Concept Note

Climate-Friendly Agribusiness Value Chains Sector Project

Cambodia | Asian Development Bank (ADB)

28 March 2017
Concept Note

The Green Climate Fund (GCF) is seeking high-quality projects or programmes.

Accredited entities may choose to submit a concept note, in consultation with the relevant national designated authority, to present the proposed project or programme idea in order to receive early feedback and recommendation.

Project/Programme Title: Climate-Friendly Agribusiness Value Chains Sector Project

Country/Region: Cambodia

Accredited Entity: Asian Development Bank (ADB)

National Designated Authority: Ministry of Environment
**A. Project / Programme Information**

<table>
<thead>
<tr>
<th>A.1. Project / programme title</th>
<th>Climate-Friendly Agribusiness Value Chains Sector Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.2. Project or programme</td>
<td>Project</td>
</tr>
<tr>
<td>A.3. Country (ies) / region</td>
<td>Kingdom of Cambodia</td>
</tr>
<tr>
<td>A.5. Accredited entity</td>
<td>Asian Development Bank (ADB)</td>
</tr>
<tr>
<td>A.6. Executing entity / beneficiary</td>
<td>Executing Entity: Ministry of Agriculture, Forestry and Fisheries (MAFF)</td>
</tr>
<tr>
<td></td>
<td>Number of beneficiaries: 390,000 (direct)</td>
</tr>
<tr>
<td>A.7. Access modality</td>
<td>Direct ☐ International ☒</td>
</tr>
<tr>
<td>A.8. Project size category (total investment, million USD)</td>
<td>Micro (≤10) ☐ Small (10&lt;x≤50) ☐ Medium (50&lt;x≤250) ☒ Large (&gt;250) ☐</td>
</tr>
<tr>
<td>A.9. Mitigation / adaptation focus</td>
<td>Mitigation ☐ Adaptation ☐ Cross-cutting ☒</td>
</tr>
<tr>
<td>A.10. Public or private</td>
<td>Public</td>
</tr>
</tbody>
</table>

**B. Project/Programme Details**

- Which of the following targeted results areas does the proposed project/programme address?
  - Reduced emissions from:
    - ☒ Energy access and power generation
      (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
    - ☐ Low emission transport
      (E.g. high-speed rail, rapid bus system, etc.)
    - ☐ Buildings, cities, industries and appliances
      (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
    - ☒ Forestry and land use
      (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
  - Increased resilience of:
    - ☒ Most vulnerable people and communities
      (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
    - ☒ Health and well-being, and food and water security
      (E.g. climate-resilient crops, efficient irrigation systems, etc.)
    - ☒ Infrastructure and built environment
      (E.g. sea walls, resilient road networks, etc.)
    - ☐ Ecosystems and ecosystem services
      (E.g. ecosystem conservation and management, ecotourism, etc.)

- A.12. Project / programme life span: 6 years
- A.13. Estimated implementation start and end date:
  - Start: 2018
  - End: 2024

---

1 Please use the following naming convention for the file name: "[CN]-[Agency short name]-[Date]-[Serial number]" (e.g. CN-ABC-20150101-1).
The Fund requires the following preliminary information in order to promptly assess the eligibility of project/programme investment. These requirements may vary depending on the nature of the project/programme.

### Country Context

In 2015, the population of Cambodia was 15.41 million. Predominantly rural, but with a strong urbanization trend. Located in South East Asia within the Greater Mekong sub-region, Cambodia is bordered by Thailand and Lao PDR on the north, and Vietnam on the east and south, with whom it maintains close economic and trade relations.

In 2015, Cambodia’s gross domestic product (GDP) grew at annual rates of about 7.0% reaching $18.05 billion. Despite the country’s steady economic growth and the reduction of the national poverty rate from 50.2% in 2002 to 17.7% in 2012, more than 70% of Cambodians still live on less than $3 a day, making them vulnerable to fall back into poverty in situations of economic or climate shocks.

In 2014, the agriculture sector accounted for 29% of GDP, with crop production contributing 59.4% of the sector’s GDP. The gross value addition for agriculture increased from KR 5,596 billion in 2004 to KR 9,087 billion in 2013. However, Cambodia continues to exclusively depend on Thailand and Viet Nam for the value addition of its agriculture commodities subjecting its farmers to external risks of market volatility and price shock. More recently, the growth of the agricultural sector has gradually slowed down from 5.4% in 2009 to 0.24% in 2015, mainly due to extreme weather events, including floods and droughts and to systemic constraints to production increases. The loss of yield combined with post harvesting losses continue to affect Cambodia’s ability to set competitive pricing for its agriculture commodities in regional and global markets.

### Climate

Cambodia’s land area is composed of four major agro-ecological zones, including the Tonle Sap plain, Mekong plain, mountains/plateau and the coast, while the Mekong River and its tributaries dominate the country’s hydrology. Cambodia is characterized by a tropical monsoon climate with two major seasons, namely a monsoon season from May to October and a dry season from November to April. Annual rainfall ranges from 1,400 mm in the central lowland regions to 4,000 mm in some coastal zones and highland areas. Temperature averages between 25 and 27°C throughout the year and rises to 26-30°C in the hottest month of April before the rainy season.

Historical temperature records show an approximate increase of 0.18°C per decade since 1960, with higher increases during the dry season. In addition, the number of hot days and hot nights has increased by 12.6% and 17.2% and the number of cold days and cold nights has decreased by 5.2% and 12.6% respectively. According to different climate models, these observed trends will continue, with the average annual temperature rising by 0.7-2.7°C by the 2060s and 1.4-4.3°C by the 2090s. The rate of temperature change is expected to be higher in the lower altitude areas of the country, including the central plains, and lower in the mountainous regions. While historical records of rainfall do not show any consistent increase or decrease since 1960, climate models predict an increase in annual rainfall and more specifically the proportion of total rainfall falling under heavy events is projected to increase.

Observed impacts of these climate change trends in recent years have manifested by longer dry seasons and more intense El Niño related droughts, delayed onset of the rainy season (preventing any early wet season crops), more intense rains

---

2 Asian Development Bank, Basic Statistics 2016
7 IFAD, Cambodia: Environmental and Climate Change Assessment, 2013
over shorter periods leading to floods, and unexpected dry periods during the rainy season, spoiling ready to harvest or drying crops, such as rice and maize. An increase in temperature of 1°C would result in significant decline in rice production and increase in pests, making rice farming not viable for many farmers, leaving them with less options and fewer income. Sea level rise is also inducing saltwater intrusion and soil salinization into low-lying coastal areas of Kampot and Sihanoukville.

The observed impacts and projections of climate change highlight the increasing vulnerability of Cambodia to climate change and more importantly of the agricultural and natural resources management sectors, as 85% of the population depends on rain-fed agriculture for their livelihoods and source of income. The devastating floods in Cambodia in 2011 and 2013 had particularly negative impacts on agricultural production, employment in the agriculture sector, rural households, and women. Since these events, many households have been locked into a cycle of debt caused by borrowing money as a coping strategy during natural calamities and emergencies. It has been estimated that the negative impacts of climate change led to a 10% loss in the GDP in 2015.

Cambodia’s vulnerability to climate change is also contributing to turning the country from a net carbon sink into an emitter, as impoverished and vulnerable populations turn to unsustainable practices – such as deforestation and the burning of agricultural residues for fuel - to maintain their livelihoods. An estimated 75% of households use firewood for cooking, of which about 88% comes from natural forests, partly contributing to forest degradation and deforestation. The carbon footprint of Cambodia’s agriculture sector is expected to increase, as Cambodia continues to pursue value addition to its through processing and trade.

Recognizing these challenges, the government’s agriculture sector strategic development plan (2014-2018) aims to enhance competitiveness of the sector through improvements in agricultural productivity (intensification), diversification and commercialization. Measures include (i) expansion of agricultural extension services, improvement of seed quality to respond to markets, and better post-harvest technology; (ii) creation of enabling environment for the private sector and adoption of Good Agricultural Practices (GAP); (iii) strengthening of policies for increasing agricultural business and export and improving product quality and standards (e.g. sustainable rice platform); (iv) strengthening of laboratory analysis capacity for the National Agricultural Laboratory; (v) rehabilitation of infrastructure of state farms and agricultural development centers; (vi) implementation of the strategy and action plan for climate change adaptation and mitigation; and (vii) promotion of private investment in agriculture through public-private partnerships. The government also aims to promote biogas and bioenergy consumption; a priority in the government’s Intended Nationally Determined Contribution (INDC).

In order for the government to achieve growth objectives in the agricultural sector, a number of barriers must be addressed, which are hindering competitiveness and accentuating climate vulnerability.

**Infrastructure Deficit**

Cambodia’s infrastructure deficit is mainly due to its history of conflict, low population density and the limited economic capacity to invest in infrastructure. This general infrastructure deficit is increasingly aggravated by climate change impacts. For instance, in November 2011, heavy rains and overflow of the Mekong river impacted 18 of the 24 provinces of Cambodia and destroyed crops and communal infrastructure, including national, provincial and rural roads, irrigation schemes, rural water supply, schools and health centers, amounting to at least 624 million US$ in damages and losses. The rate of national investment in rural infrastructure (150-200 million US$ per year) is clearly inadequate to address the development needs, let alone to face the additional threats posed by climate change induced disasters.

---

12 RGC, Cambodia Climate Change Strategic Plan (2014 – 2023), Phnom Penh
13 RGC, 2015 Cambodia’s Intended National Determined Contribution, Phnom Penh
At the **production stage**, the number of irrigation systems is inadequate to allow for sufficient surface and groundwater extraction, especially during prolonged drought periods. The existing infrastructure is plagued with lack of maintenance, due to limited operations and maintenance (O&M) resources among farmer user groups, leading farmers to rely on rain-fed agriculture. Post-harvest drying is practiced using inadequate means, such as tarpaulin or concrete bases, which leads to poor quality, safety and phytosanitary issues. Storage structures are still very rudimentary, leading to inefficiencies in the value chain and post-harvest losses. In addition to already limited post-harvest infrastructure, climate change is already increasing post-harvest losses, as higher humidity levels and rainfall during harvesting seasons are preventing proper drying of crops. Crops presenting a higher level of moisture (over 14%) are of lower quality, tend to rot faster and fetch lower prices.

At the **transportation and commercialization stage**, the lack of climate-resilient roads linking village and communes to markets accentuate Cambodia’s low competitiveness and restricts access to neighboring markets. For example, rural roads represent 22.7% of Cambodia’s national road network, of which only 5% are paved, and most of which are routinely impacted by extreme events such as torrential rainfall, extreme heat and droughts as well temperature rise. Despite the existence of an ADB-supported transport corridor in each project province, insufficient crop production levels, combined with the lack of climate-resilient feeder roads prevents these corridors to be effective means of economic development.

Furthermore, **high energy costs at the processing stage and high transportation costs** both reduce the potential value addition and profit that farmers can expect to make from their production, and acts a crosscutting barrier over the whole value chain. Higher production prices, combined with lower quality output mean that agriculture is not yet a profitable sector. This explains why Cambodia’s agricultural sector continues to be less competitive than its regional neighbors, namely Thailand and Vietnam.

**Inadequate institutional capacity for the development of agri-business and management of natural resources**

Although over 60% of inhabitants are engaged in farming, with women accounting for 80%, **agriculture sector investments have not yet translated into substantial local benefits**. While some progress has been made in strengthening the Provincial Departments of Agriculture (PDA) in various provinces, including through ADB support, weaknesses remain among PDA staff and infrastructure as regards the provision of support to farmer groups and to developing agri-businesses. Institutional capacity constraints among farmer groups and cooperatives are also preventing the successful operation of drying and storage management infrastructures, and this is contributing to perpetuating post-harvest losses, low produce quality and therefore, low prices and diminished income.

The Provincial Departments of Water Resources and Meteorology (PDWRAM) of the selected provinces, in charge of overseeing irrigation infrastructure also have limited capacity in delivering adequate support to the establishment, operation, monitoring and evaluation of Farmers’ Water User Communities (FWUC). Although a number of irrigation schemes have been established, the number of functioning schemes remains severely limited. For example, out of 2,790 irrigation schemes in the inventory of Ministry of Water Resources and Meteorology (MOWRAM), the number of functioning or partially functioning schemes is estimated at 88, which highlights the lack of capacity of the PDWRAM and of farmer-based committees to properly operate and maintain existing infrastructures (O&M).

**Lack of enabling policy environment**

Private sector investments remain low due to an unfavorable business environment. Market liberalization and changing global trade rules that require stringent quality and food safety standards are constraining Cambodian farmers’ capacity to access competitive markets. Produce from Cambodian farms does not meet the required quality and phytosanitary standards, limiting export potential and reducing profit margins. Climate change is likely to exacerbate this problem, as farmers are unaware of the need to adapt to new conditions, potentially emerging pests and plant diseases.
Furthermore, access to credit and risk financing remains limited for farmers to invest in new value chains and related equipment.

**Farmers' lack of technical capacity on low-carbon, climate resilient agricultural practices**

While farming remains mostly subsistence-based and rain-fed, the lack of access to reliable extension services to innovate in climate-smart practices as well as the absence of climate information services to deal with climate risks, prevent farmers from effectively coping with and adapting to climate shocks. Production methods are outdated and inconsistent with emerging climate conditions, and natural resources management, both on-farm and off-farm, is inadequate. This leads to the degradation of the resource base, which reduces yields and product quality. Therefore, despite a strong market demand, agribusiness value chains in Cambodia remain fragmented, leading to sub-optimal efficiency with poor geographic reach, and low transmission of retail prices to the producer. Most of the value addition to Cambodia's agricultural products is occurring in neighboring countries such as Thailand and Viet Nam.

In addition to the lack of technical capacity on innovative and climate-resilient farming practices, there is a lack of economic incentive for environmental and ecological stewardship among farmers. For instance, most of the agricultural residues are used as fuel for cooking or burnt in open, leading to increased carbon emissions. In addition, 75% of households use firewood for cooking, of which about 88% comes from natural forests, contributing to rapid forest degradation and deforestation. Degraded micro-watersheds lead to increased run-off and water losses, flooding damage during heavy rains, and an overall decrease in water availability during dry seasons, further limiting productivity potential.

**High production costs**

Migration from rural to urban areas has resulted in labor shortages in agriculture, leading to a rise in labor costs of almost 206%. Between 2005 and 2013, agricultural wages have increased by, and off-farm wages by 60%. Farm mechanization was introduced to compensate for the lack of labor, which has somewhat reduced on-farm work days, but which also requires higher skill levels, contract service provision, equipment and tool fabrication at local market level. It is anticipated that urban migration will accelerate, which will lead to increasing farm size. The opportunity for creating higher value rural employment exists provided the barriers to production and commercialization are lifted.

**Opportunities.** There is an opportunity to simultaneously address these barriers while preventing the negative impacts of climate change on rural livelihoods. The adoption of climate smart agricultural practices, combined with climate-resilient seeds and targeted farm mechanization will help intensify production while producing higher quality produce; investment in infrastructure such as water storage and irrigation, harvest storage facilities and roads will also help the sector become more competitive, leading to more high quality produce reaching the appropriate markets. Investments into renewable off-grid energy supply will further reduce production costs, leading to higher profits for farmers. This will enhance food security and reduce overall poverty and, ultimately reduce climate vulnerability. This requires investing in the management capacity of producers and their institutions, from the local user groups to the provincial extension services, in the operation of viable agribusiness enterprises, as well as in the maintenance of production assets. Farm cooperatives can also provide a mechanism to enhance bargaining power, product trading, and farming incomes, as well as risk sharing when innovating or engaging in new value addition avenues. With such support, Cambodian agribusinesses can realize comparative and competitive advantages for economies of scale and continuity of supply to break into new markets and achieve import substitution.

Improved regional integration through regional initiatives such as ASEAN Economic Cooperation and GMS economic cooperation has resulted in increased investments in transport connectivity and trade facilitation. In order to reap the benefits of expanded markets, it is imperative for Cambodia to build its competitiveness.

**Lessons.** The project design incorporates lessons from ADB and other development partner-funded projects and programs such as (i) the Climate resilient rice commercialization sector program and (ii) the Cambodia strategic program for climate
resilience. Lessons from these and other ongoing projects call for (i) strengthening critical infrastructure, (ii) supporting enabling policy environment, (iii) including small farmers in the value chain by transforming production and supply practices into market demand-driven processes and promoting public-private-community partnerships, (iv) building technical and agribusiness development capacity of stakeholders, and (v) promoting climate smart agriculture practices. The project design recognized the need for overcoming risk aversion of finance institutions to provide credit to value chain players and for strengthening producer associations for value chain coordination and policy dialogue with national and regional organizations. This project builds on past ADB support to the agriculture and infrastructure sectors, including the construction of the transport corridors linking the project provinces to neighboring markets.

Baseline Initiatives

Baseline projects conducted by ADB, with which this proposed project will create synergies and coordination are as follows:

- The Climate Resilient Rice Commercialization Sector Program (2013-2020) aims to increase net incomes of stakeholders along the rice value chain in three rice-producing provinces of Cambodia: Battambang, Kampong Thom and Prey Veng. The outcome is enhanced production of quality rice in Cambodia while preserving the natural resource base.

- The Uplands Irrigation and Water Resources Management Sector Project (2016-2021) is working to improve Cambodia’s irrigation systems in Kampong Thom and Battambang provinces.


- The Rural Roads Improvement Project II (RRIP II; 2014-2020) aims to rehabilitate about 1,000 kilometers of rural roads, by providing all-year road access in nine provinces, namely, Battambang, Banteay Meanchey, Kampong Cham, Kampong Chhnang, Kampong Speu, Kampong Thom, Pursat, Siem Reap, and Takeo. It will also include road maintenance, a community-based road safety program, and climate change adaptation measures.

- Cambodia Strategic Program for Climate Resilience.

In addition, other baseline projects with which this proposed project will create synergies and coordination and on which the project will build upon and learn from experiences and lessons, are as follows:

- The JICA Project for Establishing Business-Oriented Agricultural Cooperative Models (BAPC), which ends in 2018, is supporting agricultural cooperatives that plan to undertake agribusiness initiatives under the Law on Agricultural Cooperatives in Takeo, Kampong Cham, Svay Rieng and Kampong Speu provinces. The project develops training materials on saving and loan business, agricultural cooperative management, business planning, auditing, monitoring and facilitation, and trains government officials (DAE/DACP and PDAs) on the cooperative management.

- The Australian government initiative named “Cambodia Agricultural Value Chain Program” (CAVAC), which is in its second phase and focuses on small-scale farmer income and trading in rice and other crops (Kampong Thom, Kampong Speu, and Takeo provinces);

- The USAID HARVEST project, which is in its second phase and provides extension support to commercial horticulture value chains and credit guarantee;

- The IFAD AIMS project on strengthening chicken, vegetable, rice, beef, silk and longan value chains;

- The RGC Self-funding $20 million project for MAFF to boost local fruit and vegetable production as an import substitution initiative;
Additional details on baseline projects and coordination will be provided in the full feasibility study.

**Proposed project**

With consideration to the barriers explained above, the objective of the project is to **increase agricultural competitiveness and increase household income in the project areas through enhanced productivity and climate-resilient value chains**. The project will work in four provinces where transport corridors are available to link production to markets, namely Kampong Cham and Tbong Khmum provinces along the Greater Mekong Sub-region (GMS) southern corridor, and Kampong and Takeo provinces along the south-coastal corridor, with the goal of transforming these transport corridors into effective economic corridors. In addition, these four provinces, while making a substantive contribution to the country’s economy, remain highly vulnerable to the impacts of climate change. Therefore, the project will focus on upgrading and building climate-resilient infrastructures along the agricultural value chain, contributing to ADB’s Country Partnership Strategy’s one of two strategic pillars, namely to develop rural, urban and regional infrastructure, and support the commercialization of farms and competitiveness of agribusiness enterprises through improved connectivity. The project expects to also make a significant contribution to reducing emissions from the agricultural sector in Cambodia by promoting investments into ecological infrastructure, renewable energy at all stages of the value chain, and climate-smart practices.

The project will improve climate resilience of each stage of the agricultural value chain by investing in critical agricultural production and post-harvest infrastructure, intensification, and commercialization of rice, maize, cassava and mango, and by promoting the use of solar and bio-energy. By doing so, it will also seek to re-orient the value chains towards low-carbon development pathways. The project will support infrastructure investments by also creating an enabling policy environment for agribusinesses, which will promote long-term environmental sustainability and enhance profitability for farmers and agribusiness enterprises. The Climate-Friendly Agribusiness Value Chains Sector Project (CFAVC) will contribute to the implementation of Cambodia’s Agriculture Sector Strategic Development Plan and the Industrial Development Policy.

The project is structured across two complementary outputs, namely:

- **Output 1:** Critical agribusiness value chain infrastructure improved and made climate resilient
- **Output 2:** Agribusiness policy and capacity support services strengthened

**Output 1: Critical agribusiness value chain infrastructure improved and made climate resilient.**

Under this output, the project will invest in the rehabilitation and modernization of critical infrastructure along the whole value chain. At the input stage, climate-resilient irrigation and water management structures will be established and/or rehabilitated to increase crop yields. At the production and post-harvest stages, renewable energy will be introduced to optimize on-farm resources, and climate-proof storage infrastructure will be built to improve resource efficiency, reduce post-harvest losses, and enhance quality and value chain linkages. At the processing stage, energy efficient processing facilities will be built to reduce GHG emissions. Finally, climate-proof feeder roads to resist climate shocks and link villages to transport corridors will improve the efficiency of the whole value chain from farm to fork.

The proposed interventions will encourage the private sector to work more closely with the producers and agricultural cooperatives through public private partnership arrangements. The project will support four farm mechanization workshops and four agribusiness training facilities, as well as training for FWUCs, women’s farmer networks and agricultural cooperatives on the operation and maintenance of infrastructure in the four target provinces. A feasibility study has been conducted for...
selected representative infrastructure investments (post-harvest storage, drip-irrigation scheme, water storage reservoir), as well as roads. Selection criteria for the other infrastructure investments and envisioned procedures for their development, implementation and monitoring are listed in the project administration manual (PAM). Women and other vulnerable groups will be proactively involved in the identification, selection, and implementation of agribusiness investments.

**Sub-output 1.1: Climate resilient water management infrastructure**

Lack of irrigation systems and surface and ground water extraction infrastructure restrict the majority of farmers to a single rain-fed crop per annum. Poor water management is also constraining intensive and high value crop production and intensification. Cambodia is considered a “water rich” country with a renewable water resource amounting to 32,695 m3/person/year. Only 15% of the cultivated rice area in Cambodia is irrigated, in comparison to 28% in Thailand and 33% in Vietnam. Along with Lao PDR, it is among the S.E. Asia countries with the least share of irrigated versus rain-fed agriculture, which makes 85% of rice cropping area in Cambodia fully exposed to changing rainfall patterns. In Cambodia, the need for efficient and well maintained water management infrastructure has become critical since climate change impacts in recent years have manifested by longer dry seasons and more intense El Niño related droughts, delayed onset of the rainy season (preventing any early wet season crops), more intense rains over shorter periods leading to floods, and unexpected dry periods during the rainy season, spoiling ready to harvest or drying crops.

Although there are 426 on-farm surface water catchment ponds in target provinces, they currently lack efficient operations and maintenance. Many of the ponds are silted, or empty up early during the dry season. The project will therefore seek to not only modernize and rehabilitate existing ponds, but also dig and commission at least 800 on-farm water catchment ponds. Rehabilitation of existing ones will include performing de-silting works, and upgrading standards to withstand changed climate patterns and projected climate changes, including overflow and flood control mechanisms, increased depth for added storage, and restoration of the vegetation in the immediate landscape. Each pond will be used for supplementary irrigation not only for the target crops but will be used for more intensive horticulture and tree crop production and will be sited to collect surface run-off and have sediment traps to avoid excessive sedimentation. In addition, laser land leveling and drip irrigation systems will be introduced at farm level in order to effectively irrigate fields and increase water use efficiency, while reducing emissions. These water management infrastructures will increase water availability for crop production, making farmers more resilient to climate shocks or slow onset climate changes.

Under this sub-output, the project will finance the rehabilitation and operationalization of the following water management infrastructures:

- At least 27 climate resilient water management systems targeting 15,000 ha and at least 25,000 households (with at least 50,000 women),
- 800 water catchment ponds, drip irrigation and laser land leveling over 4,000 ha of land to enhance water use efficiency and cope with droughts.

**Sub-output 1.2 Climate-smart agricultural cooperative value chain infrastructure and connectivity**

The current lack of inclusion of poorer small-scale farmers in value chain development prevents them from transforming traditional production and supply practices into commercial demand-driven processes. The main constraint to effective and lasting linkages between processors and traders and small farmers is that quality products are not produced in sufficient quantities. Processors and traders therefore obtain their supply from larger, more equipped farmers, leaving smallholders outside of the trading cycle.

The project will support agricultural cooperatives to undertake the construction of post-harvest units for cleaning, drying and storage on selected agricultural cooperatives. In
order for agricultural cooperatives to benefit from the project’s support, they will be required to meet strict criteria, such as their willingness and readiness to integrate climate-resilient and low carbon technologies at every stage of the value chain. These storage units will aim to reduce post-harvest losses, improve the grain or cassava chip sample and its moisture content particularly in the rainy season and ensure a better price by delivery flexibility to processors within the value chain. Storage units will be upgraded to take into consideration emerging climate conditions and potential climate extremes and their impacts (droughts, floods, pests). In addition, solar powered driers will be introduced within the stores for ventilation, lighting and powering management systems. Energy efficient technologies will also be implemented in the infrastructure for both processing/transformation and storage operations in order to reduce carbon emissions from fuel wood currently used to operate these facilities. Storage units will be managed by cooperatives. The improvements in stocking rates and quality of produce after harvests will encourage processors and buyers to form closer linkages with cooperatives as it will stabilize supply and demand and therefore pricing issues relating to the availability and oversupply of the product, as well as offer continuity of supply.

In order to improve connectivity to markets and increase their competitiveness, the project proposes the improvement of rural roads and tracks along at least 450 km, using a mix of gravel or concrete bases depending on the traffic volumes and community needs. Climate-proofed roads, that tolerate all-weather conditions as well as heavy transport and increased traffic, will link farm units and production zones to the proposed 80 cooperative storage and drying units. Since road construction falls under the responsibility of the Ministry of Rural Development (MRD), the project will also support capacity strengthening of these institutions and the Provincial Departments of Rural Development (PDRD) on construction contracting and supervision. O&M costs will be borne by the MRD and the communities.

**Sub-output 1.3 Infrastructure for climate smart agricultural testing and training at national and provincial levels**

Cambodia’s lack of infrastructure for agricultural testing to ensure food quality and safety in a changing climate characterized by high temperature and humidity in line with international standards is currently preventing farmers from exporting their products. At provincial levels, there are insufficient training facilities that would allow for extension workers to become fully versed on climate-smart agricultural (CSA) practices and this lack of skills in CSA prevents the sector reaching higher productivity and resource efficiency.

Under this sub-output, the project will establish four Provincial Agricultural Development Centers (PADC) and four Provincial Agricultural Engineering Workshops to create resource and training centers for service provision, climate smart agribusinesses and farmer value chain linkages. The project will finance the building of a PADC in Takeo, Tbong Khmum and Kampong Cham provinces and the rehabilitation of the existing extension/agricultural development center in Kampot. Technical assistance will be provided to manage the training facility and undertake a needs assessment to ensure good management and appropriate procurement. Training provided by the Centers will include Climate Smart Agriculture technologies and practices, techniques promoted by the Sustainable Rice Platform and the Cambodia Good Agricultural Practice (CAMGAP) standards, and farm management topics such as operation of agricultural cooperatives, FWUC accountancy, bookkeeping and business planning, together with agricultural machinery and equipment repair, operation and maintenance, as detailed in Output 2.

The project will also support the construction of three mechanization workshops, including classrooms in Kampot, Kampong Cham and Tbong Khmum and commissioning a new workshop and classroom in Takeo. Technical assistance will be provided for agricultural engineering design and fabrication, repair, operation and maintenance. Equipment and tools for the repair and maintenance of agricultural production and processing equipment will be supplied. The equipment and tools for the manufacture and assembly of agricultural production and processing equipment, together with the supply of design, training and classroom equipment to the provincial workshop units will also be supplied.
At the National Agricultural Laboratory, the newly inaugurated Plant Biotechnology Laboratory (PBL) will be supported; no building is required as the Sanitary and Phytosanitary measures (SPS) and Plant Protection Unit will be moving from the existing laboratory building to a new building. The project will support activities of the PBL in the areas of (i) establishing genetically modified organism (GMO), plant toxins, bio-fertilizer and organic fertilizer testing capacity; (ii) supporting ISO 17025 accreditation; (iii) developing tissue culture protocols for banana and cassava; and (iv) assisting in the laboratory commercialization process to achieve partial cost recovery. Climate change-induced changes in safety and quality of agricultural products will also be monitored.

**Sub-output 1.4 Renewable energy for value chain improvement**

In Cambodia, approximately 75% of households use firewood for cooking, 8% use charcoal and 16%, liquid propane gas. An estimated 88% of fuel wood comes from natural forests, which partially leads to forest degradation and deforestation, with resulting loss in carbon sinks. It is estimated that 77% of the wood in Cambodia is non-renewable and the usage of this for cooking leads to substantial GHG emissions, such as long life CO₂ and short lived ones such as Black Carbon. Black carbon is a particular strong contributor to climate change as it has a global warming potential of 2,421 times to that of CO₂ over a 100-year period.

Although most of the energy used for cooking comes from wood, the overall energy consumption of charcoal is larger (38,371 Terra Joule (TJ) versus 33,720 TJ in the energy balance). The difference results from relying on inefficient charcoal kilns from which only 24% of the wood energy is transferred to charcoal while 76% is lost. In the selected provinces, Kampot, Takeo, Kampong Cham and Tbong Khmum, the availability of wood is limited for cooking. The FAO’s wood fuel integrated demand supply overview mapping (WISDOM) showed that there is a wood fuel deficit in the selected provinces.

The reliance on traditional fuels has environmental, social and human costs, leading to deforestation and the WHO estimated that in Cambodia alone 14,729 premature deaths occur annually which can be attributed to household air pollution (HAP) because of the reliance on solid biomass fuels (IHME, 2015). Furthermore, exposure to the hazardous emissions from cooking on biomass has been linked to several diseases such as chronic obstructive pulmonary disease, acute lower respiratory disease, ischemic heart disease and strokes. With 80% of the Cambodians cooking with biomass and often using inefficient stoves, the situation has become critical as trends indicate that demand for charcoal is increasing.

Reducing reliance on wood by using biogas has an immediate positive impact on the climate and the environment. Alternative bio-energy and renewable energy options need to mainstreamed in energy use and MAFF has a planned objective to promote biogas and bioenergy consumption, as identified in Cambodia’s Intended Nationally Determined Contribution (INDC).

The project will develop rural renewable energy infrastructure by installing about 12,000 biodigesters and 6,000 compost huts at household level in the area of target cooperatives, while harnessing the fertilization potential of bio-slurry in target provinces. The project will explore opportunities for biogas production from large scale commercial livestock enterprises and small town sustainable solid waste management. The project will also promote the use of solar energy with agricultural cooperatives serving as the frontline demonstration centers, as well as for post-harvest and processing units. The project will introduce the development of integrated systems for managing agricultural waste and residues in rice, maize, cassava and mango value

---

18 The laboratory is already working in developing Banana TC protocols
20 United Nations Framework Convention on Climate Change, Executive Board 77 Meeting: Annex 4 (MOE proposed and endorsed)
22 The second cause of early death in Cambodia
24 Gold Standard Black Carbon emission methodology
25 RGC, Cambodia Climate Change Strategic Plan (2014 – 2023), Phnom Penh
26 RGC, 2015 Cambodia’s Intended Nationally Determined Contribution, Phnom Penh
chains to enhance their competitiveness, reduce GHG emissions and environmental risks, and contribute to energy independence. Reducing reliance on firewood through alternate forms of bioenergy will yield both climate and health benefits. Likewise, reducing reliance of agribusinesses on fossil fuels through promoting renewable forms such as solar energy will reduce GHG emissions but also energy costs therefore increasing competitiveness. The proposed interventions will also encourage the private sector to work more closely with the raw material suppliers and take ownership of the value chain through public private partnership arrangements.

By investing in bio-digesters, the project will contribute to climate change adaptation and mitigation, through the replacement of agrochemical fertilizers by bio-slurry (bio-digesters’ effluent), which will optimize resources, improve yield, reduce cost of fertilizers and GHG emission, while also improving farmers’ health by reducing exposure to agrochemicals and to smoke from cooking with fuel wood. Investing in bio-digesters will also reduce pressure on forest resources for fuel wood, therefore reducing the deforestation rate while contributing to reducing GHG emissions. Within this sub-output, the GCF will support the up-scaling of renewable energy uses for reduced emissions.

Output 2: Strengthened agribusiness policy and capacity support services

Under this output, the project will invest in the creation of an enabling policy and regulatory environment for agribusinesses, the identification of opportunities for private sector engagement in climate change mitigation and adaptation, the provision of information on climate-smart agriculture (e.g. 40,000 farmers trained in CSA) as well as improved climate information services to allow farmers to plan their cropping season. This output will also introduce resource efficient practices, harmonization of standards, and capacity building for productivity and quality improvement, reduction of post-harvest losses, marketing, potential PPP, and financing options. In addition, this output will help in mainstreaming climate change concerns into agribusiness at policy and operational levels.

Sub-output 2.1 Climate smart agribusiness policy development, standards and climate resilient varieties

There is a need for Cambodian agribusinesses to achieve comparative and competitive advantages to realize economies of scale and continuity of supply to break into new markets and achieve import substitution. In order to become competitive it must embrace cluster development and allow more efficient logistics. Under this sub-output, the project will support the development of i) climate-smart agribusiness policy; ii) climate-conscious product standards; and iii) the development and release of climate-resilient varieties.

Climate-smart agribusiness policy. In Cambodia, neither MAFF nor the Ministry of Commerce (MOC) has a specific policy for agribusiness and they have requested ADB support in this regard. Climate change concerns must be mainstreamed into an agribusiness policy at national level with a view to developing a strong and dynamic market-driven private agribusiness sector and a long-term agribusiness strategy with a climate-friendly vision. Any agribusiness policy must provide stability in the sector to encourage private investment, which includes “green” investment, and will consider both mitigation and adaptation opportunities and socially appropriate best practices. The policy development will involve: (i) identification of measures to remove barriers for private sector investment in climate-smart agribusiness and related activities; (ii) identification of key investment strategies for the public sector to enhance climate-smart agribusiness growth; (iii) promotion of the development of climate-friendly infrastructure so that Cambodia’s agribusinesses have comparative and competitive advantage with their regional rivals; and (iv) creation of institutional and legal frameworks conducive to supporting and assisting climate-smart agribusiness, particularly with respect to regulations, taxes, business registration and the streamlining of licenses required and the multiplicity of government institutions involved in the sector. It will identify reforms required with the overall objective of easing the freedom to do business and to improve efficiencies in logistics and administration.

Climate-conscious product standards. Currently, the International Organization for Standardization (ISO) is developing/enhancing ISO 14080 towards climate neutrality
in different operations and ISO 26000 to consider climate change adaptation. The project will support developing climate-conscious standards for agribusiness operations aimed at climate neutrality and effective adaptation. The activities may be broadly divided into two categories: (i) for standards that have been drafted already, a technical review followed by public consultation is needed to determine impact for the eventual endorsement by the National Standard Council (NSC), in order that the standards can be national standard with the Cambodia Standard (CS) mark; and (ii) for the standards that are yet to be drafted, working groups will need to be formed to develop the first draft, followed by technical committees for the review of the drafts, followed by public consultation with the eventual endorsement by the NSC.

The project will support activities related to certification and compliance that concerns climate change issues and human health and welfare in line with corporate social responsibility (CSR) guidelines. It includes support to good agricultural practices (GAP) for mangoes to develop a CAMGAP standard for fair trade, organic production, tropical fruit, and support to the sustainable rice platform (SRP). All standards are aimed at strengthening environmental protection and, for those compliant, enter in specific value chains demanding such standards. The CSR and SRP standards are expected to go further in ensuring worker health and safety as well as guaranteeing that there is no child or bonded labor, and ensuring workers have a living wage and an equitable share of the profits within the supply chain.

**Climate-resilient varieties.** Yields of both rice and maize varieties grown currently in the four targeted provinces are increasingly impacted by climate change. The project plans to support Cambodian Agricultural Research and Development Institute (CARDI) to trial climate-resilient rice and maize varieties including seed production and multiplication, in cooperation with International Rice Research Institute (IRRI). The varietal characteristics will include tolerance to higher temperatures, salt water, drought, prolonged submergence as well as the release of varieties with shorter cropping cycles. CARDI already has several climate resilient lines that can be trialed within a 5 to 6 year-program that includes continued selection, agro-climatic adaptation, climate resilient trait evaluations, yield comparisons as well as farmers’ and processors’ evaluations. International technical assistance support will be provided to CARDI to develop a commercialization program with recommendations on the legal framework to establish intellectual property rights and partial cost recovery for the institution. One of the objectives of the Strategic Framework for Climate Change (SFCC) is to develop crop varieties suitable to different agro-ecological zones resilient to climate change. The use of climate resilient varieties will be an essential tool for climate smart agriculture practices, introduced under sub-output 2.2.

The project will seek to achieve the following results:

- An increase in (% or number) of climate resilient variety micro-propagated in tissue culture lab;
- An increase in (% or number) of climate resilient variety successfully adopted in field
- The deployment of climate resilient resources and training modules by Provincial Agriculture Development Centers and Agriculture engineering workshop
- Increased awareness and capacity of at least 40,000 beneficiaries on watershed management
- Enabling conditions on risk financing, such as crop insurance (see sub-output 2.3)
- An increase in the number of small farmers accessing reliable, timely and relevant climate information.

**Sub-output 2.2 Capacity enhancement in climate smart agriculture**

Farming in Cambodia remains mostly subsistence-based and rain-fed due to limited irrigation infrastructure, and due to outdated production tools and practices. The lack of access to reliable extension services and the absence of climate information services prevent farmers from not only developing into professional agricultural cooperatives, but also from effectively coping with climate shocks. Climate Smart
Agriculture (CSA) training is limited; the current Good Agricultural Practice training incorporates some CSA practices, but some others are not currently disseminated to farmers. This includes for example (i) minimal or zero tillage and alternative land preparation (ii) alternative wetting and drying in rice cultivation to reduce GHG and (iii) urea deep placement in rice production; (iv) land leveling; or (v) agro-forestry, crop rotation, rice-vegetable integration, and permaculture. Aspects related to the management of off-farm landscapes and micro-watersheds are also not disseminated, perpetuating a state of low environmental awareness, environmental degradation, and decreasing yields. Climate Smart Agriculture combined with investments in agriculture and inputs has significant potential to increase or restore yields to a profitable and sustainable level. For example, the combination of sound CSA practices with improved germplasm has the potential to increase yields for premium aromatic rice to 4.5t/ha, aromatic rice 5.5 t/ha and white rice 6t/ha, for maize 8-10t/ha and for cassava above 40t/ha, while CSA combined with drip irrigation in mangoes, can increase yields by 30%.

Under this sub-output, the project will contribute to the production of climate information services as well as establish an ICT platform in order to set an enabling environment to support the capacity building program and field demonstrations on climate-smart practices.

**Production of timely and relevant climate information services to local levels.** In order to support the enabling environment for the appropriate deployment of low-carbon climate resilient value chains, the project will also support the development of improved agro-meteorological services. This will include the provision of training to MAFF on the formulation and dissemination of dynamic or updated crop calendars, the formulation and distribution of advisories for slow-onset climate events such as droughts, decadal and seasonal climate bulletins, as well as early warnings for extreme rainfall events. The project will develop a pilot information and communication technology (ICT) platform in Kampong Cham province to facilitate adoption of more energy-efficient and water use efficient measures, climate-smart agriculture practices and farm credit services. Working with the Ministry of Environment and Ministry of Water Resources and Meteorology, the project will support the acquisition and collection of climate and crop data to support crop modeling, as well as the design of tools and guidelines for managing climate risks at farm and landscape levels, linked to the ICT platform, and to the training on CSA to be provided to farmers. In addition, climate services and datasets required to establish weather index-based crop insurance schemes will be developed as part of the creation of an enabling environment for private sector investment into the sector.

**Capacity building.** The Training Of Trainers (TOT) and training of farmers, agricultural cooperative members and farmer water user communities will be conducted on climate-smart agricultural (CSA) practices as well as on climate information services. CSA training will focus on such production practices as laser leveling techniques, alternate wetting and drying, sustainable agricultural waste management, rational use of inputs (water, energy fertilizers, and pesticides), agro-forestry and soil cover maintenance techniques, as well as other modern practices that result in reduction of GHG emissions from cropping. Training will also include accountancy, agribusiness and the O&M of all infrastructure.

The project will also include training for farmer groups, such as FWUCs and cooperatives, on the management of natural resources both on-farm and off-farm, with a view of restoring the immediate landscape in and around project sites. This restoration will include agroforestry with fruit trees (on farm), assisted natural regeneration (around transport corridors and roads), and anti-erosive landscaping, as needed around irrigation schemes (off-farm). This would serve the dual purpose of maintaining the ecological production basis, while restoring carbon sinks and creating buffers in case of climate shocks. Training on climate risk management and on early warning systems will also be supported, in coordination with sub-output 2.1.

As part of the formal training, the project will prepare training manuals and materials for SRP standard for sustainable rice cultivation, for CSA, and for CAMGAP for tropical fruit. To the extent possible, existing national and international institutions, such as IRRI and the International Water Management Institute will be engaged to provide capacity building on CSA. The learning by doing training will then take place by
demonstrating and training in farmers’ fields in specific locations with three sites in each province. An estimated 40,000 farmers, of which 50% will be women, will be trained in CSA through this sub-output.

**Sub-output 2.3. Green finance focusing on green lending, public-Private Partnership (PPP) frameworks & climate risk sharing instruments**

This sub-output will involve making recommendations to fill current gaps in relation to (i) creating an enabling environment for PPPs in agribusiness particularly with respect to the roles and responsibilities of the public and private sector and those activities that can be supported by a future project and (ii) the identification of incentives for private sector participation in agribusiness particularly improving the private sector's access to finance, particularly to green finance and ways to reduce the risk aversion of commercial banks; and (iii) reducing the financial risks associated impacts climate change on the raw material base such as the use of crop insurance.

To achieve the PPP objectives the project will support dialog between public and private sector stakeholders at the national level through convening an Inter-ministerial Committee (IMC) and in turn promote the establishment of crop centric forums for each value chain (cassava, maize, rice and mango) both of which will meet twice a year. After each forum is held, the IMC would meet to review the crop forum points raised and to respond to the recommendations. The Project Manager will represent the PMU at each of the committee meetings and crop-centric forums.

**Enabling environment for PPPs and effective private sector participation in CSA.**

ADB has already supported the development of a PPP framework for Cambodia. The project will build the capacity of the financial sector to evaluate climate risk and recognize lending opportunities for banks and MFIs lending for climate friendly investments in the sustainable agriculture sector. The project will build on the work undertaken under the Mekong Sustainable Finance Working Group (USAID project) and the MFI Client Protection Principles and to strengthen linkages, trust and shared understanding between lenders, borrowers, and input and services providers regarding climate-friendly investment opportunities. The opportunities for establishing an agricultural supply chain resilience financing facility, in which a partner financial institution (e.g., Rural Development Bank which is being encouraged to lend to cooperatives) can share some of the contract farmers’ credit risk through first-loss guarantee for example, may also be explored. Feasibility of other value chain financing options such as warehouse receipt financing scheme may also be looked into. The credit facility and guarantee scheme are expected to be available for only those projects that meet specific climate safe screening criteria, which will be developed. It can also be made available for commercial banks when lending to SMEs meeting those same criteria.

This will serve two purposes: (i) to provide a commercial incentive for banks to abide by the agreed best practice and climate change screening principles, and (ii) to provide an extra degree of confidence for commercial banks to lend to the underserved SME market, provided the borrowers meet the guaranty eligibility criteria. The technical assistance related to credit guarantee program may involve (i) finalizing the design of the guarantee scheme with all key stakeholders (Cambodian banks and ADB, MFIs, and RDB) in such a way that the scheme remains simple to operate while offsetting against additional risks, and (ii) designing a guarantee training program for banks/MFIs and RDB to understand guaranty criteria and eligibility, usage, and administration.

**Building capacity of financial institutions for climate friendly agribusiness investments.** The project will build on the Mekong Sustainable Finance Working Group and the Micro-Finance Institutions (MFI) Client Protection Principle to help financial institutions develop environmental and climate screening criteria and tools to guide their lending activities. The project, through a training and capacity building program comprising (i) awareness raising and promotional activities and (ii) green financing, will build the capacity of banks and MFIs to evaluate loans against environmental and climate risk screening criteria, by integrating them into the current credit application process and reporting procedures, and to recognize both mitigation and adaptation opportunities. It will also strengthen linkages, trust and shared understanding between lenders, borrowers, and input and services providers regarding climate friendly agribusiness investment opportunities.
The project will also support piloting of proven concepts of financing instruments that have potential to drive climate smart agribusiness investments to scale in Cambodia. For example, the Global Innovation Lab for Climate Finance\(^\text{27}\) identifies, develops, and supports the latest climate finance instruments, which are i) Actionable ii) Innovative iii) Catalytic and iv) Financially Sustainable. Some of the ideas endorsed by the Lab that are potentially project ready to be adopted at a pilot scale in Cambodia and relevant to this project are as follows:

- The Agricultural Supply Chain Adaptation Facility (ASCAF)\(^\text{28}\) : This would require a large sum of capital to achieve scale.
- Climate-smart Lending Platform \(^\text{29}\) : The project appears to be scalable depending on the available resource envelope.
- Water Financing Facility \(^\text{30}\) : The project appears to be scalable depending on the available resource envelope.

**Crop insurance.** Under this sub-output, the project will explore the possibility of setting up crop insurance, and particularly weather-indexed crop insurance (WICI) mechanisms, as an additional means of reducing risks from climate change. The project will explore opportunities on the basis of lessons learned from the Rice Commercialization Project, which is piloting similar schemes elsewhere in the country. If the pilot provides successful results, this project will explore weather indexed crop insurance mechanisms as follows:

While penetration of crop insurance in Cambodia is extremely low, the project will first aim to create an enabling environment for crop insurance in the four target provinces by examining financial and regulatory constraints specific to target provinces in developing the insurance market, and will then identify mechanisms to overcome such barriers. The project will build on the work of the Cambodian Centre for Study and Development in Agriculture (CEDAC), which is preparing a new generation of insurance products incorporating lessons learned from the first pilot that took place in five provinces, including Kampot and Takeo and will help to expand the service to Kampong Cham and Tbong Kham. It will also look into including cassava and maize to rice as the portfolio of insurable crops.

The WICI is a market-based instrument, in which private insurance companies conduct insurance underwriting. Public sector investment should focus on creating enabling conditions to attract private companies, such as providing direct subsidies focusing on reducing cost of doing business. In addition to the WICI, the project may also consider supporting the establishment of a disaster fund (contingency fund) by providing matching fund. The fund could be operated based on agreed procedures by a consortium of cooperatives and financial institutions. Interest earned from the fund could be utilized to match the cost of insurance premium. The establishment of the contingency fund would be used for medium frequency and medium impact disaster events, while the weather index systems would cover only catastrophic events, therefore helping to reduce insurance premium.

---

B.2. Background information on project/programme sponsor

Asian Development Bank (ADB) support to agriculture sector in Cambodia has been both multi-layered and multifaceted. ADB has engaged with policy and institutional reform processes, as well as with individual investment projects, and worked on rural livelihood dimensions, including rural infrastructure provision, and through several ministries within individual projects in often innovative (if sometimes complex) structures.

ADB investment projects and programs include (i) Climate Resilient Rice Commercialization Sector Program; (ii) Uplands Irrigation and Water Resources Management Sector Project; (iii) Cambodia Water Resources Management Sector Development Program; (iv) Rural Roads Improvement Projects I and II, and (v) the Cambodia Strategic Program for Climate Resilience. Cambodia is also participating in ADB’s regional programs and projects supporting regional integration such as (i) GMS

---

\(^{27}\) [http://climatefinancelab.org/](http://climatefinancelab.org/)

\(^{28}\) For more details: [http://climatefinancelab.org/idea/agricultural-supply-chain-adaptation-facility/](http://climatefinancelab.org/idea/agricultural-supply-chain-adaptation-facility/)

\(^{29}\) For more details: [http://climatefinancelab.org/idea/climate-smart-finance-smallholders/](http://climatefinancelab.org/idea/climate-smart-finance-smallholders/)

\(^{30}\) For more details: [http://climatefinancelab.org/idea/water-finance/](http://climatefinancelab.org/idea/water-finance/)
Core Agriculture Support Program; (ii) GMS Core Environment Program; and (iii) GMS Flood and Drought Management and Mitigation.

ADB’s program and projects are focused on rural income generation and livelihoods, utilizing value chain approach with emphasis on agribusiness and rural employment opportunities. More recently climate change interventions have become important targeted activities. ADB has led the way in climate resilience with projects such as the recent Climate Resilient Rice Commercialization Sector Program ($63 million loan + $100 million with co-financing), which focuses on climate proofing and rehabilitating irrigation systems. Climate proofing and capacity development of climate variability and change awareness were also key aims of the Uplands Irrigation and Water Resources Management Sector Project ($66 million loan), launched in 2015. This broad support for irrigation rehabilitation through sector projects has been complemented by ADB’s support of capacity building and policy development programs and projects.

ADB programs and projects have worked through several ministries which include the Ministry of Environment (MOE), MAFF, MOWRAM, MRD and Ministry of Commerce (MOC) as well as with Supreme National Economic Council.

Cambodia is a Group A developing member country, and eligible for Asian Development Fund (ADF) concessional ordinary capital resources lending (COL). Under the Country Operations Business Plan (2016-2018), ADF grant and COL resource allocation is $571.62 million. The indicative non-lending program from Technical Assistance Special Fund for 2016-2018 is $11.3 million for the national program and $6.6 million for the regional program.

The Cambodia Country Partnership Strategy (CPS) 2014–2018 identifies three strategic pillars of the Asian Development Bank’s (ADB’s) activities in Cambodia: (i) deepened rural–urban–regional linkages, (ii) targeted human and social development, and (iii) enhanced public sector management (PSM) as a facilitating cross-cutting strategic pillar. The country program builds programatically on these pillars using a tailored combination of investment projects and sector development programs in education; PSM; and agriculture, natural resources, and rural development (ANR). The country program seeks to improve integration and synergies within and between the strategic pillars through individual projects and programs to maximize overall impact and outcomes.

Within the agriculture Sector, ADB is supporting four key areas: agricultural productivity enhancement, diversification, commercialization and connectivity, sustainable natural resources management and gender development. ADB’s strategy is deliberately selective in pursuit of these ends through two main streams of operation; (i) enhancing agricultural productivity through strengthening irrigation and water resources management; and (ii) improving value addition in value chains of agricultural commodities.

ADB will help the government draw valuable lessons in formulating sound agribusiness policies, addressing climate change adaptation and mitigation, and enhancing private sector participation in the agricultural value chains to increase efficiency gains. By providing critical infrastructure, targeted agribusiness support and capacity building, ADB’s proposed project will enhance crop diversification and farm productivity, diversify livelihood options and energy sources, and thereby assist smallholders’ transition from subsistence to commercial agriculture in project areas. The project will identify opportunities for the private sector and will foster public-private partnerships, particularly in agribusiness input and output markets and marketing. The project will strengthen regional cooperation by targeting investments along the GMS economic corridors, and complement initiatives such as Trade Facilitation: Improved Sanitary and Phyto-sanitary (SPS) Handling Project, the GMS Core Agriculture Support Program, and the GMS Core Environment Program. It will promote a deeper economic integration through harmonization of standards for delivery of safe and value-added agri-food.

B.3. Market overview

Agriculture accounts for 28% of gross domestic product. Crop production is the largest sub-sector of agriculture sector in 2014, contributing 59.4% of the sector’s GDP, followed by 22.2% for fisheries, 11.3% for livestock production and 7% forestry. Farming in Cambodia is mostly subsistence, rain-fed, and depends on the vagaries of
climate. The agricultural sector growth has gradually slowed from 5.4% in 2009, to 4% in 2010, 3.1% in 2011, 1.7% in 2013 to 0.48% and 0.24% in 2014 and 2015 respectively, mainly due to extreme weather events such as floods and droughts.

**Rice:** Cambodia reached self-sufficiency in rice in 1990 and became a net exporter of rice and paddy in 1995. Per MAFF statistics, Cambodia rice production in 2014 - 2015 was 9.3 million tons, which includes dry season crop production of 2.18 million tons and a wet season crop production was 7.14 million tons with an average yield of 3.1 tons per hectare. Compared to 2007, production has increased by 38.61%, yield has increased by 17.46% and cultivation area has increased by 18.16%. The domestic demand is 49.6% of the total production resulting in a surplus of 4.71 million tons indicating a significant export potential. There is no official data on cross border trade to Vietnam and Thailand, however based on traders’ estimate, Cambodia exported more than 2 million tons of paddy per annum in-between 2012 -2015. The milled rice export was 538,396 tons in 2015. Cambodia rice production is estimated to increase 10% by the year 2020 amounting to 10 million tons. The domestic demand is expected to be 5 million tons resulting in 5 million tons of surplus for export. The cross-border trade to Viet Nam and Thailand is estimated to reach 3 million tons of paddy and 1 million tons of milled rice.

The farm gate price of paddy dropped in 2015/2016 with the reduction of price by 8% for fragrant variety (from KR 1,250/kg ($313/ton) in 2014/2015 to KR1,150 /kg ($288/ton) in 2015/2016) and by 12% IR66 variety (from KR820/kg ($205/ton) in 2014/2015 to KR750/kg ($188/ton) in 2015/2016). The decrease in the farm gate price is due to lower demand in Vietnam and Thailand and the domestic miller’s limited capacity to buy the local paddy during the time of harvest.

**Maize:** Cambodian maize production increased rapidly between 1995 – 2013 due to improved productivity and the expansion of the cultivation area. However, the area under cultivation decreased 41% from 239,748 hectares in 2013 to 143,517 hectares resulting in reduced production from 926,846 tons in 2013 to 549,607 tons in 2014. This was due to the fall in market price and demand from Vietnamese and Thai buyers. The average on-farm price for grain of maize dropped in 2015– from KR1,140/kg ($283/ton in 2014 to 930/Kg ($231/ton) in 2015. It is estimated that the annual demand for Cambodia maize will decrease due to increasing domestic production in Vietnam and Thailand in 2015. The USDA reported that Vietnam imported 2.3 million tons in 2013/2014, with the forecast of reduced import of 1.8 million tons in 2015. There is no official data of Cambodia maize export to Vietnam and Thailand, however but traders’ estimate suggests 80% of Cambodian maize is exported to these two countries. It is difficult to forecast future of Cambodia’s maize production due to uncertainty of market demand Vietnam and Thailand. However, considering high growth rate of 7% per annum for demand of animal feed in Southeast Asia market, Cambodia’s maize production is estimated to increase 20-30% in next 5 years.

**Cassava:** Cambodia cassava production has been increasing rapidly since 2007 due to the expansion of the cultivation area under the Economic Land Concessions (ELC). The production increased by 91% between 2010-2014 compared to 2007- 2010. In 2014, national cassava production increased significantly to reach more than 11.94 million tons of fresh roots, an increase of 180% compared to production in 2010. The increase in production was a direct result of farmers switching to cassava production due to fall in maize price. In 2014, 11.9 million tons of cassava was produced from 521,459 hectares of land (MAFF 2015). The current cassava yield of 20 - 30 tons per hectare could increase up to 45 tons per hectare, if planted on virgin soil. Cambodia is currently mostly exporting fresh cassava tubers through border trade to Vietnam and Thailand. There are 6 starch processors in Cambodia but only 3 factories are in operation, processing about 1% of total national production. Cambodia cassava is expected to increasingly find access to global markets reducing dependence on Vietnam and Thailand. Since the start of export dry cassava chips for ethanol production to China in 2013, export has gradually increased; 60,000 tons in 2013, 150,000 tons in 2015, and 200,000 tons in 2016 respectively. By 2020, with the increase in Cassava production by 20% reaching 14 million tons of fresh root per annum, export of dry chips to China is estimated to reach 500,000 tons per annum.

---

31 National Institute of Statistics, 2016, Phnom Penh
The export to Vietnam and Thailand is also likely to increase, if Cambodia can address the issues of transport and logistics.

The cassava market price increased between 2013 and 2015, however it dropped in 2016 due to lower demand in Thailand and Vietnam. The cassava price was KR250/kg ($62.5/ton) for fresh root and KR740/kg ($185/ton) cassava chips in 2013, which increased to KR 765/kg ($189/ton) chips and KR 270/kg ($67/ton) for fresh root in 2015. In 2016, price dropped to KR240/kg ($60/ton) for fresh and ($138/ton) chips.

Mango: Based on trader estimates, Cambodia produces more than 250,000 tons of mango fruit per year, with average yields of 15 tons/ha/annum. The majority of Cambodian mangoes fruits are exported to Vietnam and Thailand through border trade as fresh fruit (predominantly the variety Keo Romeat). It is estimated that about 35,000 tons of fresh mango was exported to Vietnam and about 20,000 tons to Thailand in 2015. Mango fruit market prices are relatively consistent across the country with differences only related to varying transport costs and variety. The prices have been bullish in 2015 season. The average on-farm price for fresh mango fruit in 2015 was KR1,000/kg ($246/ton) and wholesale price was KR1,500/kg ($370/ton). High quality mango (Grade A) for export to Vietnam and Thailand commanded a higher price of KR3,500 per kg ($864/ton). However, in 2013 and 2014, on-farm price dropped as low as KR400/kg ($100/ton) due to lower demand in Thailand and Vietnam. It is estimated that Cambodia’s mango production is expected to increase by 20% in next 5 years. Depending on processing capacity and ability to meets SPS protocols, Cambodia could potentially export mango to new markets such as China and South Korea.

**Applicable permits and licenses**

Applicable permits and licenses for this project include

- Construction permits, which will be delivered by the Ministry of Public Works and Transport (MPWT) and MRD, in line with current regulations and in cooperation with Provincial authorities;

- Environmental impact assessments and management plans will be developed in line with ADB and RGC legal requirements. Initial environmental examinations have been produced for the representative sub-projects during the course of feasibility assessment. These IEE include Environmental Management Plans as well as monitoring plans. Detailed Environmental management plans and assessments will be produced prior to implementation for each sub-project;

- Licenses for the creation and operation of processing plants, agri-food business, repair workshops and any other private sector enterprises will be obtained by project beneficiaries as part of normal business applications. The project will support beneficiaries in obtaining the licenses required by the Ministry of Commerce, Ministry of Industry and Handicraft and Ministry of Health where relevant.

- Seed certification and germplasm quality assurance will be ensured under the framework of the Law on Seed Management and Plant Breeders rights (2009), which foresees that new or introduced varieties must be registered with the Ministry of Industry and Handicraft, after the application has been evaluated by the Ministry of Agriculture, Forestry and Fisheries (MAFF) under the distinctiveness, uniformity and stability (DUS) protocol. The General Department of Agriculture (GDA) of MAFF is responsible for seed certification and a fee is paid for the certification, the quality assurance requires seed testing and recommendations to the seed supplier on correct labeling.

**Describe applicable taxes and foreign exchange regulations**

The government will finance taxes and the incremental costs of PMU staff. Taxes and duties of $1.96 million are to be financed through exemption from government resources. ADB contribution includes taxes and duties for civil works, while the government contribution includes taxes and duties for goods and equipment and services.
All other project cost categories will be financed by ADB except that households installing bio-digesters under the Renewable Energy for Value Chain Improvement sub-component will contribute about 70% of the cost of biodigesters and half the cost of compost huts. The MEF agreed to cover taxes and duties for equipment, goods and services through exemption.

Provide details on insurance policies related to project/programme.

Not Applicable

MAFF is the executing agency (EA), in close coordination with MOWRAM and MRD. The General Directorate of Agriculture, CARDI, General Directorate of Animal Health and Production (GDAHP), the General Department of Technical Affairs of MOWRAM and the General Department of Technical Affairs of MRD will be implementing agencies. The IAs will be responsible for monitoring project progress and evaluating project outputs. Monitoring and evaluation shall be in accordance with the project design and monitoring framework (DMF).

The Project Steering committee, chaired by the Minister of MAFF and comprising representatives (at the level of Under Secretary of State or above) of the MEF, MOWRAM, MRD, Ministry of Commerce (MOC), Ministry of Industry and Handicrafts (MIH) and Ministry of Environment (MOE), will provide oversight, coordination and policy guidance in all aspects of project implementation, except land acquisition and resettlement which is the responsibility of the Inter-Ministerial Resettlement Committee (IRC). Other ministries may be invited to attend as observers when specific issues of their concern are for discussion.

A project management unit (PMU), chaired by the Under Secretary of State as Project Director and assisted by a Project Manager and comprising additional 4 staff each from MAFF (financial officer, procurement officer, safeguards officer and M&E officer), MOWRAM (Director, irrigation/civil engineer, financial officer, and procurement officer) and MRD (Director, civil engineer, financial officer, and procurement officer), will be responsible for overall project management, procurement and financial management. The PMU updates the project implementation progress to the Project Steering Committee. Three consultants (rural infrastructure specialist and team leader, financial management and procurement specialists) will support the PMU.

At provincial level, the Provincial Departments of Agriculture, Forestry and Fisheries (PDAFF), Provincial Department of Water Resources and Meteorology (PDWRAM) and Provincial Department of Rural Development (PDRD) will be key agencies working with guidance and technical support from relevant national departments. A provincial project implementation unit (PPIU) will be established in each of the four target provinces. The PPIU will be chaired by the director of PDAFF, and comprising representatives of PDWRAM and PDRD, and PDAFF staff related to Cooperatives, Agricultural Extension, and Animal Health and Production. PDWRAMs will be responsible for coordinating all field activities with FWUCs, while PDRDs will be responsible for all farm roads and connectivity to agricultural cooperatives.

The Project implementation Consultants (PIC) and other technical specialists as well as service providers including government staff as resource persons will carry out a range of capacity building and training activities, as well as pilot demonstrations and detailed engineering designs.

ADB will Monitor the progress of project implementation on a regular basis as well as on the behalf of the other donors. It will ensure that the donor fund flows to the project are achieved in a timely and efficient manner. It will also conduct review missions and provide oversight on the activities defined in the project Procurement Plans to ensure that all procurement is in compliance with ADB procedures. The implementation structure is summarized in the table below.

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation period</td>
<td>01 January 2018 – 31 December 2023</td>
</tr>
<tr>
<td>Estimated completion date</td>
<td>30 June 2024</td>
</tr>
</tbody>
</table>
### Management

<table>
<thead>
<tr>
<th>(i) Executing agency(s)</th>
<th>MAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) Implementing agencies</td>
<td>The General Directorate of Agriculture, the Cambodian Agricultural Research and Development Institute, and the General Directorate of Animal Health and Production in MAFF, the General Department of Technical Affairs of MOWRAM, and the General Department of Technical Affairs of MRD.</td>
</tr>
<tr>
<td>(iii) Project Steering Committee</td>
<td>Minister of MAFF (Chair), and representatives of MEF, MOWRAM, MRD, MOC, MIH and MOE.</td>
</tr>
<tr>
<td>(iv) National project management unit</td>
<td>MAFF: Project Director, Project Manager, Financial Officer, Procurement Officer, Safeguards Officer (including gender), and M&amp;E Officer. MOWRAM: Director, Irrigation/civil engineer, financial and procurement officers. MRD: Director, Irrigation/civil engineer, financial and procurement officers.</td>
</tr>
<tr>
<td>(v) Provincial project implementation office</td>
<td>In each of the 4 provinces, the office will comprise the Director of PDAFF, representatives of PDWRAM and PDRD, and three PDAFF staff representing cooperatives, agricultural extension, and animal health and production.</td>
</tr>
</tbody>
</table>

ADB = Asian Development Bank; ICB = international competitive bidding; MAFF = Ministry of Agriculture Forestry and Fisheries; MEF = Ministry of Economy and Finance; MIH = Ministry of Industry and Handicrafts; MOC = Ministry of Commerce; MOE = Ministry of Environment; MOWRAM = Ministry of Water Resources and Meteorology; MRD = Ministry of Rural Development; NCB = national competitive bidding; PDAFF = Provincial department of agriculture, forestry and fisheries; PDWRAM = provincial department of water resources and meteorology; PDRD = provincial department of rural development; QCBS = quality and cost based selection.

### Procurement and financial management

There are no foreseen large packages for goods and civil works, thus international competitive bidding will not be used. All packages can be procured by using the government's Standard Operating Procedures (SOP) and procurement manual for national competitive bidding. The consulting services will be required for design, supervision and management support. ADB's Guidelines on the Use of Consulting Services (2013, as amended from time to time) will be used for recruitment of firms for Project Implementation Consultants (PIC) and other consulting services, including external monitoring of safeguards.

The loan and grant proceeds will be disbursed in accordance with ADB’s Loan Disbursement Handbook (2015, as amended from time to time), and detailed arrangements agreed upon between the government and ADB.

MEF is the official representative of the Royal Government of Cambodia as the borrower of funds. It is the responsibility of MEF to (i) fulfil government fiduciary and financial management oversight, (ii) provide sufficient counterpart funds for project activities in a timely manner, and (iii) ensure that delays are not encountered in procurement and recruitment. MEF, in close cooperation with the EA, will be responsible for fund flow.

MEF will operate the main imprest account, with three designated subaccounts for MAFF, MOWRAM and MRD. The imprest accounts are to be used exclusively for ADB’s eligible expenditures. Three subaccounts, with a threshold of $10,000 each in each province, will be opened by the PDAFF, PDWRAM and PDRD to cover the project’s day to day operations. The Directors of PDAFF, PDWRAM and PDRD in each province will be accountable for proper use of advances and reconciliation of the subaccounts. The EA has committed to submit the audited annual project financial statement to comply with ADB requirements in terms of timeliness, completeness and acceptable quality.

The PMU is required to prepare budgets for significant activities as stated in the financing agreement and PAM with sufficient details to allow meaningful monitoring of the subsequent performance. The funds flow is arranged and disbursed based on the
government’s standard operating procedures (SOP) and FMM and ADB’s procedures with further discussions among concerned parties, such as MAFF, MEF, and ADB.

All consulting services will be procured by MAFF-PMU. Procurement of civil works contracts for the subprojects will be carried out by the PMU and in conjunction with MRD and MOWRAM national technical departments, where appropriate, within the PMU will provide national technical support (NTS) of the concerned ministry following NCB procedures. A bid evaluation committee will be formed and the PIC will assist the committee in the opening and evaluation of tenders. Recommendations which bid to accept will be passed on to the PMU for contract award. The procurement of goods, works, and consulting services will be procured in accordance with the government’s procurement manual for externally financed projects in Cambodia updated version May 2012 and the ADB’s Procurement Guidelines (2015, as amended from time to time) and consulting services guidelines (March 2013, as amended from time to time) in case of consulting services. Within the four provinces, a number of subprojects have been identified by the design consultants, primarily related to (i) irrigation and water management systems; (ii) agricultural cooperative drying and storage units; (iii) surface water catchment ponds; and (iv) pilot drip irrigation systems.

A number of subprojects have been pre-screened to ensure consistency with eligibility criteria including ADB and the government’s social and environmental safeguards. For all subprojects, national consultants will be recruited for the preparation of the feasibility study and detailed design to be recruited by the PMU in conjunction with inputs from the NTD and its NTS. The studies will be reviewed by the PIC and if satisfactory will be passed onto the IA for further scrutiny and though the PMU and then on to ADB for no objection.

Once there is no objection from ADB the subproject will be presented to the PSC for endorsement and then if approved the design will then be undertaken. The preparation of feasibility studies and detailed design will be carried out by national consultants. The PIC will provide support and guidance to the national consultants.

Once the feasibility studies have been approved, the national consultants will prepare the detailed design The PMU will review and approve the detailed design and then initiate the bidding process.

Describe construction and supervision methodology with key contractual agreements. Describe operational arrangements with key contractual agreements following the completion of construction.

Construction will be undertaken using private sector service providers. Responsibility for construction supervision for post-harvest structures, irrigation infrastructure and farm roads will be given to the relevant line ministry (MAFF, MOWRAM, MRD), and training on procurement and supervision of construction will be provided in line with capacity assessments of project partners. Following completion of construction, operations and maintenance costs will be borne jointly by the project beneficiaries (communities, such as FWUCs) and provincial governments, as part of ongoing budgets.

The overall project implementation plan is attached in annex. This implementation plan will be updated annually and submitted to ADB with contract and disbursement projections for the following year.

C. Financing / Cost Information
The project is estimated to cost $140 million.

### Table 1: Project Investment Plan ($ million)

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. <strong>Base Cost</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>1. Output 1: Agribusiness Value Chain Infrastructure Improved</td>
<td>96.1</td>
</tr>
<tr>
<td>2. Output 2: Agribusiness Policy and Capacity Support Services Strengthened</td>
<td>24.0</td>
</tr>
<tr>
<td>Project Management</td>
<td>8.9</td>
</tr>
<tr>
<td>Subtotal (A)</td>
<td>129.0</td>
</tr>
<tr>
<td>B. <strong>Contingencies</strong>&lt;sup&gt;c&lt;/sup&gt;</td>
<td>8.8</td>
</tr>
<tr>
<td>C. <strong>Financing Charges During Implementation</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>Total (A+B+C)</strong></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes taxes and duties of $1.96 million to be financed through exemption from government resources. ADB contribution includes taxes and duties for civil works, while the government contribution includes taxes and duties for goods and equipment and services.

<sup>b</sup> In 3rd quarter 2016 prices.

<sup>c</sup> Physical contingencies computed at 5% for all expenditure categories except vehicles and consultancy. Price contingencies computed at 1.5% on foreign exchange costs up to loan negotiations, at 1.4% for 2017 and at 1.5% for remaining project years and at 2.5% on local currency costs up to loan negotiations then at 3% for the first year and 3.5% for remaining years; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

<sup>d</sup> Interest during construction for ADB loan has been computed at 1% per year. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount. Source: ADB estimates

The government has requested a loan in various currencies equivalent to approximately $90 million from ADB Concessional Assistance Resources to help finance the project. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions set forth in the draft financing agreement.

### Table 2: Financing Plan

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($ million)</th>
<th>Share of Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian Development Bank</td>
<td>90</td>
<td>64</td>
</tr>
<tr>
<td>Green Climate Fund</td>
<td>40</td>
<td>29</td>
</tr>
<tr>
<td>Beneficiaries</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Government</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

<p>| Total project financing&lt;br&gt;(a = (b) + (c)) | 140,000,000 |</p>
<table>
<thead>
<tr>
<th>Financial Instrument</th>
<th>Amount</th>
<th>Currency</th>
<th>Tenor</th>
<th>Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Senior Loans</td>
<td>10,000,000</td>
<td>Options</td>
<td>( ) years</td>
<td>( ) %</td>
</tr>
<tr>
<td>(ii) Subordinated Loans</td>
<td></td>
<td>Options</td>
<td>( ) years</td>
<td>( ) %</td>
</tr>
<tr>
<td>(iii) Equity</td>
<td></td>
<td>Options</td>
<td>( ) years</td>
<td>( ) %</td>
</tr>
<tr>
<td>(iv) Guarantees</td>
<td></td>
<td>Options</td>
<td>( ) years</td>
<td>( ) %</td>
</tr>
<tr>
<td>(v) Reimbursable grants *</td>
<td>30,000,000</td>
<td>Options</td>
<td>( ) years</td>
<td>( ) % IRR</td>
</tr>
<tr>
<td>(vi) Grants *</td>
<td></td>
<td>Options</td>
<td>( ) years</td>
<td>( ) %</td>
</tr>
</tbody>
</table>

C.1. Description of financial elements of the project / programme

C.2. Project financing information

(b) Requested GCF amount
* Please provide detailed economic and financial justification in the case of grants.

<table>
<thead>
<tr>
<th>Total Requested (i+ii+iii+iv+v+vi)</th>
<th>40,000,000</th>
<th>Options</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Financial Instrument</th>
<th>Amount</th>
<th>Currency</th>
<th>Name of Institution</th>
<th>Seniority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan</td>
<td>90,000,000</td>
<td>USD</td>
<td>ADB</td>
<td>Options</td>
</tr>
<tr>
<td>In-Kind</td>
<td>4,000,000</td>
<td>USD</td>
<td>Government of Cambodia</td>
<td>Options</td>
</tr>
<tr>
<td>In-Kind</td>
<td>6,000,000</td>
<td>Options</td>
<td>Beneficiaries</td>
<td>Options</td>
</tr>
<tr>
<td>Options</td>
<td>.................</td>
<td>Options</td>
<td>Options</td>
<td>Options</td>
</tr>
</tbody>
</table>

Lead financing institution: Asian Development Bank

The Government has assured ADB that implementation of the Project shall conform to all applicable ADB policies including those concerning anti-corruption measures, environmental and social safeguards, gender, procurement, consulting services, and disbursement.

The Government will ensure and will cause the Project Executing Agency to ensure that all subprojects meet the screening and eligibility criteria agreed between the Government and ADB and documented in the PAM prepared for the Project, in order to be eligible to receive financing under the Project. Subprojects’ selection procedures are explained in PAM. The EA will submit feasibility report of each subproject for ADB’s concurrence prior to inviting bids for award of contract.

Specifically, the Government will ensure or cause the Project Executing Agency to ensure that each subproject meets the following criteria:

(i) Category B or less in terms of environmental impact as defined in the ADB’s Safeguards Policy Statement 2009 [do not have any significant environmental impact];

(ii) Category B or less in terms of involuntary resettlement impact as defined in the SPS [do not cause involuntary resettlement and land, if required, will be within the permissible limits for category B];

(iii) Category B in terms of indigenous peoples impact as defined in the SPS [do not cause impact on indigenous peoples, if required, will be within the permissible limits for category B];

(iv) Subproject has low resource efficiency, and would have scope for substantial enhancement of resource efficiency;

(v) Subproject should involve only rehabilitation of existing systems or related schemes and should not involve construction of new systems except cooperatives;

(vi) Subproject should show clear linkages to reduce GHG emissions and/or increase climate resilience of the targeted value chains and agribusiness development;

(vii) Subproject should be located in target provinces;

(viii) Subproject should not be covered by other ongoing or proposed projects financed by ADB or any other Development Partner;

(ix) Beneficiaries should include sharecroppers, poor farmers, and women farmers and all agree to participate in the activities which include the capacity building interventions; and be willing to contribute human and community resources and/or capital to the infrastructure subprojects; and

(x) Subproject should be economically viable; and technically, socially and environmentally feasible. The EIRR of each subproject should be greater than 12%.

For completed subproject, the MAFF, MOWRAM and MRD will ensure that adequate counterpart funds are allocated each year and provided on a timely basis including for the operation and maintenance of infrastructure. The Government will also ensure that
farmer water user communities (FWUCs) and farmer water user groups (FWUGs) will collect adequate irrigation service fees to sustain the operation and maintenance of distribution canals. After completion of the irrigation system, PDWRAMs will sign MOUs with the respective FWUCs outlining role and responsibilities in accordance with the recently approved sub-decree on FWUCs. The Government will make available necessary budgetary and human resources to fully implement the EARF, LARF, ethnic minority development framework and any EMP, resettlement plan, and indigenous peoples plan. The Government will ensure that no proceeds of the ADB and GCF funds are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS. The Government will ensure or cause the Project executing and implementing agencies to ensure that the core labor standards and the Government's applicable laws and regulations are complied with during Project implementation. Further details of assurances and covenants are provided in an annex.

MEF will ensure that counterpart funds for the Project are provided on a timely basis, including funds to finance (i) taxes and duties for goods, equipment and services through tax exemption procedures, and (iii) incremental operating cost for PMU staff's supplementary salary. As part of advance actions, the EA and IAs will complete (i) the appointment of consultant selection committee, bid evaluation committee, and procurement review committee within one month of signing the MOU of fact finding mission; (ii) evaluation of bids for works contract for three representative subprojects, Trapaing Run irrigation system in Kampot province, mango drip irrigation system in Takeo province, and cassava storage and processing plant in Tbong Khmum province and submit to ADB for review and approval; (iii) evaluation of bids for procurement of goods, vehicles and equipment and submit to ADB for approval; and (iv) evaluation of technical and financial proposals of the Project Implementation Consultants (PIC) package and submit final evaluation and draft contract for ADB's review and approval.

D. Expected Performance against Investment Criteria

Please explain the potential of the Project/Programme to achieve the Fund’s six investment criteria as listed below.

Adaptation impacts

The project will reach at least 390,000 beneficiaries, increasing their income by participating in climate-resilient, low-carbon agribusiness activities. It will promote inclusive economic growth, reduce poverty among beneficiaries, provide rural employment opportunities and improved services, including development of supply arrangements between farmers, cooperatives, FWUCs, processors, distributors, and traders, therefore integrating all value chain stakeholders. Cooperative farmers will produce quality climate smart products, on-time and with continuity of supply. Women, landless people and poor households will be included in agribusiness, mechanization, and operation and maintenance training. The project expects to strengthen adaptive capacity of at least 40,000 farmers (among which 16,000 women) and reduce their exposure to climate risks through capacity building on climate-smart agriculture practices and agribusiness development skills, which will in turn improve productivity and diversify farming systems.

At the outcome level, the project expects to contribute to an increase in yields of at least 15% from the 2016 baseline (rice 2.7 tons, maize 4 tons, cassava 20 tons and mango 15 tons/ha) and to help at least 50 agribusinesses to become more resource efficient along the value chain in terms of water savings (5-10% efficiencies), energy savings (20%) and reduction in post-harvest losses (10%).

To realize these adaptation impacts, the project expects to climate-proof at least 27 water management systems targeting at least 15,000 ha benefitting 25,000 households, with at least 50,000 women, as well as 800 on-farm rainwater harvesting ponds and 4,000 ha of land laser leveled to optimize the amount of water for irrigation and better germination and crop growth. Furthermore, the project expects to make climate-resilient infrastructures for the post-harvest stage of the value chain for 80 agricultural cooperatives as well as four provincial agricultural development centers and four engineering workshops to provide agribusiness services and strengthen farmer value chain linkages.
The project expects to reduce vulnerability to climate change by strengthening institutional and regulatory systems for climate-responsive planning and development. The project will invest in climate-resilient value chains, introducing a climate-smart and gender-responsive agribusiness policy including a PPP framework focusing on agribusinesses and CAMGAP endorsed as national standard for tropical fruit and organic fertilizers. The project proposes to install several Biodigesters, which will result in an increased productivity and integrated farming system wherein agricultural wastes are reused and optimized. Bio-slurry from biodigesters can partly replace agrochemical fertilizers. Bio-slurry is nicknamed brown gold by the FAO due to its positive effects on the soil and potential to improve yields. In addition, the reduced demand for fuel wood will reduce degradation of forest and other above ground biomass.

**Mitigation impacts**

In terms of mitigation of GHG emissions, the project will reduce GHG emissions by 238,000 tons of CO₂ by 2024 as follows:

The project expects to install 12,000 additional bio-digesters and 6,000 compost huts made operational benefitting at least 80,000 persons, including 40,000 women, due to improved household air quality. Biodigesters will reduce GHG emissions by replacing non-renewable biomass with a renewable fuel, biogas, for cooking and by avoiding the release of methane to the atmosphere from anaerobically stored manure by capturing the methane in a biodigester. The average digester saves around 4 to 5 ton CO₂ per year. In the period 2010 to 2014, NBP has mitigated around 335 GgCO₂e and in the period 2006-2015, the National Biodigester Program (NBP) has saved 148.1 Gg of wood, equivalent to a primary forest area of 1,084 hectares.

On top of that, the use of biomass for cooking emits Black Carbon (BC). BC is one of the most important human emissions in the present-day atmosphere in terms of its climate forcing. Recent studies show that black carbon may be responsible for close to 20% of the planet’s warming, making it the second highest contributor to climate change after carbon dioxide. BC is short lived in the atmosphere, but still has a global warming potential (GWP) of 2,421 times the one of CO₂ over a 100-year period. Reducing the reliance on wood therefore, by using biogas, has an immediate positive impact on the climate (and the environment).

On average, farmers reduce their chemical fertilizer usage from 82 to 62/kg/hectare. The reduction in chemical fertilizers use from utilizing bio-slurry as fertilizer also has a number of climate benefits. Not only is the production of chemical fertilizers fossil fuel intensive, the application can result in greenhouse gases such as N₂O with a very high global warming potential relative to CO₂: 298 times over a 100-year period. Preventing deforestation and forest degradation averts the destruction of several eco-system advantages such as carbon storage, nutrient cycling, water retention, water and air purification, and maintenance of wildlife habitat. In addition to emission reductions from the introduction of biodigesters, the introduction of climate-smart agricultural practices such as alternate wetting and drying or laser land levelling, and other practices that result in the improvement of the management of land and forest areas, will also reduce GHG emissions.

**D.2. Paradigm shift potential**

(Potential to catalyze impact beyond a one-off project or programme investment)

The project expects to contribute to transformational impact through four approaches: (i) policies; (ii) institutions; (iii) technologies and (iv) change in behaviour of agribusiness actors.

- The introduction of **policies**, norms and standards for the creation of a conducive investment environment for climate smart agricultural enterprises, and to support the emergence of long-term public-private partnerships to leverage additional growth;

---

32 NBP Monitoring report 2014
33 This figure is higher compared to the emission reduction goal of 155 Gg with biodigesters by 2030 in the INDC. It is unclear on which data the INDC is based upon. The emission reductions from NBP however, are third party audited and as per a strict methodology.
34 NBP database as of 31-12-2015.
36 Gold Standard Black Carbon emission methodology.
- Increased capacity of **institutions** to support climate-smart agriculture and maintain climate-proof infrastructure;

- Increased use of **high level technologies** promoting climate smart agriculture, laser land levelling and ICTs

- Stakeholder **behavioural change** vis-à-vis the potential benefits of private and public partnership through the introduction of new instruments such as PPPs, crop insurance awareness raising on risk sharing contributing to increased trust of communities towards private sector.

This project will provide opportunities for targeting innovative solutions, new market segments, up-scaling successful technologies, business models, modal shifts and/or processes. As such it intends to catalyze significant impact in Cambodia’s agriculture sector. It is estimated that the direct benefits of this project will reach 390,000 people (2% of the country’s population or 12% of the population in 4 target provinces), with the potential to reach 1,950,000 indirect beneficiaries throughout the 4 provinces (or 59% of population in the 4 target provinces).

Mechanisms will be put in place in order to leverage up-scaled impact, including:

- This project will focus on climate change adaptation strategies across the entire food value chain, while also promoting renewable energy supply to reduce costs and allow the deployment of low emissions pathways in the agriculture sector. The equation between low-carbon and lower prices will help develop a model for more sustainable agriculture, which will be easier to adopt by farmers.

- The development of climate-smart agriculture and agribusiness skills as well as farm mechanization at local level will create new employment opportunities within agricultural cooperatives. The establishment of four Provincial Agricultural Development Centers (PADC) and four Provincial Agricultural Engineering Workshops will improve and create resources and training centers for service provision, agribusinesses and farmer value chain linkages. Training on reaching climate-conscious standards will be provided in these centers and will create incentives for farmers to comply with food quality and safety standards.

- Agricultural cooperatives and FWUCs will also be strengthened at the local level by building their capacity on agribusiness and climate-smart agriculture through demonstration sites showing visible evidence of climate resilience and increased profitability, which will speed up the up-scaling process and allow for farmer-based autonomous adaptation. In addition, providing access to climate information services will enable farmers to make informed decisions on planning their cropping seasons and reacting to climate shocks. Agricultural cooperatives will also enhance their connectivity and access to regional and national markets thanks to climate-proofed feeder roads, facilitating upscale of agribusiness opportunities.

- The project will develop a climate-smart agribusiness policy to enable public-private partnerships, which will lead agricultural cooperatives to not only reach regional but also international markets with their processed products. This will create an enabling environment in which agri-businesses across the country can evolve.

**Potential for knowledge and learning**

The project is based on an approach that integrates research into development processes. This includes for example the provision of climate resilient varieties, targeted training on climate-smart agribusiness skills and climate-smart agriculture practices, operations and maintenance of infrastructures or using energy efficient technologies to reduce agricultural waste along the value chain.

The project’s outputs include elements related to the dissemination of best available information, technologies and practices. Through awareness raising on the economic, social and environmental benefits of the climate-smart agribusiness approach, the project’s interventions will reach remote communities and most vulnerable areas and promote, among others climate-resilient varieties. The project will implement an aggressive knowledge management approach so that all project results are effectively documented, barriers are addressed, and policy change is leveraged. The project will
also produce guidance materials, training materials and technological information packets that can be disseminated in all areas of Cambodia. It is expected that regional linkages established through trade will also contribute to accelerating knowledge dissemination.

The project will also gather lessons learned and results through its monitoring and evaluation plan, which will be shared across projects and with project partners.

**Contribution to the creation of an enabling environment**

Output 2 is dedicated to the creation of an enabling environment for climate-smart agriculture. The project will create enabling conditions first by strengthening the government’s capacity and second by developing a climate-smart agribusiness policy and climate-conscious standards of production. The provision of climate services will also create an enabling environment for the deployment of low-carbon, resilient agricultural practices as well as for the establishment of public-private partnerships, green financing and climate risk sharing mechanisms. The development of standards and certification for climate-resilient seeds, as well as the deployment of training on CSA will help create an enabling environment at local and provincial level. Finally, through the value chain approach, the project will support linkages to markets, which is expected to create economic incentives for continued stewardship.

**Economic co-benefits**

The project expects to create employment opportunities for landless and poor farmers such as access to off-farm and on-farm employment related to support services such as mechanization, drying, milling, grading and storage of produce, which will enhance their adaptive capacity, while reducing their exposure to climate risks. The various socio-economic benefits to be realized by the off-farm and on-farm water management include:

- Efficient irrigation services combined with technical advice and appropriate inputs allow farmers to obtain substantially higher yields (with estimates varying between 0.5 tons and 1.5 additional tons per hectare for wet season rice and up to 5 tons per ha for dry season rice), expansion of cultivated areas, and increase the number of crops per year.

- Pumping costs to individual farmers in schemes where pumping is required are likely to reduce by 30 to 50% from introduction of renewable energy and land leveling. Drainage canals, which are part of the irrigation system, can also serve as buffers in case of floods. Enhanced distribution networks to bring water to farmers' fields will greatly improve perception of service to farmers and will make it easier for FWUCs to manage the water distribution system and collect irrigation service fees. Replacing existing broken or eroded structures by new technically appropriate ones will improve the overall durability of the scheme and reduce O&M costs going forward.

- Communities and/or individual farmers can use water resources for fish farming and water for livestock, cash cropping, vegetable home gardens etc. with increasing cropping flexibility and diversification.

The financial analyses of the representative subprojects show that the project will have significant benefits for rural households in the project areas. For the representative irrigation subproject, estimated net incremental income for households with an average holding of 0.54 ha in the command area is expected to be $550 per year. Members of cooperatives with drying and storage facilities will benefit from the improved quality of their production, both directly from the cooperative activities and through incentives to improve on-farm practices. At current prices, members who process all or part of their crop into chips will receive $62 per ton for chips instead of about $17 for fresh cassava, as well as increased dividends from the trading operations of the storage unit. For average households with a new bio-digester, annual cash benefits are about $230 from savings on fuel and fertilizers and the impact of bio-slurry on crop yields. Owners of mango orchards in the project areas who adopt drip irrigation after seeing one of the project’s demonstration orchards can expect an annual benefit, once full production is reached, of around $2,000 per ha.

**Social co-benefits**
The project expects to generate significant social co-benefits, including higher food and nutrition security through improved produce quality, increased incomes and stronger sanitary standards, as well as through diversification of produce (e.g. fish and non-timber forest products, vegetables from crop rotation and additional crop due to irrigation). Along with closer access to water and better water management, this will lead to overall improved health among target populations, particularly vulnerable groups such as women and children. An estimated 50,000 women will benefit from rehabilitated climate resilient water management systems, including in terms of reduced labor. Furthermore, the provision of alternative energies for cooking (instead of burning residues) and the training on responsible use of farm inputs, particularly agro-chemicals, will help improve household health. Access to lower-cost energy sources will also enable households and families to engage in economic diversification activities, and could improve access to education for children, particularly girls.

At the broader level, the project also expects to deliver social benefits in terms of access to improved knowledge and research, better access to extension and technical support, and opportunities for innovation.

Environmental co-benefits

The project will have high environmental co-benefits, including substantial reduction of greenhouse gas emissions. The restoration of irrigation schemes and of the immediate surrounding landscape around project-supported infrastructure will help combat erosion and land degradation and will help create natural buffers against floods and run-off. Forests will be protected from the anticipated decrease in fuel-wood needs, due to improved access to energy. This will lead to an increase in biodiversity in the natural landscape surrounding agricultural lands, allowing for the maintenance of key ecological services crucial for agricultural production. The use of wastes for energy and compost production will also help reduce local source pollution and reduce the use of agro-chemicals on farm.

Gender-sensitive development impact

The project is categorized as effective gender mainstreaming. The project will promote gender equality and women’s empowerment through enhancing women’s capacity in climate smart agriculture production and processing, management and business, agricultural machinery use and maintenance, accessing and using financing, and through strengthening linkages between women-led enterprises and the agribusiness industry. A Gender Action Plan (GAP) has been prepared, which includes gender-related actions, performance indicators and targets to promote women’s voice and active participation in all project activities. Other actions include a gender analysis of the 4 selected agricultural value chains that will inform further refinement of the GAP at the start of the project and the development of a gender-responsive MAFF agribusiness policy.

Women will be targeted for employment and training in infrastructure related construction/rehabilitation and operation and maintenance, for uptake of bio-digesters, and as decision makers in selection of climate resilient crops varieties. Benefits from cooking with biogas will include reduced time for cooking, allowing women to do other tasks outside the household (At least 40,000 women are beneficiaries of bio-digesters installed). While at least 30% women trained in infrastructure related construction/rehabilitation (e.g. masonry skills for bio-digesters construction), and operation and maintenance (e.g. local irrigation schemes), this will create at least 25% of workdays filled by women disaggregated by skilled/unskilled and type of work related to infrastructure construction/rehabilitation as well as operation and maintenance (point of reference: women’s current involvement in similar infrastructure related work varying between 17% to 46%).

The project will work in close partnership and strengthen technical capacity of the newly formed Women’s Farmers Network and the MAFF Gender and Children Project Support Unit in order to ensure sustainability of gender mainstreaming efforts in the agribusiness sector.

Other

37 Gender Action Plan (available as a separate document – referred to in Page 50).
The project yields other benefits that could not be monetized, including (i) sound cooperative models for agribusiness operations, (ii) strengthened institutional and human capacity for climate smart agribusiness, and (iii) increased ownership and involvement of farmer groups in operations and maintenance of agribusiness infrastructure.

Cambodia is one of the more disaster-prone countries in Southeast Asia, affected by floods and droughts on a seasonal basis. Weak adaptive capacity, poor infrastructure, and limited institutions exacerbate the country's vulnerability to climate variability and change. Indeed, floods and droughts are recognized by the government as the main drivers of poverty. In recent years, weather patterns have been unpredictable, and manifested by longer dry seasons with delayed onset of the rainy season and droughts and shorter but more intense rainy seasons. As a result of these fluctuations, agricultural sector growth has already slowed from 5.4% to 0.24% in 2015 respectively. These impacts are expected to become increasingly visible, and future projections of climate change indicate more severe variability, higher levels of risk and exposure, and potentially significant losses in livelihoods and income.

The existing root causes of Cambodian vulnerability are high poverty rates, high dependence on climate sensitive livelihoods with increasing environmental degradation, compounded by limited institutional capacity, technology, and infrastructure. With 80% of the population continuing to depend on rural livelihoods, adaptation in the agriculture sector is not only a necessity, it can help drive economic development at a faster pace, provided the enabling conditions are put in place.

In terms of climate-related financing, the agriculture sector requires significant investment which is currently beyond the means of the RGC. The RGC has requested support from the ADB in the form of a concessional loan in order to support reinvestment into critical infrastructure and to address climate change challenges to the agricultural sector.

The project is aligned with the government's Agricultural Sector Strategic Development Plan (2014-2018) and Climate Change Strategy and Action Plan. The Agricultural Sector Development Strategic Framework is aligned with the objectives of the Government's overarching Rectangular Strategy Pillar III - Growth, Employment, Equity and Effectiveness, and the National Strategic Development Plan (NSDP) 2014-2018 which has the objective of an annual economic growth of 7% and achieving more than 1% reduction in the poverty rate annually, through the Agricultural Sector Development Plan to increase agricultural growth by around 5%. The Cambodia Industrial Development Policy (2015 – 2025) has the theme of “market orientation and enabling environment for industrial development by transforming and modernizing the industrial sector from a labor-intensive to a skill driven industry by 2025.

The project is also consistent with the GMS Regional Investment Framework (RIF) for agriculture and the GMS RIF Implementation Plan. It is aligned with the ADB’s Country Partnership Strategy (2014-2018),\(^{38}\) and Country Operations and Business Plan (2016-2018). The project is consistent with ADB’s Operational Plan for Agriculture and Natural Resources, which aims at increasing value addition and expanded partnership with the private sector to attract investments in productivity enhancement, agro-processing, and agro-retailing.\(^{39}\)

The project also contributes to operationalizing Cambodia’s INDC and National Adaptation Program of Action (NAPA) and contributes to implementing the Climate Change Strategy (2014-2023), as well as individual climate change action plans for MAF, Ministry of Rural Development (MRD) and Ministry of Water Resources and Meteorology (MOWRAM). The promotion of alternative energy is linked to reducing poverty by supplying energy and power to the poor, especially in remote area, through (i) the National Strategic Development Plan 2014–2018 (NSDP) (ii) Rural Electrification Master Plan (iii) the Cambodia Green Growth Roadmap and National Strategic Plan on

---


Green Growth 2013-2030 (iv) Cambodia’s Intended Nationally Determined Contributions (INDC) and the National Policy and Strategic Plan for Green Growth (2013 – 2030) and (v) the policy on bio-digesters (2016 – 2025).

Description of executing entities
Executing entities for the various sub-projects and activities include the following:
The Ministry of Agriculture, Forestry and Fisheries (MAFF), in coordination with the Ministry of Water Resources and Meteorology (MOWRAM) and the Ministry of Rural Development (MRD), and their provincial departments will act as executing entities. The CARDI, GDAHP, the General Department of Technical Affairs of MOWRAM, and the General Department of Technical Affairs of MRD will be implementing agencies. The Ministry of Environment will provide support to access GCF funds, assess environmental impacts of activities and provide advice on the deployment of environmental rehabilitation plans.

Specific Roles and responsibilities of the IAs are as follows:
(i) National Agricultural Laboratory: (a) provide laboratory equipment specifications; (b) implement GMO, plant toxin and organic fertiliser testing; (c) achieve ISO 17025 accreditation; (d) develop TC protocols; and (e) adapt procedures for partial cost recovery of services.
(ii) Department of Agricultural Engineering: (a) support to provincial engineering workshops; (b) technical support to capacity and training of farm mechanization O&M, tool fabrication; and (c) promotion of engineering workshop service provision.
(iii) Department of Agricultural Cooperative Promotion: (a) support to the establishment, management and operation of storage units; (b) capacity and training in agribusiness, business plan development and bookkeeping; and (c) identification and prioritization of AC for project support (infrastructure and capacity building).
(iv) The General Directorate of Animal Health and Production: (a) oversee the biodigester program; (b) biodigester standards development; and (c) bio-slurry utilization.
(v) Cambodia Agricultural Research and Development Institute: (a) climate resilient maize and rice variety development, trials, demonstrations in collaboration with IRRI; (b) seed production, multiplication and distribution, and (c) commercialization of the seed business.

MOWRAM and MRD, responsibilities will be:
(i) Day-to-day project implementation, planning and budgeting, disbursement, monitoring and reporting;
(ii) Facilitate disbursement and withdrawal applications;
(iii) Coordinate activities and report progress to the EA;
(iv) Elaborate annual work plans, financial management and procurement plans including preparation of annual forecasts of contract awards and disbursements related to the PMU’s scope of work;
(v) Conduct monitoring and compliance of environmental and social safeguards, including gender action plan;
(vi) Implement PPMS by measuring, monitoring and evaluating the performance in delivering development impacts against established performance targets and goals of the project, related to the PMUs scope of work;
(vii) Carry-out administrative, technical and financial management and reporting at national level;
(viii) Establish and manage the sub-account, submission of withdrawal applications to ADB, retention of supporting documents, and overseeing subaccounts;
(ix) Procure goods and services and recruit consultants following ADB procedures to assist in project implementation related to the PMU’s activities; and
(x) Submission of progress reports, annual audit report and financial statements and project completion report.
At provincial level, the PDAFF, PDWRAM and PDRD will be key agencies working with guidance and technical support from relevant national departments. A PPIU will be established in each of the four target provinces. The PPIU will be chaired by the director of PDAFF, and comprising representatives of PDWRAM and PDRD, and PDAFF staff related to cooperatives, agricultural extension, and animal health and production. PDWRAMs will be responsible for coordinating all field activities with FWUCs, while PDRDs will be responsible for all farm roads and connectivity to agricultural cooperatives.

**Stakeholder engagement process during project preparation**

A thorough stakeholder engagement process has been followed for the design of this project starting from July 2014 informally, and from November 2015 more formally, which is expected to be maintained during implementation phase. During project design, members of the project preparatory technical assistance team comprising international and national social development specialists conducted broad and meaningful consultations to solicit stakeholder input on the design of the project using the following methods:

(i) regular meetings, workshops and joint site visits with staff of MAFF;
(ii) key informant interviews with provincial, district and village officials to determine project priorities, objectives, and confirm priorities and needs;
(iii) discussions with local authorities to ensure that the project benefits women equitably; and
(iv) key informant interviews with private crop collectors, mill operators, and other agribusiness actors; and separate focus group discussions with men and women living in the subproject target areas.

The information and recommendations gathered from the various stakeholder consultations have been incorporated into the design of the project to ensure that the investments align with local priorities and national development plans, and that they will deliver equitable socio-economic benefits to the intended beneficiaries. The results of the pre-implementation consultations are also reflected in the summary poverty reduction and social strategy, gender action plan, and environmental assessments. There is broad community support for the project’s approach to combine climate-smart agribusiness-related infrastructure development with capacity building and agricultural enterprise policy support to create local employment and income generating opportunities.

Primary beneficiaries from this project will be farmer groups, cooperatives and water user groups within the selected provinces (e.g., Kampong Cham, Tbong Khmum, Takeo and Kampot). Private sector agribusinesses will also benefit especially those involved in input supply, post-harvest operations and marketing. Poorer households, landless and women will be targeted primarily related to vocational training and the development of service provision agro-enterprises. Secondary beneficiaries are government staff and will include MAFF departments and Provincial Departments of Agriculture, Water Resources and Rural Development. Tertiary beneficiaries will be value chain players through shorter VC linkages and improved market opportunities, efficiencies in the supply network and greater awareness of irrigated agriculture.

The cost-benefit analysis showed that the project is economically viable. The economic internal rates of returns (EIRRs) for the three representative subprojects between 14.0% and 25.4%. In addition, an economic assessment for the domestic bio-digester program revealed an indicative EIRR of 26%. The viability of the sample irrigation subproject may be vulnerable to the average long term cropping intensity that farmers are able to achieve, but the most important risk for all subprojects would be the lack of necessary skills to operate, maintain and manage the infrastructure and facilities properly. The project will mitigate this risk through provincial level training programs. The government has assured to provide necessary budget for operation and maintenance of infrastructure. The sensitivity analysis confirmed that the project benefits and returns are robust.
A financial and sustainability analysis was conducted from the perspectives of the government and farmers. For the government, the financial sustainability of the project was assessed by comparing incremental recurrent costs (considered to be 2% of the capital cost per annum), with the budget allocation available to cover these costs. Since the MAFF has substantial capacity to cover these recurrent costs, the project is considered financially viable. In addition, sustainability is assured through regulations, which secure payments for laboratory testing services to partially cover the recurrent costs of laboratory equipment and associated infrastructure. Agricultural cooperatives may raise additional revenues to be channeled for operations and maintenance of cooperative infrastructure.

The financial analyses of the representative subprojects show that the project will have significant benefits for rural households in the project areas. For the representative irrigation subproject, estimated net incremental income for households with an average holding of 0.54 ha in the command area is expected to be $550 per year. Members of cooperatives with drying and storage facilities will benefit from the improved quality of their production, both directly from the cooperative activities and through incentives to improve on-farm practices. At current prices, members who process all or part of their crop into chips will receive $62 per ton for chips instead of about $17 for fresh cassava, as well as increased dividends from the trading operations of the storage unit. For average households with a new bio-digester, annual cash benefits are about $230 from savings on fuel and fertilizers and the impact of bio-slurry on crop yields. Owners of mango orchards in the project areas who adopt drip irrigation after seeing one of the project’s demonstration orchards can expect an annual benefit, once full production is reached, of around $2,000 per ha. The project yields other benefits that could not be monetized, including (i) sound cooperative models for agribusiness operations, (ii) strengthened institutional and human capacity for climate smart agribusiness, and (iii) increased ownership and involvement of farmer groups in operations and maintenance of agribusiness infrastructure.

E. Brief Rationale for GCF Involvement and Exit Strategy

Please specify why the GCF contribution is critical for the project/programme.

A GCF contribution to this project is critical to making investments in the agriculture sector more climate-resilient, and would also help the country in reorienting its agricultural value chains towards low-carbon pathways. While some aspects of climate change may be considered in the project’s activities even without GCF intervention, this would be greatly insufficient to address the full scope of climate impacts already visible in the agricultural sector, let alone the breadth of anticipated impacts in the next 30-50 years. Although there is some uncertainty as regards to the way in which climate change will manifest in specific locations of Cambodia, current trends indicates that the country would not be able to undertake the deep transformation of the sector required to make it climate resilient.

As indicated in section D2, a paradigm shift in agricultural institutions, policies, technologies and behavioural change is required in order to address climate change impacts at all stages of a given value chain, while creating an enabling environment that would allow for deeper structural transformation in the rural areas. The GCF contribution would help to overcome capacity and finance gaps created by the additional challenges of climate change in vulnerable farming communities. Increasing climate variability and anticipated climate change has made well-established practices obsolete in the face of changing precipitation patterns, and farming communities are ill-equipped to deal with the new risks. GCF resources are therefore essential to address the existing gaps in capacity and finance to enable adaptive processes. GCF and ADB support will complement existing government efforts and address the critical gaps in capacity at local, institutional and national levels.

Without GCF support, current opportunities for leveraging growth in the agricultural sector would be missed, leading to continued impoverishment of rural populations, and an aggravation of vulnerability and environmental degradation trends. The GCF funds provided to this project will serve the dual purpose of making the development investment more sound, resilient and viable, while providing immediate adaptation and mitigation benefits to local populations. The rate of indebtedness of Cambodian government means that not all interventions can be supported through loans. Grant funding is required to help support large, one-time changes and to improve investments that will help redirect the country towards low-carbon, resilient agricultural value chains that effectively support the rural populations, and that contribute to economic growth.

Sustainability

The technical and financial analyses conducted have concluded that the project is financially sustainable and that benefits of the project will continue to accrue after funding completion. The sustainability strategy for the overall project, including
the GCF contribution, rests on the integrated value-chain approach adopted, which considers a package of inter-linked interventions designed to reshape the way in which agriculture is practiced in the project provinces. This will create enabling conditions to allow local producers to derive increased and lasting economic benefit from agriculture, while conserving natural resources. The project's support to the overall policy and normative environment in which the agriculture sector is deployed will also contribute to creating conditions for sustainability. This includes revision or creation of standards, quality certification, good practice guidance, training and regulatory support.

The project builds on institutions that were supported by previous projects, contributing to an iterative approach to resilience building. However, this project intends to innovate in certain manners, particularly as regards to circumventing any potential institutional shortcomings that could prevent long-term sustainability. For example, the project intends to establish the enabling environment for the deployment of green finance or climate finance and climate risk sharing tools at local level. This will include addressing the full scope of capacity gaps, including lack of climate services and data, regulatory and institutional issues, capacity of the financing institutions as well as local level financial literacy and the design of innovative public-private partnerships for improved service delivery.

As opposed to a piecemeal approach addressing only one aspect of the value chain, this project will allow farmers to take control over each cycle, selecting climate-smart inputs and materials, and applying climate-smart techniques adapted to each key crop, using climate-proof storage facilities, getting easier access to local finance and markets through private sector actors including professional bulkers, collectors, or millers. It is anticipated that the project will demonstrate the direct local economic benefits of sound natural resources management, and this will contribute to accelerating uptake of climate-smart practices and ecosystem-based adaptation, while increasing carbon sequestration.

Finally, the project ties into ongoing land use planning and local governance processes, with the establishment of cooperatives and the strengthening of FWUCs. This will also help reduce conflicts over land use, land allocations and natural resources. It is expected that after the project, villages will be able to sustain most project activities and outcomes independently of project-based funding.

F. Risk Analysis

Please describe the financial and operational risks and discuss mitigating measures.

Major risks and mitigating measures are summarized in the table below and described in detail in the risk assessment and risk management plan. Detailed financial risk assessments have been conducted for this project and procedures are spelled out in the Project Administration Manual. The overall project risk is medium. The integrated benefits and impacts are expected to outweigh the costs.

### Summary of Key Risks and Mitigating Measures

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigating Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity constraints for infrastructure design and procurement</td>
<td>Project will train focal points from the technical affairs departments of participating ministries on procurement, contracting and monitoring subproject investments.</td>
</tr>
<tr>
<td>Climate change impacts may adversely impact project investments</td>
<td>Project will include demonstration of climate change mitigation and adaptation measures. It will ensure to incorporate adaptation measures in the design of infrastructure supported by the project.</td>
</tr>
<tr>
<td>Limited attention to O&amp;M of agribusiness infrastructure</td>
<td>MEF has made commitments to release adequate funds to support O&amp;M. The project will strengthen O&amp;M capacity of farmer water user committees and agricultural cooperatives. For sustainability, cooperation agreements will ensure that that O&amp;M costs are covered by service fees or as part of agribusiness recurrent expenditure.</td>
</tr>
</tbody>
</table>

MEF = Ministry of Economy and Finance; O&M = operations and maintenance

Source: ADB

Environment. The project is categorized as B. It is expected to achieve significant environmental benefits, including cumulative reduction of 238,000 tons CO₂e of GHG emissions, improved resilience and increased crop diversity in the project areas. The project will undertake infrastructure and livelihood activities that may potentially have site-specific environmental impacts during construction phase, but can be easily mitigated with proper site selection, use of environment-friendly construction technology, and proper disposal of waste generated. The environmental assessment
and review framework will guide the environmental screening and categorization of subprojects and identify potential impacts. Subprojects classified as Category A will not be financed. Sample initial environmental examinations for three subprojects were prepared to provide prototype for screening and identifying typical impacts of potential interventions and will serve as a template for preparing the environmental management and monitoring plans. Adequate resources have been allocated for environmental safeguards preparation, implementation, monitoring, and reporting. Likewise, all subprojects will be screened for climate risks and incorporate risk reduction measures.

**Involuntary Resettlement.** The project is categorized as B for involuntary resettlement. The project will not finance any category A subprojects. During project preparation some irrigation subprojects were identified that would require acquisition small strips of land to accommodate improvement of distribution canals. These small strips of land may be acquired through (i) voluntary donation in the case of non-productive land, or (ii) negotiated settlement based upon market values for productive land. Negotiated settlement may also be required where affected people are unwilling to donate land voluntarily. A rigorous due diligence procedure to verify voluntary donation bona fides has been included in the Resettlement Framework that will be used to further screen and select subprojects during implementation. The cassava drying and storage facility involves an agricultural cooperative that will purchase its own land if needed under a private commercial transaction independent of the project and using the cooperative's own resources. In regards to drip irrigation, a selected small holder will receive drip irrigation infrastructure installed on his/her own land in exchange for allowing the technology to be tested and act as a working example. The smallholder will receive the infrastructure free of charge and no land is acquired by the project.

**Indigenous Peoples.** The project is categorized as B. There were no indigenous peoples or ethnic minorities in subproject areas selected for feasibility studies. However, there are some ethnic minorities living in project provinces and districts who could be impacted by subprojects identified during project implementation. An Indigenous Peoples Development Framework has been prepared that will ensure inclusion and full consultation and participation of ethnic minority households and communities.

---

### G. Multi-Stakeholder Engagement

The stakeholder consultation process began in the project preparation stage (November 2015 – to date) and will be continued throughout the project cycle. The process provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people. Consultations are (i) undertaken in an atmosphere which is free from intimidation or coercion; (ii) gender inclusive and responsive; (iii) tailored to the needs of disadvantaged and vulnerable groups; and (iv) enabling the incorporation of all relevant views of affected people and other stakeholders into decision-making, concerning project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

Consistent with these efforts, the objectives of the stakeholder consultation and participation plan and related stakeholder communication strategy during project implementation are to:

(i) fully disclose information on the proposed project and subprojects, its components, and its activities with the beneficiary communities and stakeholders;

(ii) obtain information about the opinions, needs and priorities of beneficiary communities and stakeholders;

(iii) solicit input and feedback on beneficial and mitigating measures;

(iv) encourage the participation of beneficiary communities and stakeholders in activities that affect them, such as civil works construction, enterprise support actions, awareness raising activities, and monitoring;

(v) obtain the consent and cooperation of beneficiary communities and stakeholders for activities required to be undertaken for project planning and implementation;

(vi) establish a clear, easily accessible and effective grievance redress mechanism; and

(vii) ensure transparency in all project activities.

The detailed stakeholder consultation and participation plan is available as a supplementary document. Consultations have included the following groups:

- All members of beneficiary communities including women and men farmers, collectors, contractors and local rice millers, village chiefs, assistants to village chiefs, commune councils, women and children focal points, farmer cooperative members, FWUCs, local micro-credit institutions
- Farmer Water Users Committees, Cooperatives and Farmer Associations
- MAFF Provincial and District Offices

---

41 Environmental Assessment and Review Framework (available as a separate document – referred to in Page 50).
42 Initial Environmental Examinations: (available as a separate document – referred to in Page 50).
43 Resettlement Framework (available as a separate document – referred to in Page 50).
- MAFF Gender Mainstreaming Action Group (GMAG) and Women Farmers Network
- Private Businesses and Chambers of Commerce.
- Inter-ministerial committee (IMC) on PPP initiatives
- Technical ministries and government departments: MAFF, MOWRAM, MPWT, MRD, MEF

H. Status of Project/Programme

1) A pre-feasibility study is expected to be completed at this stage. Please provide the report in section J.
   Three detailed feasibility studies focusing on (i) climate resilient irrigation rehabilitation and modernization of Trapaing Run reservoir (ii) climate friendly agricultural cooperative for cassava chip drying, processing and storage agribusiness; and (iii) climate smart on-farm water management for improved mango production in Tram Kak, were completed.

2) Please indicate whether a feasibility study and/or environmental and social impact assessment has been conducted for the proposed project/programme: Yes X No ☐
   (If ‘Yes’, please provide them in section J.)
   Environmental and social impact assessments of the project and three representative sub-projects were completed.

3) Will the proposed project/programme be developed as an extension of a previous project (e.g. subsequent phase), or based on a previous project/programme (e.g. scale up or replication)? Yes ☐ No X
   (If yes, please provide an evaluation report of the previous project in section J, if available.)

I. Remarks

J. Supporting Documents for Concept Note

☒ Map indicating the location of the project/programme
☐ Financial Model
☒ Pre-feasibility Study
☐ Feasibility Study (if applicable)
☐ Environmental and Social Impact Assessment (if applicable)
☐ Evaluation Report (if applicable)
<table>
<thead>
<tr>
<th>Output and Activities</th>
<th>Year 1 (Quarters)</th>
<th>Year 2 (Quarters)</th>
<th>Year 3 (Quarters)</th>
<th>Year 4 (Quarters)</th>
<th>Year 5 (Quarters)</th>
<th>Year 6 (Quarters)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output 1: Critical agribusiness value chain infrastructure improved and made climate resilient</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Confirm implementation plans for rehabilitating and/or developing critical infrastructure for priority value chains (Q1–Q4 2018)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Confirm land availability, locations, suitability, and connectivity for siting processing, storage, marketing and logistics infrastructure (Q1–Q4 2019)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Undertake detailed design, tender and construct critical production and post-harvest infrastructure to climate-resilient condition (Q1 2019–Q4 2020)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Establish management systems for operation and maintenance of infrastructure (Q1 2021–Q4 2022)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Output 2: Agribusiness policy and capacity support services strengthened</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Assist in formulating climate smart agribusiness support including policy and regulations, and advice on agronomy, markets, and links between farmers and the private sector (Q1–Q4 2018)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Conduct training for farmers, SMEs and private sector on CSA, climate risk management and green finance, including structuring of public private partnerships in agribusiness (Q1 2019–Q4 2021)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.3 Deliver Directorial and technical skill building programs on agribusiness policy reforms, agronomic resource efficiency and climate resilience in value chains, including certification of safe and quality agri-foods (Q1 2019–Q4 2022)

A. Outputs

Output 1: Improved critical climate resilient agribusiness value chain Infrastructure

Sub-output 1.1: Water Management infrastructure

Off-farm climate resilient irrigation & water management infrastructure
- Bid preparation for other subprojects
- Bidding, construction and handover
- Further Subproject identification/evaluation bidding
- Construction and handover of subprojects

On-farm water catchment ponds
- Eligibility criteria determined
- Sites identified
- Bidding, construction and handover

Drip-irrigation demonstration sites
- Bid preparation for representative subproject
- Bidding, construction and handover
- Further subproject identification/evaluation bidding
<table>
<thead>
<tr>
<th>Sub-output 1.2: Agricultural Cooperative (AC) value chain infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AC drying and storage unit establishment</strong></td>
</tr>
<tr>
<td>- Bid preparation for representative subproject</td>
</tr>
<tr>
<td>- Bidding, construction and handover</td>
</tr>
</tbody>
</table>

| Sub-project identification/evaluation bidding                  |
| Construction and handover of subprojects                       |

<table>
<thead>
<tr>
<th>Rural roads production zone and market access</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Subproject identification requiring rural roads</td>
</tr>
<tr>
<td>- Bidding, construction and handover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-output 1.3: Agricultural testing and training infrastructure at national &amp; provincial levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PADC construction (Takeo, Tbong Khmum &amp; Kampong Cham) or rehabilitation (Kampot)</strong></td>
</tr>
<tr>
<td>- Design &amp; bid preparation</td>
</tr>
<tr>
<td>- Bidding, construction and handover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provincial Agricultural Engineering Workshop construction (Kampot, Kampong Cham &amp; Tbong Khmum) and equipping (Takeo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Design &amp; bid preparation</td>
</tr>
<tr>
<td>- Bidding, construction and handover</td>
</tr>
<tr>
<td>NAL Plant Bio-technology Laboratory support</td>
</tr>
<tr>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>• Consultant selection and recruitment</td>
</tr>
<tr>
<td>• Materials &amp; equipment procurement</td>
</tr>
<tr>
<td>• GMO, plant toxins &amp; bio-fertilizer testing implemented and perfected</td>
</tr>
<tr>
<td>• Tissue culture protocols developed</td>
</tr>
<tr>
<td>• ISO 17025 capacity and compliance</td>
</tr>
<tr>
<td>• Laboratory commercialization implemented</td>
</tr>
<tr>
<td>• Rapid field testing implemented</td>
</tr>
<tr>
<td>Sub-output 1.4: Renewable energy for value chain improvement</td>
</tr>
<tr>
<td>NBP Bio-digester program</td>
</tr>
<tr>
<td>• Biodigester work plan with NBPO &amp; PDAFFs</td>
</tr>
<tr>
<td>• Construction and biodigester handover</td>
</tr>
<tr>
<td>Bio-digester standards development</td>
</tr>
<tr>
<td>• Technical committee/working group formation</td>
</tr>
<tr>
<td>• Draft standards and consultation</td>
</tr>
<tr>
<td>• NSC endorsement</td>
</tr>
<tr>
<td>Bio-slurry compost hut promotion</td>
</tr>
<tr>
<td>• Compost hut design</td>
</tr>
<tr>
<td>• Work plan and financial support determined</td>
</tr>
<tr>
<td>• Construction and handover</td>
</tr>
<tr>
<td>Agribusiness Photovoltaic Feasibilities</td>
</tr>
</tbody>
</table>
- Study scope determined
- Agribusinesses identified
- Detailed study for green finance

AC drying and storage unit solar power systems
- Requirements & designs elaborated
- Bidding, installation and commissioning

PADC solar power systems
- Requirements & designs elaborated
- Bidding, installation & commissioning

**Output 2: Strengthened Agribusiness policy and capacity support systems**
- Sub-output 2.1: Climate smart agribusiness policy, standards development and climate resilient variety release
- Climate smart agribusiness policy & policy HRD
  - Work plan & technical committee formation
  - Draft policy and consultation
  - MAFF & MOC endorsement

Industrial development policy
- Action plan for MAFF implementation

Climate conscious standards development i.e. CamGAP and SRP
- Work plan & CAMGAP technical committee
- Draft Standards, consultation & NSC endorsement
- Linking SRP Alliance activities to project
<table>
<thead>
<tr>
<th>Sub-output 2.2: Capacity strengthening for climate smart agriculture, agribusiness and mechanization</th>
</tr>
</thead>
<tbody>
<tr>
<td>• CSA activities determination</td>
</tr>
<tr>
<td>• Climate resilient variety release</td>
</tr>
<tr>
<td>• Program work plan</td>
</tr>
<tr>
<td>• Locational and on-farm trials</td>
</tr>
<tr>
<td>• Seed bulking up &amp; farmer field days</td>
</tr>
<tr>
<td>• Varietal release</td>
</tr>
<tr>
<td>• Commercialization initiatives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-output 2.3: Green finance for climate smart agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Inter-ministerial committee – enabling environment for PPPs/commercial incentives &amp; best practices</td>
</tr>
<tr>
<td>• Committee composition and scope determined</td>
</tr>
<tr>
<td>• IMC meetings</td>
</tr>
<tr>
<td>• Crop-centric PPP forums</td>
</tr>
<tr>
<td>• Forum composition and scope determined</td>
</tr>
<tr>
<td>• Forum meetings</td>
</tr>
</tbody>
</table>

**ASEAN Study tours**

| • Tour requirements and planning |
| • Study tour | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**PPP feasibility studies**

| • Study scope determined |
| • Agribusinesses identified |
| • Detailed study for green finance |

**Financial institution capacity building for climate friendly agribusiness**

| • Green finance consultant recruitment |
| • Risk aversion awareness training & capacity building |
| • Green initiative field visits |
| • Credit guarantee proposals |
| • Crop insurance interventions planning |

| • expand and extend existing activities ICT platform for climate smart agribusiness in Kampong Cham Province |

**B. Management Activities**

**Procurement plan key activities to procure contract packages**

**Consultant selection procedures**
| Environment management plan key activities |                       |
| Gender action plan key activities         |                       |
| Communication strategy key activities     |                       |
| Inception report                          |                       |
| Twice yearly and/or midterm review        |                       |
| Project completion report                  |                       |

AC = agricultural cooperatives; CAMGAP = Cambodia Good Agricultural Practice; CSA = climate smart agriculture; DMF = design and monitoring framework; FWUC = Farmers Water User Committee; GMO = genetically modified organism; HRD = Human Resource Development; MAFF = Ministry of Agriculture, Forestry and Fisheries; MT = Mid-term report; MOC = Ministry of Commerce; NAL = National Agricultural Laboratory; NBP = National Biodigester Program; NBPO = National Biodigester Program Office; NSC = National Standards Council; PADC = Provincial Agricultural Development Center; PDAFF = Provincial Department of Agriculture; PIC = project implementation consultants; PMU = project management unit; PPP = public-private partnerships; SRP = Sustainable Rice Platform.
<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Objective of Their Involvement</th>
<th>Level of Participation and Depth</th>
<th>Participation Methods</th>
<th>Who is Responsible</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
</table>
| All members of beneficiary communities including women and men farmers, collectors, contractors and local rice millers, village chiefs, commune councils, women and children focal points, farmer cooperative members, FWUCs local micro-credit institutions | Direct beneficiaries of project; local authorities participating in planning, implementation and follow-up of sub-projects; beneficiaries of improved water management systems and maintenance, participants in agribusiness enterprise development; participants in agricultural technical and irrigation training, in workshops and study tours and skills and employment training | Partnership (High) | • Information: Community meetings for dissemination of information on project scope, design elements, participation mechanisms.  
• Consultation: Regular village meetings and discussions (both mixed gender and women’s meetings) to monitor progress and discuss measures to enhance project benefits and mitigate risks.  
• Decisions: Community members contribute with suggestions for effective participation and guidelines for capacity building needs with support from village leaders to ensure they are inclusive, with equal representatives of women. | IA and project consultants | During detailed design of subprojects and throughout implementation of Climate Friendly Agribusiness Value Chain Sector Project. | Refer to GAP, and Output 1 and 2 costs for capacity building and training. |
<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Objective of Their Involvement</th>
<th>Level of Participation and Depth</th>
<th>Participation Methods</th>
<th>Who is Responsible</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
</table>
| Farmer Water Users Committees, Cooperatives and related Farmer Associations.       | Direct beneficiaries with specific responsibilities for O&M on irrigation schemes improved by the project. Strengthened and gender-responsive farmer cooperatives and farmer associations and FWUCs.                                                                                                                                                                                                                                                                                                                                                   | Partnership (High)                | • Consultation: Local meetings to assess training and capacity building needs for O&M, and other priorities for improved climate friendly agribusiness developments  
  • Decisions: Recommendations from Farmer Water Users Committees to MOWRAM for allocation decision on revenues for O&M and other development priorities. Contributions from both men and women farmers are encouraged.                                                                                                                                                                                                                                               | IA and project consultants | During detailed design of subprojects and throughout project implementation and project review.                                                                                                                                                                                                                                                                                                                                 | Refer to Output 1 & 2 costs for institutional strengthening.                                                                                         |
| MAFF Provincial and District Offices                                              | Support to farmers through extension and training                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Partnership (High)                | • Project management and Implementation: extension activities, farmer training and support to agricultural producers  
  • Strategic Decision-Making: Contribute to decisions on implementing subprojects; GAP and EMDP implementation (if necessary) through monthly meetings with project Social Development / Gender Specialists.  
  Monitoring: Representation on project steering committee                                                                                                                                                                                                                                                                                                                                   | IA and project consultants | Throughout project implementation and project review                                                                                                                                                                                                                                                                                                                                                                  | Refer to Output 1&2 costs for institutional strengthening.                                                                                              |
<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Objective of Their Involvement</th>
<th>Level of Participation and Depth</th>
<th>Participation Methods</th>
<th>Who is Responsible</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
</table>
| MAFF Gender Mainstreaming Action Group (GMAG) and Women Farmers Network | Promoting Gender Equity in Agriculture         | Collaboration (Medium)           | • Project management and Implementation: Consultations in project implementation through collaboration with IA and representation on steering committee.  
• Strategic Decision-Making: Contribute to decisions on implementing GAP and EMDP implementation through monthly meetings at Province level with project Social Development / Gender Specialists.  
• Monitoring: Representation on project steering committee.                                                                                                                                                                                                                               | IA and project consultants | Throughout project implementation and project review                                           | Refer to GAP and sub-project GAPs, and Outputs 1 and 2 for training.                                      |
| Private Businesses and Chambers of Commerce,          | Private sector participation and partnership for effective agribusiness development              | Partnership (High)               | • Consultation: Meetings and individual consultations with men and women on needs and issues affecting agribusiness and related value chain developments in subproject areas.  
• Crop centric forums; twice and year  
• Inter-ministerial committee on PPP initiatives; every 2 months  
• Strategic Decision-Making: Adhoc meetings with local businesses at Province level to feed their views into the forums and IMC meetings and periodic workshops at national level to seek public and private consultation on standards, and regulatory impact. Separate meetings with women to find out their real issues and needs.  
• PMU with Project Manager attending both meetings in an official capacity  

<pre><code>                                                                                                                                                                                                                                                               | IA and project consultants. | Throughout project implementation.                                           | Refer to Output 1 activities                                                                                                                                             |
</code></pre>
<p>| Crop centric PPP forums                                |                                                                                                         |                                  |                                                                                                                                                                                                                                                                                                                                                                                                   | PMU with Project Manager attending both meetings in an official capacity | Refer to Sub-output 2.3 activities in relation to PPP initiatives |                                                                                                                                                      |
| Inter-ministerial committee (IMC) on PPP initiatives   |                                                                                                         |                                  |                                                                                                                                                                                                                                                                                                                                                                                                   |                          |                                                                                                         |                                                                                                                                                      |</p>
<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Objective of Their Involvement</th>
<th>Level of Participation and Depth</th>
<th>Participation Methods</th>
<th>Who is Responsible</th>
<th>Timing</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Departments (including MOWA) on Project Steering Committee.</td>
<td>Setting policy and guidelines, coordination meetings, and approvals.</td>
<td>Collaboration (Medium)</td>
<td>Policy Guidance and Approvals: Semi-annual meetings of the project steering committee to provide direction on project implementation matters. Reviews of periodic progress reports and any special reports.</td>
<td>IA</td>
<td>At least two meetings of committee per year.</td>
<td>Refer to Output 2 costs for institutional strengthening</td>
</tr>
</tbody>
</table>
Map indicating the locations of the project (highlighted in yellow)
Feasibility studies

Reports of detailed feasibility studies are available for the following sub-projects:

(i) Climate resilient irrigation rehabilitation and modernization of Trapaing Run reservoir
(ii) Climate friendly agricultural cooperative for cassava chip drying, processing and storage agribusiness; and
(iii) Climate smart on-farm water management for improved mango production in Tram Kak

The following additional reports are also available.

1. Project Administration Manual
2. Sector Assessment (Summary): Natural Resources and Rural Development
3. Contribution to ADB Results Framework
4. Development Coordination
5. Financial and Economic Analysis
6. Country Economic Indicators
7. Summary of Poverty Reduction and Social Strategy
8. Gender Action Plan
9. Initial Environmental Examinations for Representative Subprojects
10. Environmental Assessment and Review Framework
11. Indigenous Peoples Planning Framework
12. Land Acquisition and Resettlement Framework
13. Risk Assessment and Risk Management Plan
15. Voluntary Land Acquisition Framework
16. Detailed Poverty and Social Impact Analysis
17. Detailed Gender Analysis
18. Detailed Economic and Financial Analysis
19. Financial Management Risk Assessment
20. Procurement Risk Assessment
21. Climate Risk Assessment and Management
22. Stakeholder Consultation and Participation Plan
23. Stakeholder Communication Strategy
24. Institutional Capacity and Training Plan
27. List of Pre-screened Subprojects
28. Lessons Learned and Synergies