Report on
Agriculture Policy Research Study

"MODERNIZING AGRICULTURE SECTOR: LONG-TERM VISION AND POLICY ORIENTATION"

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# Table of Contents

ACKNOWLEDGEMENT .............................................................................................................................

EXECUTIVE SUMMARY ............................................................................................................................

1. INTRODUCTION ...................................................................................................................................... 1

   1.1. Development of Cambodia’s Agriculture Sector .................................................................................. 1

   1.2. Status of Cambodia’s Agriculture in The Region ................................................................................. 2

   1.3. Trends of Agriculture Sector ............................................................................................................ 3

      A. Global and Regional Trends of Agriculture ....................................................................................... 3

      B. National Trends and Policy Scenarios................................................................................................ 4

2. STRATEGIC GUIDANCE AND RATIONALES FOR MODERNIZING AGRICULTURE SECTOR .......... 7

3. VISION, STRATEGIC OBJECTIVES, RISK MANAGEMENT AND INSTITUTIONAL COORDINATION & HARMONIZATION ........................................................................................................ 10

   3.1. Vision ............................................................................................................................................. 10

   3.2. Strategic Objectives ....................................................................................................................... 11

      3.2.1. Strategic Objective 1: Boost Economic Opportunities ....................................................................... 11

      A. Accelerating Growth of Crops........................................................................................................ 11

      B. Boosting Diversified Growth of Agriculture through Aquaculture and Livestock & Poultry Development . 18

      C. Promote Agriculture Commercialization and Agro-Processing ..................................................... 20

      3.2.2. Strategic Objective 2: Enhance Food Security .................................................................................. 22

      3.2.3. Strategic Objective 3: Promote Environmental Sustainability ..................................................... 24

4. RISK MANAGEMENT ........................................................................................................................... 27

5. INSTITUTIONAL CAPACITY DEVELOPMENT, COORDINATION AND HARMONIZATION .......... 28

6. CONCLUSION ........................................................................................................................................ 30

ANNEX ...................................................................................................................................................... 32

   ANNEX 1: PLAN FOR CONSULTATION ........................................................................................................ 32

   ANNEX 2: GRAPH AND TABLES ................................................................................................................ 32

   ANNEX 3: SUPPORTED CASE STUDIES .................................................................................................... 41

   ANNEX 4: LIST OF DOCUMENTS ............................................................................................................... 47

   ANNEX 5: LIST OF CONSULTATIONS & WORKFIELD ............................................................................. 48
# LIST OF ABBREVIATION

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>APM</td>
<td>Agriculture Master Plan</td>
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<td>ASDP</td>
<td>Agriculture Strategic Development Plan</td>
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<td>ASEAN</td>
<td>Association of Southeast Asia Nations</td>
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<td>CARDI</td>
<td>Cambodian Agricultural Research and Development Institute</td>
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<td>CCCA</td>
<td>Cambodia Climate Change Alliance</td>
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<td>CEGIM</td>
<td>Climate Impact on Economic Growth Model</td>
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<td>CO2</td>
<td>Carbon Dioxide</td>
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<td>CSDGs</td>
<td>Cambodia Millennium Development Goals</td>
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<td>EU</td>
<td>European Union</td>
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<td>GFSI</td>
<td>Global Food Security Index</td>
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<td>GDP</td>
<td>Gross Domestic Products</td>
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<td>IDP</td>
<td>Industrial Development Policy</td>
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<td>NGOs</td>
<td>Non-Governmental Organizations</td>
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<td>NSDP</td>
<td>National Strategic Development Plan</td>
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<td>MAFF</td>
<td>Ministry of Agriculture Forestry and Fishery</td>
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<td>MEF</td>
<td>Ministry of Economy and Finance</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>PPP</td>
<td>Private-Public Partnership</td>
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<td>R&amp;D</td>
<td>Research and Development</td>
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<td>RGC</td>
<td>Royal Government of Cambodia</td>
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<td>RS-III</td>
<td>Rectangular Strategy-Phase III</td>
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<td>RS-IV</td>
<td>Rectangular Strategy-Phase IV</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<td>SNEC</td>
<td>Supreme National Economic Council</td>
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<td>UNCDF</td>
<td>the United Nations Capital Development Fund</td>
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<td>WFUG</td>
<td>Water Farmer Use Group</td>
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EXECUTIVE SUMMARY

Cambodia has achieved a 7.7% per annum over the last 15 years. Among other key drivers such as garment, construction, non-garment manufacturing, tourism, and other service sectors, agriculture's strong performance also played a critical role in contributing not only to this rapid economic growth but also to poverty alleviation, people's livelihood improvement, and food security. During 2003-2012, the agriculture sector accelerated its economic growth of 5.8% per annum, constituting 1.6 percentage points to the average annual economic growth of 6.65% in the corresponding period. It also contributed 60% to the reduction of poverty headcount from 50% in 2007 to 21% in 2011.

Many strategic and policy documents have been introduced over the last decade to guide the development of agriculture. Key stakeholders including government agencies, development partners and others have put tremendous efforts in promoting agriculture development, but those efforts remain scattered or silo—lack of harmonization and coordination. The strong growth and rapid development of agriculture Cambodia enjoyed in the past, however, have significantly softened over the last five years. Those could be driven by a number of factors, including but not limited to, limited land expansion, slower growth of agriculture productivity, negative price effect of regional and global agriculture commodities, climate change, and low investment in agro-processing.

In addition to the above challenges, Cambodia's agriculture sector is also facing several conditions, which will define the future development of this sector. Those include potential labor shortage, potential land consolidation, rising income and demand for quality safe food, the effect of climate change, and the technology disruption. Without a long-term vision for this sector and policy interventions, the agriculture in the business as usual scenario is projected to have a further declining growth. Growing population and demands for food consumption, however, provide opportunities for Cambodia to further its agriculture development through the participation in global value chains.

Against this backdrop, it is essential the approach to modernizing a long-term vision for the sector is holistic and involves relevant stakeholders to meet both the current and future needs of the country by 2030. The approach and strategic focus of agriculture development could be different from the conventional ones, aimed at creating more value added to the sector and economy as a whole through shifting the focus toward relatively niche, better quality and safer product, and at promoting self-sufficiency of major products such as vegetable, fish, livestock and poultry which Cambodia currently depends on imports from neighboring countries.

The long-term vision of the agriculture sector thus should be about: "promoting a sustainable agriculture to support growth and inclusiveness in Cambodia". In supporting the above vision, the RGC should set out three strategic objectives, including:
(1) **Boosting economic opportunities by promoting growth, job creation and income by focusing on the following strategies:**

- Boost Growth of Crops: enhancing land and labor productivity by unlocking the potential of technology
- Diversify the sources of growth by developing aquaculture and animal production increasing competitiveness (feed, fund, farm)
- Promote commercialization and agro processing certification, SPS, laboratory facility development, packaging, farming technique, reduction of cost of electricity, transport and logistics;

(2) **Building food security by focusing on the following strategies:**

- Enhance Food Availability by increasing agriculture productivity
- Increase Economic Access to Food by keeping food price low and stable
- Promote Physical Access to Food by improving transport, logistics and infrastructure
- Enhance Food Utilization by boosting nutrition security and food safety by boosting nutrition security and taking strict legal measures on illegal and fake products affect human's health; and

(3) **Promoting environmental sustainability by focusing on the following strategies:**

- **Sustainable Agriculture:** good agriculture practice, minimized input use, producing less-getting more, extension service, watershed management, climate smart agriculture
- **Sustainable Forestry:** enforcement, mobilization and collaboration, replanting, and livelihood development
- **Sustainable fishery:** conservation of fishery protected area, fish habitat, and restoration of fish resources.

It is also imperative all stakeholder especially government need to take into account the risks. Those risks are related to uncertainties with production, price fluctuation, technology and policy change. With regard to contingency plans to manage the risks in the agriculture sector, three components should be considered: risk reduction, risk mitigation, and risk coping to help farmers deal with the risks beyond their capacities and resources.
All relevant stakeholders shall work collectively to achieve common a vision and objectives through institutional capacity development, coordination and harmonization. In doing this, all relevant stakeholders can: (1) harmonizing planning, budgeting and implementation, (2) gradually decentralizing and de-concentrating resources, (3) revising and consolidating programs, (4) improving quality data collection, and (5) enhancing human resources development.

To maximize the value addition and compete with other key international players, Cambodia, going forward, shall focus on relatively niche agriculture product rather mass production. Gradual diversification from crops toward other potential sub-sectors such as livestock, poultry, and aquaculture will be the strategic focus in modernizing the long-term vision for the agriculture sector. The strategic priorities and policy orientation should also be made toward improving logistics, packaging, branding, quality standard, and agro-processing to support the future of agriculture sector development in Cambodia. However, promoting agriculture sector development need to be balanced with the welfare of the people in terms of food security and environmental sustainability to promote sustainable agriculture to support growth and inclusiveness in Cambodia.
1. INTRODUCTION

1.1. Development of Cambodia's Agriculture Sector
Cambodia has achieved a robust growth of 7.7% per annum over the last 15 years, mainly driven by garment, construction, non-garment manufacturing, tourism, other service sectors, and agriculture. This strong economic performance has been attributed to political and macroeconomic stability, conducive policy and regulatory framework, and attractive investment framework.

Among all key drivers, agriculture has also played a critical role in contributing not only to economic growth, but also to poverty alleviation, people’s livelihood improvement and food security. During 2003-2012, agriculture accelerated its economic growth of 5.8% per annum, constituting 1.6 percentage points to the average annual economic growth of 6.65% in the corresponding period. It also contributed 60% to the reduction of poverty headcount from 50% in 2007 to 21% in 2011. Additionally, through remarkable agriculture development which transformed Cambodia from a net importing rice country to a net rice exporter, people especially those in the remote area have better food security, particularly in the aspects of availability and accessibility. Besides reaching self-sufficiency of rice, Cambodia could produce an annual surplus of paddy rice of around 4 to 5 million metric tons for commercialization when its production doubled from 4.7 million metric tons in 2003 to 10.5 million metric tons in 2017. [See Figure 2, 3, 4, 5, and 6 in Annex 2]

However, the remarkable strong growth and rapid development of agriculture Cambodia enjoyed in the past have significantly softened over the last five years. Those could be driven by limited land expansion, slower growth of agriculture productivity, negative price effect of regional and global agriculture commodities, and low investment in agro-processing. After achieved a high annual growth rate of around 4% to 7% during 2003-2012, agriculture grew only 1.0% per annum during 2013-2017, mainly pushed down by decelerating growth of crops and slow pace of another sub-sector development. Crops, constituting around 55% of agriculture sector, experienced a much slower growth of 1.1% per annum in 2013-2017, from 5.5% in 2008-2012, and 12.1% in 2003-2007. This was caused by a number of critical factors including limited land expansion, climate change, drop of agriculture commodities and most importantly the slower growth of both land and labor productivity. Additionally, slower growth of investment in agro-processing and relatively weak commercialization to absorb the domestic production of crops such as paddy rice, cassava, red
Besides experiencing a slower growth of crops, farmers have been faced with constraints to diversify to other potential sub-sectors such as aquaculture and animal raising due to some critical issues despite the rising domestic demand. Evidently, the annual growth of livestock and poultry dropped from 5.4% in 2003-2007 and 2.4% in 2008-2012 to 0.3% in 2013-2017 while fishery growth also shared the same trend from 2.0% and 4.9% in the corresponding period to around 1.7% in the last five years. Due to a slower pace of development of those potential sub-sectors, Cambodia needs to import around USD 600 million of vegetables, fish, pig and poultry from her neighboring countries, especially Vietnam. [See Figure8 in Annex2]

1.2. Status of Cambodia’s Agriculture in The Region

According to Timmer’s Framework, agriculture developments are categorized into six phases. Those include Phase 1 - Beginning, Phase 2 - Agriculture Surplus, Phase 3 - Early Integration, Phase 4 - Middle Integration, Phase 5 - Late Integration, and Phase 6 - Industrialized. This framework is a relatively simplified tool, which allows for the level of agriculture development of countries in the region to be benchmarked.

Based on this framework, in the decade of 2010s, Cambodia’s agriculture has remained in Phase 2 - Agriculture Surplus. This has been relatively behind other countries such as Thailand, Vietnam, Indonesia, and India that have relatively reached Phase 3 - Early Integration. This benchmarking reflects the reality of current situation of Cambodia’s agriculture. Even though Cambodia has enjoyed a remarkable growth of agriculture production especially potential crops such as paddy rice, cassava, red corn, mango, and rubber, she has not been able to process those primary produce to get higher value added for the sector and the whole economy. Cambodian farmers still depend on the markets of neighboring countries to commercialize own produce because current level of investment in agro processing could not absorb a huge amount of agriculture produce. According to EUROCHAM’s assessment, only 8% of agriculture product has been processed to be final products.
In terms of growth performance, Cambodia’s agriculture has had an opposite trend from that of her peer countries in the region, given similar regional and global changes in the aspect of price drop and climate change. Based on Table 1 in Annex 2, during 2013-2017, while the annual growth of Cambodia’s agriculture dropped to 1.0% from 4.5% in 2008-2012, other countries in the region such as Vietnam, Indonesia and India could maintain a relatively stable growth rate of 2.5%, 3.9% and 3.0%, respectively. Additionally, growth rate of agriculture value added per worker, which refers to labor productivity of agriculture, also experienced a much decelerating growth from 18.6% during 2008-2012 to 3.6% during 2013-2017 while Vietnam and Thailand could enjoy a picked-up growth rate from 1.8% to 4.6% and 1.2% to 5.6%, respectively, in the corresponding period.

In the area of food security, based on recent mid-term review of CARD and FAO in 2017, Cambodian people have better food security in quantity; thanks to a remarkable development of Cambodia’s agriculture, allowing people to get access more food. However, in terms of quality, food safety and nutrition, Cambodia still has a long way to go to improve food security and remains far behind other countries. According to Global Food Security Index (GFSI) published in 2016, which takes into account of 19 factors related to affordability, availability and food quality and safety, Cambodia’s Food Security ranked 89th while that of other countries such as Thailand, Vietnam and Indonesia ranked as 51st, 57th and 71st, respectively.

1.3. Trends of Agriculture Sector

A. Global and Regional Trends of Agriculture

At the global level, agriculture has played a fundamental role in supplying food for human consumption, supporting other growing sectors, creating employment, and contributing to sustainable development. It is increasingly important in the medium and long term as the world population is projected to grow from 7.5 billion in 2017 to 8.3 billion in 2030 and increase up to 10 billion by 2050, implying a growing demand for food supply in the next three decades. During 1960-2015, agriculture production increased around 2.7% per annum which was relatively sufficient to sustain the lives of human beings. However, over the next decade, while the world population is projected to rapidly increase, the net world agriculture productions are forecasted to have slower growth of 1.8% per annum. This signals potential and promising opportunity of agriculture sector development to fuel the growing population and its demand. Growth rate of global agriculture demand is projected to be
moderating from 2.2% per annum over the past 30 years to only 1.5% per annum over the next 10 years.

In terms of agriculture product demand, in the Southeast Asia, during 2009-2030, the composition of consumption by item is remarkably changing—people have been shifting from low quality with less nutrition and protein products to better quality and safer ones. During this period, people reduce the consumption of rice by 4%—from 889 Kcal per capita to 850 Kcal per capita. In substitution with rice, people will consume more meats, fish, vegetable and fruits which are estimated to increase by 90%, 46%, 50% and 75% respectively. The demand of higher quality food will be attributed to growing number of middle-income people due to projected robust economic growth, and the trend of urbanization by which more and more people will shift to live in the urban area. This tendency has a strong implication on Cambodia’s agriculture for many years to come. To actively participate in global value chain and successfully compete at the international market, Cambodia should promote relatively high quality and niche product such as fragrant rice, fruits and other kinds of crops including cassava, applied good agriculture practice, which ensure food safety and meet the quality standard.

B. National Trends and Policy Scenarios

National Trends:
Over the last decade, Cambodia’s agriculture sector has undergone a remarkable transformation. Alongside its huge increase of production, the share of agriculture to economy has declined from 32.8% in 2008 to around 22.2% in 2018 and the share of labor in agriculture also dropped from 55.6% in 2008 to 36.4% in 2016. With continuously projected economic structural transformation, this tendency is expected to continue in the medium and long term. In the future, Cambodia’s agriculture is projected to encounter the following major trends:

a. Labor Shortage: young labor forces are projected to increasingly move out from the rural area to find better paid employment in industry and service sector mostly concentrated in urban areas. Based on UN’s World Urbanization Prospect, the urbanization rate in Cambodia is projected to increase from around 20% in 2015 to around 30% in 2030. Regarding the income of labor, according to UNDCF Study 2016 and MLTV, the monthly average income for farmer was USD 108 and USD 85 for farm worker while average monthly salary of garment worker reached to USD 200; it expects to increase further in the next decade. When many young people are not interested in agriculture but in other sectors in urban area, current farmers in agriculture sector, with their average age of 39 years in 2016, are
going to be aging, which will not only cause labor shortage but also affect labor productivity. This has a serious implication for the government’s policies and other stakeholders to promote appropriate mechanization and application of technology and to invest in skills and human capital development for people in agriculture.

b. **Emerging Naturally Consolidated Land:** according to the study of United Nation Capital Development Fund (UNCDF) in 2016, around 70% of households own between 0 and 2 hectares of farmland while only 30% own more than that land size per household. Due to the tendency of labor shortage and growing opportunity in other non-farm sectors, the number of small plots of land which are considered to have relatively low efficiency of production are foreseen to be moving to naturally consolidate in the sense that farmers could sell or rent their land to others and find better non-farm employments. This implies opportunities for relatively large-scale farmers to increase efficiency and economies of scale in agriculture sector.

c. With a projected strong economic growth, Cambodian people especially those living in the urban areas will continue to enjoy a rising income so that they would demand for better quality safe foods. This requires the government and key stakeholders to help prioritize certain kinds of crops to be produced and integrate them in the regional and global supply chain.

d. In the medium to longer term, agriculture will be severely affected by climate change, given business as usual scenario. Based on the recent study of Climate Impact on Economic Growth Model (CEGIM) jointly conducted by MEF and CCCA, Cambodia is projected to be impacted around 0.6% of GDP in 2030, 0.9% of GDP in 2040 and 1.2% of GDP in 2050. Therefore, it is so imperative that collective efforts be in place to mitigate and adapt to climate change through investing and applying technology.

e. Based on the growing trend of Industrial Revolution 4.0, agriculture sector in Cambodia also expects to get impacted by technology in the aspects of supply side through efficient production and demand side through the application of financial technology (Fintech). This tendency will be also conducive for accelerating Research and Development (R&D) in agriculture such as foundation seed production, and seed cloning.

Against the backdrop of both global trend and national trend, in the next decade, agriculture sector is seen to remain important and relevant for supporting Cambodia’s economic growth, food security and poverty reduction. The government included the agriculture sector development in the Rectangular Strategy (RS4). However, given aforementioned tendency, the approach and strategic focus of agriculture development could
be different from the conventional ones, aimed at creating more value added to the sector and economy as a whole through shifting the focus toward relatively niche, better quality and safer product, and at promoting self-sufficiency of major products such as vegetable, fish, livestock and poultry which depends on import from neighboring countries.

**Policy Scenario Analysis:**

In the years to come, without a clear long-term vision to introduce and implement sharp policy measures and structural reforms, the growth of agriculture is expected to head toward a trend of further deceleration. Its development will significantly be shaped by (1) the efforts by all relevant stakeholders, (2) uncertainty of agriculture commodity prices at the international markets, and (3) increasing exposure to climate change. With business as usual (BAU) scenario, the average growth of agriculture sector over the next 13 years will be moving to less than 0.4% in 2030, down from more than 1.3% and 1.4% during 2018-2019. Growth of all sub-sectors of agriculture will drop to less than 1.0% by 2030. Under this business as usual scenario, Cambodia would be struggling not only to accelerate poverty reduction and boost food security but also generate negative impact on other supporting sectors such as industry and services.

However, with the high-case policy scenario by which collective and harmonized efforts among key stakeholders are put in place, allocated resources by government agencies and development are efficiently used, climate change resilience is taken into account seriously, nonproductive land is reviewed and turned into productive one for agriculture purpose, land and labor productivity is eventually improved, the potential of technology is unlocked, and investment in agro processing is increased, Cambodia is anticipated to enjoy not only the average growth rate of agriculture of 3% per annum, but also strongly support other sectors such as service and industry which are projected to demand more agriculture products. Additionally, a strong growth of agriculture will also help contribute to economic growth, improve living conditions of people and accelerate the pace of poverty reduction, particularly in the rural areas. Promoting growth of crops, boosting production of fishery and livestock & poultry which have big potential are key strategic directions in the future. Detailed strategies and policy direction are elaborated in Section 3 and simulated growth by sub-sector is included in Annex.
2. STRATEGIC GUIDANCE AND RATIONALES FOR MODERNIZING AGRICULTURE SECTOR

Agriculture has been part of a long history in Cambodia, and it continues to shape and affect lives of the Cambodians in various forms. Its significant role in promoting economic growth, income generation and poverty reduction, job creation, and importantly ensuring national food security for the nation has not gone unnoticed. Instead, agriculture will contribute to achieving Cambodia inspiration to become an upper-middle income country by 2030 and a high-income country by 2050, particularly as this sector has been prioritized in many important documents of the Royal Government of Cambodia (RGC).

The recently-released Rectangular Strategy-Phase IV (RS-IV), updated from the RS-III, is a high-level strategic document for the RGC, with the goal for Growth, Employment, Equity and Efficiency. Together with the National Strategic Development Plan, which is soon to be finalized for 2019-2023, RS-IV is considered as a clear blueprint to guide the activities of all development stakeholders in which it serves as the socio-economic policy agenda of the government, aiming not only to meet the inspiration and the need of the people, but also to build the necessary fundamentals for achieving the key goals of Cambodia Vision 2030 and 2050.

Particularly, the RS-IV has also determined the priority of promoting the agriculture and rural development among the four strategic rectangular so as to allow Cambodia to achieve a sustainable and inclusive development. The document considers the role of the agriculture sector as to generate jobs, ensure food security, reduce poverty and develop rural areas. Among the measures stipulated in the RS-IV, the RGC is committed to promoting and implementing the “Mater Plan for Agriculture Sector Development 2030” and “Agriculture Sector Strategic Development Plan 2019-2023”, as well as improve productivity, quality, commercialization, diversification and the processing industry through the preparation of strategy for each type of high potential crops.

Currently, Ministry of Agriculture, Forestry and Fisheries (MAFF) is still implementing the Agriculture Sector Strategic Development Plan 2014-2018, which aims to deliver its commitments under RS-Phase III and NSDP 2014-2018. In the ASDP 2014-2018, the RGC has placed the emphasis on, among other priorities, contract farming, across all subsectors, private sector finance, technology transfer and smallholders as to allow them to become commercialized. In addition, MAFF has produced an action plan for its part of the
implementation of the Industrial Development Plan (IDP) 2015-2025. IDP has set out among other priority areas is to modernize the agriculture sector, particularly through the promotion and development of the agro-industrial production for export and domestic markets.

Agriculture as a priority sector is guided by other various policies, plans, regulations and other legal documents, which have been produced by the joint efforts by the RGC, development partners and other relevant stakeholders to further develop this sector. Among many policies, the introduction of the Rice Export Policy 2010-2015 has played an important role. Even though the target of reaching at least 1 million tons by 2025 was not met due to less competitive rice price, lack of capital for buying paddy rice, and lack of investment on research on rice varieties. This policy has proved to be important in helping Cambodia to export substantially, to the EU, China and other markets, owing to the government interventions and the jointed efforts by development partners, the private sector and the farmers.

In addition, MAFF has produced: Strategic Planning Framework for Fisheries 2015-2024 with the vision to manage, conserve and develop sustainable fisheries resources to contribute to ensuring people’s food security and to socio-economic development to enhance people’s livelihoods and the nation’s prosperity; Strategic Planning Framework for Livestock Development 2016-2025 with the vision to ensure food security, food safety and profitable trade and contribute to national socio-economic growth through sustainable livestock development; and Strategy for Agriculture and Water 2006-2010 with the vision to ensure enough, safe, and accessible food and water for all people, reduce poverty, and contribute to economic growth while enduring the sustainability of natural resources.

As part of the effort to provide access and adopt improved agricultural knowledge, information, and technologies to farmers and farming communities, MAFF has introduced Agricultural Extension Policy 2015, but its implementation is far from achieving the goals of meeting the local needs and market demand for farmers and farming communities. In addition, the agriculture development is closely linked to the land use, which is governed by Land Law enacted in 2001, aiming to regulate land administration, management and distribution.

In response to the forest utilization and climate change, which can affect the future of the agriculture development, the RGC has also introduced: National Forests Program 2010 – 2029 with the long-term vision to ecologically, socio-economically, culturally and environmentally manage and develop forest resources to better serve the public welfare; Cambodia Climate
Change Strategic Plan 2014-2023 with the vision to develop toward a green, low-carbon, climate-resilient, equitable, sustainable and knowledge-based society with three phases of implementation; and National Strategic Plan on Green Growth 2013 - 2030 with the vision to strike a balance of economic development with environment, society, culture and sustainable use of national resources through integration, matching and adaptation, as well as harmonization between a green growth principle and national policy.

Addressing the welfare of the people, MAFF, together with relevant stakeholders, has also introduced: National Nutrition Strategy 2009-2015 with the vision to ensure all Cambodian women and children are healthy, well-nourished and secure, and live happy productive hopeful lives; Strategic Framework for Food Security and Nutrition in Cambodia: 2008 – 2012 with the vision to achieve food security and adequate nutrition for the people of Cambodia, consistent with the Millennium Development Goals (MDGs), Cambodia MDGs, Sustainable Development Goals (SDGs) 2015-2030, and CSDGs; and Gender Mainstreaming Policy and Strategy in Agriculture with the vision to enhance gender equality in the agriculture sector through active cooperation of both women and men.

MAFF has also introduced the Law on Agriculture Cooperatives (endorsed by Royal Decree in 2013), which is intended to enhance volunteer participation of major incomes that include farming system production, agro-industry, agri-business or services related to agricultural production and have agreed to establish and development Agricultural Cooperatives via registration with the Department of Agriculture Cooperative Development to improve economic, social and culture of its members. MAFF also has a sub-decree on contract farming, which defines the implementation framework of Contract-based Agricultural Production with the intention to strengthen, take responsibilities, build trust, and fairness between producing and purchasing party. Though the choice to enter into the contract arrangement is up to the farmers, the question remains whether or not the contract farming system enables farmers to access credit, inputs, technical advice and marketing information directly from processors or market intermediaries thereby reducing risk and increasing profits.

As of 2018, Agriculture Master Plan (APM) is still being developed, and built on Cambodia's vision for 2030. This crucial document will also indicate the intermediary targets that will align with the timeframe of the five-year ASDPs. This plan guides ways to generate an inclusive, sustainable and competitive agricultural sector that delivers productivity growth and contributes to climate-change resilient food security and increased farm, and non-farm, incomes. While the
whole AMP is an ongoing process, MAFF has completed its Master Plan for the crop sub-sector with vision to ensure a reliable source of high quality, safe, and competitive crops in the global economy while ensuring sufficient volumes of safe food to meet food and nutrition security of its own citizens in a sustainable and climate resilient way.

In overall, many strategic and policy documents have been introduced over the last decade to guide the development of agriculture. It has definitely contributed to structural transformation of agriculture, but challenges remain such as limitation in further farmland expansion, increasing number of vulnerable people, difficulty of small holders to expand and integrate into the emerging modern food value chains (except for rice), and the limited progress of agro process industry. In addition, all key stakeholders so far including government agencies, development partners and others have put tremendous efforts in promoting the agriculture development as reflected in the above-mentioned policy documents. However, those efforts remain scattered or silo—lack of harmonization and coordination even though the government has tried to synergize. Each actor has been looking at the agriculture sector in different perspectives. Therefore, there is an urgent need to harmonize those scattered efforts as to point out clearer directions toward efficient resources allocation and a vision to further develop Cambodia's agriculture sector.

3. VISION, STRATEGIC OBJECTIVES, RISK MANAGEMENT AND INSTITUTIONAL COORDINATION & HARMONIZATION

3.1. Vision

Against the backdrop of Cambodia's agriculture sector development, region and global trends, challenges and opportunities above, it is essential that the approach to modernizing a long-term vision for the sector is holistic and involves relevant stakeholders to meet both the current and future needs of the country by 2030. Thus, the long-term vision of the agriculture sector shall be: "Promoting a sustainable agriculture to support growth and inclusiveness in Cambodia". In supporting the realization of the above vision, the RGC shall lay out three strategic objectives, including: (1) Boost economic opportunities by promoting growth, income, and job creation, (2) Enhance food security, and (3) Promote environmental sustainability.
3.2. Strategic Objectives

3.2.1. Strategic Objective 1: Boost Economic Opportunities

Under the high-case policy scenario, Cambodia’s agriculture is projected to enjoy a remarkable average growth rate of 3% per annum from 2018 to 2030. This objective is laid down to promote the contribution of agriculture growth to national economic development and growth as well as create both farm and non-farm jobs for the people. To achieve this objective, Cambodia will promote the value-added growth of potential crops such as, high value-added paddy rice, cassava, cashew, mango, sugarcane, banana etc. and diversify the sources of growth by boosting aquaculture and livestock and poultry raising.

A. Accelerating Growth of Crops

Agriculture had performed well in the decade of 2003-2012 in which it has achieved 7.2% growth per annum during 2003-2007, and 4.5% per annum during 2008-2012, which significantly contributed 2.1% and 1.2%, respectively, to the economic growth of 10.6% and 5.4% in the corresponding periods. This growth was accelerated by the promising growth of crops, which had the biggest share up to 60%, followed by fishery, livestock and poultry, and
forestry. In the decade of 2003-2012, crops achieved the annual average growth rate of 8.8%, which was dominantly contributed by paddy rice and followed by rubber, cassava, maize, and other main industrial crops.

In the last five years, crops-sub sector, however, has hit a declining growth trend, of around 1.0% per annum. In addition to being affected by climate change, negative spill-over effects of agriculture commodity price drop at the global markets, this sub-sector is constrained by limited expansion of cultivated area. Notice, the annual growth rate of cultivated area of all kinds of crops, decreasing from 5.5% in 2003-2017, 6.2% in 2008-2012, to 1.87% in 2013-2017. In the long-term, land area for crops is also not expected to be further expanded, given the current scope of land use and land reform, which aims for a clear demarcation of land for agriculture production and land for conservation. Thus, it could physically remain stable or keep a declining trend while industrialization is gradually growing, which demands for more land for factories and building constructions.

Besides, farmers are struggling with shortage of labor to participate in farming activities, due to labor movement inside and outside the country, moving away from agriculture to industry and service, which are often paid a higher wage than the ones in agriculture. The 2016 UNCDF study found out the average monthly income was US $108 for farmers and US $85 for farm workers while the monthly average income of worker [benchmarking with workers in the textile industry] has been US $200. This wage gap will continue to grow, due to a strong demand of labor in manufacturing and service in the medium and long term, putting further pressure on the shortage of labor in the agriculture sector.

Technically, land and labor productivity are drivers for boosting the value-added growth of crops-sub sector. Over the last five years, the growth of both land and labor productivity, however, has been on the decelerating trend. During 2013-2017, the annual growth of labor productivity dropped to 5.3%, down from 20.0% during 2008-2012, and 10.5% during 2003-2007. On the other hand, the growth of agriculture mechanization in Cambodia has been expected to offset the shortage of labor force. The issue, however, is the relatively inefficient mechanization, particularly paddy rice cultivation and harvest. Farmers reportedly faced a high rate of post-harvest loss of around 20% per hectare of paddy rice. MAFF estimated that the annual post-harvest loss of paddy rice, due to an improper mechanization accounting between US $300 million and US $400 million.
Besides labor productivity, land productivity is another key driving force to enhance the value-added growth of this sub-sector. The growth of land productivity (production yield) is also facing an issue. During 2013-2017, the annual growth rate of yield of paddy rice production has remarkably declined to 0.1%, down from 3.6% in 2008-2012, and 7.0% in 2003-2007. This tendency is shared with that of other subsidiary and industrial crops, such as cassava, maize etc. In the case of cassava production, the average cassava production yield was 21.6 metric tons per ha during 2013-2017, which was 3.7% higher than that of 2008-2012 with the average yield of 20.8 metric tons/ha. While the cassava production yield in 2008-2012 was 17.3% higher than that 2003-2007 with the average yield of 17.76 metric tons/ha. Farmers also face challenges of not only decelerating production yield, but also under-quality standard of agriculture products which could not maximize the profit margins from selling their produce to the market.

Thus, the slower growth both land and labor productivity for crops-sub sector especially paddy rice, cassava, maize and other industrial crops points out to four critical issues: (1) quality seeds, (2) farming technique, (3) agriculture input control, and (4) mechanization.

(1) **Low Quality Seeds:**

Despite increasing efforts put forward by both government and development partners so far to invest in production of good quality seeds, dominantly paddy rice, the majority of Cambodian farmers [around 85%-90%] still have not used good quality seeds for growing paddy rice. This practice has reflected several issues behind this including:

(a) Limited investment in good quality seed production by both private companies and agriculture communities. This is because while companies need to inject huge investment in building infrastructure such as storage and drying facilities, they are uncertain about demands by farmers;

(b) Low farmers’ limited awareness about the importance of using good quality seeds—presumably giving them a higher production yield and good quality products, which can be sold at a higher price;

(c) Frequent fluctuation of paddy rice’s price—a limited factor, discouraging farmers from spending on the purchase of good quality seeds for their farming activities;

(d) Slow release of paddy rice seed varieties by CARDI. So far even though around ten kinds of seed varieties have been officially released, only one variety named “Phka Rumduol” is being used by farmers while other nine varieties have not been used and slightly used, due to the lack of market demands and its unsuitability for the land and climate conditions. This indicates a big room for CARDI to improve their research and application for Cambodia. A recent field work and studies indicated fragrant rice variety
called “Sen Kra Ob” and white rice variety named “IRR504” are predominantly used by farmers, particularly given its market demands. The issue, however, is that the former has not been clearly identified of its origin whether it is from Cambodia or Thailand while the latter is marked as an original variety from Vietnam.

The study findings also pointed out that for growing industrial and subsidiary crops especially major crops such as cassava, red corn, cashew nut, and mango, almost all farmers depend on imported seed varieties from Cambodia’s neighbouring countries, namely Vietnam and Thailand. This has indicated a huge weakness in related to the activities of research and development (R&D) on seeds in Cambodia, demanding actions from relevant stakeholders.

(2) **Limited Farming Technique:**

It is recognized that agriculture extension in both pre and post-harvest plays an essential role not only in productivity improvement, but also in diversification as well as commercialization. From year to year, the budget support for agriculture extension activities has remarkably increased, especially the budget funded by development partners. It is, however, noted that those extension services, including land preparation, seed selection, fertilizer and chemical substance application, farm management, post-harvest management, have not reached to a large number of farmers across the country because few activities of extension are implemented annually in one community or village.

In some areas when the extension activities are being carried out, the extension agents have faced difficulty in mobilizing farmers to participate. In other cases, even though farmers have joined the agriculture extension events, such as field school demonstration, trainings, etc. about land preparation, fertilizer and pesticide application, seed selection, still they have not adopted those farming techniques to boost production yield and quality. This is because they are constrained with labour shortage (for transplanting), higher cost on buying modern equipment and technology.

Importantly, extension activities, which are carried out by the government agencies and other stakeholders at both the national and sub-national levels are not market demand driven—meaning that they are rather a supply side approach, which fail to satisfy the needs of the farmers. In addition, some methods of extension, such as broadcasting through TV and leaflet distributions seem not effective for farmers in the remote areas where the issue of literacy among other issues prevails.
(3) **Quality of Agriculture Inputs:**
In recent years farmers are observed to increase the use of agriculture inputs, especially fertilizer and pesticide, hoping to tremendously increase production yields and the farm revenues. This practice has made them to bear a higher cost on top of other issues that are facing such as under standard quality of those inputs, which are not properly inspected by relevant agencies. In the case of fertilizer, in current practice, the quality and specs of the product is checked at the border points when companies request for license to import. The issue is, however, when fertilizer is available for sales on the market, there is an absent of enforcement mechanisms to inspect and ensure the good quality. This is attributed to two reasons: (a) responsible officials working under regulation-related or legal departments and offices are not capable and well-equipped enough to conduct this technical inspection. Rather, they normally just verify the relevant documents and information on the packaging and the licenses; (b) there is no laboratory facilities at the provincial level to enable officials to test suspected samples of those agriculture inputs to verify their quality.

(4) **Mechanization:**
The annual report of MAFF published in May 2018 indicated that for the last several years, rate of agriculture mechanization has kept increasing remarkably up to 94.2% in 2017. The tendency of using machineries to serve farming activities, especially for harvesting paddy rice, which is the major crop, is in response to address the key issue of labour shortage and increasing labour cost as well as meet the demand for commercialization. Mechanization helped farmers to reduce the production cost and speed up the harvesting time, but at the same time, current practice of mechanization has made farmers lost a huge amount of paddy rice.

According to the study and the field work consultation, approximate 20% to 25% was lost in post-harvest per annum—equivalent between US $300 million and US $400 million, primarily due to improper techniques of mechanization, caused by lower skills of machinery operators, non-suitability of machinery for land in some areas, and shortage of machineries during peak harvesting season [normally in late August, October-November].

**Strategic Priorities and Policy Orientation:**
To promote growth of crops sub-sector with the average of 2.7% per annum from 2018 to 2030, it is so imperative that growth of paddy rice production be achieved the annual average rate of 1.8%, yielding the total paddy rice production of around 12 million tons in 2023 and 13 million tons in 2030, which required to keep cultivated area of around 3.1 -3.4 million ha

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1 Source: Department of Agriculture Engineering (DAE), of MAFF
during 2018-20130. The composited amount of fragrant/organic rice vs. long grain white rice should be (50%: 50%). In contributing to achieve the growth of crops, it is also necessary to increase production of subsidiary and industrial crops up to 17 million tons in 2018, 23 million tons in 2025, and 29 million tons in 2030. Additionally, rubber production should be increased up to around 200,000 tons in 2018 and reach to maximum level of 500,000 tons from 2023 to 2030.

Accordingly, increasing productivity (land and labor productivity) in both volume and value in an environmentally friendly manner and increasing demands of agriculture products, such as paddy rice, cassava, mango, banana, cashew nut, maize, and other potential industrial crops are key priorities described as following:

- **Increase accessibility and affordability of good quality seeds to farmers:**
  (a) Increase investment in research and development (R&D) for producing foundation seeds of rice, as well as other major industrial crop seed varieties such as cassava, mango, red corn, and cashew nut which are environmentally friendly, resilient to climate change, and responsive to the market demand. Improving capability of CARDI and making a clear cut for the functions of other agencies are important to achieve this task;
  (b) Attract private companies at both national and sub-national levels to produce good quality seeds of crops, especially paddy rice through fiscal and non-fiscal incentive mechanism or grant-matching approach;
  (c) Provide support in the form of capacity building, market linkage and targeted subsidies (purchasing foundation seeds) to agriculture communities to produce good quality seeds for selling to farmers at reasonable prices;
  (d) Raise awareness among farmers, particularly commercial ones to understand about the importance of using good quality seeds as well as selection of seeds;
  (e) Promote collaboration between farmers, rice seed production agents, traders and rice millers through regular and open forums; and
  (f) Promote investment in good quality seed production facilities at the provincial level through Public-Private-Partnership (PPP).

- **Enhance the effectiveness of agriculture extension:**
  (a) Establish a platform or network of agriculture extension at the both national provincial and commune levels to ensure harmonization, consistency and coherence of extension message or information disseminated by relevant stakeholders;
  (b) Promote collaboration with the private sector, NGOs and other qualified agents to provide targeted market demand-driven agriculture extension to farmers through
contracting out approach while leading and relevant government agencies play a role as regulators and coordinators;
(c) Establish online agriculture market information intelligence platforms by which farmers, the private sector, traders and investors could access the information about estimated demands, supply and updated prices of major agriculture products;
(d) Promote efficient crop management by which farmers can unlock the potential of technologies or artificial intelligence by collaborating with the private sector;
(e) Strengthen the capacity of agriculture extension agents at the provincial and district levels to deliver market-based extension services through a vibrant incentive mechanism; and
(f) Promote the mechanism of Farmers to Farmer Exchange by which they could learn the best practices and success stories of their fellow farmers.

- **Increase farmers’ accessibility to water:**
  (a) Promote investment in maintenance and operation, small-scale irrigation schemes and grant-matching mechanisms through public private partnership (PPP) approach and enhancement of coordination between government agencies, local authorities and farmers;
  (b) Enhance capacity and strengthen the functionalities of Water Farmer User Group (WFUG) to ensure sustainability of both small and large irrigation schemes; and
  (c) Promote the use of modernized dripping system to irrigate crops, particularly the vegetable and fruits by providing fiscal and non-fiscal incentives to farmers on dripping equipment.

- **Improve efficient agriculture modernization:**
  (a) Provide a capacity building about mechanization such as ploughing and harvesting to machinery operators so as to minimize the loss during post-harvest stage;
  (b) Establish agriculture machinery workshops at the district levels so that they are convenient for farmers to repair the machinery and farming equipment;
  (c) Establish low-interest credit schemes to agriculture communities to purchase agriculture machineries and rent the service during cultivating and harvesting seasons of crops such as paddy rice, cassava, red corn...etc.; and
  (d) Promote consolidation of land which is the ownership of the same household farmers to take advantage of efficient mechanization.
• **Develop agriculture cooperatives:**
  (a) Form and strengthen the agriculture cooperatives through capacity building about agribusiness management, financial and accounting report preparation, marketing and leadership;
  (b) Provide lower interest credit to agriculture cooperatives to invest in agriculture machineries and facilities so that they could use collectively or rent the service to farmers; and
  (c) Collaborate with the private sector to provide market driven agriculture extension services to agriculture cooperatives and link them to collectors, traders, agro processors, and exporters.

• **Enforce the inspection and testing quality of agriculture inputs:**
  (a) Promote the enforcement of inspection on agriculture inputs especially chemical fertilizers and pesticides traded in the market through developing capacity of inspection officials at both national and sub-national levels; and
  (b) Improve the quality infrastructure to support testing agriculture inputs and deploying them in the region composing of a cluster of provinces.

• **Improve efficiency of land use:**
  (a) Enforce land zoning based on the potential of land for particular crops in respective provinces or regions;
  (b) Promote the farmers’ practice of crop rotation and integrated farming system, aimed at improving production yield and maintaining the land fertility; and
  (c) Conduct land levelling which contribute to improve efficiency of water, labour, and energy resource utilization.

**B. Boosting Diversified Growth of Agriculture through Aquaculture and Livestock & Poultry Development**

Aquaculture, livestock and poultry were estimated to share around 16.3% (aquaculture: 5.3% and livestock & poultry: 11%) of the agriculture sector, which was equivalent to 3.9% of GDP in 2017. Over the last five years (2013-2017), the aquaculture enjoyed a strong growth of around 20% per annum, reflected by the increase of private investment mostly in small scale and medium scale fish farming. The production of aquaculture increased 2.3 times—from 90,000 metric tons in 2013 to 207,443 metric tons in 2017. In the same corresponding period, despite an unfavorable price effect, the production of livestock and poultry especially pig and
poultry also achieved a strong growth of 6.1% and 7.5% per annum, respectively. In the next decade, given the trend of labor shortage, promoting agriculture diversification toward livestock, poultry and aquaculture production is the right strategic direction for enhancing growth of agriculture sector.

However, the potential of these sub-sectors has been locked by many critical issues in all stage of supply chain management ranging from cost of input and capital, farming technique, quality standard, and market linkages. All these issues have accumulated to lower competitiveness of both aquaculture and livestock and poultry farming as elaborated in below.

**Aquaculture:** there are a number of critical issues facing aquaculture in Cambodia, causing the country not able to produce sufficiently to supply the growing demand of fish so that she needs to rely on import from neighbouring country. They critical issues include: (a) lack of R&D in offspring seeds and brood stocks, especially high value ones, (b) lack of human resources, especially in the fields of genetic and nutrition, (c) lack of aquaculture technique, especially for high value added ones among farmers (small scale), (d) relatively uncompetitive with neighboring countries, due to a high cost of production (feeding materials), and (e) import of feeding materials, offspring, and brood stock are not properly controlled for quality;

**Livestock and Poultry Raising:** similarly to aquaculture, livestock and poultry sub-sector has been facing a number of critical issues to be addressed including (a) a high cost of production, due to an expensive feed and lack of economies of scale, making it relatively uncompetitive compared to neighboring countries, (b) low farming technique resulted from a lack of extension services and low application of technologies for farm modernization, (c) lack of quality control on animal seeds (chicken and pig), and feeding materials, and (d) unfair contract farming practice between farmers and commercial companies.

**Strategic Priorities:**

Under policy scenario, livestock and poultry sector is projected to grow 3.4% per annum while fishery could enjoy the strong growth rate of 4.0% per annum from 2019 to 2030. To achieve these growth targets (in value added term), given other factors remaining constant, cow, buffalo, pig and poultry are required to have the annual growth rate of 1.8%, -2.0%, 3.5%, and 4.5% respectively.

In order to achieve these annual growth target which contributes to economic growth and diversify the sources of growth of agriculture sector, increasing production efficiency, competitiveness and quality standard are the key strategies to focus on as highlighted below:
(a) Increasing the competitiveness of production by reducing cost of feed, capital by cutting cost of electricity and logistics cost, as well as, providing fiscal incentives and low interest loan mechanisms to potential farmers;
(b) Invigorating the research and development (R &D) by investing in laboratory facilities and genetic development and enhance extension about farming techniques by PPP approaches;
(c) Promoting the development of agriculture cooperatives aimed at improving the economies of scale and link them to the market; and
(d) Enforcing the quality of quality of feed (fish and animal) closely monitoring and controlling the disease through promoting vaccination by collaborating with the private sector in an efficient manner.

C. Promote Agriculture Commercialization and Agro-Processing

Commercialization and agro processing have been determined to play important roles to stimulate demands for agriculture product and supporting vibrant economic activities of other sectors. Over the last five years, there has been remarkable progress of agriculture production commercialization and agro processing activities. The noticeable performance of both areas has been reflected by continuous growth of agriculture commodity export and increase investment in agro progressing especially in rice sector when the Royal Government of Cambodia.

However, the pace of development of both wheels has been slow, due to limited investment by private sector—both foreign and domestic investment, quality assurance, certification, marketing, branding and so on. Therefore, Cambodia still rely on neighboring market (Thailand and Vietnam) to export her own agriculture primary commodities, causing a huge loss in economy. A recent study done by Euro Cham indicated only 8% of total agriculture product are processed up to a high stage of value chains, which has been remarkably low despite the efforts.

Agro Processing: (a) Instability of agriculture raw material supply due to lack of technology, flexible quality seeds, farming technique and clustering, (b) Poor quality of raw materials: some specific crop varieties do not produce best quality of products that cause industry to spend much on raw materials, (c) High cost of energy [30%-40% of production cost]; (for BAI and Sing Sung Factories, (d) High logistics and business cost especially in the stage of registering, factory construction permit, and complicated procedure of imported equipment and machineries. Logistics cost is higher than other ASEAN Countries, (e) Lack of skill workers in the
field of agro processing: highly skilled workers are currently imported from other neighboring countries (Vietnam and Thailand), (f) Lack of capacity to highly participate in global value chain because of low branding and marketing, quality standard certification and SPS.

**Commercialization:** (a) Farmers’ capacity to produce good quality product as buyer need remain low due to lack of farming technique and quality seeds, (b) Lack of quality standard certification: laboratory facilities are fragmented and relatively low capacity to test and certify, (c) Lack of packaging, cool storage facilities and technology, (d) Relatively poor linkage between farmers and private sector.

**Strategic Priorities and Policy Orientation:** in order to promote agro processing and commercialization of agriculture sector, it is so imperative that following measures be implemented collective and harmonized manner.

**(1) Agro Processing:**
- Reduce electricity price through giving special price for industries that RGC aims to promote or allow those industries to connect directly to substation;
- Establish agro processing clustering zones based on the potential of agriculture products; and
- Provide support to small scale agro processing products through concessional loan and capacity building mechanism.

**(2) Commercialization:**
- Promote agriculture community development and link farmers through contract farming;
- Provide support to agriculture communities in setting up cool storage and facility; and
- Enhance farmers’ access to agriculture market information through unlocking the potential of technology.

**(3) Cross-Cutting Strategies:**
- Reduce the logistics cost and simplify trade facilitation;
- Invigorate the capacity of laboratory facilities through consolidation and/or improving the existing laboratory facilities under a responsible ministry;
- Enhance the quality of agriculture product through investing in good quality seeds, extension services and technology in the approach of PPP and Contract Farming;
- Establish agriculture certified body to certify primary and processed agriculture products for export; and
- Invest in rural infrastructure in areas which have potential in agriculture products (early mentioned).
3.2.2. Strategic Objective 2: Enhance Food Security

Cambodia has made a remarkable achievement in improving the food security for the people, particularly through those who were vulnerable and living under and near the poverty line. All three dimensions of food security including food availability, food accessibility, and food utilization have been noticeably enriched. The success of enhancing food security has been attributed to the implementation of various programs/projects by government, development partners, NGOs and other key stakeholders to promote the agriculture development and accelerate a high economic growth.

Enabling environment of strong commodity prices at the global market, recent new policies introduced by the government regarding land reform, rice export policy 2010-2015, introduction of modern extension services, have helped Cambodia to bolster a firm growth of agriculture production, especially paddy rice and potential cash crops. This has transformed Cambodia from the net food importing country during 1990s, by which people could not produce enough for even supporting livelihood for one year-round, to become a net exporter country, particularly rice. Rice is the main staple food for the Cambodian people, and Cambodia could produce rice to reach a self-sufficient level during early 1990s.

Cambodia has also achieved a status of a net rice and paddy exporter between 1995 and 1996. Over the last 15 years, paddy rice production increased more than twice—from 4.7 million tons in 2003 to 10.6 million tons in 2017, enabling Cambodia to have a surplus of around 4-5 million tons on average per annum for export either in the form of milled rice or paddy rice. Cambodia has started exports milled rice since 2000 but it was tremendously active in 2009, and one year later the RGC’s Policy on the Promotion of Paddy Production and Milled Rice Export (2010) aims to export one million tons of milled rice by 2015. When Cambodia started formal milled rice exports in 2009, it only reached 12,613 tons, but increased rapidly in following year until 2017, Cambodia exports were 635,679 tons. Most of the surplus paddy are exported informally or cross border trading, largely to Vietnam.

In addition, the development of other agriculture sub-sectors such as other cash crops (industrial crops) apart from paddy rice, and improvement of agribusiness and commercialization of agriculture product have led to creation of farm-jobs for people living in the rural areas, especially poor, landless and small-scale farmers. A study titled “Cambodia Agriculture in Transition in 2015” by World Bank found out that the rural wage increased
dramatically from 1.25$/day in 2005 to 4.56$/day in 2013—mainly attributed to industrial sector around 70% to 80% and the rest to agriculture sector. The improvement of food security and human nutrition has been also driven by a strong overall economic growth over the last two decades, which translated into an increase in higher household income for consumption. Evidently, between 2003 and 2017 with the average economic growth rate of 7.7%, GDP per capita increased almost four folds—from USD 367 to USD 1428. The growth of income and economic activities as a whole have pushed the purchasing power of people to increase.

Despite remarkable achievements in enhancing food security across the country, Cambodian people especially those with small-scale farms, marginalized and vulnerable people living in the rural areas are still prone to food insecurity. The frequent occurrence of climate change impacted events such as drought, flood, and heat wave will dramatically affect the crop production, especially paddy rice grown by smallholder farmers. Given their very low diversified sources of income, farmers are vulnerable to food insecurity and can be dragged down into poverty conditions.

A study by ADB 2015 pointed out that even though the poverty rate has dramatically dropped to 13.5% in 2014 from 50% in 2007, a large proportion of people [around 5 million people] is living near the poverty line. Based on Global Food Security Index (GFSI) estimated by DuPont-Economist Intelligence Unit in 2016, Cambodia is ranked 89th with the GFSIF score of 39.8, which is behind almost all countries in ASEAN, including Singapore (Rank 3rd), Malaysia (Rank 35th), Thailand (Rank 51st), Vietnam (Rank 57th), Indonesia (Rank 71st), Philippines (Rank 74th), and Myanmar (Rank 80th).

**Strategic Priorities and Policy Orientation:** Therefore, building food security for the Cambodian people, particularly those living in the rural areas remains a key policy agenda for the government and agriculture, which has played a profound role in the past. This task is still an important and strategic sector in the short, medium and long terms. To build a resilient and sustainable food security, the government shall focus on four dimensions of food security as follows:

1. **Enhance food availability:**
   - Increase agriculture productivity through encouraging sustainable technologies, minimizing losses, encouraging international trade for the commodities which Cambodia could not produce competitively, and promoting inclusive farming;
• Continue providing support to small-scale farmers through integrated farming system, such as rice farming, vegetable, chicken and fish raising to supply a year-round food supply for families and generate incomes to support their livelihood; and
• Establish a revolving fund, integrated farming system techniques, strengthening agriculture communities, and farmers-market linkages to help them secure food and increase income.

(2) **Increase access to food:**

• Further the efforts to keep the food price low and stable;
• Promote social programs and safety net;
• Increasing entrepreneurship skills for farmers;
• Encouraging non-farm employment.
• Promote economic access to food through the diversification of sources of income by supporting people to participate in the agribusiness activities and employ in big commercial farms, agro enterprises, community-based agriculture product processing, and value chain of local tourism activities.

(3) **Promote physical access to food:**

• Improve transport, logistics and infrastructure, linking farmers to the market, reducing losses, and urban farming;

(4) **Enhance food utilization and food safety:**

• Boost nutrition security, and improve food safety through investing in infrastructure and hygiene, and promoting bio-fortification, dietary supplements and education.
• Promote food safety by enforcing strict and fair legal measure/regulations on illegal products or fake agriculture products traded in the market.

### 3.2.3. Strategic Objective 3: Promote Environmental Sustainability

Environmental sustainability is a key pre-determined factor to support long-term growth of the agriculture sector, poverty reduction and food security. It is the responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality. The practice of environmental sustainability would help to ensure the needs of today’s population are met without jeopardizing the ability of future generation to meet their needs.

Inappropriate practices of farming tended to increasingly utilize chemical substance, needs for land expansion for agriculture farming to support the needs for staple food and sustainable
livelihood, and relatively weak legal enforcement to effectively protect illegal fishing and forestry logging are threatening the environmental sustainability in Cambodia. Those issues are reflected by a decrease in forestry coverage from more than 70% during 1980s to around 40% only in 2014. This tendency will continue in the near future without effective legal and administrative enforcement with collaboration and engagement by all stakeholders.

Sharing with the trend of forestry, inland fishery, which feeds and provides nutrition and protein to several million of Cambodian people, especially those living in the Mekong River and Tonle Sap Lake, has been dramatically declining. Additionally, relatively inappropriate farming practices in the aspect of fertilizer and pesticide application, lack of watershed management, have caused soil fertility to decline. Agriculture itself also emits carbon dioxide (CO2) through land clearance, loss of soil carbon, feed crop production and energy use. Moreover, due to the lack of investment in bio-digesters for biogas generation, animal manure has generated anthropogenic methane emissions which dramatically contribute to climate change. The study on Climate Impact to Economic Growth Model (CEGIM), It was joint conducted by Ministry of Economy and Finance, and CCCA, shown that the magnitude of impact from climate change on economy could reach up to 4% of GDP in 2030, and the impact attributing to agriculture sector has the biggest share, with the current baseline scenario.

**Strategic Priorities:**

To promote environmental sustainability, under the current constraint of resources, Cambodia shall apply two approaches including a sustainable agriculture, sustainable forestry and sustainable fishery.

**A. Sustainable Agriculture**

Sustainable agriculture has grown out of concerns not only for Cambodia but also other agriculture-based countries over the industrialization of agriculture. Indeed, industrial agriculture has the capacity to produce abundant amounts of food at affordable prices, but the method of farming can be detrimental to the environment. Industrial agricultural methods are heavily reliant on chemical fertilizers and pesticides and put high demands on soil and water resources. These methods can lead to water pollution when chemicals run off into waterways, deplete water resources due to overuse, and soil erosion and poor soil quality, due to aggressive planting.

This tendency already happened to Cambodia as mentioned earlier. Therefore, to ensure a sustainable agriculture by balancing the environmental sustainability and agriculture
productivity improvement, for the long-term vision of agriculture modernization and policy orientation, the RGC need to work with stakeholders including responsible government agencies at national and sub-national levels, development partners, researchers, academia, agriculture community, and private sector to:

(a) Promote and educate farmers to use appropriate farming techniques that protect or at least less harmful to, the environment;

(b) Encourage and educate both small-scale farmers and large-scale farmers to minimize water use by modernizing irrigation schemes and effective farm management through the application of technology breakthroughs, and lower the dependence on chemical pesticides and fertilizers;

(c) Encourage farmers to minimize the tillage of the soil and rotate the crop planting each year to ensure the higher soil quality;

(d) Encourage farmers to reduce an overuse of chemical substances, such as fertilizers and pesticides, which have happened in Cambodia’s neighbouring countries, particularly Vietnam;

(e) Strengthen Cambodia’s position to promote a higher value-added agriculture product farming through investing in extension service, quality seeds, packaging and branding and minimizing the cost of production through fiscal and non-fiscal incentives; and

(f) Further promote an effective watershed management in an effort to keep soil fertility for long-term agriculture farming, especially in the low land areas.

**B. Sustainable Forestry**

Sustainable forestry is another approach to ensure environmental sustainability, in relation to regulating forest resources to meet the needs of society and industry while preserving the forest’s health. Basically, forest has served multiple roles for both economic development and environmental protection. Those include the provision of wood for fuel, timber for construction and manufacturing paper, and importantly the capture of and storage of carbon dioxide, keeping it out of the atmosphere. The extracting benefits from forests without environmental sustainability methods will affect the net benefits for Cambodia.

To promote sustainable forestry management, in collaboration with relevant stakeholders, ranging from forestry communities to policy makers, the government needs to:

(a) Clearly demarcate the forest zone for production and economic purpose, and forest zone for environmental conservation;

(b) Continue enforcing the law against illegal logging;
(c) Provide financial, administrative and policy support to forestry conservation activities, jointly done by concerned government agencies and communities, encouraging and investing in young tree replantation; and
(d) Promote the livelihood development of community people whose living depends on forest through small business and handicraft promotion and transformation of protected forest area to become an eco-tourism resort.

C. Sustainable Fishery

Sustainable fishery management is very important not only to ensure the availability of nutritious food consumption for next generation, but also promote biodiversity and environmental sustainability. In order to promote sustainable fishery management, it is so imperative that following strategies get implemented:

(a) Promote conservation of fishery protected area by further enforcing the measures against illegal fishing.
(b) Strengthen and empower fishery communities recognized by the government to play active roles in conservation and protection activities.
(c) Enhance cooperation and collaboration among all stakeholders including local authorities, NGOs and communities to put joint effort in conserving the protected fishery area.
(d) Protect and restore the fishery resources and natural habitat.

4. RISK MANAGEMENT

While implementing the plan and policies of promoting agriculture development, it is also imperative that all stakeholder especially government need to take into account the risks and set out contingency plans to mitigate the risks. Some kinds of risk such as normal variations in production, prices and weather might not require any specific policy response. However, other infrequent but catastrophic events that affect many or all farmers over a wide area will usually be beyond farmers’ or markets’ capacity to cope. Generally, the risks are involving with various forms of uncertainty including:

a. Production uncertainty: the amount and quality of the output that will result from a given bundle of production decisions are not known with certainty. Uncontrolled elements such as weather conditions play a fundamental role in agricultural production;

b. Price uncertainty: production decisions have to be made far in advance of realizing the final product. The price of the output is typically not known at the time the production
decisions are taken. Inelastic demand is often cited as a main explanation for agricultural price variability;

c. **Technological uncertainty**: the evolution of production techniques may make quasi-fixed past investments obsolete. Research and development efforts are typically not made at the farm level but at the input supplier firm level; and

d. **Policy uncertainty**: Besides the general economic policies that affect agriculture as any other sector (taxes, interest rates, exchange rates...) agriculture is typically characterized by an intricate system of government interventions, changes in which may create risk for agricultural investment.

In order to manage the risks in agriculture sector, government, private sector, farmers and other relevant stakeholders consider three components:

- **Risk Reduction** by introducing the technology choices to farmers, providing trainings on risk management, implementing macroeconomic policies and disaster prevention;
- **Risk Mitigation** by promoting diversification in production crop sharing, introducing insurance, contract and off-farm work; initiating and implementing crops insurance scheme and
- **Risk Coping** by mobilizing the resources from charitable organization and disaster relief and social assistance to support the farmers.

5. **INSTITUTIONAL CAPACITY DEVELOPMENT, COORDINATION AND HARMONIZATION**

Over the last two decades, huge amount of investment has been injected into agriculture development, particularly on agriculture extension services, relevant infrastructure and irrigation system funded by both government and development partners. However, this huge increase of investment has not been evidently translated into accelerated growth of agriculture. According to Public Expenditure Review (PER) on Agriculture and Irrigation conducted by World Bank, remarkable increase of spending has not translated into growth. One of many critical issues was lack of harmonization and coordination among all stakeholders—ranging from government agencies, development partners, and NGOs. Those efforts remain scattered or silo—lack of harmonization and coordination even though the government has tried to synergize. Each actor has been looking at the agriculture sector in different perspectives.
Strategic Issues:

(a) Fragmented planning, budgeting and implementation at both national and sub-national levels among government agencies and development partners. It is project-based; not program-based. Grant funded projects are mostly donor driven;
(b) More disaggregated departments, offices or units under MAFF created functional conflicts, overlapping duties—leading to inefficiency of spending;
(c) Resources—human and financial, are dominantly centralized at national level while most agriculture activities are carried out at the ground;
(d) Relatively low institutional capacity and coordination among concerned government agencies;
(e) Lack of mechanism to monitor and assess the effectiveness and efficiency of activities and projects. For example, assessment about the effectiveness of extensive services has never been conducted.

Strategic Priorities and Policy Orientation:

(a) Increase harmonization of planning, budgeting, and implementation among government agencies, development partners and even NGOs at national and sub-national level. Establishing agricultural sectorial master plan at central and provincial level is the option;
(b) Gradually decentralize and de-concentrate resources (both financial and human resources) to provincial and district level through incentive and performance-based mechanism;
(c) Review and consolidate sub-programs, activities, departments, offices and units under the Ministry of Agriculture, Forestry and Fishery to increase efficiency of budget allocation and operation; and
(d) Improve quality data collection of all agriculture sub-sector such as crops, livestock and fishery.
6. **Conclusion**

Over the past decade, agriculture has played an important role in supporting growth and social development in the forms of poverty reduction and building food security, attributed to large expansion of cultivated area and increase of agriculture commodities. It has experienced a declining growth over the last five years, largely due to climate change, drop in agriculture commodity prices, but most significantly slower growth of productivity (both labour and land) as well as slower pace of agro processing development.

Many strategic and policy documents have been introduced over the last decade to guide the development of agriculture. It has definitely contributed to structural transformation of agriculture, but challenges remain such as limitation in further farmland expansion, increasing number of vulnerable people, difficulty of small holders to expand and integrate into the emerging modern food value chains (except for rice), and the limited progress of agro process industry.

In addition, all key stakeholders so far including government agencies, development partners and others have put tremendous efforts in promoting the agriculture development as reflected in the above-mentioned policy documents. However, those efforts remain scattered or silo—lack of harmonization and coordination even though the government has tried to synergize. Each actor has been looking at the agriculture sector in different perspectives. Without a long-term vision for this sector and policy intervention, the agriculture in the business as usual scenario is projected to have a further declining growth.

Therefore, there is an urgent need to harmonize those scattered efforts as to point out clearer directions toward efficient resources allocation and a vision to further develop Cambodia's agriculture sector. Against the backdrop of Cambodia's agriculture sector development, region and global trends, challenges and opportunities above, it is essential that the approach to modernizing a long-term vision for the sector is holistic and involves relevant stakeholders to meet both the current and future needs of the country's agriculture sector by 2030. In order to unlock these potentials, it is so imperative that all stakeholders need to work collectively in the harmonized manner in the aspect of budgeting and planning. Additionally, due to labour shortage and rising labour cost at the rural area which compete with the growing minimum wage of other non-agriculture sectors including industry and services, the model of agriculture
sector development will not be able to rely on labour intensification as before, but need to boost efficient mechanization and unleash the potential of technology. The strategic priorities and policy orientation shall focus on improving logistics, packaging, branding, quality standard, and agro processing will be critical for shaping the long-term future of agriculture sector development in Cambodia. In the longer term, private sector will play even more important role in actively participating in regional and global value chains while the government in collaboration with development partners will put more efforts to promote an enabling business environment and ensure sound macroeconomic management.

To maximize the value addition and compete with other key international players, Cambodia shall focus on relatively niche agriculture product rather mass production. Gradual diversification from crops toward other potential sub-sectors such as livestock, poultry and aquaculture will be the strategic focus in modernizing the long-term vision for the agriculture sector. However, promoting agriculture sector development need to be balanced with the welfare of the people in terms of food security and environmental sustainability through enhancing good agriculture practice and enriching agriculture extension services to farmers.

Achieving the vision and objectives laid out in this research will contribute to the goals of the RGC to reach the middle-income country 2030 and high-income country by 2050, will be linked to the CSDGs in 2030 and the achievement of the Master Plan of Cambodia Agriculture 2030, and other advancement of socio-economic development in Cambodia.
ANNEX

ANNEX 1: PLAN FOR CONSULTATION

Main Research Workplan: Modernizing Agriculture Sector: Long-Term Vision and Policy Orientation

1. Desk Review and Research Design
2. Consultation with Stakeholders in Phnom Penh
3. Field Work in Provinces (Stakeholders: PDAFF, Agriculture Communities, Farmers, Seed Production Center, Agro Progressing Factories...)
4. Wrap up the Findings and Presentation to Program Manager of AUS-SNEC
5. Draft Brief Preliminary Finding Report and Logistics Arrangement for 1st Workshop
6. Conduct 1st Workshop for Collecting Inputs on the Draft Report
7. Revise the brief report and write up the draft completion Report
8. Present to Program Manager of AUS-SNEC
9. Revise Draft Completion Report
10. Conduct 2nd Workshop and Finalize Completion Report
11. Revised the Draft Completion Report and submitted to the Program Manager of AUS-SNEC

ANNEX 2: GRAPH AND TABLES

Figure 2: Average Growth of Agriculture

Figure 3: Annual Growth Rate of Cultivated Area

Source: National Institute of Statistics (NIS)

Source: Ministry of Agriculture, Forestry and Fishery (MAFF)
Figure 4: Cultivated Area of Crops (2003-2012)

Cultivated Area of Crops

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand Ha</th>
</tr>
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<tbody>
<tr>
<td>2003</td>
<td>1,000</td>
</tr>
<tr>
<td>2004</td>
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<tr>
<td>2005</td>
<td>1,200</td>
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<tr>
<td>2006</td>
<td>1,300</td>
</tr>
<tr>
<td>2007</td>
<td>1,400</td>
</tr>
<tr>
<td>2008</td>
<td>1,500</td>
</tr>
<tr>
<td>2009</td>
<td>1,600</td>
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<tr>
<td>2010</td>
<td>1,700</td>
</tr>
<tr>
<td>2011</td>
<td>1,800</td>
</tr>
<tr>
<td>2012</td>
<td>1,900</td>
</tr>
</tbody>
</table>

Source: MAFF

Figure 5: Contribution of Agriculture to Economic Growth

Contribution of Agriculture to Economic Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-2007</td>
<td>8.50%</td>
</tr>
<tr>
<td>2008-2012</td>
<td>4.20%</td>
</tr>
</tbody>
</table>

Source: NIS

Figure 6: Contribution of Agriculture to Poverty Reduction

Contribution of Agriculture to Poverty Reduction

Figure 7: Paddy Rice Production (2003-2012)

Source: MAFF

Figure 8: Average Growth of Agriculture (2003-2017)

Source: NIS

Figure 9: Average Growth of Agriculture by Sub-Sectors

Source: NIS

Figure 10: Cultivated Area of Crops (2003-2017)

Source: NIS
Table 1: Comparison of Status of Agriculture Development

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Annual Growth of Agriculture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>7.2%</td>
<td>4.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>4.0%</td>
<td>2.8%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.2%</td>
<td>4.1%</td>
<td>3.9%</td>
</tr>
<tr>
<td>India</td>
<td>4.9%</td>
<td>3.2%</td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Agriculture Value Add Per Worker (USD, Constant Price 2010)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>609</td>
<td>954</td>
<td>1,622</td>
</tr>
<tr>
<td>Thailand</td>
<td>2,134</td>
<td>2,336</td>
<td>2,859</td>
</tr>
<tr>
<td>Vietnam</td>
<td>732</td>
<td>870</td>
<td>1,023</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2,040</td>
<td>2,487</td>
<td>3,291</td>
</tr>
<tr>
<td>India</td>
<td>986</td>
<td>1,255</td>
<td>1,560</td>
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<tr>
<td><strong>Annual Growth of Agriculture Value Add Per Worker (Constant Price 2010)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>3.6%</td>
<td>18.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.0%</td>
<td>1.2%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>6.3%</td>
<td>1.8%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.5%</td>
<td>4.5%</td>
<td>5.6%</td>
</tr>
<tr>
<td>India</td>
<td>5.0%</td>
<td>5.5%</td>
<td>3.2%</td>
</tr>
<tr>
<td><strong>Average Share of Agriculture in GDP (Current Price)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Cambodia</td>
<td>30.4%</td>
<td>33.6%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>10.7%</td>
<td>10.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>20.2</td>
<td>19.3%</td>
<td>16.9%</td>
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<tr>
<td>Indonesia</td>
<td>13.9%</td>
<td>14.1%</td>
<td>13.4%</td>
</tr>
<tr>
<td>India</td>
<td>18.1%</td>
<td>17.2%</td>
<td>16.4%</td>
</tr>
<tr>
<td><strong>Average Share of Employment in Agriculture</strong></td>
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<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>70.7%</td>
<td>53.3%</td>
<td>41.0%</td>
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<tr>
<td>Thailand</td>
<td>42.8%</td>
<td>40.6%</td>
<td>34.3%</td>
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<td>Vietnam</td>
<td>54.9%</td>
<td>49.1%</td>
<td>44.0%</td>
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<tr>
<td>Indonesia</td>
<td>43.4%</td>
<td>38.8%</td>
<td>33.1%</td>
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<td>India</td>
<td>56.0%</td>
<td>50.6%</td>
<td>44.5%</td>
</tr>
</tbody>
</table>

Source: World Development Indicator, World Bank 2018
Figure 12: Average Growth of Agriculture by Country

Source: World Development Indicator (WDI)

Figure 13: Average Growth of Agriculture Value Added Per Worker

Source: World Development Indicators (WDI)

Figure 14: Rank of Food Security by Country in the Region

Source: Global Food Security Index (GFSI 2016)

Note**: GFSI focused on 19 indicators: Affordability (6): Food consumption as a share of household expenditure, Proportion of population under global poverty line, Gross domestic product (GDP) per capita (at PPP, exchange rates), Agricultural import tariffs, Presence of food safety net programmes, A Availability (8): Sufficiency of supply, Public expenditure on agricultural research and development (R&D), Agricultural infrastructure, Volatility of agricultural production, Political stability index, Corruption, Urbanisation capacity, Food loss, Access to financing for food quality & safety (5): Diversification: Nutritional standards, Micronutrient availability, Protein quality, Food safety.

Figure 15: Daily Consumption Per Capita (Kcal) by Item (2009-2030)

<table>
<thead>
<tr>
<th>Item</th>
<th>2009</th>
<th>2030</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>889</td>
<td>850</td>
<td>-4%</td>
</tr>
<tr>
<td>Other Cereals</td>
<td>535</td>
<td>645</td>
<td>21%</td>
</tr>
<tr>
<td>All Meats</td>
<td>350</td>
<td>664</td>
<td>90%</td>
</tr>
<tr>
<td>Fish</td>
<td>54</td>
<td>79</td>
<td>46%</td>
</tr>
<tr>
<td>Milk</td>
<td>55</td>
<td>78</td>
<td>42%</td>
</tr>
<tr>
<td>Vegetables</td>
<td>74</td>
<td>111</td>
<td>50%</td>
</tr>
<tr>
<td>Fruits</td>
<td>160</td>
<td>280</td>
<td>75%</td>
</tr>
<tr>
<td>Edible oil</td>
<td>143</td>
<td>210</td>
<td>47%</td>
</tr>
<tr>
<td>Others**</td>
<td>434</td>
<td>273</td>
<td>-37%</td>
</tr>
<tr>
<td>Total</td>
<td>2,694</td>
<td>3,190</td>
<td>29%</td>
</tr>
</tbody>
</table>

*Unit is kcal per capita per day. **“Others” is a residual that includes principally sugar, other sweeteners, legumes, pulses, nuts, other oils, spices, and animal fats. Source: Jamora and Labaste 2015.

Source: Southeast Asia: Prospect and Challenges of Agriculture (FAO & OECD 2017)

Figure 16: Impact of Climate Change by Sector

Source: CEGIM Report 2018 by CCCA and MEF
Figure 17: Growth of Agriculture with BAU Scenario

Figure 18: Growth of Agriculture with BAU Scenario by Sub-Sector

Figure 19: Growth of Agriculture with Policy Scenario


Source: Research Team’s Projection
Figure 20: Paddy Rice Production and Growth Policy Scenario

Figure 21: Growth of Rubber Production Policy Scenario

Figure 22: Fishery Production with Policy Scenario

Figure 23: Livestock and Poultry Production with Policy Scenario


Figure 23: Agriculture Transformation Framework

**VISION:**
“Promoting a sustainable agriculture to support growth and inclusiveness in Cambodia”

**Strategic Objective 1:** Promote Economic Opportunities by promoting growth, job creation and income

**Strategies:**
1. Boost Growth of Crops: enhancing land and labor productivity by unlocking the potential of technology
2. Diversify the sources of growth by developing aquaculture and animal production→ increasing competitiveness (feed, fund, farm)
3. Promote commercialization and agro processing→ certification, SPS, laboratory facility development, packaging, farming technique...etc., reduction of cost of electricity, transport and logistics.....

**Strategic Objective 2:** Enhance Food Security

**Strategies:**
1. Enhance Food Availability by increasing agriculture productivity
2. Increase Economic Access to Food by keeping food price low and stable
3. Promote Physical Access to Food by improving transport, logistics and infrastructure
4. Enhance Food Utilization and Food Safety by boosting nutrition security and taking strict legal measures on illegal and fake products affecting human’s health.

**Strategic Objective 3:** Promote Environment Sustainability

**Strategies:**
1. Sustainable Agriculture: good agriculture practice, minimized input use, producing less-getting more, extension service, watershed management, climate smart agriculture
2. Sustainable Forestry: enforcement, mobilization and collaboration, replanting, and livelihood development
3. Sustainable Fishery: conservation of fishery protected area, fish habitat, and restoration of fish resources.

**Risk Management:** (1) Risk Reduction by introducing new technology, extension and training, (2) Risk Mitigation by promoting diversification of agriculture product, contract farming, off-farm work, and crops insurance, and (3) Risk Coping through resource mobilization from stakeholders.

**Institutional Capacity Development, Coordination and Harmonization:**
(1) Harmonizing planning, budgeting and implementation, (2) Gradually decentralizing and deconcentrating resources, (3) Reviewing and consolidating programs, (4) Improving quality data collection, and (5) Enhancing HR development
ANNEX 3: SUPPORTED CASE STUDIES

Table 2: Economic Analysis of Rice Farming in Kampong Preang Commune, Sangke District, Battambang Province

<table>
<thead>
<tr>
<th>Cost Breakdown</th>
<th>Unit of Measurement</th>
<th>Cost Unit</th>
<th>Total Cost Per Ha</th>
<th>Cost Per Ton</th>
<th>Share of Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming Input Supplies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeds</td>
<td>Kg</td>
<td>120</td>
<td>1,800</td>
<td>216,000</td>
<td>54,000</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>Bag (50kg/bag)</td>
<td>5</td>
<td>120,000</td>
<td>600,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Pesticide and Praying Service</td>
<td>Season/ha</td>
<td>1</td>
<td>500,000</td>
<td>500,000</td>
<td>125,000</td>
</tr>
<tr>
<td>Machinery Renting Service</td>
<td>Time of Service</td>
<td>2</td>
<td>100,000</td>
<td>200,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Ploughing</td>
<td>Time of Service</td>
<td>1</td>
<td>100,000</td>
<td>400,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Harrowing</td>
<td>Time of Service</td>
<td>1</td>
<td>100,000</td>
<td>100,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Harvesting and Packaging</td>
<td>Time of Service</td>
<td>1</td>
<td>100,000</td>
<td>400,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Other Expense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline for Pumping Water</td>
<td>Litre</td>
<td>100</td>
<td>3,000</td>
<td>300,000</td>
<td>75,000</td>
</tr>
<tr>
<td>Depreciation and Equipment Maintenance</td>
<td>Per Season</td>
<td>4</td>
<td>3,000</td>
<td>12,000</td>
<td>3,000</td>
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<tr>
<td>Cost of Capital (Interest)</td>
<td>Number of Month</td>
<td>4</td>
<td>3,000</td>
<td>120,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Total Cost</td>
<td></td>
<td></td>
<td>2,586,000</td>
<td>646,500</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: Field Survey by the Research Team, 2018

Table 3: Economic Analysis of Rice Farming in Sangke District

<table>
<thead>
<tr>
<th>Cost Breakdown</th>
<th>Total Cost Per Ha</th>
<th>Cost Per Ton</th>
<th>Share of Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming Input Supplies</td>
<td>940,500</td>
<td>263,667</td>
<td>49.6%</td>
</tr>
<tr>
<td>Seeds</td>
<td>437,500</td>
<td>122,652</td>
<td>23.1%</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>468,000</td>
<td>131,203</td>
<td>24.7%</td>
</tr>
<tr>
<td>Pesticide and Praying Service</td>
<td>35,000</td>
<td>9,812</td>
<td>1.8%</td>
</tr>
<tr>
<td>Machinery Renting Service</td>
<td>650,000</td>
<td>182,226</td>
<td>34.3%</td>
</tr>
<tr>
<td>Ploughing</td>
<td>150,000</td>
<td>42,052</td>
<td>7.9%</td>
</tr>
<tr>
<td>Harrowing</td>
<td>50,000</td>
<td>14,017</td>
<td>2.6%</td>
</tr>
<tr>
<td>Harvesting and Packaging</td>
<td>450,000</td>
<td>126,156</td>
<td>23.7%</td>
</tr>
<tr>
<td>Other Expense</td>
<td>307,000</td>
<td>86,067</td>
<td>16.2%</td>
</tr>
<tr>
<td>Gasoline for Pumping Water</td>
<td>91,000</td>
<td>25,512</td>
<td>4.8%</td>
</tr>
<tr>
<td>Depreciation and Equipment Maintenance</td>
<td>-</td>
<td>-</td>
<td>0.0%</td>
</tr>
<tr>
<td>Cost of Capital (Interest)</td>
<td>216,000</td>
<td>60,555</td>
<td>11.4%</td>
</tr>
<tr>
<td>Total Cost</td>
<td>1,897,500</td>
<td>531,960</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: Field Survey by the Research Team, 2018
### Table 4: Economic Analysis of Maize Farming in Kumrieng District 2017

<table>
<thead>
<tr>
<th>No.</th>
<th>Cost Breakdown</th>
<th>Cost/Ha (Baht)</th>
<th>Cost/Ton (Baht)</th>
<th>Share of Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seed</td>
<td>2,000.00</td>
<td>400.00</td>
<td>13.6%</td>
</tr>
<tr>
<td>2</td>
<td>Soil Preparation</td>
<td>3,000.00</td>
<td>600.00</td>
<td>20.4%</td>
</tr>
<tr>
<td>3</td>
<td>Planting</td>
<td>1,200.00</td>
<td>240.00</td>
<td>8.1%</td>
</tr>
<tr>
<td>4</td>
<td>Chemical Substance</td>
<td>1,100.00</td>
<td>220.00</td>
<td>7.5%</td>
</tr>
<tr>
<td>5</td>
<td>Labor Cost for Chemical Application</td>
<td>1,200.00</td>
<td>240.00</td>
<td>8.1%</td>
</tr>
<tr>
<td>6</td>
<td>Fertilizer</td>
<td>1,917.29</td>
<td>383.46</td>
<td>13.0%</td>
</tr>
<tr>
<td>7</td>
<td>Labor Cost for Harvest</td>
<td>2,349.62</td>
<td>469.92</td>
<td>15.9%</td>
</tr>
<tr>
<td>8</td>
<td>Interest Payment</td>
<td>1,216.44</td>
<td>243.29</td>
<td>8.3%</td>
</tr>
<tr>
<td>9</td>
<td>Transportation</td>
<td>750.00</td>
<td>150.00</td>
<td>5.1%</td>
</tr>
<tr>
<td></td>
<td><strong>Total Cost</strong></td>
<td><strong>14,733.36</strong></td>
<td><strong>2,946.67</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td>10</td>
<td><strong>Profit Margin</strong></td>
<td><strong>4,266.64</strong></td>
<td><strong>853.33</strong></td>
<td><strong>28.96%</strong></td>
</tr>
</tbody>
</table>

Source: Animal Feed and Fertilizer Study by the Research Team, Ministry of Economy and Finance, 2017

### Table 5: Economic Analysis of Selected Animal Feed Manufacturing Factory

<table>
<thead>
<tr>
<th>Cost and Revenue Structure</th>
<th>Amount USD/MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buying price from VN</td>
<td>210</td>
</tr>
<tr>
<td>Transportation to Entry Point</td>
<td></td>
</tr>
<tr>
<td>Custom Clearance</td>
<td>11.5</td>
</tr>
<tr>
<td>Packaging and Transportation to Factory</td>
<td>7.5</td>
</tr>
<tr>
<td>Cost Per Ton of Imported Corn</td>
<td>229</td>
</tr>
<tr>
<td>Cost Per Ton of Domestic Corn</td>
<td>233</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>385</td>
</tr>
<tr>
<td>Operating Expense</td>
<td>65</td>
</tr>
<tr>
<td>Average Total Cost (USD/Ton)</td>
<td>450</td>
</tr>
<tr>
<td>Wholesale Price from Factory</td>
<td>530</td>
</tr>
<tr>
<td>Profit Margin/Ton</td>
<td>80</td>
</tr>
<tr>
<td>Margin Ratio</td>
<td>17.78%</td>
</tr>
<tr>
<td>Distributor's Price at Province</td>
<td>560</td>
</tr>
<tr>
<td>Distributor's Price at District/Commune</td>
<td></td>
</tr>
</tbody>
</table>

Source: Animal Feed and Fertilizer Study by the Research Team, Ministry of Economy and Finance, 2017

### Table 6: Economic Analysis of Pig Farming in Kien Svey, Kandal Province (Large Scale)

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Unit of Measurement</th>
<th>Cost (KHR)</th>
<th>Share of Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>head</td>
<td>200,000,000</td>
<td>29.6%</td>
</tr>
<tr>
<td>Feed</td>
<td></td>
<td>394,800,000</td>
<td>58.5%</td>
</tr>
<tr>
<td>Labor and Vaccination and Utility</td>
<td></td>
<td>40,000,000</td>
<td>5.9%</td>
</tr>
<tr>
<td>Salary of Supporting Staff</td>
<td></td>
<td>14,300,000</td>
<td>2.1%</td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>4%</td>
<td>25,964,000</td>
<td>3.8%</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td></td>
<td><strong>675,064,000</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td>Loss</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td><strong>834,200,000</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Profit</strong></td>
<td></td>
<td><strong>159,136,000</strong></td>
<td><strong>23.6%</strong></td>
</tr>
</tbody>
</table>

Source: Field Survey by the Research Team, 2018

Paddy Rice: is a primary key growth driver of crops sub-sector and agriculture as a whole. In 2017, paddy rice shared around 6.4% to GDP, or 26.7% to agriculture sector which was equivalent to 44.5% to crops sub-sector. A bigger share of paddy rice to crops, despite on the decelerating rate, has been driven by its continuously growing production. Production of paddy rice increased more than twice—from 4.7 million tons in 2003 to 10.5 million tons in 2017. However the growth rate has kept decelerating from one period to another. Between 2003 and 2007, paddy rice production increased by 1.43 time—from 4.7 million tons to 6.7 million tons. Between 2013 and 2017, paddy rice production increased only 1.12 times—from 9.4 million tons to 10.5 million tons. The slower growth of production was reflected by a softer growth of production yield to around 0.1% per annum during 2013-017, down from 3.6% per annum during 2008-2012, and 7.0% during 2003-2007. Despite the trend of decelerating growth rate of paddy rice production, Cambodia has already had a huge surplus of paddy rice between 4.5 million tons and 5.5 million tons per annum.

With this surplus volume, roughly 20% to 25% only is being processed for official export to EU, US, and markets in region countries while the rest is traded by cross-border to neighboring countries. Cambodia’s rice export has remarkably increased from 378,856 tons in 2013 to 635,679 tons in 2017, mainly attributed to the introduction of rice export policy even though the target of 1-million-ton export in 2015 was not yet achieved. Noticeably, fragrant rice export has the biggest share—accounting for 61.99% of total rice export in 2017, followed by a long grain white rice of 24.64%, and a long grain parboiled rice of 13.37%; thanks to the Everything But Arm (EBA) scheme provided by the EU. In the medium- and long-term, the demand for rice import by major countries is projected to be promising—increasing up to almost 50 million tons in 2025 while the FOB price of milled rice (benchmarking to Thai Rice 5%) is also forecasted to remain relatively strong. On this backdrop, paddy rice remains a strategic crop to be prioritized for enhancing commercialization to promote a long-term growth. However, given limited land expansion and in the purpose of avoiding over supply of paddy rice and mitigating the harmful environmental impact resulting from too much rice intensification, by heavily applying inputs, especially fertilizer to boost production yield as Vietnam has already experienced so far, Cambodia needs to set its own position of producing paddy rice of around 11 to 13 million tons per year up to 2030. Among of which, 50% should be attributed to paddy rice which has a higher value added for processing and commercialization to both local and international markets, and the rest 50% needs to be kept for boosting food security.

### Table 7: Economic Analysis of Pig Farming (Small Scale)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Small Farm (Prey Veng)</th>
<th>Contract Farming (CP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm Size</td>
<td>Head</td>
<td>125</td>
</tr>
<tr>
<td>Weight Per Head</td>
<td>Kg/Head</td>
<td>92</td>
</tr>
<tr>
<td>Duration</td>
<td>Month</td>
<td>4</td>
</tr>
<tr>
<td>Cost Per Kg</td>
<td>KHR/Kg</td>
<td>5,957</td>
</tr>
<tr>
<td>Feed Cost</td>
<td>%</td>
<td>70.07%</td>
</tr>
<tr>
<td>Depreciation</td>
<td>%</td>
<td>6.23%</td>
</tr>
<tr>
<td>Cost of Capital (Interest)</td>
<td>%</td>
<td>14.60%</td>
</tr>
<tr>
<td>Utility Expense</td>
<td>%</td>
<td>1.17%</td>
</tr>
<tr>
<td>Labor Cost</td>
<td>%</td>
<td>-</td>
</tr>
<tr>
<td>Revenue Per Kg</td>
<td>KHR/Kg</td>
<td>6,500</td>
</tr>
<tr>
<td>Profit Margin Per Kg</td>
<td>KHR/Kg</td>
<td>543</td>
</tr>
<tr>
<td>Profit Margin Ratio</td>
<td>%</td>
<td>9.12%</td>
</tr>
</tbody>
</table>

Source: Food Price Research by the Research Team, Ministry of Economy and Finance, 2017

### Box 1: Current Status of Paddy Rice and Policy Direction for Increasing Value Added

Paddy Rice: is a primary key growth driver of crops sub-sector and agriculture as a whole. In 2017, paddy rice shared around 6.4% to GDP, or 26.7% to agriculture sector which was equivalent to 44.5% to crops sub-sector. A bigger share of paddy rice to crops, despite on the decelerating rate, has been driven by its continuously growing production. Production of paddy rice increased more than twice—from 4.7 million tons in 2003 to 10.5 million tons in 2017. However the growth rate has kept decelerating from one period to another. Between 2003 and 2007, paddy rice production increased by 1.43 time—from 4.7 million tons to 6.7 million tons. Between 2013 and 2017, paddy rice production increased only 1.12 times—from 9.4 million tons to 10.5 million tons. The slower growth of production was reflected by a softer growth of production yield to around 0.1% per annum during 2013-017, down from 3.6% per annum during 2008-2012, and 7.0% during 2003-2007. Despite the trend of decelerating growth rate of paddy rice production, Cambodia has already had a huge surplus of paddy rice between 4.5 million tons and 5.5 million tons per annum.

With this surplus volume, roughly 20% to 25% only is being processed for official export to EU, US, and markets in region countries while the rest is traded by cross-border to neighboring countries. Cambodia’s rice export has remarkably increased from 378,856 tons in 2013 to 635,679 tons in 2017, mainly attributed to the introduction of rice export policy even though the target of 1-million-ton export in 2015 was not yet achieved. Noticeably, fragrant rice export has the biggest share—accounting for 61.99% of total rice export in 2017, followed by a long grain white rice of 24.64%, and a long grain parboiled rice of 13.37%; thanks to the Everything But Arm (EBA) scheme provided by the EU. In the medium- and long-term, the demand for rice import by major countries is projected to be promising—increasing up to almost 50 million tons in 2025 while the FOB price of milled rice (benchmarking to Thai Rice 5%) is also forecasted to remain relatively strong. On this backdrop, paddy rice remains a strategic crop to be prioritized for enhancing commercialization to promote a long-term growth. However, given limited land expansion and in the purpose of avoiding over supply of paddy rice and mitigating the harmful environmental impact resulting from too much rice intensification, by heavily applying inputs, especially fertilizer to boost production yield as Vietnam has already experienced so far, Cambodia needs to set its own position of producing paddy rice of around 11 to 13 million tons per year up to 2030. Among of which, 50% should be attributed to paddy rice which has a higher value added for processing and commercialization to both local and international markets, and the rest 50% needs to be kept for boosting food security.
**Box 2: Current Status of Cassava Sector in Cambodia**

**Cassava** has the second largest share of 16.7% for crops or 10% of agriculture—equivalent to 2.4% of GDP. Cassava is potential in terms of production scale and market demands. Over the last 10 years, cassava production increased 3.76 times—from 3.67 million tons in 2008 to 13.82 million tons in 2017 which covered in 13 provinces of the Kingdom. However, the potential for this kind of cash crop has not been fully unlocked. Despite an increasing investment by both domestic and foreign companies in processing, namely in Battambang, Pailin and Kratie, the capacity of absorption of cassava by those companies for processing into higher value-added products, such as cassava starch and modified starch remain largely low. Farmers still need to export a huge volume of cassava chip [2.3 million tons equivalent to 5.9 million tons of cassava tubes in 2016] to Thailand, Vietnam, and China], where the price is frequently fluctuating.

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**Box 3: Current Status of Cashew and Mango in Cambodia**

**Cashew**: shared around 3.7% to crops or 2.2% of the agriculture sector in 2017. Cambodia produced cashew nut around 131 thousand tons in 2017, which mostly are covered in Steung Treng, Kampong Thom, Kampong Cham, Tbong Kham and Preah Vihea. Despite a huge amount of production, its contribution to the economy of the whole supply chain still has a big potential for further development. Presently, almost all amount of cashew nut product is informally exported in the raw form across the border to Vietnam. There is one cashew nut processing factory based in Kampong Thom province; however, the absorption of nut raw material to processed remains limited. Farmers still depend on the market in Vietnam who normally suffers from price fluctuation. Lack of investment in processing, shortage of quality seeds to grow efficient and quality cashew nut, and limited farming technique are identified as key issues, which constrained the potential growth of this sub-sector.

**Mango**: estimated to share around 3.16% of crops or 1.9% of agriculture in 2017. In 2017, Cambodia produced up to 1.4 million tons, and Kampong Speu and Kandal are the most potential provinces whose shares of mango production are 50% of the total. Similar to cashew nut, mango still has a big potential for contributing to agriculture growth and national economy, particularly since a big share of total mango production is exported across the border to Vietnam with a lower price than exporting to the destinations, such as China. Domestic absorption of mango for agro processing is significantly low. So far, there are only few local companies investing mango processing. China, South Korea, EU and other countries in ASIAN region are the potential markets for Cambodia’s export of fresh mango. However, lack of farmers’ farming techniques to grow good quality mango products as buyers’ requirement, lack of high international standard laboratory to certify the quality of product, and SPS requirement have been the major challenges for tapping the potential of this sub-sector.
Sugarcane: estimated to contribute around 1.8% to crops which were equivalent to 1.1% of the agriculture sector in 2017. In 2017, sugarcane production was around 2 million tons, mostly planted in economic concessional land (ECL) granted by the RGC by both local and international companies located in Kampong Speu, Preah Vihea, Oddar Meanchey and Svay Rieng. So far, there is no record of sugarcane export. All planted sugarcane production is absorbed and processed by local and Chinese companies in Kampong Speu and Preah Vihea. The planting and processing of sugarcane has already provided thousands of jobs to people in respect of those provinces. The rapid growth of this sub-sector is dominantly driven by the private sector. The main roles of government agencies for this sector are to create a conducive business environment for attracting further investment and addressing the issues of high price of electricity, logistics and transportation cost, as well as the cost of doing business in Cambodia.

Banana: estimated to contribute around 0.83% to crops in 2017. In 2017, Cambodia planted around 27,923 ha yielding the production of 203,122 tons. Despite its relatively small share to economy, this sub-sector is expected to have promising outlook in which the RGC could further promote. This is reflected by recent interest from the Chinese government and companies to sign MOU with the Cambodian counterpart to invest in planting, processing and exporting fresh banana to supply the Chinese market.
### Box 5: Case Study of Contract Farming (Amru Rice and Svay Cheat Agriculture Community)

- **Svay Cheat Rice Cooperative** was established and registered with Battambang Provincial Department of Agriculture, Forestry and Fishery in 2013 and later on it was started the contract farming with Amru Rice Company in 2017 with the initial contracted purchase of 2000 tons and the volume continues to increase up to 4500 ton in 2018. The cooperative is composed of 288 households as members from four villages including Svay Cheat, Tuol Snuol, Beong Veng and Wat Kean. The cooperative control 1600 shares equivalent to 48,000,000 riels totally. This cooperative owns 2000 ha of paddy rice.

- **Procedure of Contract Farming with Amru Rice**:
  1. The farming contract in buying-purchasing paddy rice volume between cooperative and Amru Rice Company is signed by both parties and witnessed by the director of provincial department of agriculture, forestry and fishery. The contract is not legal binding—any member breaking the contract is not legally responsible but he/she is penalized by removing his/her name from the list.
  2. The members of cooperative are required to follow Sustainable Rice Platform with specific condition and criteria regularly audited by Amru Rice's staff. Under this platform, farmers need to record all rice farming related transactions. To enable them properly follow this, the cooperative arranges one focal trainer to support 20 members.
  3. Every early rice season, the chief of cooperative conducts the survey with all members about paddy rice quantity they are willing to enter into contract with Amru Rice Company. Under this contract, the price is based on average actual price on the specific date of transaction. Additionally, the company provides extra 10 USD for each ton to farmers, the Amru Rice's payment to farmers takes one week after transaction.
## ANNEX 4: LIST OF DOCUMENTS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TITLE</th>
</tr>
</thead>
</table>
- RGC (2013) Rectangular Strategy for Growth, Employment, Equity and Efficiency Phase III  
- SNEC (2013). Cambodia Vision 2030  
- UNDP (2015) Sustainable Development Goals  
- SNEC (undated). Policy document on the promotion of paddy rice and milled rice for export |
| **Master Plans** | - MAFF (2017) Agriculture Sector Master Plan (draft)  
- MAFF (2014). Climate change priorities action plan for agriculture, forestry and fisheries sector: 2014-2018  
- KOICA/MAFF (2013). Master Plan for the Promotion of Agricultural Investment in Cambodia |
- CCCA (2015). Planning and Budgeting for climate change in MAFF  
- MAFF/EU (2012). TA report: Cross cutting issues in the plans and budgets of MAFF  
- MAFF/D&DWG (2012). Functional mapping report of the MAFF (Decentralization and Deconcentration)  
- UN Regional Thematic WG on Poverty and Hunger in Asia and the Pacific (2013). The Zero Hunger challenge: Regional guiding framework for achieving zero hunger in Asia and the Pacific  
**ANNEX 5: LIST OF CONSULTATIONS & WORKFIELD**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Public Sector** | - Supreme National Economic Council  
- MAFF, ASPIRE Program and Various Agencies  
- Royal University of Agriculture  
- CARD  
- Meeting with Ministry of Industry and Handicraft (MIH)  
- Ministry of Rural Development  
- Ministry of Economy and Finance  
- Council for Development of Cambodia (CDC)  
- Ministry of Commerce (MOC)  
- Ministry of Environment  
- Ministry of Water Resource and Meteorology (MOWRAM) |
| **Private Sector** | - CP Co. Ltd  
- Amru Rice  
- Agrifood Consulting Firm  
- CEDAC  
- Mong Reuthy Group  
- ACLEDA  
- Process Facility (Red Corn/Cassava)  
- AKAI Company  
- Kirirom Food Production Company (KFP)  
- Cassava Starch Processing  
- Eng Chealay Company  
- Others |
| **Development Partners** | - World Bank  
- UNDP  
- ADB  
- UNIDO  
- SNV  
- JICA  
- EU  
- AFD |
| Farmers/Communities | - FAO  
- Oxfam  
- NGO working in NGO or Natural Resource Management  
- Other others |
|---|---|
| Researchers | - Center for Policy Studies  
- Independent Researchers  
- Others |
| Field Work at Province | - Phnom Penh  
- Kompong Chhnang  
- Pursat  
- Battambang  
- Kandal  
- Takeo  
- Kampot  
- Kampong Speu  
- Kampong Cham  
- Kampong Thom  
- Kratie  
- Ratanak Kiri  
- Steung Treng  
- Preah Vihear |