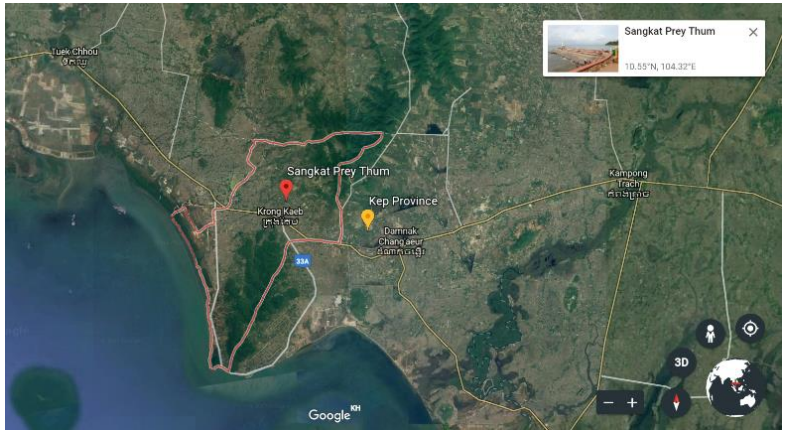
13. Location Kep Province in Cambodia.



12. Location of Koh Rong in Preah Sihanouk Province.



14. Location of Ou Krasar commune in Kep Province..



15. Location of Prey Thom in Kep Province.

16. Location of Kep commune in Kep Province.

II. The National Strategic Development Plan (NSDP) (2014-2018)

1. Planned actions on environmental sustainability

- Sustainable management of natural resources,
- Intensifying efforts to reduce the impact of climate change by strengthening the adaptation capacity and resiliency to climate change, particularly by implementing the "Cambodia Climate Change Strategic Plan 2014-2023", “National Policy on Green Development” and the “National Strategic Plan on Green Development 2013- 2030”.
- Continuing to strengthen technical and institutional capacity to promote the mainstreaming of climate change responses into the policies, laws and plans at national and sub-national levels.
- Continuing to introduce measures to control environment and ecosystems.

2. Planned actions on environmental protection and conservation and climate change

Produce maps, install boundary poles, demarcate the boundary of controlled areas, and carry out data management in Protected Areas (PA)

- Establish National Flora Park and National Marine Park
- Demarcate potential areas for enhancing livelihood of the communities living in PAs
- Strengthen management and conservation of wetlands, biosphere, and coastal zones
- Continue to organize Wetland Day
- Strengthen the capacity of the secretariat of the National Committee for Climate Change Management, in coordinating inter-ministerial activities and also in managing national climate change funds
- RGC is committed to full implementation of Cambodia Climate Change Strategic Plan 2014-2023

3. Planned actions on road and road safety

- Improve more 3,500 Km of road infrastructure in the next 5 years
- Continue the preparation of 10 years road safety action plan
- Strengthen environmentally friend urban transportation

4. Planned actions on water resource and irrigation system management

- Promote studies on floods
- Construct flood-control and drainage structures for minimizing natural disasters caused by floods
- Undertake actions to mitigate floods areas having high economic potential, through imparting education to communities via mass media
- Respond to the needs of people residing in areas affected by drought, flood and other calamities caused by water,
- Encourage people and institutions to participate in flood mitigation: identifying flood-safe grounds, providing materials and machineries, education; and disseminating new technologies
- Participate in national and international programs aimed at mitigating the impact of flood disasters
- Forecast and announce emergencies to people living in areas affected by droughts, floods and other fragilities
- Develop geographical map for irrigation systems, flood control systems, polders, river basins, inundated land areas, and water resource management

5. Planned actions on land management and urban planning

- Land Management and Urban Planning.
- Make and approve the Law on Land Management and Urban Planning, and related legal policy documents for implementing this Law.
- Adopt and use effectively, according to the hierarchy as set by the Policy on Land Management of the Kingdom of Cambodia, the Royal Decree and Sub-decree on the Establishment of a Committee for Land Management and Urban Planning at all levels for land management plan in municipalities and provinces, especially for Phnom Penh City and provinces that lie along the coastal areas; master plans and land use plans for municipalities and urban areas of provinces lying next to the borders of Cambodia, Vietnam and Laos.
- Enhance the effective implementation of Cambodia's coastal zones management and development through the Circular on Coastal Zones Management and Development, and to push for adoption and implementation of integrated strategy for developing Cambodia's costal zones and Preah Sihanouk Master Plan aiming to sustainably maintain the prestige of the most beautiful beach in the world and the green environmental zones of the Cambodian Sea.
- Continue to adopt the National Housing Policy in order to resolve housing problems for poor people so they can live in safety, welfare, and in dignity.
- Continue to provide technical support to the councils of all municipalities, districts, khans, communes, and sangkats in the preparation of master plans and land use plans.

- Strengthen the effectiveness of work on collection, compilation, and production, as well as the dissemination of data and statistics for land management and urban planning.

6. Planned actions on management development and construction

- Coordinate and facilitate the investments in the construction sector by paying attention to the strengthening of partnership with the private sector to boost the country's economy and create employment opportunities for citizens.
- Prepare and adopt the Construction Law, construction standards, sub-decrees, and legal policy documents relating to the construction work for effective implementation.
- Strengthen mechanism and capacity of technical staff in order to effectively improve the administrative services, and continue to implement the de-concentration policy in the construction sector.
- Continue to widely disseminate to the general public the legal policy documents relating to construction work and the procedures on requesting a permit for building constructions.
- Enhance the capacity of physical persons and legal persons who make professions in the construction sector, and to better uphold the local construction industry to be able to compete, study/implement the construction project, and build mega constructions by ourselves, as well as to provide reliable services with quality and effectiveness both in the country and in the regions.
- Strengthen the effectiveness of work on collection, compilation, and production, as well as the dissemination of data and statistics for the construction sector.

III. The Cambodia Climate Change Strategic Plan (CCCSP) (2014-2023)

1. Strategic Objectives and Strategies

Strategic Objective 2: Reduce sectoral, regional, gender vulnerability and health risks to climate change impacts

- Strategies
  - Use existing vulnerability and risk assessments, and conduct new ones where necessary, to prioritize adaptation measures for key regions of Cambodia, such as coastal zones, highlands, rural and urban areas.
  - Implement key actions identified in the Sectoral Climate Change Strategic Plans (SCCSPs) of the line ministries for addressing climate change impacts.

- Promote integration of the CCCSP into other national strategies such as the National Strategic Development Plan (NSDP) and the National Social Protection Strategy (NSPS).
- Promote community-based adaptation approaches and strengthen partnerships between development partners, civil society, the private sector and the Government.
- Promote the use of appropriate technologies on livestock and crop production for vulnerable farmers.
- Improve the efficiency of the fisheries sector management.
- Improve water and forest ecology, mangrove ecosystems, coastal zones and protected areas.
- Promote natural rubber production in a sustainable way by focusing on both adaptation and mitigation measures.
- Promote livestock production and protection of animal health in sustainable ways.
- Improve healthcare infrastructure and capacity of health personnel to cope with vector-borne and water-borne diseases in the context of climate change.
- Introduce technologies in water work development and rehabilitation in response to the negative impacts of climate change.
- Promote capital-intensive urban transport infrastructure planning and development.
- Enhance the quality of rural infrastructure (roads, irrigation, wells and culverts) to be resilient to flood and drought.
- Promote early warning systems.
- Prioritize women's needs in climate change adaptation and mitigation actions.

Strategic Objective 3: Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands, etc.), biodiversity, protected areas and cultural heritage sites

- Strategies
  - Strengthen biodiversity conservation and restore ecosystems threatened by climate change.
  - Promote and encourage community-based, ecosystem-based approaches and ecotourism as cost-effective ways of addressing climate change.
  - Promote payment for ecosystem services including REDD+.
  - Promote participatory land-use planning.

Strategic Objective 5: Improve capacities, knowledge and awareness for climate change responses

- Strategies

- Enhance the implementation of Article 6 of the UNFCCC on education, training, awareness, participation and access to information by the people, and international cooperation for climate change response.
- Strengthen existing channels for promoting awareness on climate change through government service providers, teachers, journalists, extension services, religious leaders and community elders.
- Develop targeted awareness programmes aimed at key audiences such as most vulnerable groups, women, children, youths and minorities.
- Facilitate public access to information on climate change through radio, television, newspapers, mobile and web technologies and targeted outreach materials.
- Sensitize the private sector on threats and opportunities of climate change (technical support, financing and technology transfer), and develop public-private partnerships for communication.
- Integrate climate change into curricula for all levels of education.
- Strengthen education quality of teachers and build capacity of planning officers on teaching and learning methodologies of climate change.
- Strengthen the capacity for collection, analysis, modelling and interpretation of climate data and information dissemination to various end-users, including seasonal forecasting for adaptation and community early-warning facilities for disaster risk management.
- Improve the national weather monitoring and forecasting systems and develop partnerships for creating downscaled models of future climate.
- Develop early-warning systems and programmes for climate-related disaster management and recovery.
- Strengthen the role of universities in training, research and technology development by building international partnerships for climate research.
- Capitalize on lessons learned, local knowledge and good practices for development of policies and actions for adaptation and mitigation.
- Develop a 'knowledge management centre' for facilitating access to up-to-date information for climate change responses.

Strategic Objective 7: Strengthen institutions and coordination frameworks for national climate change responses

- Strategies
  - Mainstream climate change into national and sub-national development plans and the NSPS.

- Reinforce the national institutional framework and inter-ministerial coordination in policy development.
- Strengthen roles and capacities of the NCCC Secretariat for coordination of climate financing and as a national implementing entity for global climate funds.
- Develop a national monitoring and evaluation framework for climate change responses and integrate it into the NSDP and the NSPS.
- Encourage all ministries to develop Sectoral Climate Change Strategic Plans and action plans, and to engage in the CCCSP process.

2. Partnerships

It is important to recognize that development partners, NGOs (both national and international), the private sector and local communities and organizations are important actors in the downstream implementation of climate change activities, as well as in research and development and learning associated with climate change.

3. Financing resources

- National climate change financing mechanisms shall support this strategic approach, The application of the following principles:
- **Alignment with national priorities:** The use of financial resources shall respond to national priorities through funding programmes and projects identified in action plans under the CCCSP. All proposed climate change financing shall be subject to NCCC review and approval.
- **Pooling resources:** In order to minimize transaction costs, climate change finance shall be provided whenever possible through pooled funding mechanisms. These include any existing pooled funding mechanisms in relevant sectors, and the possibility of a dedicated climate change fund.
- **Use of national systems and procedures:** The RGC's preferred modality for climate change financing over the medium to long term is direct budget support. However, as climate change is a relatively new field, a transitional period will be required to put in place adequate monitoring, evaluation and financial tracking systems to effectively assess the impact and efficiency of climate change budget support. A national climate fund may be set up to receive domestic and external financial support and allocate it to high priority climate change projects.

  Subsidiarity: While climate change financing will need to be coordinated by the NCCC to ensure alignment with national priorities, financing mechanisms shall ensure that the resources are managed by the most qualified line ministries or

local governments. The NCCC Secretariat shall act as an implementer only for strategic or cross-cutting projects, which do not naturally fit within the mandate of another line ministry or sub-national administrations.

Management and Institutional Arrangements for Implementation

- The Climate Finance Sub-group of the CCTT is composed of the Ministry of Economy and Finance (MEF), MoE, Ministry of Planning, Council for the Development of Cambodia / Cambodia Rehabilitation and Development Board (CDC/CRDB) and the National Committee for Sub-National Democratic Development Secretariat (NCDD-S). This group shall lead the development of a national climate change financing framework, to be submitted to the NCCC by 2014.
- While the exact financing mechanisms remain to be determined, it is clear that domestic finance and the three main external sources of climate finance (global climate funds, bilateral climate funds and climate change related activities integrated in traditional sector projects) will need to be coordinated and aligned with the CCCSP. Coordination between 'vertical' projects and pooled funding mechanisms will also be required.

IV. Climate Change Action Plan (CCAP)

A total of 17 priority actions to the different strategic objectives of CCCSP will be implementing by MOE during the period 2016-2018, representing MOE's contribution to the first period of implementation of CCCSP.

1. Strategic Objectives

- Strategic Objective 1: Promote climate resilience through improving food, water and energy (FWE) security
  - Action 1: Establish a Resilient Low Carbon Technology Hub for Food, Water, and Energy Security
- Strategic Objective 2: Reduce sectoral, regional, gender vulnerability and health risks to climate change impacts
  - Action 2: Conduct national and sectoral vulnerability assessments
- Strategic Objective 3: Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal eco-systems, highlands, etc.), biodiversity, protected areas and cultural heritage sites
  - Action 3: Conduct an assessment of climate change impact on biodiversity and test specific management options to cope with climate change
  - Action 4: Develop preliminary studies for the establishment of natural capital accounting
- Strategic Objective 4: Promote low-carbon planning and technologies to support sustainable development

        - Action 5: Develop the national GHG inventory system and preparation of contributes to Biennial Update Reports (BURs)
        - Action 6: Facilitate GHG emission reduction through project and program carbon finance crediting mechanisms
        - Action 7: Develop and test low carbon resilient approaches and options in urban areas
    - Strategic Objective 5: Improve capacities, knowledge and awareness for climate change responses
        - Action 8: Establish a knowledge management System on CC & GG
        - Action 9: Integrate CC and environmental issues into the curriculum at all Levels
        - Action 10: Engage and raise awareness of different target groups on CC and GG/sustainable consumption and production
    - Strategic Objective 6: Promote adaptive social protection and participatory approaches in reducing loss and damage due to climate change
        - Action 11: Promote and improve the adaptive capacity of communities to respond to climate change
    - Strategic Objective 7: Strengthen institutions and coordination frameworks for national climate change responses
        - Action 12: Launch and Roll Out of the National and Sectoral M&E System
        - Action 13: Capacity building of national institutions coordinating the implementation of climate change response
        - Action 14: Support to line ministries to mainstream climate change into development planning and budgeting
        - Action 15: Strengthen legal and regulatory framework for resilient low carbon development
        - Action 16: Establish a national carbon finance framework
    - Strategic Objective 8: Strengthen collaboration and active participation in regional and global climate change processes
        - Action 17: Institutionalize UNFCCC reporting

<u>2. Potential Sources and Volume of Finance Climate Change Actions</u>

- Large part of the funds for the CCAP will be financed through the current development partners of MoE. The multi-donor modality consisting of SIDA, UNDP and EU are supporting the Cambodia Climate Change Alliance with total current funding of USD 12,8 Million for 2014-19. The dedicated/global funds for climate change i.e., CIF, GEF, LCDF, AF, FCPF, and UN-REDD are supporting projects in MoE. Dedicated/global funds for climate change are expected to play a more important role as their funding scales are expected to get larger. In addition, key bilateral partners supporting MoE on climate change work are Germany (through GIZ), USAID, JICA, KOICA, UKAID, and SIDA.

Annex 3: The Climate change vulnerability and disaster risk assessment: expected outcomes and methodology

I. Purpose and expected outcomes

In order to ensure that this project and related activities reduce the climate change vulnerability and disaster risks of communities/ethnic groups, we need to understand exactly what people and what areas are most vulnerable to its impacts and why. This information can be used to:

1. Identify low risk areas in which resilient infrastructure could be construction; and
2. select and prioritize adaptation/resilient infrastructure options (in combination with community-based/ethic specific selection criteria for sub-projects.

1. Safeguards/AF ESP alignment

Conducting these assessments in this project also includes collecting information for (sub-) project compliance with safeguards/AF ESP (e.g. vulnerable people, natural habitats and land) and involving vulnerable and marginalized groups in the process.

II. The methodology

The climate change vulnerability and disaster risk assessment methodology used for this project will build on the existing governance structures in the settlements, workshop methods used by the Executing Entities, partners (e.g. social analysis, financial literacy) and key UN Habitat vulnerability assessment frameworks. These methods have all been recently and successfully employed in recent partnership projects between the project partners (UN Habitat, MoE and NCDD). It will also provide a framework for UN-Habitat, the national government and local authorities to engage in a dialogue with local communities/vulnerable groups. To do so, it provides a set of guiding approaches and questions for mobilizing communes, and collecting and analysing information at the community/vulnerable group level.

These methods are designed to feed into and strengthen planning processes on the commune, district and provincial level, by providing the most important, context-specific information about the impacts of climate change and local specific vulnerability and risks. It will include a focus on supporting broader participation by vulnerable groups in the plan making process, and thus to strengthen commune-level governance generally. This will include a combination of group-specific (young people, women, minority groups, people with a disability, older people) research and planning (including via existing committees) to sensitively identify key issues. This will be followed by measures to then encourage leadership and champions to bring these concerns into commune-wide governance processes and decision making at the plan making phase. Specifically, it will feed into local development plans (with a sectoral focus on land use and water use and infrastructure development) at the commune, district, provincial and national level by ensuring that these plans contribute to building the resilience of communities/vulnerable groups.

The method is participatory/community based (i.e. part of UN Habitat's people's process[63]) in the way that it assists communities/vulnerable groups to utilize UN-Habitat and governmental guidance and knowledge in their decision-making, rather than base interventions on it. Instead, the Project Team (comprised of the Project Manager, the Technical Advisor, NCDD, and the Director of the Department of Climate Change, MoE) acts as facilitators of group discussions that aim to analyse issues in the community/vulnerable group jointly. The result is that communities/vulnerable groups understand the nature of the problem and UN-Habitat and the Cambodian government understand the level of knowledge in the communities/vulnerable groups and how it can be used to achieve project outcomes, including conducting vulnerability and risk assessments at the provincial and district level. Whereas the method at the commune level is focused on community processes (the people's process), the method used for conducting assessments at the provincial and district level focuses more on institutional processes.

Understanding vulnerability at a commune level requires an approach that looks at both the physical (external hazard/risk) and social dimensions (internal susceptibility/coping of different groups) of vulnerability. Consequently, vulnerability is best understood as an aggregation of three components, exposure; sensitivity; and adaptive capacity (see key concepts below and example in Annex I. C.).

The approach for sangkats/communes, districts & provincial and national assessments are different as shown in the table below.

Sangkats/communes, provinces and national assessments approach.

Level of assessment	Focus	Method	Output	Expected outcome
Sangkat/Commune	Community processes/ people's process	Community-based; group discussion with questions (see below)[1] Separate discussions for vulnerable groups, particularly women and young people.	Filled questionnaire; vulnerability and risk map; list of adaptation/ resilient infrastructure options and prioritized options	Understanding of communities'/vulnerable groups' perceptions of climate change vulnerability and disaster risks in the present and in the future. Based on this information, activities (including infrastructure projects) to reduce vulnerabilities and risks can be identified and prioritized.
Province	Institutional: Guiding local	UN-Habitat vulnerability	Province level vulnerability and risk	Climate change vulnerability and disaster risks in the present and in the

[63] Development driven by people/Support Paradigm: when people stays at the center of development planning process, the resource can be optimized with greater utility impacting larger number of people: http://sopheapfocus.com/wp-content/uploads/2010/06/Picture-31.png People's process of development can be witnessed through the evolvement of people's desire to improve their lives. Humans developed their settlement from living in caves, then building shelters, and now home. Along this settlement evolution, they had also established certain norms, standards, and a mutual understanding surrounding their community. That is called the people's process of development.

	level processes and aligning assessment outcomes	assessment method[2]	assessment reports, including maps; list of adaptation/ resilient infrastructure options and prioritized options	future mapped and analysed, including ways to cope with climate related risks as well as identifying and strengthening the sustainability of resources that local communities continually use in coping and adapting to climate change impacts.
National	Institutional: Guiding local level processes and aligning assessment outcomes			Based on above information, barriers that stand in the way of increasing community level resilience to climate change can be identified and removed from national plans and policies

[1] Based on UNDP (2015) Implementing the vulnerability reduction assessment – practitioner's handbook.
[2] Based on UN-Habitat (2014) Planning for climate change: strategic values-based approach for urban planners.

III. Key concepts

- **Exposure** - nature and degree to which a system is exposed to significant climatic variations.
- **Sensitivity** - responsiveness of a system to climatic influences (shaped by both socio-economic and environmental conditions).
- **Adaptive capacity** - ability of communities to cope, reorganise and minimise loss from climate change impacts at different levels. The key determinant of adaptive capacity is access to resources/capital (natural, financial, social, human and physical).
- **Climate change:** A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable periods.
- **Vulnerability:** Refers to the degree to which people, places, institutions and sectors are susceptible to, and unable to cope with, climate change impacts and hazards.

Sources:

IPCC, 2007, Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J., Hanson, C.E. (Eds.), Cambridge University Press: Cambridge, UK, 976 pp.

UN-Habitat planning for climate change guide, including vulnerability assessment methodology: http://unhabitat,org/books/planning-for-climate-change-a-strategic-values-based-approach-for-urban-planners-cities-and-climate-change-initiative/

IV. Preparing for and planning the vulnerability and disaster risk assessment at the community level

When conducting the assessments, the Project Team will ensure that:

- There will be at least two trained facilitators per group (i.e. community/vulnerable group); one to ask the questions and the other to record the answers;
- Communities/vulnerable groups will be briefed about climate change at the start of the assessment;
- There will be a diverse cross section of participants by considering a 1) diverse geographic spread, 2) a good demographic spread (age, sex, status, income) and 3) good representation. Depending on the circumstances, assessment will be conducted with 'whole' groups, 'focus' groups or individuals. There will be specific
- A second round of participatory enquiry will be facilitated with women, young people, ethnic minority groups, and older people/people with a disability (those with mobility constraints/health conditions). Issues specific to these groups will be sensitively discussed to identify group-specific concerns. These will both inform the broader vulnerability assessment process and feed back into the general community planning process, so these concerns (where appropriate) can be voiced to build general community awareness.

V. Conducting the vulnerability and disaster risk assessment at the community level

1. Ethical Briefing

Purpose:

- To ensure communities/ethnic groups understand expectations and the process

Expected outcome:

- The communities/ethnic groups understand expectations and the process

The process:

- The briefing will include at least an explanation of:
  - Purpose of the session and what kind of information we are looking for
  - What will the data collected be used for and who will see it
  - The process: collection, verification and confidence

2. Trend analysis

Purpose:

To understand community/vulnerable group perception of climate change in the past and for communities to become aware of changes and how climate change differs from weather change.

Expected outcome:

- Community member's agreement upon:

- A vulnerability/risk score for each time period:
    1. Not at all vulnerable
    2. Not very vulnerable
    3. Some vulnerability
    4. Vulnerable
    5. Very vulnerable
- One or two climatic hazards, which have most impacted them
- High vulnerable/risk areas in and around the community (on a map)

Climate Change Risks	Before 1990	1990 1995	1995 2000	2000 2005	2005 2010	2010 2015	Vulnerability/risk score + comments
Droughts frequency/risks							
Drought duration							
Damage cause by drought (crops)							
Flood frequency/risks							
Flood duration							
Damage cause by flood							
Landslide frequency/risks							
Damage cause by landslides							
Strong wind/storms frequency/risks							
Damages caused by strong winds/storms							
Diseases frequency/risks							
Impact of diseases							
Rain level							
Rain predictability							

3. Questionnaire (incl. adaptation activities/resilient infrastructure selection)

To analyse current and future climate risks, barriers to adaptation and factors/resources facilitating the coping strategies used by commune and way of improving their vulnerability:

1. The vulnerability of the community/vulnerable group to existing climate change and or climate variability
   - What problems do you face because of the one or two most problematic climatic hazards (see result trend analysis) and how do these affect men and women in your commune?

2. The vulnerability of the community/vulnerable group to developing climate change risks
   - If the most problematic climatic hazards (see result trend analysis) would occur twice as often, what would be the effect on men and women in your community/vulnerable group?

3. The magnitude of barriers (institutional, policy, technological, financial, etc.) to adaptation

   - What stops your commune from coping with current impacts of the most problematic climatic hazards (see result trend analysis)? These can be e.g. lack of skills, lack of irrigation, water supply, health, etc. related infrastructure, lack of natural resources like forests, water, etc.).

Climate Change Risks	Factors stopping your commune from coping with current impacts	Ranking per climatic hazard
The most problematic climatic hazards (see result trend analysis)		
The most problematic climatic hazards (see result trend analysis)		

4. The priorities to be addressed in strengthening the adaptive capacity of the commune

   - What activities/infrastructure should be prioritized in order to improve your adaptive capacity to droughts, floods, landslides, heat/diseases, strong winds? What is most important for the commune?

Activities	Ranking

4. Community vulnerability and risk map

To understand where the vulnerable/risk areas are and where activities/infrastructure should be implemented/constructed in the commune a commune map should be developed showing at least:

- Location of houses and critical infrastructure
- Location of poorest people
- Elevation levels (if possible)
- Flood risk area
- Poorly lit and otherwise unsafe areas for women
- Areas where older people and those with mobility restrictions have particular access issues
- Areas that pose particular health risks to children, e.g. with effluent overspill
- Poor surface drainage, including resulting from poor solid waste management
- Drought risk area
- Landslide risk area
- Dengue and malaria risk areas

The map will be drawn by hand on transparent paper to enable free symbolic representation of issues by place that are drawn to scale.

Community map

5. Environmental and social problems and needs

The vulnerability and risk assessment can be used to get a better understanding of the environmental and social problems and needs in communes. This information can feed into the risk assessments of sub-projects. Community relevant Adaptation Fund safeguard areas are discussed below.

Human rights

- Have you ever been mistreated or are you worried you will be mistreated by the UN, the government, other communities, other ethnic groups or anyone else?

Gender Equity and Women's Empowerment

- Have you ever felt discriminated as a woman or are you worried you will be discriminated? Is it difficult as a woman to participate in decision-making processes? If so, why?

Protection for Indigenous people and Marginalized and Vulnerable groups

- Have you ever experienced or seen discrimination against indigenous peoples or elderly, disabled people or youth?

Access and Equity

- Are different groups (ethnic, women, elderly, disabled, youth) in the community treated differently? If so, how? Who is normally responsible for taking care of elderly, disabled people and children? Who normally takes care of money, water and food in the household?

Promoting better labour and working conditions

- How much do you earn on average during a day? Do children also work/help in the community? If so, what do they do?

Enhancing community health, safety and security

- Have you ever experienced dangerous situations during work or in the community? Have people been injured? If so, what was the cause? What diseases do community members suffer from? Have unexploded ordinances been found? If yes, where? What are the main causes of death in the community? What do you do against malaria, dengue and diarrhoea?

Safeguarding land, housing, resettlement and rights

- Have you ever been asked to resettle or sell your land? If so, by whom and why?

Conserving biodiversity, Protection of Natural Habitats and lands and soil conservation

- Are there conserved or protected areas in or around the community? What areas should be protected to secure clean water and food/agriculture/fish/cattle?

Annex 4: Demonstrating compliance with the Adaptation Fund Environmental and Social Policy

A. SUMMARY DESCRIPTION

The proposed project's main objective is "*to enhance climate change adaptation and resilience of the most vulnerable coastal human settlements of Cambodia through concrete adaptation actions, particularly in areas where eco-tourism has the potential to sustain such interventions*." To achieve above objective, this project focuses its actions on highly vulnerable coastal settlements in Kep and Preah Sihanouk provinces. In Kep province the project will target five Sangkats/communes with a total of 36,684 beneficiaries. In Preah Sihanouk province the project will target ten Sangkats/communes with a total of 47,902 beneficiaries.

The project is structured around the following components:

- ☐ Component 1: Comprehensive vulnerability / baseline assessment and action plans completed in the target communes and provinces (USD 500,000).
- ☐ Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas (USD 500,000).
- ☐ Component 3: Resilience built through small-scale protective and basic service interventions (USD 3,000,000).
- ☐ Component 4: Knowledge and awareness enhanced and sustainability ensured (USD 170,512).

B. SCREENING AND CATEGORIZING

The proposed project will fully comply with international and national laws and the Adaptation Fund's Environmental and Social Policy. In line with UN-Habitats Environmental and Social Safeguards System and in line with the Adaptation Fund's Environmental and Social Policy, UN-Habitat completed an initial risk analysis, screening and assessing potential environmental and social impacts for the proposed project.

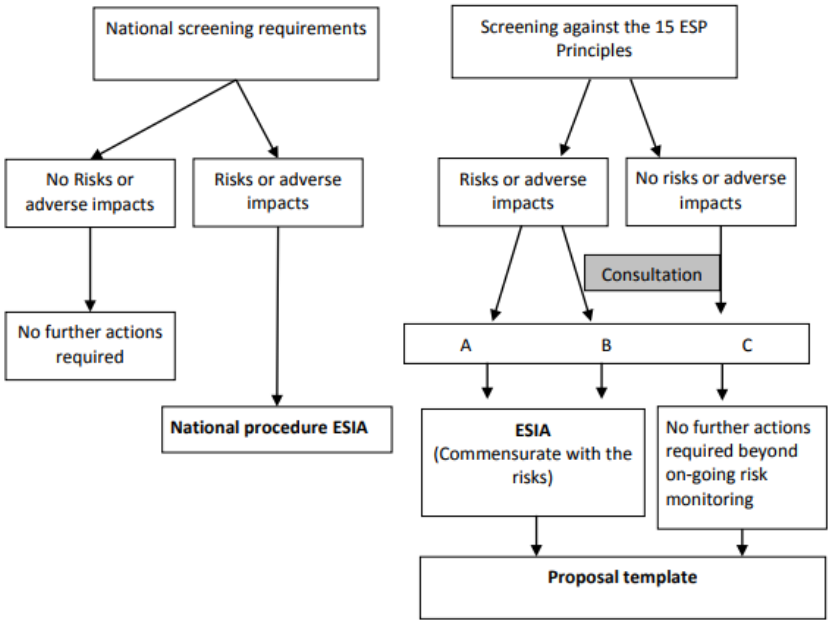


Fig A.4.1. Screening and Assessment Process (from AF ESP Guidance Document, p. 5)

In line with the Adaptation Fund's guidelines all activities were screened against international and national laws and policies as represented in the left flow chart in Fig A.4.1. above and documented (see table 11 and 12 in Section II.E.). At this stage, significant risks were not identified and it is very unlikely that national ESIA procedures will be triggered. However, given that some of the intended sub-projects of the identified catalogue of sub-projects (see Annex 5) may pose environmental and social risks that could potentially result in the need for national ESIA procedures, the ESMP for the project implementation is taking this into consideration in terms of screening, assessment and responsibilities. At this stage all activities were also screened against the ESP principles.

Further, in line with the Adaptation Fund's ESP guidelines (flow chart on the right in Fig A.4.1.) the entire project has been screened and assessed (and mitigation measures proposed) against the 15 environmental and social principles as presented in Annex 5, and Table 6 in Section II.A. This reflects the knowledge and information available at the project design stage and does not exclude that other risks may arise once all sub-projects are re-confirmed. During project implementation, all project activities will be further screened for environmental and social risks applying the ESMP. Actions to mitigate such risks will also be planned through the ESMP, according to the procedures presented in this Annex.

In compliance with UN-Habitat's Environmental and Social Safeguards System (ESSS)a screening and assessment report was prepared based on the above screening and presented to UN-Habitat's Project Review Committee[64].

Based on UN-Habitat's ESSS this screening exercise and following the Environmental and Social Policy of the Fund the overall risk ranking for this project is Category B, Project Components 1, 2 and 4 consist of studies, workshops, community consultations, training events, information sharing through print and web-based means. Thus, they are not expected to have environmental or social impacts. The only potential risk related to these activities is the unequal involvement of different groups in processes. This will be mitigated through quota systems, where possible, transparency of processes and thorough editorial review where applicable. Component 3 "Resilience built through small-scale protective and basic service infrastructure and natural assets", primarily comprises of concrete adaptation measures that will be further identified through community-based adaptation plans identified in Output 1.3. and based on the vulnerability assessment conducted in Output 1.2. The communities will be fully briefed on the ESMP, the project management will certify compliance, the local steering committees will approve the projects and the Project Management committee will provide oversight.

Potential social and environmental risks identified in Table 18 in Section K will be monitored from project outset. Further risk assessments will be conducted according to the procedure established in the latter part of this Annex (in line with the Environmental and Social Management Plan (ESMP). Risk management will be integrated in the project management structure and in all assessment, planning and implementation elements of the project.

C. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

1. Introduction

The ESMP lists all potential risks identified and the preventive / mitigation measures proposed to reduce potentially adverse environmental and social impacts to acceptable levels. The plan also shows how these potential risks and mitigation measures will be further motored, including responsibilities. Specifically, the ESMP:

(i) Identifies and summarizes all anticipated adverse environmental and social risks and impacts in line with the Adaptation Fund's ESP principles.
(ii) Provides information about the significance of the risks of interventions.
(iii) Describes mitigation measures, both from the perspective of mitigating risks at each activity and from the perspective of upholding all ESP principles.
(iv) Refers to responsibilities and sections where responsibilities for further screening and monitoring is discussed.
(v) Takes into account, and is consistent with, other mitigation plans required for the project in particular those that relate to national law.

[64] According to UN-Habitat's guidelines this report is not approved for public disclosure but a copy is made available to the Adaptation Fund Board / and Adaptation Fund Board Secretariat.

Sections II.A, E and II.K provide an overview of the 15 principles, the initially screened and assessed risks and potential need for further screening, assessments and monitoring throughout the project.

2. Foundation of Risk Mitigation

A detailed environmental and social assessment will be conducted as part of the comprehensive climate change vulnerability and disaster risk assessments in the target communes. (These assessments will themselves be approved for their compliance with the 15 ESP Principles). The reasoning for this is that the assessment will be much more comprehensive/detailed, including the involvement of vulnerable and marginalized groups, women, youth, elderly, etc., in all target communes, as could be done in the proposal development phase.

This approach is in line with the Adaptation Fund's Environmental and Social Policy: "in some Category B projects where the proposed activities requiring an environmental and social assessment, represent a minor part of the project, and when the assessment and/or management plan cannot be completed in time or where mitigation measures extend into project implementation. The Board can approve the project subject to assurances included in the agreement signed between the Board and the implementing entity that any environmental and social risks will be adequately and timely addressed through a management plan or changes in project design."[65]

The result of this approach (a detailed environmental and social assessment being part of the climate change vulnerability and disaster risk assessments) will be the production of detailed information on community level climate change vulnerabilities and disaster risks (including community maps) in combination with detailed information on:

- Cultural/ethnic, gender, elderly, disabled people, youth specific needs and user practices regarding houses and different infrastructure types/services (e.g. water supply/collection, irrigation, sanitation).
- Cultural/ethnic, gender, elderly, disabled people, youth specific needs and user practices regarding health and hygiene (e.g. related to dengue, malaria, water and sanitation).
- Other information regarding safeguards at community level (e.g. mapping of biodiversity, natural habitats, Lands and Soil, cultural heritage and human rights situation for certain ethnic groups.

Based on this information (i.e. community and climate change adaptation criteria) and the assessment of environmental and social risks the most appropriate sub-projects per commune of the catalogue of intended sub-project will be selected.

3. Additional Risk Mitigation

Additional to the risk mitigation measures identified below, the following elements will be put in place to ensure the compliance with the ESP:

(i) All MoUs and Agreements of Cooperation with Executing Entities will include detailed reference to the ESMP and in particular the 15 ESP Principles.

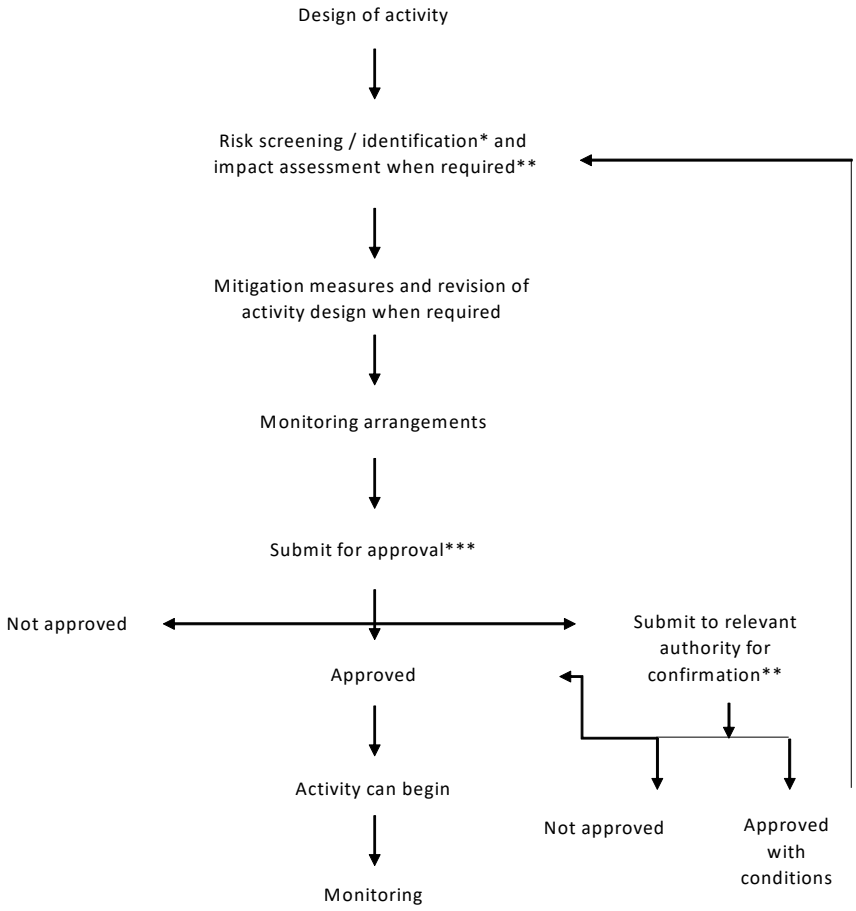
[65] Adaptation Fund Environmental and Social Policy (March 2016), paragraph 9, Page 3

(ii) The ToR of Committees and Advisory Groups, project personnel and focal points will include detailed reference to the ESMP and in particular the 15 ESP Principles.
(iii) All key Executing Entity Partners will receive training / capacity development to understand the 15 Principles, the ESMP and in particular their responsibilities. This will include members of the Project Management Committee, the Local Steering Committees and the Communities.
(iv) A Monitoring and Evaluation Framework, including monitoring of risks and mitigation measures, will be developed by the project management team and presented for approval to the Project Management Committee.
(v) The UN-Habitat Human rights officers and PAG will check project compliance to the AF ESP and the Environmental and Social Safeguard System of UN-Habitat during the project (besides the project manager).

4. Risk Screening and Management Procedure

All project activities will be screened against the 15 environmental and social risks. This will be done in spite of any previous screening that may have already been done during the project design phase. In addition to upholding the ESP of the Adaptation Fund and to familiarize all project stakeholders with the 15 ESP principles, this will also ensure that all stakeholders fully take ownership of the environmental and social safeguards procedures of the project and that any activity that may have been altered or not yet assessed in full detail.

The following flow chart (Fig x) represents the risk management and safeguarding process during the project.



* For all activities against the 15 ESP principles.
Use of Risk Assessment Sheet where necessary

** In consultation with Technical Advisory Group

*** All after activities to be approved by Project Management Committee

Fig x Activity approval in the context of environmental and social risk management

Step 1: Activity/sub-project design at the project management level or through EIs or in close consultation with Communities is to take all 15 ESP principles into consideration.

Step 2: Project screening will be conducted under the direct responsibility of the national Team Leader. The risk screening can be found below in Annex 5 as catalogue of intended sub-projects.

Step 3: In consultation with environmental authorities and affected population, those responsible for the project design, the national Team Leader will confirm or identify and plan for mitigation measures.

Step 4: If and when needed additional monitoring mechanisms will be developed. Ongoing project monitoring will always be implemented.

Step 5: The project manager will clear the screening and assessment report after the local authorities and will submit it to the Project Management Committee.

Step 6: With additional information, activities may be rejected and thus a new project design will be required. Project activities may be approved with conditions, requiring either assessments in line with national procedures, minor design changes and additional mitigation measures or further monitoring. Such changes will have to be resubmitted for approval. Only approved activities can proceed to implementation and will be monitored. Where activity specific monitoring arrangements are needed, risk mitigation measures for all identified risks will include:

- ✓ A baseline and risk indicators
- ✓ A monitoring plan, developed in a participatory manner (in the case of community projects – the People's Process), which emphasizes the role of communities as front-line monitoring agents.
- ✓ Minutes will be compiled from all meetings with communities and reviewed by the Technical Committee.
- ✓ Ongoing monitoring exercises and an end of year review will be carried out and included in the annual progress reports.

The Project Manager will ensure that screening and assessments adequately include and/or reflect the following:

- ✓ The 15 ESP Principles
- ✓ Utilize strategic, sectoral or regional environmental assessment where appropriate.
- ✓ Assess adequacy of the applicable legal and institutional framework, including obligations under Applicable Law and confirm that the activities / sub-project would not be supported if it contravenes (inter) national obligations.
- ✓ Assess feasible investment, technical, and siting alternatives, including the "no action" alternative, as well as potential impacts, feasibility of mitigating these impacts, their capital and recurrent costs, their suitability under local conditions, and the institutional, training and monitoring requirements associated with them.
- ✓ Enhance positive impacts and avoid, minimize, and/or mitigate adverse impacts through environmental and social planning and management. Develop a management plan per concrete intervention that includes the proposed measures for mitigation, monitoring, institutional capacity development and training (if required), an implementation schedule (including maintenance), and cost estimates.

- ✓ Ensure compliance with international standards and, where appropriate, use independent advisory panels during preparation and implementation of sub-projects that contain risks or that involve serious and multi-dimensional social and/or environmental concerns.

- ✓ Examine whether particular individuals and groups may be differentially or disproportionately affected by the sub-project potential adverse impacts because of their disadvantaged or marginalized status, due to such factors as race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. Where such individuals or groups are identified, recommend targeted and differentiated measures to ensure that the adverse impacts do not fall disproportionately on them.

- ✓ All proposed concrete interventions with environmental and social risks will be assessed and managed with the purpose to identify potential application of requirements of the Overarching Environmental and Social Policy (ESP) and Principles.

5. Project Grievance mechanism

UN-Habitat will implement a grievance mechanism in the target areas, which will allow an accessible, transparent, fair and effective means of communicating if there are any concerns regarding project design and implementation. Employees, and people affected by the project will be made aware of the grievance mechanism for any criticism or complaint of an activity.

This mechanism considers the special needs of different groups as well as gender considerations. A combination of mailboxes (at Commune level), confidential persons in the community and telephoning options offer an immediate way for employees and people affected by the project to express their concerns. The options will allow local languages and offer the opportunity for and people affected by the project to complain or provide suggestions on how to improve project design and implementation.

Project staff will be trained in procedures for receiving messages and on the reporting of any grievances. Community chiefs will also be briefed how to obtain feedback from community members on a regular basis. In addition, monitoring activities allow project participants to voice their opinions or complaints as they may see fit.

The address and e-mail address of the Adaptation Fund will also be made public (i.e. project website, Facebook and mailbox) for anyone to raise concerns regarding the project:

Adaptation Fund Board secretariat
Mail stop: MSN P-4-400
1818 H Street NW
Washington DC

I. Annex 5:

Annex 5: Environmental and Social Screening of the Catalogue of intended Sub-Projects

ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT FOR EACH SUB-PROJECT

The following catalogue of intended sub-projects is based on community and vulnerable group consultations of all target communes, which established the action planning presented in Annex I B. In this Annex, all suggested interventions of the action planning are screened for compliance with the Environmental and Social Policy of the Adaptation Fund based on the methodology described in Annex 4. The project proposal reflects in Part II. the sub-projects that were screened as compliant with the Environmental and Social Policy of the Adaptation Fund.

I. RESILIENCE TO STRONG WINDS

SUB-PROJECT RISK ASSESSMENT SHEET:

1. Resilient Housing

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Adaptation to strong winds through resilient housing** Ensuring that people, and especially the most vulnerable groups, are safe during strong winds and storms
2. Project number (if relevant)	1
3. Project location (village, districts, geographical coordination)	4 communes in Prey Nob District: ☐ Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh 1 Sangkat in Sihanoukville Municipality: ☐ Sangkat Muoy 5 communes of Kep Province: ☐ Angkaol, Pong Tuek, Prey Thom, Kep and Ou Krasar.
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam

5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	☐ Assess quality of housing in target areas during Component 1 ☐ Build capacity of local craftsmen to implement resilient housing ☐ Design a work plan for each commune indicating the start and duration of the activity enhancing the construction in each target commune based on the vulnerability assessment and the participation of the beneficiaries. ☐ Start a pilot project in each target commune for a resilient housing design
8. Materials to be used	☐ Wood, metal and ropes.
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed
10. Who owns the land the activity is planned on and / or who uses the land and why?	At this stage it is thought that all houses targeted under this intervention are on private (owner-occupied) land. This will be re-confirmed during the action planning stage under Component 1, as the ownership status may change between now and then. The activity is planned only on land where the ownership status is cleared.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ The safety of the most vulnerable suffering from poor housing will be guaranteed through adapting to frequent strong winds through resilient housing design.
14. Interventions required for appropriate use of the asset(s)	☐ To ensure ownership with the activity, the intervention will be based on UN-Habitat's People's Process methodology, building upon a cost-effective participatory process. This means that local craftsmen and beneficiaries, where possible, will be trained on modifying the existing house construction into a resilient housing design.

15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Form a management committee per commune to manage people's equitable access to hardware and to support maintenance and upgrading.
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Issues relating to strong winds identified by vulnerable groups: ☐ Poorest of the poor: Financial difficulties to re-construct houses in a resilient way after being impacted by strong winds ☐ Woman: Destruction of houses and household goods. ☐ Elderly and disabled people: limited ability to evacuate in time Identified needs vulnerable groups: ☐ Poorest of the poor need immediate emergency relief ☐ Affected poor families need an emergency accommodation for the initial days and weeks after impact ☐ Pagodas/Mosques of each commune need to be designed for catering approx. 50 people after an impact and contain essential medicines. ☐ Needs of the community: Training on resilient housing design and a sustainable knowledge sharing platform helping people to follow a resilience plan and access trained craftsmen.
17. Have relevant local authorities been consulted	☐ The Provincial Government in each province have been consulted in May, June and December 2017. ☐ Commune chiefs in the target area were consulted twice in 2017 in June and December. ☐ Preach Sihanouk, and Kep Provinces agreed on the proposed target communes and interventions and confirmed to facilitate the People's process.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	4 communes of Prey Nob District are affected by strong winds ☐ Strong wind corridors along the mountain chain ☐ Deforestation led to exposure to strong winds

	☐ Crops and agriculture is highly affected by storms ☐ Poor design of fishing boats led to boats capsizing during storms on the sea.
19. Description of the social context and the main social issues on the site / in the area	All the land in the target areas is public. There are no involuntary resettlement issues. Prey Nob District and the target communes consist of an almost even number of women (49%) and men. As described in II. A. there is a large number (up to 50 %) of Cham Muslims at the coastal line of Cambodia, that are not considered as an indigenous group. 19.4 % of the population in the target area lives below the poverty line and are dependent on fishery and agriculture. Strong winds led to loss of lives, houses, boats and agricultural land and hence to a decrease of the source of regular income. Additionally, there is poor quality housing, because most of the houses are built on stilts with thatched roofs. In case of damage, most of the savings are then used to re-construct the house.
20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N

Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	Y
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats)	N

and/or ecosystems and ecosystem services?	
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N

41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

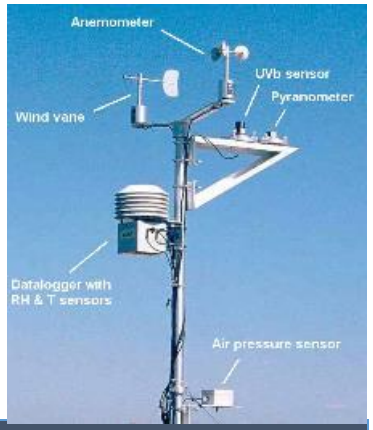
TABLE 4: Proposed Risk Mitigation Measures

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
4. Human Rights: 10. Possible affects to land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources	P= 1 I = 3	Low (3)	Resilient housing is designed to enhance existing poor housing, where tenure arrangements are already clear, through strengthening the roof, walls and foundations of a house. Hence, the activity does not get involved with the question of land and/or tenure arrangements. Providing a resilient housing design is in compliance with the National Strategic Development Plan (2014-2018)	The tenure status will be re-confirmed during the activities of component 1. The Project Management Committee will screen all finalized activities to ensure, *inter alia*, compliance with the law and upholding human rights.	Consultation with beneficiaries and commune chief	Baseline, regular and end Project Management Committee

2. Access and Equity: 2. Risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them. **And** 3. marginalized or vulnerable groups: 6. Existence of marginalized or vulnerable groups present among project beneficiaries. **And** 5. Gender equality and women empowerment: 11. Likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	P= 1 I = 4	Low (4)	Risk that the activity will exclude an unacknowledged stakeholders. Risk that marginalized and vulnerable group, especially women, are not included in decision making processes. Risk of adverse impact on gender equality and/or the situation of women	Participatory process (People's Process) and design will promote training to resilient housing widely. Resilient housing design will be trained to local craftsmen, which was a specific joint request of the vulnerable groups. Quotas for female participation in decision making at all levels.	Training report	Throughout the project Project leader
6. Core labour rights 14. Activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and	P=2 I=3	Low (6)	The implementation of resilient housing design involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be	Knowledge of resilient housing design will be trained to local craftsmen to strengthen the local capacity and economy, which was a joint request of the vulnerable groups.	Contract and payroll	While formulating contracts and disbursement of payments Project Team

standards of ILO fundamental conventions).			a risk of low or insufficient salaries.	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.		
12. Pollution and resource efficiency 31. Activity potentially results in the generation of waste (both hazardous and non-hazardous).	P= 2 I = 3	Low (6)	The materials used for resilient housing are mainly out of wood and metal. Construction/ rehabilitation will inevitably generate non-hazardous waste associated with house` construction	Training on resilient housing will also contain capacity built on conservative waste production and the 3R. Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities	Oversight of sites and photos	While implementing Site manager
13. Public Health 36. **E**lements of activity construction, operation, or decommissioning poses potential safety risks to local communities.	P=1 I=3	Low (3)	There is limited knowledge of safe work conditions	Training on resilient housing will include capacity building on safe working conditions. The local sub-contractor will be instructed to provide safety features and equipment.	Identify work equipment	While hiring people Site manager

2. Weather Station with enhanced broadcasting and early warning system



SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Resilience to strong winds through established wind early warning systems based on data developed from an automatic weather station.** Ensuring that people, and especially the most vulnerable groups, are safe during strong winds
2. Project number (if relevant)	2
3. Project location (village, districts, geographical coordination)	Weather station in Prey Nob District; early warning systems/automatic sirens in all 8 communes of Prey Nob
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam
5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	Establish wind early warning systems in all 8 communes of Prey Nob District based on collected data of and automatic weather station in Prey Nob District

	☐ Establish one weather station being used by the department of Water Resources and Meteorology in Prey Nob District ☐ Broadcast early warning system through radio and TV ☐ Establish automatic sirens in 8 target communes of Prey Nob District and repair the existing early warning system in Sankat Muoy. ☐ If findings of the weather assessments make it possible, identify wind corridors and integrate hazard zones into a land use map.
8. Materials to be used	☐ Weather station: mainly metal ☐ Automatic sirens: mainly metal
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location for the weather station will be on public land within the compound of Prey Nob Provincial Hall The locations for automatic sirens has to be identified through activities in component 1 and 2. It is understood that the intervention will only be implemented on state public land which will be re-confirmed under component 1.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 2
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Weather station: Collects short-term weather forecast data of rainfall, storms, winds and temperature and alerts in case of an emerging climate hazard ☐ Automatic sirens: Will be installed in appropriate locations in all 8 communes of Prey Nob and will be repaired in Sankat Muoy.
14. Interventions required for appropriate use of the asset(s)	☐ Communication strategy and training on the use of weather station, warning systems, including automatic alarm and/or radio, phones and megaphones (where appropriate) ☐ Awareness raising campaign on the operation of the warning system and regular drillings.
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Weather stations and early warning sirens will operate under coordinated supervision of the Director of the Provincial Department of Water Resources and Meteorology in corporation with the commune councils. ☐ If assessment of weather patterns allows a reliable zoning of hazards, training

	of communities to avoid future urban development (i.e. houses construction) in hazard zones. ☐ Draft community by-laws that identify (maintenance) responsibilities for automatic sirens and hazard risks communication, if accepted by the community.
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Issues strong winds identified by vulnerable groups: ☐ Poorest of the poor: Financial difficulties to re-construct resilient housing after impact ☐ Woman: Destruction of houses and household goods. ☐ Elderly and disabled peoples: limited ability to evacuate themselves in time Identified needs vulnerable groups: ☐ Needs of the community: An early warning of strong winds could help to protect and cover household goods and shelter animals and inhabitants adequately. ☐ Needs of farmers: Broadcasting of weather patterns could help timing harvesting cycle accordingly.
17. Have relevant local authorities been consulted	☐ Department of Water Resources and Meteorology of Preach Sihanouk Province twice times in May and December 2017. ☐ Commune chiefs of target area twice in 2017 in June and December. ☐ Preach Sihanouk Province agreed on the proposed target communes and interventions and confirmed that all target areas are on public land. The status of land ownership will be re-confirmed during Component 1.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	4 communes of Prey Nob District are affected by strong winds: ☐ Strong wind corridors along the mountain chain ☐ Deforestation led to exposure to strong winds ☐ Crops and agriculture are highly affected by storms ☐ Poor design of fishing boats led to boats capsizing during storms on the sea.

19. Description of the social context and the main social issues on the site / in the area	All the land in the target areas is public. There are no involuntary resettlement issues. Prey Nob District and the target communes consist of an even number of women (49%) and men. As described in II. A. there is a large number (up to 50%) of Cham Muslims at the coastal line of Cambodia, that are not considered as an indigenous group. 19.4 % of the population in the target area live below poverty line and are dependent on fishery and agriculture. Strong winds led to loss of lives, houses, boats and agricultural land and hence to a decrease of regular income. Additionally, there is poor quality of housing, because most the houses are built on steels with thatched roofs. All savings are than used to re-structure the house.
20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	N
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	N
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N

10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	N
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	N
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N

Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	N
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	N
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

II. ADAPTATION TO DROUGHTS BY ENHANCING FRESHWATER SUPPLY

3. Water gates on existing reservoirs to improve water management of freshwater reservoir

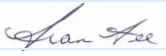
TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Adaptation to droughts through establishing freshwater reservoir and water gates on existing reservoirs to improve water management during the dry season**
2. Project number (if relevant)	3
3. Project location (village, districts, geographical coordination)	7 communes in Prey Nob District (Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Prey Nob, Ou Oknha Heng) and 1 Sangkat in Sihanoukville (Sangkat Muoy). 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam
5. Date of screening	11th to 16th December 2017
6. Signature	

TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	☐ Assess required capacity and best accessible location for intervention in target areas vulnerable to droughts and shortage of drinking water under component 1 ☐ Design freshwater management plan to improve channelling and distribution of freshwater ☐ Based on freshwater management plan, build/rehabilitate full automatic-sensor-based water gates, where possible
8. Materials to be used	☐ Stone and metal for water gates. PV-System for electronical water gates.
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed
10. Who owns the land the activity is planned on and / or who uses the land and why?	At this stage, it is thought that all locations for water gates are to be entirely on state public land. As per Cambodia's Land Law – all bodies of water (the sea, rivers, and lakes) are classified as 'state public land'. This will be re-confirmed during the action planning stage under Component 1.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ The rehabilitation/building of water gates is in line with the Commune Investment Plan and channels the freshwater especially in case of overflow during the rainy season to canals used by the communes.
14. Interventions required for appropriate use of the asset(s)	☐ Capacity built on controlling opening of water gates based on freshwater management plan.
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building on maintenance and monitoring of the water gates based on the freshwater management plan under Component 2.
☐ **CONSULTATIONS**	

16. Was the community (and specific groups) consulted	☐ During consultation in May, June and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: ☐ Uncontrolled opening of water gates led to contamination of channelled freshwater especially with salt and brackish water. This effected the access to drinking water for the most vulnerable poor, who depend on freshwater canals and made contaminated rice fields unfertile. ☐ Due to lack of piped water systems, the target communes face serious water shortage during the dry season from January to May. ☐ During the dry season drinking water has to be bought in tanks from adjacent communes. This led to pricing of water and financial restrains for the poorest households. Water became an unaffordable trade good that exacerbated the financial situation of the poorest households. Needs: ☐ Proper management of water gates based on a freshwater management plan to avoid contamination of drinking water
17. Have relevant local authorities been consulted	☐ Department of Environment and Department of Water Resource and Meteorology in May and December 2017. ☐ Commune chiefs of target area in May, June and December 2017. ☐ Provinces agreed on the proposed target communes and interventions and confirmed that implementation is on public land.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	☐ The target communes suffer from serious droughts during the dry season from January to May, which is causing chronic water shortages and a lack of drinking water. ☐ Additionally, droughts lead to salinization of surface and groundwater resources and low agriculture production
19. Description of the social context and the main social issues on the site / in the area	☐ Due to lack of basic services, neither of the rural communes are connected to water piped systems. ☐ Lack of irrigation systems and water shortage leading to low agricultural production declines the source of regular income.

20. Is an ESIA required by law?	The intervention is based on a project of the Commune Investment Plan. No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	N
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	Y
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	N
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N

13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	

29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring

2: Access and equity 4. A risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders. **And** 3: Vulnerable and marginalized groups 6. Existence of marginalized or vulnerable groups present among project beneficiaries.	P=2 I = 2	Low (4)	Risk that the activity will exclude an unacknowledged stakeholders. Risk that marginalized and vulnerable group, especially women, are not included in decision making processes.	Participatory process (People's Process) and design will promote the intervention and will reach out broadly. Quotas for female participation in decision making at all levels.	Training report And community consultation reports	Throughout the design and implementation phase Project leader
6: Core labour rights 14. The activity involves support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions).	P= 1 I = 3	Low (3)	The implementation of the intervention involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries. Training on monitoring and maintenance of intervention will include capacity building on safe working conditions. The local sub-contractor will	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors. Training on monitoring and maintenance of intervention will include capacity building on safe working conditions. The local sub-con-	Contract and payroll Identify work equipment	While formulating contracts and disbursement of payments While hiring people, Project leader

And 13: Public health 36. Elements of activity construction, operation, or decommissioning pose potential safety risks to local communities.			be instructed to provide safety features and equipment.	tractor will be instructed to provide safety features and equipment.		
12: Pollution and resource efficiency 31. The activity may potentially result in the generation of waste (primarily non-hazardous)	P= 2 I = 3	Low (6)	Construction/rehabilitation will inevitably generate waste associated with infrastructure construction.	Training on monitoring and maintenance will also contain capacity built on conservative waste production and the 3Rs. Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities	Oversight of sites and photos	While implementation

4. Rainwater harvesting

SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Adaptation to droughts through rainwater harvesting**
2. Project number (if relevant)	4
3. Project location (village, districts, geographical coordination)	7 communes in Prey Nob District (Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Prey Nob, Ou Oknha Heng) and 1 Sangkat in Sihanoukville (Sangkat Muoy). 3 communes in Kep Province: Prey Thom, Kep and Ou Krasar
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam
5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	☐ Assess frequency, capacity and best accessible location for intervention in target areas vulnerable to droughts and shortage of drinking water through Component 1 ☐ Assess capability of houses (esp. roofs as catchment area) to be used for rainwater harvesting

	☐ Build and place rainwater collecting ponds, jars and rain gutter, where assessed as most effective
8. Materials to be used	☐ Concrete collecting pond ☐ Plastic jars ☐ Plastic or metal pipes ☐ Plastic rain gutter
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed
10. Who owns the land the activity is planned on and / or who uses the land and why?	At this stage it is thought that all locations for collective ponds and jars targeted under this intervention are on private (owner-occupied) land and will only be implemented with the agreement of the owner. This will be re-confirmed during the action planning stage under Component 1, as the ownership status may change between now and implementation. The activity is planned on land where the ownership status is cleared.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Rainwater harvesters can collect about 80% of the annual rain that falls on a catchment area. About 2500 litres of rainwater can be collected in 1 hour of moderate rainfall. ☐ Rainwater harvesting includes a filter system to provide drinking water and to avoid chronic water shortages.
14. Interventions required for appropriate use of the asset(s)	☐ Capacity building on the usage of rainwater harvesting and safety measure on sustaining drinking water quality.
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building to manage, operate and maintain the collecting ponds and jars (as per outputs 2.2 and 2.3 of the project)
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ During consultation in May, June and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions

	and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Drought: ☐ Due to a lack of piped water systems, the target communes face serious water shortages during the dry season from January to May. ☐ During the dry season drinking water has to be bought in tanks from adjacent communes. This led to pricing of water and financial restraints for the poorest households. Water has become an unaffordable trade good that exacerbated the financial situation of the poorest households. ☐ Vulnerable families started using contaminated water ponds for farming and animals as drinking water, which infected 20% of the children with diarrheal. Needs: ☐ Rainwater harvesting measures to avoid chronic drinking water shortages during the dry season. ☐ If possible, policy on free drinking water during emerging drinking water shortages for the most vulnerable. ☐ Awareness on safe drinking water and health issues of contaminated water.
17. Have relevant local authorities been consulted	☐ Department of Environment and Department of Water Resources and Meteorology in May and December 2017. ☐ Commune chiefs of target area twice in 2017 in June and December. ☐ Targeted province agreed on the proposed target communes and interventions and confirmed that all target areas are on land where the ownership status is clear and the willingness of the people is given.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	☐ The target communes suffer from serious droughts during the dry season from January to May, which is causing chronic water shortages, especially a lack of drinking water. ☐ Additionally, droughts lead to salinization of surface and groundwater resources and low agriculture production
19. Description of the social context and the main social issues on the site / in the area	☐ Due to a lack of basic services, neither of the rural communes is connected to water piped systems. ☐ Lack of irrigation systems and water shortage leading to low agricultural production declines the source of regular income.

20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	N
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	Y
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N

Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	

30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	Y
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
2: Access and equity	P= 2 I = 4	Low (8)	Rainwater can be harvested best through a rain gutter fixed to conducive surfaces and catchment areas. The most	The assessment under Component 1 will identify which rainwater harvesting method and construction	Action plan under Component 1 and	During implementation Sub-Contractor based on

4. A risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders. **And** 3: Vulnerable and marginalized groups 6. Existence of marginalized or vulnerable groups present among project beneficiaries.			vulnerable and poor people live in poor housing with thatched roofs, on which the capacity to collect water will be limited. Hence, the method to collect rainwater has to be adapted to the most conducive surface.	needs are required to have the best results for harvesting rainwater (e.g. stand-alone-rainwater harvesting jars).	photo documentation of sites.	supervision of Team Leader.
4: Human rights 10. The activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources.	P= 3 I = 2	Low (6)		The intervention is understood to be implemented, where tenure arrangements are already clear. The assessment in Component 1 will re-confirm the ownership-status of each proposed intervention site.	Action plan under Component 1.	During assessment and again while implementation Team leader.
6: Core labour rights	P= 1 I = 3	Low (3)	The implementation of intervention involves employment of local craftsmen. As the minimum	UN-Habitat ensures payments according to the ILO standards	Contract and payroll Identify work	While formulating contracts

14. The activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions). **And** 13: Public health 36. Elements of activity construction, operation, or decommissioning pose potential safety risks to local communities.			wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries. Training on monitoring and maintenance of intervention will include capacity building on safe working conditions. The local sub-contractor will be instructed to provide safety features and equipment.	through legal agreements with sub-contractors. Training on monitoring and maintenance of intervention will include capacity building on safe working conditions. The local sub-contractor will be instructed to provide safety features and equipment.	equipment	and disbursement of payments While hiring people, Project leader
12: Pollution and resource efficiency 31. The activity may potentially result in the generation of waste (both hazardous and non-hazardous	P= 2 I = 3	Low (6)	The materials used for rainwater harvesting are mainly out of concrete and plastic. There can be a risk of non-hazardous waste generation. Construction/rehabilitation will inevitably generate waste associated with infrastructure construction.	Training on monitoring and maintenance will also contain capacity built on conservative waste production and the 3R. Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities.	Oversight of sites and photos.	During implementation.

13: Public health 34. The activity may result in potential increased health risks (e.g. from waterborne or other vector-borne diseases or accident/injury).)	P=3 I= 4	12 (Med)	There is a risk that inadequate maintenance of collecting ponds and water jars will lead to contamination of drinking water and can cause the spread of waterborne diseases.	Cascading filter systems, installed within the rain gutter, and ahead of the entrance to the water tank and tab, will clear the water. First filter will clear out leaves and other debris. Second filter will contain a sieve with a mesh size of 200µm: The third level contains an active carbon filter that filters out any micro-contamination due to storage and piping. Additional capacity building on monitoring and maintaining the intervention will be provided to the end-user	Cascading filter system with indicator for water-quality and maintenance plan.	During implementation and manual for maintenance. Filter-system: Sub-contractor based on Agreement. Training: Project team and commune chiefs.

5. Enhancing the coverage and quality of the piped water supply network

Introduction

According to the Commune Investment Plan, this intervention (construct and install water supply network) is planned for the whole Kep Province by 2020. The sustainable water supply network will improve the health and living conditions of 20,694 (10,655 women) beneficiaries. The initial screening conducted by NCDD (Executing Entity) estimated the cost of this intervention to be 3,000,000 USD, which is 72% of the requested fund and the entire budged calculated for the hard Component 3 of this project proposal. Hence, this project requested in line with the Commune Investment Plan is deemed to be not in line with UN-Habitat's cost-effectiveness methodology and the purpose of this proposal focussing on small-scale infrastructure. Because of the urgent need of piped drinking water, UN-Habitat will recognise the need for actions for the communes Prey Thom, Kep, Tuek Thla and Sangkat Muoy based on the action planning conducted in Annex I. B. This screening will focus on possible small-scale intervention to support the construction of a water supply network by e.g. reducing the number of kilometres of a water supply network that focus on the most vulnerable assessed under component 1.2. And the rehabilitation of existing pipelines, where possible. These interventions will be re-screened under Component 1.

SUB-PROJECT RISK ASSESSMENT SHEET

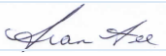
TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	Enhancing the coverage and quality of the piped water supply network to adapt to droughts.
2. Project number (if relevant)	5
3. Project location (village, districts, geographical coordination)	In Kep: Prey Thom and Kep In Preach Sihanouk: Tuek Thla and Sangkat Muoy
4. Person who filled the form	Cerin Kizhakkethhottam and Liam Fee
5. Date of screening	11th to 16th December 2017
6. Signature	

TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	Construct and rehabilitate piped water supply network in target communes ☐ Assess and design piped water supply network ☐ Build capacity to design water supply network to upscale and enhance potential for replication ☐ Rehabilitate damaged piped water supply infrastructure, where upgrading work is possible
8. Materials to be used	☐ Concrete ☐ Metal ☐ Plastic
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed.
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location of the water supply network is thought, at present, to be entirely on public land, as per Cambodia's Land Law – all bodies of water (the sea, rivers, lakes) are classified as 'state public land'. How far the water supply system connects to private households and as such affects private land, will be re-confirmed and re-screened under Component 1.
11. Start date of activity / works	Year 2
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Providing safe drinking water throughout the year.
14. Interventions required for appropriate use of the asset(s)	☐ Consultation (once detailed engineering design has been drafted) with local people to re-screen environmental and social principles and for compliance with the environmental and social management plan ☐ Capacity building for government at the Provincial level (per Output 2.1).
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building to manage, operate and maintain water supply system (as per Outputs 2.2 and 2.3 of the project).

☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus groups (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Unsafe water/no water supply: In Sangkat Muoy: ☐ People living on the hill-side particularly can't access water during the dry season. Approximately. 500 households have no access to safe drinking water. ☐ There is a steep slope from high-land to the sea, which causes that polluted water and rain water go straight into the sea. General in target communes: ☐ Due to lack of piped water systems, the target communes face serious water shortages during the dry season from January to May. ☐ During the dry season drinking water has to be bought in tanks from adjacent communes. This led to pricing of water and financial restraints for the poorest households. Water became an unaffordable trade good that exacerbated the financial situation of the poorest households. ☐ Vulnerable families started using contaminated water ponds for farming and animals as drinking water, which infected 20% of the children with diarrheal. Needs: ☐ Sustainable access to safe drinking water through piped water network to avoid chronic drinking water shortages during the dry season. ☐ If possible, policy on free drinking water during emerging drinking water shortages for the most vulnerable households. ☐ Awareness on safe drinking water and health issues of contaminated water.
17. Have relevant local authorities been consulted	☐ Department of Water Resources and Meteorology of Preach Sihanouk Province in May and December 2017. ☐ Commune chiefs of target area in June and December 2017. ☐ The provinces agreed on the proposed target communes and interventions

	and confirmed that all target areas are on public land as far as the water supply network is not connected to private households.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	☐ The target communes suffer from serious droughts during the dry season from January to May, which is causing chronic water shortages and a lack of drinking water. ☐ Additionally, droughts lead to salinization of surface and groundwater resources and low agricultural production
19. Description of the social context and the main social issues on the site / in the area	☐ Due to lack of basic services, neither of the rural communes is connected to water piped systems. ☐ Lack of irrigation systems and water shortages leading to low agricultural production declines the source of regular income. ☐ Many parts of Sangkat Muoy are classified as informal settlements with a high youth population of 39 %. Hence children under 17 are particularly affected by unsafe and/or limited access to water.
20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y

7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	Y
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	Y
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	

22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N

Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
2: Access and equity 4. A risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders. **And** 3: Vulnerable and marginalized groups	P= 3 I = 4	Medium (12)	Due to cost restrains, an enhanced piped water supply cannot be implemented for the whole target communes, as requested.	Based on the vulnerability, sensitivity and adaptive capacity the assessment under Component 1 will identify the most vulnerable to droughts and lack of drinking water. During this assessment all 15 Principles will be recognized to cover foremost vulnerable and marginalized groups.	.Vulnerability Indices per target area and vulnerability assessment.	´During Vulnerability Assessment and implementation Team Leader

6. Existence of marginalized or vulnerable groups present among project beneficiaries. **And** The activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups					
4. Human Rights: 10. Possible affects to land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources **And** 8. Involuntary resettlement 19. The activity potentially involve temporary or permanent and full or partial physical displacement.	P= 3 I = 4	Medium (12)	The intervention is understood to be implemented, where tenure arrangements are already clear. The assessment in Component 1 will re-confirm the ownership-status of each proposed intervention site However, this can be particularly difficult in target area where informal settlements are built on public land. (Sangkat Muoy).	The tenure status will be re-confirmed during the activities of component 1. This will also ensure fully participatory planning and design processes that re-confirms the status of the land used, and, if people are living informally on state public land, follows the People's Process methodology.	Consultation with beneficiaries and commune chief Baseline, regular and end The Project Management Committee will screen all finalized activities to ensure, inter alia, compliance with the law and upholding human rights.

6. Core labour rights 14. Activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions).	P=2 I=3	Low (6)	The implementation of the intervention involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries.	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.	Contract and payroll	While formulating contracts and disbursement of payments Project Team
12. Pollution and resource efficiency 31. Activity potentially results in the generation of waste (both hazardous and non-hazardous).	P= 2 I = 3	Low (6)	The materials used for the intervention are mainly out of concrete, metal and plastic. Construction/ rehabilitation will inevitably generate non-hazardous waste associated with house` construction	Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities	Oversight of sites and photos	While implementing Site manager
13. Public Health 36. **E**lements of activity construction, operation, or decommissioning poses potential safety risks to local communities.	P=1 I=3	Low (3)	There is limited knowledge of safe work conditions	The local sub-contractor will be instructed to provide safety features and equipment.	Identify work equipment	While hiring people Site manager

III. FLOOD PREVENTION MEASURES

6. Canal
7. Dam
8. Water gates on canals to channel floods



SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Flood prevention measures** (canal, dam and water gates on canals)
2. Project number (if relevant)	6, 7, 8
3. Project location (village, districts, geographical coordination)	Sammeakki, Tuek Thla and Tuek L'ak communes, Prey Nob District, Preach Sihanouk province
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam

5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	Construct and rehabilitate the flood prevention dam in Sammeakki, Teuk Thla and Teuk L'ak communes in Prey Nob District, Preach Sihanouk Province ☐ Survey the site of the partial existing dam and the area for new construction ☐ Community consultation regarding siting, safeguards, management and end-use ☐ Construct and rehabilitate the dam ☐ Assess flood prone area and establish hazard map ☐ Create by-laws to avoid future urbanization in flood prone area, if possible ☐ Construct/rehabilitate canals in line with hazard map ☐ Build/rehabilitate automatic water gates on canals to channel flash floods and to avoid contamination with salt- and brackish water.
8. Materials to be used	☐ Concrete and metal ☐ Wood ☐ PV for automatic water gate, where possible
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed.
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location of the dam and canals is thought, at present, to be entirely on public land, as per Cambodia's Land Law – all bodies of water (the sea, rivers, lakes) are classified as 'state public land'
11. Start date of activity / works	Year 2
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Dam: Prevents water from the sea and river estuary entering surrounding settlements and agricultural land.

	☐ Canal: Channels flash floods caused by heavy rains. ☐ Water gates: Channels flash flood and avoids saltwater intrusion of freshwater.
14. Interventions required for appropriate use of the asset(s)	☐ Consultation (once detailed engineering design has been drafted) with local people to re-screen environmental and social principles and for compliance with the environmental and social management plan. ☐ Capacity building for government at the Provincial level (per Output 2.1).
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building to manage, operate and maintain the dam, canals and water gates (as per Outputs 2.2 and 2.3 of the project)
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Flooding: ☐ Poorest of the poor: Financial difficulties to re-construct resilient housing after impact. In almost all cases, the poorest take the longest amount of time to re-construct their houses after flooding ☐ Women: Destruction of houses and household goods. ☐ Elderly and disabled people: limited ability to evacuate themselves in time ☐ All people involved in agricultural livelihoods, or who rely on groundwater, noted the increasing presence of salinity
17. Have relevant local authorities been consulted	☐ Department of Water Resources and Meteorology of Preach Sihanouk Province in May and December 2017. ☐ Commune chiefs of target area twice in June and December. ☐ Preach Sihanouk Province agreed on the proposed target communes and interventions and confirmed that all target areas are on state public land.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	Several communes of Prey Nob District are already affected by floods and a larger land area has the potential to be affected in the future. Flooding and salinity is par-

	ticularly acute in Sammeakki, Tuek Thla and Tuek L'ak. The three communes border one another and share the same environmental, topographical and socio-economic features: - Coastal - Riparian - Flat topography with few natural defences (aside from the Kampong Smach mangrove area) - Agrarian economy - High poverty rate - Many people living in poor quality housing in flood-prone areas
19. Description of the social context and the main social issues on the site / in the area	There is a high poverty rate (19.2, 20.1 and 20.2 per cent are considered poor in Sammeakki, Tuek L'ak and Tuek Thla, respectively). There are no ethnic minorities in the area. There are a small number of households living informally in Teuk Thla. Across the three communes, almost 40% of the population is under 17, so youth considerations are prominent.
20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N

8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	N
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	Y
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by	Y

authoritative sources and/or indigenous peoples or local communities?	
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	Y
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	Y
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N

39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
4. Human Rights: 10. Possible affects to land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources. ***And*** 8 : Involuntary resettlement: 19. The activity potentially involve temporary or permanent and full or partial physical displacement.	P= 1 I = 3	Low (3)	It is understood that the intervention is entirely on state public land. However, there is a small chance that informal settlers may be present along the rehabilitation/building of canals when the intervention is built. This will be rechecked as the situation can change quickly.	The tenure status will be re-confirmed during the activities of component 1. The Project Management Committee will screen all finalized activities to ensure, *inter alia*, compliance with the law and upholding human rights.	Consultation with beneficiaries and commune chief.	Every meeting Project leader.
2: Access and equity 2. A risk that the activity would exclude any potentially affected	P= 1 I = 4	Low (4)	Risk that the activity will exclude an unacknowledged stakeholders. Risk that marginalized and vulnerable group, especially women, are not	Participatory process (People's Process) and design will promote the intervention and will reach out broadly.	Training report	Throughout the project Project leader

stakeholders from fully participating in decisions that may affect them. **And** 3: Vulnerable and marginalized groups 6. Existence of marginalized or vulnerable groups present among project beneficiaries.			included in decision making processes.	Quotas for female participation in decision making at all levels.		
6. Core labour rights 14. Activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions).	P=2 I=3	Low (6)	The implementation of the flood prevention interventions involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries.	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.	Contract and payroll	While formulating contracts and disbursement of payments Project Team
9. Protection of natural habitats 22.The activity could cause damage to environmentally sensitive lands	P= 1 I = 4	Low (4)	The proposed infrastructure is close to the Kampong Smach protected (mangrove and biodiversity) area.	'Utilization of natural resources', defined in the Cambodian 'Protected Area Law' shall be in accordance with the Management Plan and technical Guidelines, developed	MoE controls utilization of natural resources. Project Leader will re-confirm	Regularly MoE focal point.

				by the MoE, to ensure sustainability of natural resources within the community protected areas.		
12. Pollution and resource efficiency 31. Activity potentially results in the generation of waste (both hazardous and non-hazardous).	P= 2 I = 3	Low (6)	The materials used for the intervention are mainly out of concrete, metal and plastic. Construction/ rehabilitation will inevitably generate non-hazardous waste associated with house` construction	Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities The local sub-contractor will be instructed to provide safety features and equipment.	Oversight of sites and photos	While implementing Site manager
13. Public Health 36. **E**lements of activity construction, operation, or decommissioning poses potential safety risks to local communities.	P=1 I=3	Low (3)	There is limited knowledge of safe work conditions		Identify work equipment	While hiring people Site manager

IV. ADAPTATION THROUGH ENHANCED ECO-TOURISM

9. Demarcation of and access to natural assets

10. Reforestation

SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Adaptation through enhanced Eco-Tourism**: Demarcation of protected natural assets and reforestation
2. Project number (if relevant)	9 and 10
3. Project location (village, districts, geographical coordination)	6 communes in Prey Nob District: Tuek Thla, Tuek L'ak, Sammeakki, Veal Renh, Samrong, Boeng Taprom could benefit of eco-tourism in the Kampong Smach protected area. 1. Mangrove forest in the in Kep: Angkaol
4. Person who filled the form	Liam Fee and Cerin Kizhakkethottam
5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	☐ Demarcation of protective natural assets ☐ Access to protected natural assets for eco-tourism

	☐ Assessment on areas in need for reforestation ☐ Establishing community-based tree nurseries through eco-tourism engagement ☐ Establish local business group for women operating eco-tourism
8. Materials to be used	☐ Polls for demarcation are mainly out of concrete. ☐ Signs to identify boundaries of protected area are mainly out of metal or wood ☐ Mangroves for reforestation
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 1 of the project. This screening will be re-done once the specifications have been developed
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location of the protected area in Kampong Smach in Prey Nob and in Angkaol commune in Kep Province is, at present, entirely on state public or protected land, as per Cambodia's protected natural asset law.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 3
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Demarcation will classify natural asset as protected area and conserves the biodiversity, flora and fauna of Kampong Smach and Angkaol. ☐ The rehabilitation of the mangrove forest serves as natural barrier to salt-water intrusion and bank erosions and protection of SLR and strong winds for the adjacent communes and livelihoods. ☐ Eco-tourism in compliance with conservation of the natural protected assets creates awareness for the benefits of a stable eco-system and can enhance the GDP of the target areas.
14. Interventions required for appropriate use of the asset(s)	☐ Zoning and mapping of protected area during Component 1. ☐ Identifying a suitable operator and activities for eco-tourism during component 2.
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity built of operators (if possible, local business group for women) of eco-tourism to ensure ecological management and conservation of biodiversity, and sustainable use of natural resources in protected areas in line with Cambodia's 'Protected Areas Law'.

	☐ Founding a patrolling unit and provide training on patrolling measure
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Three times during consultation in May, June and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: ☐ Commune representative: Awareness about eco-tourism and protective natural assets. ☐ Women: Access to natural assets and its benefits (controlled fishery and planting of rice fields in the protected area for own consumption). ☐ Ground water salinization due to deforestation of the mangrove forests.
17. Have relevant local authorities been consulted	☐ Department Environment and Water Resources and Meteorology of Preach Sihanouk and Kep Province in May, June and December 2017. ☐ Commune chiefs of target area twice in June and December 2017. ☐ Preach Sihanouk and Kep Province representative agreed on the proposed target communes and interventions and confirmed that all target areas are on public land.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	The target area around Kampong Smach and the Angkaol commune in Kep Province recognize tourism as an important industry and have a great potential for eco-tourism, with its nature-, livelihood- and community-based tourism activities. However, the tourism sector is also affected by climate change, especially bank erosion, salinization of ground water and decline of eco-systems as described in the Environmental section of this proposal (Section II, Part B). For adaptation to climate change, natural resource enhancement, preservation and reforestation is therefore necessary, as well as access to the benefits of the protected eco-system and channelling of wastewater, where possible. This will benefit tourism potential directly but also the poor and vulnerable, especially from livelihoods and basic services perspective.
19. Description of the social context and the main social issues on the site / in the area	
20. Is an ESIA required by law?	No. (Small interventions and checked with the provincial government). ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	N
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	N
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	

14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Y
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	Y
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N

31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	N
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	N
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
3: Vulnerable and marginalized groups 6. Existence of marginalized or vulnerable groups present among project	P= 1 I = 4	Low (4)	Vulnerable families dependent on rice farming and fishery for their own consumption live along the banks of Kampong Smach.	The activities aim of protecting the natural assets is seen in a holistic and anthropocentric way to benefit es-	Quotas for female participation monitored through attendance sheets.	Every training unit Trainer

beneficiaries.			These mostly childless groups have to be recognized in an integrated and participatory way.	pecially the most vulnerable. Hence, training on activities for eco-tourism will be with a focus for local business opportunities for women, where possible.		
6. Core labour rights 14. The activity involves support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	P= 1 I = 4	Low (4)	The implementation of resilient housing design involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries.	Knowledge of rresilient housing design will be trained to local craftsmen to strengthen the local capacity and economy, which was a joint request of the vulnerable groups. UN-Habitat ensures payments according to the ILO standards through legal agreements with sub/contractors.		
9. Protection of natural habitats 22. The activity is within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities.	P= 1 I = 4	Low (4)	Activities for eco-tourism will be within the protected natural area and could affect the eco-system, if not monitored.	As by Article 23 of Cambodia 'Protected Area Law' utilization of natural resources in accordance with articles of this law may only be allowed in the Sustainable use zone of the areas designated as community protected area. Utilization of natural resources shall be in accordance with the Management Plan and technical guidelines, developed by the MoE, to ensure	MoE controls utilization of natural resources.	Regularly MoE focal point.

And 23. The activity potentially causes adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services.			sustainability of natural resources within the community protected areas.	

V. SEA-LEVEL RISE, SALINIZATION AND BEACH EROSION

11. Protective infrastructure in the coastal area to build resilience to SLR and salinization


SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	**Protective infrastructure for Sea-level Rise and salinization such as roads, dams etc.**
2. Project number (if relevant)	11
3. Project location (village, districts, geographical coordination)	In Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng Taprom. In Kep Province: Angkaol and Pong Tuek
4. Person who filled the form	Cerin Kizhakkethottam and Liam Fee
5. Date of screening	11th to 16th December 2017
6. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	

TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	Construct and rehabilitate the protective infrastructure, such as roads and dams in the target communes to protect against sea-level rise and salinization ☐ Survey the site and assess the quality of the partial existing protective infrastructure, such as roads and dams as well as the area for new construction. ☐ Develop a vulnerability and hazard map of land and water resources (including ground water resources) affected by SLR and salinization under Component 1. ☐ Community consultation regarding siting, safeguards, management and end-use under Component 1. ☐ Construct and rehabilitate the road and dam and other necessary protective infrastructures under Component 3.
8. Materials to be used	☐ Concrete and metal ☐ Portland cement, coarse aggregate, and sand
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed.
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location of the intervention is thought, at present, to be entirely on public land, as per Cambodia's Land Law – all bodies of water (the sea, rivers, lakes) are classified as 'state public land'.
11. Start date of activity / works	Year 2
12. End date of activity / works	Year 4
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	☐ Prevent SLR and salinization affecting surround low-lying areas such as coastal settlements, seaports, coastal fisheries, mangrove forests, and tourism facilities. ☐ Linked with protective infrastructure to floods (project no. 6 and 7) this will

	also prevent the community from flooding, storms, etc. ☐ Prevent sea-water intrusion of ground water and fresh-water reservoirs. ☐ Co-benefit: Avoid flooding of the national highway to improve infrastructure and mobility.
14. Interventions required for appropriate use of the asset(s)	☐ To ensure ownership with the activity, the intervention will be based on UN-Habitat's People's Process methodology building upon a cost-effective participatory process. This means that local authorities and beneficiaries, where possible, will participate in decision-making as well as construction. ☐ Consultations (once detailed engineering design has been drafted under Component 1) with local people to re-screen environmental and social principles and for compliance with the environmental and social management plan ☐ Capacity building for government at the Provincial level (under Output 2.1).
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building to manage, operate and maintain the road and dam (under Outputs 2.2 and 2.3 of the project)
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Sea-level rise ☐ Loss of land and agricultural land due to seal-level rise washing out crops and nutrition of fertile land. This affects most the poorest of the poor dependent on rice farming as their primary source of regular income. ☐ Limited protective infrastructure and flooded national highway limits mobility between communes, especially for elderly and disabled people. ☐ Loss of public land used and attractiveness to tourism, which is one of the major source of income, declines the economic capacity to resilience to SLR and salinization (measurable through coastal GDP rate). Salinization ☐ Salinization of rice fields transforms soil into irreversible unfertile soil. Hectares of rice fields contaminated are fallow. ☐ Loss of unique habitats and eco-systems due to seal-level rise.

	☐ Decline of tourism as major source of income for certain communes.
17. Have relevant local authorities been consulted	☐ Department of Water Resources and Meteorology of Preach Sihanouk Province and Kep Province two times in May and December 2017. ☐ Commune chiefs of target area twice in 2017 in June and December. ☐ Preach Sihanouk Province and Kep Province agreed on the proposed target communes and interventions and confirmed that all target areas are on public land.
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	Sea-level rise and salinity is particularly acute in the target communes. This communes share the same environmental, topographical and socio-economic features: - Coastal - Riparian - Flat topography with few natural defences (aside from the Kampong Smach mangrove area) - Agrarian economy - High poverty rate - Many people living in poor quality housing in flood-prone areas - Hectares of fertile land became fallow after salinization. - Deforestation of the protective mangrove forest - Poor maintenance of existing water gates.
19. Description of the social context and the main social issues on the site / in the area	The target communes, affected by sea-level rise and salinization are mainly dependent on fishery and rice farming. Loss of crops and decline of harvest exacerbates the financial situation of the poor having no savings to overcome loss of income.
20. Is an ESIA required by law?	No ESIA requirements enforced by law yet

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	

2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N

17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	N
20. Is there a risk that the activity would lead to forced evictions?	N
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Y
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N
24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	Y
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	

34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES

AF principle number and description of risks	Probability (P) and Impact (I) Score 1 - 5	Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25	Comment (also to identify significance of risk, i.e. evidence)	Mitigation measures proposed	Monitoring indicators	Frequency and responsibility for monitoring
2: Access and equity 2. There is a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them. **And**	P= 2 I = 3	Low (6)	Risk that the activity will exclude an unacknowledged stakeholders. Risk that marginalized and vulnerable group, especially women, are not included in decision making processes.	Participatory process (People's Process) and design will promote the intervention and will reach out broadly. Quotas for female participation in decision making at all levels.	Meeting attendance sheets and make pictures	Every meeting Project leader

3: Vulnerable and marginalized groups 6. Existence of marginalized or vulnerable groups present among project beneficiaries.						
4: Human rights 10. The activity possibly affects land tenure arrangements and/or community based property rights to land, territories and/or resources.	P= 1 I = 4	Low (4)	It is understood that the intervention is entirely on state public land. However, the status of land-ownership will be re-screened and confirmed under component 1.	The intervention is understood to be implemented where tenure arrangements are already clear. The assessment in Component 1 will re-confirm the ownership-status of each proposed intervention site.	Vulnerability assessment	During assessment, before implementation and implementation Project leader
6: Core labour rights 14. The activity involves support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and stand-	P=2 I=3	Low (6)	The implementation the interventions involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low or insufficient salaries.	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.	Contract and payroll	While formulating contracts and disbursement of payments Project Team

ards of ILO fundamental conventions).						
9. Protection of natural habitats 22. The activity is within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities. And 10. Conserving biodiversity 25. The activity could lead to the reduction or loss of biological diversity.	P= 1 I = 3	Low (3)	The intervention will be partly within the protected natural area, and could affect the eco-system, if not monitored.	'Utilization of natural resources', defined in the Cambodian 'Protected Area Law' shall be in accordance with the Management Plan and technical guidelines, developed by the MoE, to ensure sustainability of natural resources within the community protected areas.	MoE controls utilization of natural resources. Project Leader will re-confirm	Regularly MoE focal point.

12: Pollution and resource efficiency 31. The activity potentially results in the generation of waste (both hazardous and non-hazardous).	P= 2 I = 3	Low (6)	Construction/rehabilitation will inevitably generate waste associated with infrastructure construction.	Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities.	Agreement with contractor	Site manager
13: Public health 36. Elements of activity construction, operation, or decommissioning pose potential safety risks to local communities.	P=1 I=3	Low (6)	There is limited knowledge of safe work conditions	Contractors will be contractually obliged to provide safe work equipment and conduct safety training at the site.	Identify work equipment	While hiring people

12. Beach erosion

Introduction

The requested intervention based on consultation of the commune council (see Annex 1 B.) to protect the coastal line of the target communes from beach erosion is for now screened as being not compliant with the Social and Environmental of the Adaptation Fund. The screening hereunder will outline a high risk of involuntarily resettlement to approx. 45 informal settlement areas along the coastal and affected sites. The people of these settlements belong to the poorest of the poor and are highly dependent on fishery as main source of income. The suggested hard interventions to protect the beach from erosion through filling up the beach with sand and restore the natural habit, will affect this settlements. We recommend capacity building on waste management to the community and sustainable maintenance of the beach through responsible authority under component 2, but are not considering hard interventions under component 3 for now. However, the situation will be re-confirmed and assessed in detail for other possible approaches during the assessment and action planning under component 1.

SUB-PROJECT RISK ASSESSMENT SHEET

TABLE 1: GENERAL INFORMATION

21. Activity / Sub-Project title	**Protection from Beach Erosion in the Coastal Area**
22. Project number (if relevant)	Not yet assigned
23. Project location (village, districts, geographical coordination)	In Prey Nob District: Prey Nob, Ou Oknha Heng and Boeng Taprom. In Kep Province: Angkaol and Pong Tuek
24. Person who filled the form	Cerin Kizhakkethottam, Liam Fee
25. Date of screening	11th to 16.December 2017
26. Signature	
TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
27. Activity description and or asset to be developed	Protect the beach areas and land immediately surrounding the coast from erosion by building embankments, extending beach areas and buffer zones, and build/rehabilitate roads to prevent further encroachment of sea water. ☐ Survey the site, including assessing the quality of current infrastructure, topography/bathymetry survey to identify areas that are highly prone to erosion/where urgent protection is needed ☐ Community consultation regarding siting, safeguards, management and end-use under Component 1 ☐ Construct and rehabilitate the necessary infrastructure
28. Materials to be used	☐ Concrete, earth (imported from other areas) ☐ Portland cement, coarse aggregate, and sand
29. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed
30. Who owns the land the activity is planned on and / or who uses the land and why?	While the entire intervention is thought to be on public land – all beaches in Cambodia are classified as state public land – there are 45 informal settlements currently living on the area to be surveyed.

31. Start date of activity / works	Year 2 (proposed)
32. End date of activity / works	Year 4 (proposed)
USE OF ASSETS (BENEFITS AND ACCESS)	
33. How will the asset be used	☐ The intervention(s) will be used to prevent erosion, SLR and coastal flooding ☐ They will also prevent the on-shore impact of SLR and coastal flooding, such as salinization of land and groundwater ☐ Co-benefit: Avoid flooding of the national highway and improve infrastructure. ☐ Second co-benefit – improve (or maintain) productivity
34. Interventions required for appropriate use of the asset(s)	☐ To ensure ownership with the activity, the intervention will be based on UN-Habitat's People's process methodology building upon a cost-effective participatory process. This means, that local authorities and beneficiaries, where possible, will participate in decision-making as well as construction. ☐ Consultation (once detailed engineering design has been drafted under component 1) with local people to re-screen environmental and social principles and for compliance with the environmental and social management plan ☐ Capacity building for government at the Provincial level (per Output 2.1).
35. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building to maintain beaches in a way that prevents erosion (as per Outputs 2.2 and 2.3 of the project)
☐ **CONSULTATIONS**	
36. Was the community (and specific groups) consulted	☐ Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: SLR ☐ Loss of land and agricultural land due to SLR washing out crops and nutrition on fertile land. This affects most the poorest of the poor depended on rice farming as source of regular income. ☐ Limited protective infrastructure and flooded national highway limits mobilization between the communes, especially elderly and disabled people.

	☐ Loss of public land used and attractive to tourism as one of the major source to the coastal GDP. Salinization ☐ Salinization of rice fields transforms soil into unfertile soil. Hectares of rice fields contaminated are fallow. Erosion ☐ Heavy beach erosion and loss of unique habitats and eco-systems due to SLR. ☐ Decline of tourism as major source of income for certain communes.
37. Have relevant local authorities been consulted	☐ Department of Water Resources and Meteorology of Preach Sihanouk Province and Kep Province two times in May and December 2017. ☐ Commune chiefs of target area twice in June and December 2017. ☐ Preach Sihanouk Province and Kep Province agreed on the proposed target communes and interventions and confirmed that all target areas are on public land.
ENVIRONMENTAL AND SOCIAL CONTEXT	
38. Description of the environmental context and the main environmental issues on the site / in the area	Several communes of Prey Nob District have already been affected by SLR, erosion and salinization. Besides that, a larger land area has the potential to be affected in the future because of simultaneous occurrence of changes of the mangrove systems and sea level rise in target provinces. SLR and salinity is particularly acute in Prey Nob, Ou Oknha Heng, and Boeng Taprom in Preach Sihanouk province, and Angkaol and Pong Tuek communes in Kep province. The five communes share the same environmental, topographical and socio-economic features: - Coastal - Riparian - Flat topography with few natural defences (aside from the Kampong Smach mangrove area) - Agrarian economy - High poverty rate - Many people living in poor quality housing in flood-prone areas

	In many coastal areas, including in each of the aforementioned five communes, there are beach and mudflat areas that are prone to, and have already experienced, heavy erosion.
39. Description of the social context and the main social issues on the site / in the area	The target communes score 4 in overall vulnerability index. These five target communes consist of an even number of women (around 50%) and men. There are no indigenous people in the area. There is a high percentage of people under the age of 17 in each commune; (36.6, 41.0, 27.4, 38.3, and 41.6 per cent in Prey Nob, Ou Oknha Heng, Boeng Taprom, Angkaol, and Pong Tuok). So youth considerations are prominent.
40. Is an ESIA required by law?	No ESIA requirements are enforced by law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	N
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	Y
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	
9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social	Y

or cultural) of the affected population?	
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	Y
20. Is there a risk that the activity would lead to forced evictions?	Y
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Y
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	Y

24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	Y
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	Y
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	N
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	Y
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	N

TABLE 4: PROPOSED RISK MITIGATION MEASURES						
AF principle number and description of risks	**Probability (P) and Impact (I) Score 1 - 5**	**Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25**	**Comment (also to identify significance of risk, i.e. evidence)**	**Mitigation measures proposed**	**Monitoring indicators**	**Frequency and responsibility for monitoring**
2: Access and equity: 2. Rrisk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them. **And.** 5. Risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups **And** **3: Vulnerable and marginalized groups:** 6. There are any marginalized or vulnerable groups present among project beneficiaries.	P=3 I=4	Medium (12)	Filling up the beach with sand and rehabilitate the natural asset will protect the nature but will exclude the inhabitants living along the beach from access to, and in particular living on the beach. The existing inequity these people already face due to poverty, lack of access to basic services and dependency on fishery and therefore to the beach, would exacerbate.	Soft measures: Community beach clean-ups and capacity building on responsible utilization of the affected area.	Monitoring of alternative: Through training report, survey and photos of the beach	Of the alternative: After training and photos every half a year. Project Management Team (training) Commune council (photos)

4: Human rights 9. The activity leads to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population **And** 10. Effect on land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources? ***And*** 8: Involuntary resettlement 19. The activity potentially involve temporary or permanent and full or partial physical displacement **And** 20. The activity would lead to forced evictions	P= 3 I = 5	High (15)	While the activity(ies) would be entirely on land that is classified as 'state-public', there are approximately approx. 45 informal settlement on the land, who would be at risk of involuntary resettlement in the activity were implemented	Ensure fully participatory planning and design processes, that re-confirms the status of the land used, and, if people are living informally on state public land, follows the Circular 3 process to find alternate arrangements. Involuntary resettlement is of high political sensitivity. Mitigation recommended through soft intervention. See above	Meeting attendance sheets and make pictures	Every meeting Project leader
6: Core labour rights 14. The activity involves support for employment or livelihoods that may fail to comply with national and	P=2 I=3	Low (6)	The implementation the interventions involves employment of local craftsmen. As the minimum wage in Cambodia is below ILO standards, there can be a risk of low	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.	Contract and payroll	While formulating contracts and disbursement of payments Project Team

international labour standards (i.e. principles and standards of ILO fundamental conventions).			or insufficient salaries.		
9. Protection of natural habitats The activity could cause damage to environmentally sensitive lands 22. The activity is within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities. **And** 23. The activity potentially causes adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services. **And** 24. The activity involves changes to the use of lands and resources that	P= 2 I = 4	Medium (8)	The infrastructure necessary would be close to several critical ecosystems – the ocean and the beach, and would close to agricultural land and human settlements		

may have adverse impacts on habitats, ecosystems, and/or livelihoods						
10: Conserving biodiversity As above	P= 1 I = 4	Low (4)				
12: Pollution and resource efficiency: The activity generates waste and pollutants	P= 2 I = 3	Low (6)	Construction/rehabilitation will inevitably generate waste associated with infrastructure construction.	Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities	Agreement with contractor	Site manager
13: Public health : Elements of the construction cause damage to people's health	P= 2 I = 3	Low (6)	There is limited knowledge of safe work conditions	As above, with health conditions	Identify work equipment	While hiring people

The assessment concludes that implementing this activity would represent a risk to people living informally in the target area. While the activity would be entirely implemented on land classified as 'state public', there are up to 45 informal settlements living in the area. The project could not guarantee that there would be no involuntary resettlement during the course of implementation, due to the proximity of settlements to the beach and coastal areas that would be targeted. It is the conclusion of the screening that this activity should not be considered further at this stage. However, it will be kept under consideration during the vulnerability assessment and climate change adaptation action planning under Component 1. If the situation changes, and in particular, if an effective and low-risk management strategy can be found at this stage to protect the informal settlers, and to ensure they benefit from the activity, it will be reconsidered.

VI. WASTEWATER FLOODING, BANK AND SOIL POLLUTION

13. Enhanced wastewater management and drainage systems

SUB-PROJECT RISK ASSESSMENT SHEET

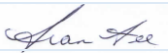
TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	Enhanced wastewater management and drainage system (to reduce wastewater flood risks to vulnerable people and assets and to reduce soil and bank pollution due to contaminated and poorly drained surface water)
2. Project number (if relevant)	13
3. Project location (village, districts, geographical coordination)	In Sihanoukville: Sangkat Muoy (informal settlement)
4. Person who filled the form	Cerin Kizhakkethottam and Liam Fee
5. Date of screening	11th to 16th December 2017
6. Signature	

TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED AND LOCATION DETAILS, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	☐ Assess location for most effective wastewater management and drainage system. ☐ Design and mapping wastewater management and drainage system based on developed flood hazard map. ☐ Build capacity to design wastewater management and drainage to upscale and enhance potential for replication. ☐ Construct wastewater management and drainage infrastructure based on developed flood hazard map.
8. Materials to be used	☐ Concrete ☐ Metal ☐ Sand and soil of the construction site ☐ Plastic
9. Other technical specifications	The full technical specifications have not yet been developed and will be under Component 2 of the project. This screening will be re-done once the specifications have been developed.
10. Who owns the land the activity is planned on and / or who uses the land and why?	The location of wastewater management and drainage system is thought, at present, to be entirely on public land. This will be re-confirmed during the action planning stage under Component 1, as the ownership status, especially within the informal settlements of Sangkat Muoy may change between now and then. The activity is planned only on land where the ownership status is cleared.
11. Start date of activity / works	Year 1
12. End date of activity / works	Year 4
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	The wastewater management and drainage system will prevent from waterlogged informal settlements and spread of waterborne diseases due to heavy rain. It aims to prevent contamination of soil and river banks and avoids wastewater flowing unfiltered into the sea.
14. Interventions required for appropriate use of the asset(s)	☐ Vulnerability assessment and wastewater flood hazard map. ☐ Capacity building on mapping and designing of wastewater management

	and drainage system ☐ Capacity building on community awareness of health risks and hazards of wastewater
15. Interventions required for sustainable management and maintenance of the asset(s)	☐ Capacity building of provincial and commune authority on management and maintenance of the wastewater management and drainage system.
☐ **CONSULTATIONS**	
16. Was the community (and specific groups) consulted	Twice during consultation in May and December 2017 Consultation included focus group (women, elderly, poorest of the poor) discussions to understand specific issues and needs regarding proposed interventions and to validate risks and impacts and mitigation measures. Main climate change impacts were confirmed. Outcomes include: Wastewater and surface flooding ☐ Waterlogged informal settlements ☐ Spread of waterborne diseases affecting the most vulnerable poor and children ☐ Soil and river bank pollution through untreated waste and surface water ☐ Mixed untreated waste and surface water streaming into the sea and contaminating sea water and ecosystem of the coastal zone in Sangkat Muoy. Need: ☐ Build mobile wastewater treatment plant, where possible ☐ Channel drainage to re-direct the surface water flow ☐ Find adequate solution to channel wastewater and to avoid contamination of freshwater through untreated wastewater.
17. Have relevant local authorities been consulted	☐ Department of Land Management, Urban Planning and Construction at the provincial level and Department of Water Resources and Meteorology of Preach Sihanouk Province in May and December 2017. ☐ Commune chief of target area in June and December 2017. ☐ The province agreed on the proposed target Sangkat and interventions and confirmed that all target area is on public land. This will be re-confirmed under component 1 as ownership status within informal settlement are difficult to define.
ENVIRONMENTAL AND SOCIAL CONTEXT	

18. Description of the environmental context and the main environmental issues on the site / in the area	Sankat Muoy is a coastal (mainly) informal settlement where 55, 6 % of the total population have no access to safe water.20 % of the streets are paved but with no integrated drainage system. Toilets of 70 % of the target households are channelling wastewater through straight pipes directly into the sea. 30 % of the toilets are draining into septic tanks. The lack of urban basic services exacerbates the climate change impacts of extreme weather events like seasonal heavy rains and droughts. Through dense urbanization within the target area heavy rains create flash floods/surface floods that lead to waterlogged informal settlements, spread of waterborne diseases affecting the most vulnerable poor and children. Mixed untreated waste and surface water streams into the sea and contaminates on its way soil, river banks, sea water and the ecosystem of the coastal zone.
19. Description of the social context and the main social issues on the site / in the area	
20. Is an ESIA required by law?	No ESIA requirements are enforced by National law yet.

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Adaptation Fund principle 1: Compliance with the Law	
1. Is there a risk that the activity does not comply with an applicable domestic or international law?	N
Adaptation Fund principle 2: Access and equity	
2. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	Y
3. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	N
4. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	Y
5. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	N
Adaptation Fund principle 3: Vulnerable and marginalized groups	
6. Are there any marginalized or vulnerable groups present among project beneficiaries?	Y
7. Is there a likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups?	N
8. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalized individuals or groups?	N
Adaptation Fund principle 4: Human rights	

9. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	N
10. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	Y
Adaptation Fund principle 5: Gender equality and women's empowerment	
11. Is there a likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	N
12. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	N
13. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	N
Adaptation Fund principle 6: Core labour rights	
14. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	Y
Adaptation Fund principle 7: Indigenous people	
15. Are indigenous peoples present in the project area?	N
16. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	N
17. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	N
18. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	N
Adaptation Fund principle 8: Involuntary resettlement	
19. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	Y
20. Is there a risk that the activity would lead to forced evictions?	Y
21. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	N
Adaptation Fund principle 9: Protection of natural habitats	
22. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	N
23. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	N

24. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	N
Adaptation Fund principle 10: Conserving biodiversity	
25. Could the activity lead to the reduction or loss of biological diversity?	N
26. Would the activity pose a risk of introducing invasive and/or non-native species?	N
27. Is monoculture foreseen?	N
28. Would the activity pose risks to endangered species?	N
Adaptation Fund principle 11: Climate change	
29. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	Y
Adaptation Fund principle 12: Pollution and resource efficiency	
30. Does the activity require significant consumption of raw materials, energy, and/or water?	N
31. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	Y
32. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N
33. Will the activity involve the application of pesticides?	N
Adaptation Fund principle 13: Public health	
34. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases?	N
35. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	N
36. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	Y
Adaptation Fund principle 14: Physical and cultural heritage	
37. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	N
Adaptation Fund principle 15: Land and soil erosion	
38. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	N
39. Will the activity cause the clearing of natural vegetation and/or forest?	N
40. Is there a risk that the activity leads to soil degradation?	N
41. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	Y

TABLE 4: PROPOSED RISK MITIGATION MEASURES						
AF principle number and description of risks	**Probability (P) and Impact (I) Score 1 - 5**	**Significance (= impact x probability) Low: 1-7 Med: 8-14 High: 15-25**	**Comment (also to identify significance of risk, i.e. evidence)**	**Mitigation measures proposed**	**Monitoring indicators**	**Frequency and responsibility for monitoring**
2. Access and Equity: 2. Risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them. **And** 3. marginalized or vulnerable groups: 6. Existence of marginalized or vulnerable groups present among project beneficiaries. **And** 5. Gender equality and women empowerment: 11. Likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and	P= 1 I = 3	Low (3)	Risk that the activity will exclude an unacknowledged stakeholders. Risk that marginalized and vulnerable group, especially women, are not included in decision making processes. Risk of adverse impact on gender equality and/or the situation of women	Participatory process (People's Process) throughout all phases of this project Capacity building to raise awareness on health risk of unsafe water and wastewater to the community will recognize quotas for female and marginalized peoples'participation in decision making at all levels.	Training report	Throughout the project Project leader

girls?					
6. Core labour rights 14. Activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions).	P=2 I=3	Low (6)	The implementation of wastewater management and drainage systems involves employment of local craftsmen. As the wage for craftsmen is below ILO standards in Cambodia, there can be a risk of low or insufficient salaries.	UN-Habitat ensures payments according to the ILO standards through legal agreements with sub-contractors.	Contract and payroll	While formulating contracts and disbursement of payments Project Team
11: Climate change 29. The activity results in significant greenhouse gas emissions or may exacerbate climate change / maladaptation (e.g. negative effects in other areas).	P=3 I=4	Medium (12)l	According to the IPCC Guidelines for National Greenhouse Gas Inventories[66] wastewater collection and disposal at wastewater treatment plants contribute to the emission of GHG in the atmosphere.	Action Planning under component 1 will identify the lowest emitting wastewater treatment plant alternative. Mobile and small-scale wastewater tanks with a treatment system are mainly designed as a circulation system without risking GHG emissions.	Identify Wastewater treatment method	During design and implementation Project leader
12. Pollution and resource efficiency 31. Activity potentially results in the generation of waste (both hazardous and non-hazardous).	P= 2 I = 3	Low (6)	The materials used for the intervention are mainly out of concrete, metal and plastic. Construction/ rehabilitation will inevitably generate non-hazardous waste associated with house` construction	Contractors will be contractually obliged to remove waste from the site and dispose of it in the proper facilities The local sub-contractor will be instructed to provide safety features	Oversight of sites and photos	While implementing Site manager

[66] Intergovernmental Panel on Climate Change: IPCC Guidelines for National Greenhouse Gas Inventories, prepared by . National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Anabe . (eds).

	P= 1 I = 3	Low (3)	There is limited knowledge of safe work conditions	and equipment.	Identify work equipment	While hiring people Site manager
15: Land and soil erosion There a risk that the activity leads to soil degradation	P=2 I=4	Low (8)	Overflow of inefficient wastewater management or drainage system can pollute soil and river bank	Appropriate design during action planning is based on vulnerability assessment and hazard maps. Hence capacity of wastewater management and drainage system will be adapted to the need.	Identify appropriate systems	During action planning, design and implementation. Project Team

Annex 6. Monitoring and Evaluation Framework

Results framework

Expected Result	Indicators	Baseline data	Targets	Risks & assumptions	Data collection method	Frequency	Responsibility
Project objective: enhanced climate and disaster resilience of the most vulnerable rural and emerging urban human settlements in Southern Lao PDR by increasing sustainable access to basic infrastructure systems and services, emphasizing resilience to storms, floods, droughts, landslides and disease outbreaks							
Project component 1: Institutional level strengthening to reduce vulnerability in human settlements							
Outcome 1 Institutional capacity increased at the provincial and commune level to reduce vulnerability of target communities through vulnerability and disaster risk reduction assessments, action planning and training that will enable adaptation actions in infrastructure, natural assets and livelihoods (including eco-tourism) (Aligned with AF outcome 2)	No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks (Aligned with AF indicator 2.1.)	0 provinces and communes developed vulnerability and disaster risk reduction assessments[67], action planning and training that will enable adaptation action for the target community.	2 provinces and 15 communes have generated assessments and plans to address climate change and risk reduction vulnerability (AF indicator 2.1)	R – General planning capacity limitations prevent the integration of climate change concerns A – Core team ensures awareness on assessing systems, including infrastructure and natural assets, and planning for adaptation	Review of all provincial and commune level plans and actions	Baseline, and end	UN-Habitat and Executing entities
Strengthened capacity at provincial and commune level to conduct vulnerability assessment and climate change action plans	No. and type of trainings conducted to strengthen capacity on vulnerability as-	0 No training conducted to strengthen capacity on vulnerability assessments and	2 trainings on provincial and 15 trainings on commune level conducted	R – Trained officials retire or leave the provincial/commune level government.	Training reports	Baseline, mid-term and end	UN-Habitat and

[67] Vulnerability assessments have been produced for Sihanoukville municipality (UN-Habitat, 2011) and Prey Nob District (UNEP, 2015), but none target the provinces as a whole or the commune level

in line with the 15 Principles of the Adaptation Fund and the ESMP.	sessments and climate change action planning on commune and provincial level (Aligned with AF Indicator 2.1.1)	climate change action planning on commune and provincial level		A – core of officials from sub-national government can be retained, trained throughout the project and will continue to implement beyond the life of the project			Executing entities
Output 1.2. Integrated climate change vulnerability and disaster risk reduction assessments (incl. maps) to inform evidence basis action panning in provincial and commune level in target areas including marginalized groups (e.g. women) disaggregated, where possible.	Number of climate change vulnerability and disaster risk reduction assessments produced (AF indicator 2.1)	1 VA (from 2011) in Sihanoukville City, and 1 in Prey Nob district. No VA for Kep	2 Provinces (including 15 communes have developed vulnerability assessments	R – Limited human resource capacity and high workloads delay vulnerability assessment A – Output 1.1. as a training module to enhance expertise	Collect and review documentation from province and commune authorities	Baseline, mid-term and end	UN-Habitat and Executing entities
Output 1.3. Provincial and commune level climate change adaptation plans developed officially approved to ensure most appropriate, cost-effective and environmental and social concrete adaptation actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	No of provincial and commune level climate change adaptation plans completed identifying the most cost-effective and environmental and social actions, actions in line with the 15 Principles of the Adaptation Fund and the ESMP. This includes, as appropriate, actions on	0 action plans developed or approved at provincial and commune level	2 provincial 15 commune level climate change adaptation action plans	R – Limited capacity on commune level to undertake complex planning A – Support by Implementing Entity can be provided to plan	Review of completed plans	Baseline, mid-term and end	UN-Habitat and Executing entities

	water infrastructure and natural assets, use and management of protective infrastructure, livelihoods, needs to enhance eco-tourism and gender and inclusivity considerations These action plans will include a prioritized short list of actions. (AF Indicator 3.1.1)						
1.1.1 Conduct province/commune wide trainings on vulnerability and risk reduction assessment and climate change adaptation planning actions in line with the 15 Principles of the Adaptation Fund and the ESMP				▪ Trainings on vulnerability assessment and climate change action plans conducted (month 4)			

Outcome 1, Table 1: Review of activities and milestones

Activity	AoC - Partner	Implementation Modality	Budget items	Budget (detailed budget lines per budget item)	Timelines and Milestones															
					Year 1				Year 2				Year 3				Year 4			
1.1.1. Conduct province/commune wide trainings on vulnerability and risk reduction assessment and climate change adaptation planning actions in line with the 15 Principles of the Adaptation Fund and the ESMP	MoE/NCSD	Training material to be developed. However, Planning for Climate Change and existing VRA tool will be used	International consultant – climate change National consultant, climate change and national consultant, capacity building	150,000		X														

1.2.1. Conduct vulnerability assessments on provincial and commune level that identify the most vulnerable people and places, and provide an evidence basis for action planning, while also considering the adaptation potential of eco-tourism	MoE/NCSD	Planning for climate change and the VRA Tool	- International Consultants (Climate Change, Planning) - National Consultants (Climate Change, GIS, community consultations, socio-economic/finance) - Consultations	200,000			X													
1.3.1. Develop province/commune wide climate change adaptation plans, including cost-benefit analysis, -rescreening against the environmental and social management plan and which prioritise the most cost-effective adaptation investments.	MoE/NCSD	Planning for Climate Change	- International Consultant (Climate Change, Tool Development) - National Consultants (tool development, design) - Printing	150,000				X												

Outcome 1, Table 2: Review of indicators

Indicator	Baseline data	Targets	Qualification of targets	Means of Verification	Frequency Responsibility	Observation
Outcome Indicator 1: No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks (Aligned with AF indicator 2.1.)	0	2 provinces and 15 communes have generated assessments and plans to address climate change and risk reduction vulnerability (AF indicator 2.1)	To be developed	Collect information from MoE and NCDD	Annual – project team	

Output Indicator 1.1 - No. and type of trainings conducted to strengthen capacity on vulnerability assessments and climate change action planning on commune and provincial level (Aligned with AF Indicator 2.1.1)	0	2 trainings on provincial and 15 trainings on commune level conducted	To be developed	Collect information from MoE and NCDD	Annual – Project team	
Output Indicator 1.2 - Number of climate change vulnerability and disaster risk reduction assessments produced (AF indicator 2.1)	1 VA from 2011 in SHV City, and 1 in Prey Nop	2 Provinces (including 15 communes) have developed vulnerability assessments	To be developed	Collect information from MoE/NCDD	Annual – Project team	
Output indicator 1.3 - No of provincial and commune level climate change adaptation plans completed identifying the most cost-effective and environmental and social actions, actions in line with the 15 Principles of the Adaptation Fund and the ESMP.	0 action plans developed or approved at provincial and commune level	2 provincial 15 commune level climate change adaptation action plans	To be developed	Collect information from MoE, NCDD and provincial governments	Annual – Project team	

Outcome 1 Table 3: Monitoring of risks, environmental, social and human rights issues and verification of application of ESSS / ESMP

Observations on Risks, Markers, ESS	Baseline	Observations
Risks – review identified risks, have mitigating measures been put in place?		
Environmental, Social, Human Rights issues		

(disaggregation of data, participation, focus on people with vulnerabilities etc.)		
ESMP – was it applied in support of achieving this outcome		

Project Component 2: Capacity built to design, monitor and manage infrastructure and natural assets, while also increasing capacity to plan for replication in other areas							
Expected Result	**Indicators**	**Baseline data**	**Targets**	**Risks & assumptions**	**Data collection method**	**Frequency**	**Responsibility**
Outcome 2 Community, commune and provincial level capacity built to design, monitor, manage and maintain climate resilient community assets with maximum economic co-benefits including leveraging eco-tourism potential, environmental and social co-benefits with particular emphasis on women, youth, older people and other people in vulnerable situations	Number of community, commune and provincial level training on capacity to plan, construct and maintain resilient water and protective infrastructure and natural assets enhanced (in line with eco-tourism enhancement potential) (AF indicator 3.)	0 trainings have been conducted at any level on designing, monitoring and maintaining climate resilient infrastructure 0 conducted capacity training on community, commune and provincial level on plan, construct and maintain protective infrastructure and natural assets (in line with eco-tourism enhancement potential)	45x community/commune-level trainings and two provincial level trainings 20% of total beneficiaries will be trained 200 government officials trained	R – No consistency in quality of trainings. A – Focal point on community, commune and provincial level can assure quality of training	Post-training survey	Baseline, mid-term and end	Executing entities
Output 2.1. Community, commune and provincial level capacity built to design/ plan/ rehabilitate infrastructure and to build protective natural assets. (Aligned with AF output 2.2.)	No of beneficiaries covered by adequate climate change adaptation and risk-reduction systems identified in the action plans developed under 1.3.	0 people of community level covered by adequate risk-reduction systems	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	R – Limited basic knowledge of communities means technical training ineffective A – Focal point on community level can assure quality of trainings, mentoring, and that training	Post-training survey	Baseline, mid-term and end	Executing entities and UN-Habitat

				has the appropriate technical content			
Output 2.2 Community, commune and provincial level capacity built to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	No. of staff on commune level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	00 staff on commune level have been trained to monitor and manage community infrastructure	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	R – Provincial staff workloads diminish their ability to attend training A – Focal point on commune level can assure quality of trainings and mentoring	Post-training survey	Baseline, mid-term and end	UN-Habitat and Executing entities
Output 2.3. Community, commune and provincial level capacity built to maintain community infrastructure and to build protective natural assets designed under 2.1.	No. of staff on provincial level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	0 staff on provincial level have been trained	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	R – No consistency in quality of trainings. A – Focal point on provincial level can assure quality of trainings and mentoring	Post-training survey	Baseline, mid-term and end	UN-Habitat and Executing entities
Activities 2.1.1. Training to design/ plan/ rehabilitate infrastructure and to build protective natural assets assessed under 1.2 and 2.2.1. Training to monitor and manage community infrastructure and to build protective natural assets designed under 2.1. 2.3.1 Training to maintain community infrastructure and to build protective natural assets designed under 2.1. 2.3.2 Produce a guideline/manual covering all the training elements in Component 2				Milestones ▪ Training to design, plan and rehabilitation plans of infrastructure and protective natural assets (month 12) ▪ Design, plan and rehabilitation strategy for physical infrastructure and protective natural asset (month 15) ▪ Training to monitor and manage community infrastructure and to build protective			

	natural assets (month 21) ▪ Training to maintain community infrastructure and to build protective natural assets (month 21) ▪ Guideline produced covering all the training components (month 24) ▪ Assessments conducted / awareness (month 24 (50%), 36 (100%)) ▪ Households and communities trained (month 24-40%, 36-80%, 48-100%)

Outcome 2 Table 1: Review of activities and milestones

Activity	AoC - Partner	Implementation Modality	Budget items	Budget (detailed budget lines per budget item)	Timelines and Milestones														
					Year 1				Year 2				Year 3				Year 4			
2.1.1. Training to design/ plan/ rehabilitate infrastructure and to build protective natural assets assessed under 1.2 and	MoE/NCSD	Training materials to be developed	International consultant, national consultant, training events and manuals	150,000				X											
2.2.1. Training to monitor and manage community infrastructure and to build protective natural assets designed under 2.1.	MoE/NCSD		International consultant, national consultant, training events and manuals	150,000							X								
2.3.1. Training to maintain community infrastructure and to build protective natural assets designed under 2.1.	MoE/NCSD	Training materials and guideline to be developed	International consultant, national consultant, training events and manuals	200,000							X								
2.3.2. Produce a guideline/manual covering all the training elements in Component 2.	MoE/NCSD		International consultant (writing)/ national consultant (writing), translation									X							

Outcome 2, Table 2, Review of Indicators

Indicator	Baseline data	Targets	Qualification of targets	Means of Verification	Frequency Responsibility	Observation
Number of community, commune and provincial level training on capacity to plan, construct and maintain resilient water and protective infrastructure and natural assets enhanced (in line with eco-tourism enhancement potential) (AF indicator 3.)	0 trainings have been conducted at any level on designing, monitoring and maintaining climate resilient infrastructure 0 conducted capacity training on community, commune and provincial level on plan, construct and maintain protective infrastructure and natural assets (in line with eco-tourism enhancement potential)	45x community/commune-level trainings and two provincial level trainings 20% of total beneficiaries will be trained 200 government officials trained	To be developed	Collect information from MoE and NCDD	Annual – project team	
Output 2.1 - No of beneficiaries covered by adequate climate change adaptation and risk-reduction systems identified in the action plans developed under 1.3.	0 people of community level covered by adequate risk-reduction systems	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change ad-	To be developed	Training reports, and information. Collect information from MoE and NCDD	Annual – Project team	

		aptation and risk reduction systems identified in the action plans developed under 1.3.				
Output 2.2. No. of staff on commune level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	0 staff on commune level have been trained to monitor and manage community infrastructure	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	To be developed	Training reports, and information. Collect information from MoE and NCDD	Annual – Project team	
Output 2.3. No. of staff on provincial level trained to respond to, and mitigate impacts of, climate-related events assessed under 1.2	0 staff on provincial level have been trained	20% of total project beneficiaries (16,917 people) and 200 government officials from the provincial and commune level trained on climate change adaptation and risk reduction systems identified in the action plans developed under 1.3.	To be developed	Training reports, and information. Collect information from MoE and NCDD	Annual – Project team	

Outcome 2 Table 3: Monitoring of risks, environmental, social and human rights issues and verification of application of ESSS / ESMP

Observations on Risks, Markers, ESS	Baseline	Observations
Risks – review identified risks, have mitigating measures been put in place?		
Environmental, Social, Human Rights issues (disaggregation of data, participation, focus on		

people with vulnerabilities etc.)		
ESMP – was it applied in support of achieving this outcome		

Project component 3: Resilience built through small-scale protective and basic service interventions							
Expected Result	**Indicators**	**Baseline data**	**Targets**	**Risks & assumptions**	**Data collection method**	**Frequency**	**Responsibility**
Outcome 3 At least 84,586 people have access to protective natural and social assets and /or benefit from physical infrastructure to reduce the climate vulnerability. (AF outcome 4 and 5)	No. of people that benefit from climate change resilient infrastructure, access to natural assets and improved livelihood options to withstand conditions resulting from climate variability and change	84,586 people have been assessed as vulnerable to climate change impact	100% of the vulnerable population (84,586 people) of which at least 50 percent women have access to resilient infrastructure and/or protective natural assets	R – Delay in implementing infrastructure A – Agreement of Cooperation will stipulate timeframe for implementing infrastructure	Field site inspections photo documentation and data base and geotacked community monitoring report	Baseline, mid-term and end	UN-Habitat
Output 3.1. Protective natural and social assets and /or physical infrastructure strengthened/built to reduce climate vulnerability in line with the action plans under Output 1.3 and designs under Output 2.1.	No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types) (AF indicator 4.1.2.) No. and type of protective natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets) (AF indicator 5.1.)	3 protective infrastructures in Kep Province, 8 protective infrastructures in Preah Sihanouk	At least 20 pieces of infrastructure and 500 resilient houses constructed/rehabilitated to protect people and support resilience The infrastructure interventions can include protective dams, canals, water infrastructure, weather, broadcast and early warning infrastructure and protective natural assets. (for further information see the catalogue of intended subprojects)	R – Divergent outcomes of prioritized intervention between Commune Investment Plan and community needs A – Assessment and action planning conducted under component 1 and joint provincial and community consultation will identify the most appropriate intervention	Assessment report of the vulnerable assets	Baseline, mid-term and end	UN-Habitat

Activities	Milestones
3.1.1. Constructing and rehabilitating infrastructure and protective natural assets in the two provinces and 14 of the 15 communes[68] that the project will implement in	▪ Infrastructure/natural assets constructed / developed (month 12 (2 pilot projects), 24 – 30%, 36-80%, 48-100%)

Outcome 3, Table 1 – Review of Activities and Milestones

Activity	AoC - Partner	Implementation Modality	Budget items	Budget (detailed budget lines per budget item)	Timelines and Milestones															
					Year 1				Year 2				Year 3				Year 4			
3.1.1. Constructing and rehabilitating infrastructure and protective natural assets in the two provinces and 14 of the 15 communes[69] that the project will implement in	NCDD	TBD	National and Local engineers, equipment/hardware for resilience building measures	3,000,000																X

Outcome 3, Table 2 – Review of Indicators

Indicator	Baseline data	Targets	Qualification of targets	Means of Verification	Frequency Responsibility	Observation
Outcome 3 84,586 of people that benefit from climate change resilient infrastructure, access to natural assets and improved livelihood options to withstand conditions resulting from	84,586 people have been assessed as vulnerable to climate change impact	100% of the vulnerable population (84,586 people) of which at least 50 percent women have access to resilient infrastructure and/or protective natural assets	To be developed	Data gathered by NCDD	Bi-annual from Y2 onwards, Project team	

[68] There will be no concrete interventions funded directly in Koh Rong
[69] There will be no concrete interventions funded directly in Koh Rong

climate variability and change						
Output 3.1 No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types) (AF indicator 4.1.2.) No. and type of protective natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets) (AF indicator 5.1.)	3 protective infrastructure in Kep Province, 8 protective infrastructures in Preah Sihanouk	At least 20 pieces of infrastructure and 500 resilient houses constructed/rehabilitated to protect people and support resilience The infrastructure interventions can include protective dams, canals, water infrastructure, weather, broadcast and early warning infrastructure and protective natural assets. (for further information see the catalogue of intended sub-projects)	To be developed	Data gathered by NCDD	Bi-annual from Y2 onwards, Project team	

Outcome 3, Table 3 - Monitoring of risks, environmental, social and human rights issues and verification of application of ESSS / ESMP

Observations on Risks, Markers, ESS	Baseline	Observations
Risks – review identified risks, have mitigating measures been put in place?		
Environmental, Social, Human Rights issues (disaggregation of data, participation, focus on people with vulnerabilities etc.)		
ESMP – was it applied in support of achieving this outcome		

Project component 4: Knowledge and awareness enhanced and sustainability ensured							
Expected Result	**Indicators**	**Baseline data**	**Targets**	**Risks & assumptions**	**Data collection method**	**Frequency**	**Responsibility**
Outcome 4 Project implementation is fully transparent and national capacity to pilot climate change adaptation projects and establish capacity for climate adaptive policy making strengthened. All stakeholders are informed of activities, results and best practice and have access to these for replication.	All stakeholders are fully informed about a transparent project implementation process	84,586 people in the target area have experienced climate change related hazard but are unaware of the infrastructure and protective natural assets require to protect them	100% of project beneficiaries (84,586 people) can identify climate change hazards and understand how infrastructure and protective natural assets benefit them	R – Narrow dissemination of project activities A – Government supports roll out	Media coverage of project online, print and broadcasted through TV and radio. Stakeholder group meetings and workshops	Baseline, mid-term and end	UN-Habitat and Executing entities
Output 4.1. Project activities, results and best practice regarding community resilience to climate change are generated, captured and disseminated to beneficiaries, policy makers and stakeholders and the public in general.	No of project activities and results are captured and disseminated through appropriate information for the beneficiaries, partners and stakeholders and the public in general	0 regular dissemination of resilience building activities	At least daily broadcasts of weather information as well as at least 1 planning guideline, web presence, 3 case studies and 10 newspaper articles produced	R – Narrow dissemination of project activities A – Government supports roll out	Online and in print	Regular	UN-Habitat and Executing entities
Output 4.2. Capacity to replicate the project's objective in-line with NDC implementation enhanced	No of national staff with increased capacity to replicate the project's objective in-line with NDC implementation increased.	NCDD and MoE has <10 staff with capacity to replicate	30 staff have the capacity to replicate the project, and at least 1 further funding proposal developed	R – Other donors withdraw support for MoE/NCDD A – There will be a conducive economic and financial climate to enable replication and upscaling	Training reports, proposals	Baseline, mid-term	UN-Habitat and Executing entities

Activities	Milestones
4.1.1. Develop guidelines, web presence, case studies and articles detailing the project's implementation and benefits. 4.2.1. Capacity training to replicate the project's objective in-line with NDC implementation ' 4.2.2. Developing further funding proposals to support the replication and upscaling of the project's benefits	▪ Web presence established (month 12) ▪ Advocacy material produced (regularly - months 12, 24, 36, 48) ▪ Training on capacity to replicate project's objective in line with NDC implementation – month 42

Outcome 4, Table 1 – Review of Activities and Milestones

Activity	AoC - Partner	Implementation Modality	Budget items	Budget (detailed budget lines per budget item)	Timelines and Milestones															
					Year 1				Year 2				Year 3				Year 4			
4.1.1. Develop guidelines, web presence, case studies and articles detailing the project's implementation and benefits.	MoE/NCSD	TBD	International and national consultants	102,307				X				X				X				X
4.2.1. Capacity training to replicate the project's objective in-line with NDC implementation '	MoE/NCSD	TBD	International and national consultants and training event(s)	68,205														X		
4.2.2. Developing further funding proposals to support the replication and upscaling of the project's benefits	MoE/NCSD	TBD	International and national consultants and training event(s)																	

Outcome 4, Table 2 – Review of Indicators

Indicator	Baseline data	Targets	Qualification of targets	Means of Verification	Frequency Responsibility	Observation
Outcome 4 All stakeholders are fully informed about a transparent project implementation process	84,586 people in the target area have experienced climate change related hazard but are unaware of the infrastructure and protective natural assets require to protect them	100% of project beneficiaries (84,586 people) can identify climate change hazards and understand how infrastructure and protective natural assets benefit them	To be developed	Data to be gathered by NCDD	Bi-annual from Y2 onwards	
Output 4.1. No of project activities and results are captured and disseminated through appropriate information for the beneficiaries, partners and stakeholders and the public in general	0 regular dissemination of resilience building activities	At least daily broadcasts of weather information as well as at least 1 planning guideline, web presence, 3 case studies and 10 newspaper articles produced	To be developed	Data to be gathered by NCDD	Bi-annual from Y2 onwards	
Output 4.2. No of national staff with increased capacity to replicate the project's objective in-line with NDC implementation increased.	NCDD and MoE has <10 staff with capacity to replicate	30 staff have the capacity to replicate the project, and at least 1 further funding proposal developed	To be developed	Data to be gathered by NCDD	Bi-annual from Y2 onwards	

Outcome 4, Table 3 - Monitoring of risks, environmental, social and human rights issues and verification of application of ESSS / ESMP

Observations on Risks, Markers, ESS	Baseline	Observations
Risks – review identified risks, have mitigating measures been put in place?		
Environmental, Social, Human Rights issues (disaggregation of data, participation, focus on people with vulnerabilities etc.)		
ESMP – was it applied in support of achieving this outcome		

ANNEX 7:

A. Commune Investment Plan identifying projects in adaptation to climate change

I. CIP of Kep Province

List of required projects and priority actions in Kep Province							
No.	**Name of Project/Action**	**Location**	**Expected Outputs**	**Period**	**Beneficiaries**		**Estimated Costs (US$)**
					Total	**Females**	
1	Construct and Install water supply networks	Whole province	Improve health and living condition of the people	3 yrs	20,694	10,655	3,000,000
2	Build flood protected drainage system in Kep city	Kep	1,000m	1 yr	20,694	10,655	500,000
3	Making the demarcation of mangrove conservation areas	5 communes (50 polls)	Increase and conserve marine resources and biodiversity in order to improve people livelihood	1 yr	1,500	900	37,500
4	Planting mangroves in Kep's conservation areas	5 communes (15,000 trees)	Increase and conserve marine resources and biodiversity in order to improve people livelihood	1 yr	1x400	700	15,000

II. CIP of Preah Sihanouk

List of required projects and priority actions of Prey Nob District, Preah Sihanouk Province							
No.	**Name of Project/Action**	**Location**	**Expected Outputs**	**Period**	**Beneficiaries**		**Estimated Costs (US$)**
					Total	**Females**	
1	Build/rehabilitate a protected dam from sea water	Tuek L'ak, Tuek Thla, Samakki Communes	12 km	3 yrs	12,200	6,112	162,500
2	Rehabilitate water gates	Ou Oknha Heng, Tuek L'ak Communes	5 places	1 yrs	15,000	7,560	75,500
3	Rehabilitate flood protected canal	Prey Nob, Veal Rinh, Communes	6,000 m	3 yrs	20,200	10,300	62,500

4	Rehabilitate drainage system around the markets and urban areas	Veal Rinh, Prey Nob, Communes	8,000 m	3 yrs	12,700	6,320	60,000

A. Budget of cost-effectiveness screening in Part II. A. Table 6*

Activity	Unit	Cost per Unit	No. of Units	Total Cost	Assumed Beneficiaries	Cost per beneficiary
Resilient Housing	1 house	1,500	600	900,000	3,000	300
Weather Station	1 weather station	30,000	1	30,000	18,180	1.65
EWS	1 EWS system	3,000	8	24,000	18,180	1.32
			WS+EWS subtotal	54,000	18,180	2.97
Water gate (fresh water)	1 water gate	15,100	5	75,500	30,453	2.48
Rainwater harvesting	1 Jar per HH	140	2,000	28,000	10,000	28
Piped water	1 HH connection	368	2,000	73,600	10,000	73.60
Flood protection: Canal	1,000m of canal	10,500	6	63,000	19,752	3.19
Flood protection: Dam	1,000m of dam	13,500	6	81,000	4,725	17.14
Flood prevention: Water gate	1 water gate	15,100	6	90,600	8803	10.29
Ecotourism	1 pole	100	500	50,000	14,468	3.46
Reforestation	1 tree	1	15,000	15,000	14,468	1.04

Coastal Protective infrastructure	1,000m dam	13,500	6	81,000	18,257	4.44
Drainage system &wastewater	1,000m	10,500	10	10,5000	2,070	50.72
			Total	2,531,100		
			Labour Costs	468,900		
			Grand Total	3,000,000		

* Note: rows, 2, 3, 5, 8, 10, 11, 12, 13 are based on half of the population without water.

Modality of Channel Funding to Sub-National Account

1. **NCDDS** builds upon a pilot of Performance Based Climate Resilience Grants (PBCRG) currently being conducted by NCDD-S. Districts identified as highly vulnerable to climate change will be eligible to receive grants which will be used to finance investments identified through a participatory process of vulnerability reduction analysis (VRA) and District Climate Resilience Strategy (DCRS) mainstreamed in the sub-national development planning process. Each participating District will receive three annual PBCRG and will allocate the proceeds of the grants to the highest priority investments proposed by the Commune Councils. Implementation will be by the Commune Councils and will be co-financed by the Commune-Sangkat Fund resources. Based on demonstrated performance in implementation of the PBCRG resources, Districts will be eligible to receive a single, larger grant. Subject to suitable procurement and financial management arrangements being in place (to be confirmed at Mid-Term Review) these specific project grants will be implemented through the budget of the District Administration.

2. Vulnerability Reduction Analysis (VRA) will be integrated with the participatory Farmer Needs Assessment in Districts identified as vulnerable to climate change. Prioritisation of investments will take into account climate vulnerability of beneficiary communities measured by an indicator linked to the M&E framework of the Cambodia Climate Change Strategy (currently under development) and expected benefits for climate resilient agricultural production.

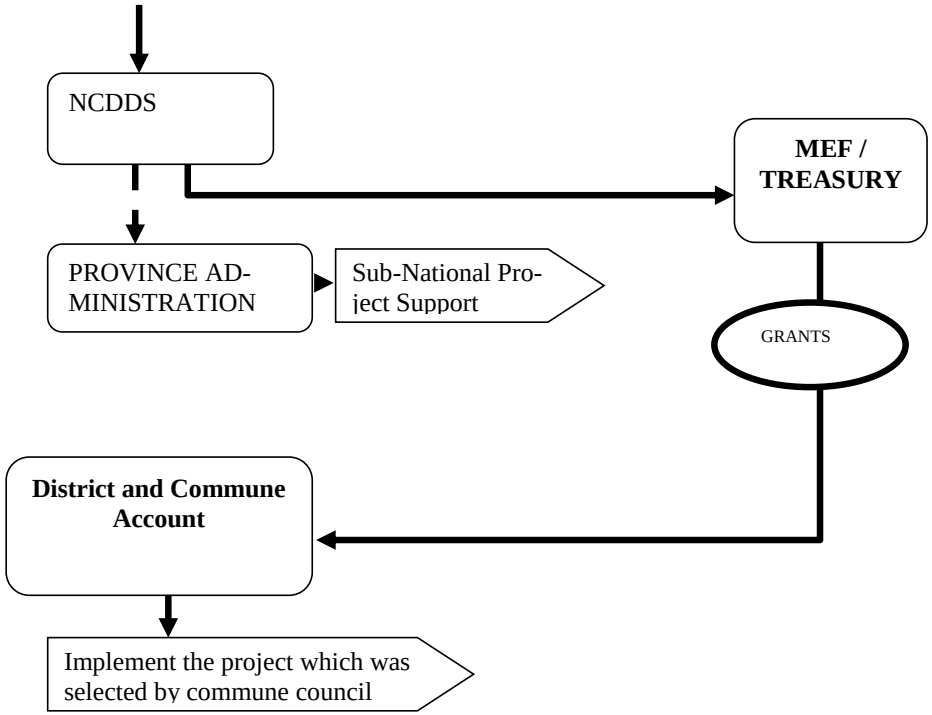
3. The Performance Based Climate Resilience Grants (PBCRG) will be allocated to priority projects proposed by the Commune Councils and co-financed by Commune-Sangkat Fund resources. Therefore, the PBCRG will be transferred through the National Treasury to the Provincial Treasury accounts of the beneficiary Communes. A small amount of administrative costs will be transferred to the Provincial Treasury accounts of the District Administrations.

4. The intention is that the Specific Climate Resilience Investment Grants (SCRI) will be implemented through the budget of the District Administrations. However, the budget execution procedures of the Districts are not yet fully developed and tested. The first SCRI grants will not be disbursed until 2019. Therefore, the ASPIRE Mid-Term Review will provide an opportunity to review the implementation modality for these grants.

5. Engineering design and construction supervision services for the climate resilient infrastructure will be provided by technicians contracted by the Districts and funded from the grants. Engineering advisers contracted directly by NCDD-S will play a quality assurance role. As a temporary measure, it may be necessary to procure and contract the technical consultants under NCDD-S Finance and Administration Manual procedures (rather than through the budget execution modalities of the District Administrations).

6. NCDD instead will open a project account for operational expenditures, while the portion of funds dedicated for infrastructure-related activities (Performance Based Climate Resilience Grants) at District and Commune levels will be channelled through the national treasury system. Based on the AWPB, NCDD will transfer required funding to the national treasury system.

7. NCDD-S will implement in accordance with the NCDD-S Administration and Financial Manual with specific reference to the updated Commune/Sangkat Fund Project Implementation Manual, and the regulations on the procurement by subnational administrations (SNA), which includes Guidelines No. 2/MEF -Guidelines on Procurement Methods and Procedures of District/Municipality/Khan Administrations as per Sub-Decree 324 MEF-BRK dated 01 April 2013.


NCDDS
MEF / TREASURY
PROVINCE AD-MINISTRATION
Sub-National Pro-ject Support
GRANTS
District and Commune Account
Implement the project which was selected by commune council