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AGRICULTURE AND AGRO-PROCESSING SECTOR IN CAMBODIA

Taking Stock: A detailed review of current challenges and investment opportunities in Cambodia

BDLINK (CAMBODIA) CO., LTD

Disclaimer

The data and information in this report has been carefully consolidated and where possible has been verified with relevant government agencies. For agriculture and trade data, where there are variations or spikes in volume of production or trade, as far as is possible the team has tried to anticipate questions and verify data – but this was not possible in every case.

Pictures in the report come from the BDLINK research team unless otherwise stated. Investment indicators are taken from the internet.

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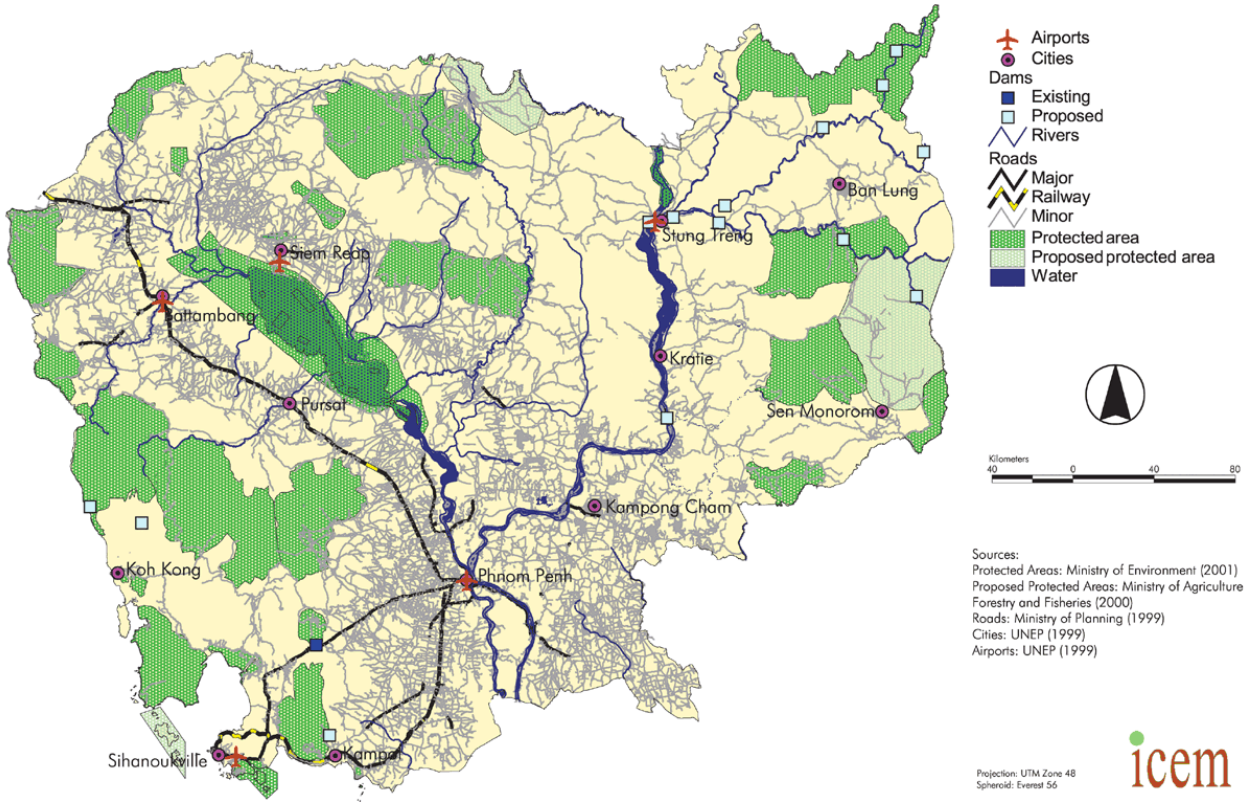

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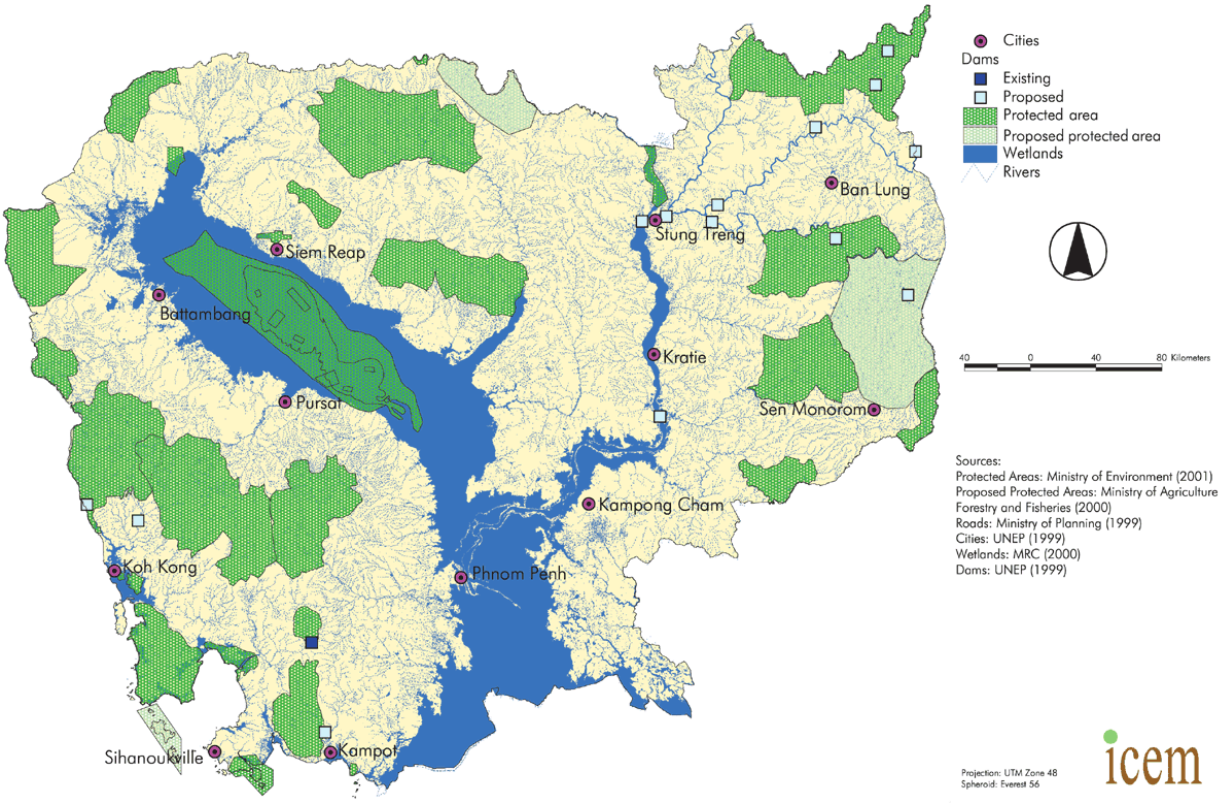


Abbreviations

ADB	Asian Development Bank
AEC	ASEAN Economic Community
AQIP	Agriculture Quality Improvement Program
ASDP	Agricultural Sector Strategic Development Plan
ASEAN	Association of Southeast Asian Nations
ASYCUDA	Automated System on Customs Data
AWM	Agricultural Water Management
CARDI	Cambodia Agricultural Research and Development Institute
CDC	Council for the Development of Cambodia
CDRI	Cambodia Development Resource Institute
CEDAC	Cambodian Center for Study and Development in Agriculture
COrAA	Cambodian Organic Agriculture Association
CRUMP	Cambodian Rural Urban Migration Project
CSAM	Center for Sustainable Agricultural Mechanization
CSES	Cambodian Socio-Economic Survey
ELC	Economic Land Concession
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization of the United Nations, Statistics Division
FDI	Foreign Direct Investment
FMCG	Fast-Moving Consumer Goods
GDCE	General Department of Customs and Excise of Cambodia
GDP	Gross Domestic Product
HS	Harmonized System
IDP	Industrial Development Policy
IFC	International Finance Corporation
IFDC	International Fertilizer Development Center
ITC	International Trade Centre
MAFF	Ministry of Agriculture, Forestry and Fisheries
MFI	Microfinance Institution
MOC	Ministry of Commerce
MOP	Ministry of Planning
MRG	Mong Reththy Group
NGO	Non-Governmental Organization
NIS	National Institute of Statistics

NSDP	National Strategic Development Plan
OFAT	On-Farm Varietal Trial
QIPs	Qualified Investment Projects
RGC	Royal Government of Cambodia
RSPO	The Roundtable on Sustainable Palm Oil
SAD	Single Administration Document
SMEs	Small and Medium Enterprises
USAID	The United States Agency for International Development
USD	United States Dollar
VAT	Value-added Tax

Executive Summary

This study aims to provide a comprehensive understanding of the agriculture and agro-processing industry in Cambodia and subsectors of interest to current and prospective investors and exporters. Investors have been classified into 3 different types in the report: First, **Exporters** which are investors who export products and services into Cambodia, second, **Large investors** who set up manufacturing, production, service, research and development or processing plants in Cambodia, typically characterised by large investments of 1 million dollars or over; and third, **Small Medium Enterprise (SME) investors** which are investors who are typically entrepreneurs or smaller innovators, interested in expanding operations from Europe to Cambodia or who want to set up a business in Cambodia.

The report contains a detailed review of existing data relating to the agriculture and agro-processing industry. The study also incorporates meetings and discussions with importers of agricultural inputs and machinery, wholesalers and distributors of inputs and machinery, agro-processing companies and farmers in seven agriculturally and agro-industrially important provinces.

The agriculture sector continues to contribute to Cambodia's economic growth although not yet to its full potential. While it offers the majority employment in Cambodia, much of this labour can be considered "informal" and unskilled in nature. Agriculture is a key focus in government and investment policies as Cambodia looks to diversify its economy and generate more value-added jobs with more industrial opportunities.

Agricultural production, by its very nature, is heavily dependent on rainfall and seasonal weather patterns, all impacted today by climate change. Cambodia's main crop is rice, which generates an estimated 70 percent of total country production during the wet season. Irrigation systems play an important role in managing water supplies, addressing weather changes, and diversifying agriculture production in Cambodia. Despite the importance of irrigation, current irrigation systems in Cambodia can be described as large works of public infrastructure, covering an estimated 22 percent of area under paddy rice cultivation in 2015. *The opportunity for investment lies in modern and innovative irrigation systems for Cambodia's agriculture sector and present opportunities for all types of investors but in particular exporters, and SMEs investors and innovators.*

Rice production in 2015 generated 9 million tons of paddy rice and approximately 0.5 million tons of milled rice export, falling short of Cambodia's target of 1 million tons. The market for milled rice export– produced during dry season –is expanding, in particular for Cambodia's premium brands. There are several external factors that impact Cambodia's export ability, including the fact that Cambodia is a price-taker in the international market. *Despite this obstacle, several internal constraints present investment opportunities for exporters such as improving access to high yield seed varieties, quality fertilizers and pesticides, as well as further development and diversification of machinery; and for large investors and SME investors on rice production and milling.*

Rubber production is increasing but is heavily dependent on the international market. Cambodia exports semi-finished products with no value-added manufacturing or processing of rubber within the country to create consumer, pharmaceutical (condoms as an example) or FMCG products. *The absence of production of value-added goods with rubber, such as plastic bags, consumer goods or even medical products, present an investment opportunity for large investors and SME investors.*

For all types of subsidiary and industrial crops, there is still very limited commercial value-added manufacturing or processing in Cambodia. For example, cassava yields have dramatically increased but most of the crop is exported in an unprocessed form (raw or dried). *Opportunities for investment present themselves for large investors and SME investors in agro-processing, manufacturing, product development of valued added produce for all kinds of crops. For exporters, the opportunities like in machinery supply and maintenance of agro-processing sector.*

Cambodia's fruit and vegetable market has yet to reach its full potential and could still develop into a high-end, niche producer of fruits and vegetables. Overall, the production of vegetables falls short of Cambodia's internal demand, only meeting an estimated 30 to 40 percent of domestic demand. Most vegetables are imported from Vietnam and Thailand. With a large and youthful population that is becoming more health conscious, there are extensive opportunities to intensify fruit and vegetable production along all parts of the supply chain. Cambodia's dominantly smaller farms will move into double cropping as the sector develops and this will intensify the need for agricultural machinery, quality seed varieties, fertilizers, pesticides, irrigation, marketing and packaging. *Investment opportunities for large investors and SME investors lie in agro-processing and product development of Cambodian*

fruits and vegetables products that are commercial and export orientated, for examples, jams, preservation, or commercializing typical treats or snacks.

The livestock sector is dominated by a few commercial farms. Most households and farms that raise livestock for consumption are focused on domestic demand, although they have begun to venture into exports. Similar to the produce market, Cambodia still imports large quantities of livestock to meet domestic demand for meat. Imports have posed challenges for local producers due to lower pricing, although the government has intervened to protect them. *The opportunity for investment in the livestock sector includes providing inputs such as feed, and veterinary services. Niche investment opportunities for large investors also exist – for example most of Cambodia's pigs and chickens raised on local farms are also raised "organic." Further study on value-added products would be useful to guide investment. For example, there are very few value-added livestock products in the domestic industry except for a few entrepreneurs experimenting in sausage making or curing meats.*

Cambodia is not a dairy producing country although it imports milk and dairy products to meet domestic demand, which exists in mostly urban areas. Cambodia has increased its imports of milk and cream products in the past few years. Between 2014 and 2015, imports increased 48 percent and over 500 percent between 2011 and 2015. Vietnamese and Cambodian interests have recently established a dairy operation in Cambodia, using raw materials imported from Vietnam. The establishment of a dairy supply chain in Cambodia is possible but not likely in the medium term, although there is a developing SME sector that processes yoghurt and ice-cream. *Investment opportunities in milk and dairy products remain mostly in exporting products to Cambodia. There are, however, opportunities for SME investors to set up small production facilities. Machinery for processing milk and dairy products is another potential investment opportunity for exporters, depending on how the sector develops. Processing would also increase demand for inputs like lactic acid bacteria for fermentation and dry milk.*

Organic agricultural products offer potential for investment as demand is rising in the domestic and global marketplace. Rural and urban Cambodian consumers are well aware of risks associated with chemical residues in the food supply chain, and the concept of organic production in Cambodia is increasingly understood by farmers and consumers. Despite this increased understanding, much still needs to be done to promote Cambodian produce as it is often more expensive than imported products. The MAFF is responsible for regulating organic production, but there is no government body or national standards in place to determine whether a farm or produce is organic. Instead, this process is done by the Cambodian Organic Agriculture Association (COrAA), which has a structured methodology for certifying farms. The COrAA brand is growing in prominence in the Cambodian market, and there is an ongoing effort for Cambodia to accede to the ASEAN organic standard scheme.

Cambodia's fisheries sector includes both marine and inland fisheries, production and processing, however is still in its beginning stages of development and innovation. Cambodia still imports a large number of fish to satisfy domestic demand. The fisheries sector presents many interesting investment opportunities, *in particular for large investors and SME investors, from the production of fingerlings and developing commercial production opportunities as well as developing a more commercial and export oriented processing sector. Processing is limited at present to fish sauces and drying of fish and cottage industry producing fish balls. Investment in processing and adding value to the fisheries sector within Cambodia, remain untapped at present and would open additional opportunities for exporters to bring in appropriate machinery and equipment for processing in the fisheries sector.*

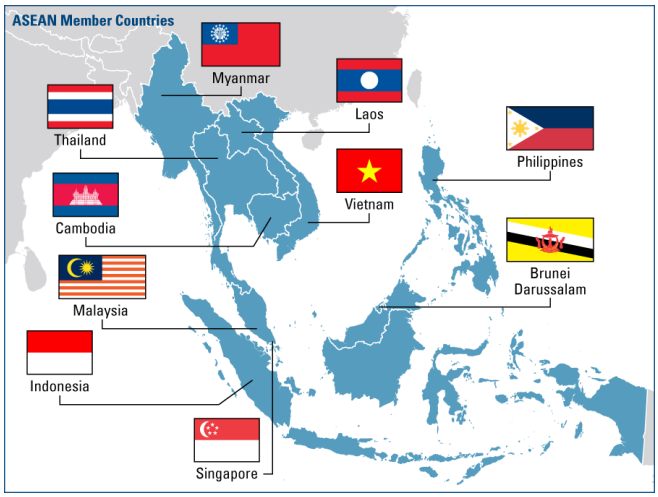
Cambodia's agriculture sector is transforming rapidly with the adoption of new machinery. From planting to digging irrigation systems, mechanisation is still in its early phase in Cambodia, although it has helped some farms move towards double or multiple cropping. The process of mechanisation has primarily included adopting small machinery like pumps or handheld tillers. Imports of machinery have increased significantly over the years, *and will present continued investment opportunities for exporters, large investors and SME investors, such as in the supply of machinery, servicing and repairs, assembly, parts manufacturing, and leasing services.*

Cambodia's agro-processing sector can be termed a sector in its infancy requiring innovation and investment in development of agro-processing as well as adding value to the wide range of produce in the country. Agro-processing has been predominately focused in the rice sector but other sectors developing such as milk and dairy processing in the country. *For investors, the unique flavours of Cambodian agriculture produce are yet to be tapped and transformed into agro-processing opportunities. Opportunities exist for exporters, large investors and SME investors.*

The use of agriculture inputs such as seeds, fertilizers and pesticides – which includes insecticides, herbicides and other chemicals – have increased dramatically in the last five years. Seed production has seen limited private sector investment as the industry is dominated by Cambodia Agricultural Research and Development Institute (CARDI) for both vegetables and rice. Demand, however, far exceeds supply and farmers depend on imported seeds. There are a few commercial production companies producing fertilizer, but most Cambodian farmers rely on cheap imports. There are no pesticide production facilities at the present time and farmers also rely on imports. *For all agriculture inputs, there are investment opportunities in exporting products to Cambodia, and investment opportunities for large investors and SME investors for research and development of seed and seed varieties, as well as promoting the use of "green-technology" like biofuels and recycled agricultural waste.*

Introduction

Cambodia is situated in the heart of the Association of Southeast Asian Nations (ASEAN) region, sharing borders with Thailand, Laos and Vietnam. Cambodia recently became a Lower Middle Income Country and is one of the smaller countries within ASEAN in terms of both land size and population. Geographically, Cambodia covers 176,520 square kilometres, of which 32.9[1] percent can be classified as agricultural land. Cambodia is also one of the least populated countries in ASEAN with around 88 people per square kilometre, up from 75.5 in 2005. Cambodia, however, has a geographical advantage in terms of position and access to regional markets.



Together with Laos and Myanmar, Cambodia is amongst the top ten fastest growing countries in the world in 2016, according to the World Economic Forum.

This guide is targeted at both large and small investors who are interested in investing in agriculture or starting-up operations or expanding existing European business operations to Cambodia. Investors in this guide are classified into the following categories:

	**Exporters:** investors who are interested in exporting products and services to Cambodia, however do not necessarily set up an office but provide marketing and business development support.
	**Large Investors:** those who invest in production facilities and intend to set up a legally registered company in Cambodia. Such investors will generally start with investment capital of $1 million or more and register with the Council of Development for Cambodia (CDC) to benefit from relevant investment incentives. They will also register with relevant ministries.
	**SMEs and Entrepreneurs:** those who are interested in innovation or investment in Cambodia and intend to set up an office/operation in the Kingdom. They could be an established regional or European business looking to start or expand operations in Cambodia, or entrepreneurs looking to explore new business opportunities.

[1] WDI Indicators, accessed August 2016

1 Cambodia Macroeconomic Indicators

Table 1: Summary of macroeconomic indicators for Cambodia

	2013	2014	2015	2016e	2017p
Real GDP Growth %	7.4	7.1	7.0	7.0	7.0
Nominal GDP in Million (USD)	15,229	16,796	18,078	19,843	21,983
GDP Per Capita (USD)	1,042	1,138	1,215	1,300	1,422
Inflation rate (Year average %)	3.0	3.9	1.2	2.8	3.7
Exchange Rate (Riel/USD)	4,025	4,039	4,062	4,050	4,050
Export (% of GDP)	42.9	44.1	46.8	46.2	46.2
Import (% of GDP)	64.0	63.2	66.0	64.1	63.0
Trade Balance (% of GDP)	-21.1	-19.1	-19.2	-17.9	-16.8
Current Account Balance Including official transfer	-13.0	-9.8	-9.6	-9.1	-8.5
Gross international reserve	3.9	4.3	4.5	4.5	4.5

Source: Ministry of Economy and Finance: Cambodia Macroeconomic Monitor (August 2016)

Table 2: GDP growth by sector (percent)

Sector	**2011**	**2012**	**2013**	**2014**	**2015**	**2016e**	**2017p**
GDP	**7.1**	**7.3**	**7.4**	**7.1**	**7.0**	**7.0**	**7.0**
Agriculture	**3.1**	**4.3**	**1.6**	**0.3**	**0.2**	**0.5**	**0.8**
Crops	*4.3*	*4.9*	*0.6*	*0.5*	*0.3*	*1.0*	*1.7*
Industry	**14.5**	**9.3**	**10.7**	**10.1**	**11.7**	**11.4**	**10.5**
Garment	*19.9*	*6.5*	*10.7*	*6.6*	*9.8*	*10.3*	*9.7*
Construction	*7.9*	*18.2*	*13.7*	*21.4*	*19.2*	*15.9*	*13.4*
Service	**5.0**	**8.1**	**8.7**	**8.7**	**7.1**	**6.7**	**6.8**
Hotel and Restaurant	*6.6*	*12.5*	*13.8*	*6.1*	*2.4*	*2.2*	*3.0*

Source: Ministry of Economy and Finance: Cambodia Macroeconomic Monitor (August 2016)

Table 3: Agricultural growth and subsectors (percent)

Sector	2011	2012	2013	2014	2015	2016e	2017p
Agriculture	**3.1**	**4.3**	**1.6**	**0.3**	**0.2**	**0.5**	**0.8**
Crops	*4.3*	*4.9*	*0.6*	*0.5*	*0.3*	*1.0*	*1.7*
Livestock and Poultry	*0.2*	*0.8*	*0.1*	*0.2*	*0.0*	*0.8*	*0.3*
Fisheries	*3.1*	*6.7*	*5.4*	*0.1*	*0.3*	*-0.1*	*-0.5*
Forestry & Logging	*-0.1*	*-2.5*	*-2.9*	*-1.2*	*-0.8*	*-1.6*	*-1.6*

Source: Ministry of Economy and Finance: Cambodia Macroeconomic Monitor (August 2016)

Table 4: Inflation rate (percentage increase, annual average)

	2011	2012	2013	2014	2015	2016e	2017p
Inflation (Percentage)	5.5	2.9	3.0	3.9	1.2	2.8	3.7

Source: Ministry of Economy and Finance: Cambodia Macroeconomic Monitor (August 2016)

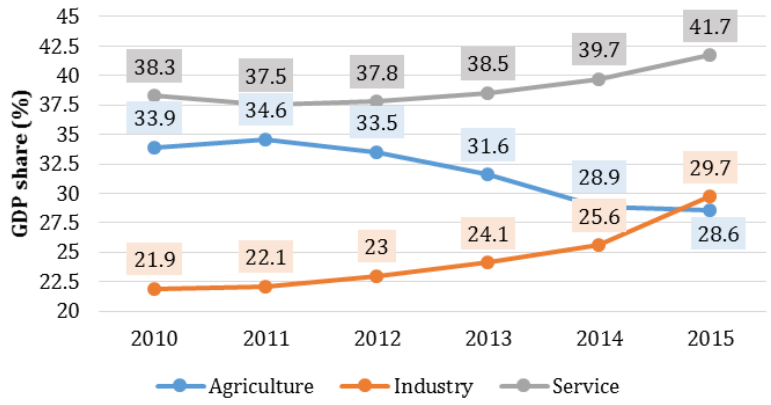
2 Cambodia's Economy and the Importance of Agriculture

Cambodia's economic transformation and growth is a dynamic success story. Thanks to sustained growth, it has successfully rebounded from past financial crises and continues to have a positive outlook with growth of 7 percent per year.

According to the World Economic Forum, together with Laos and Myanmar, Cambodia is one of the fastest growing economies in the world today. Cambodia's long-term and continued economic success will depend on its ability to move up the value chain and out of low-wage and low tech jobs. The Royal Government of Cambodia (RGC) has made diversification and industrialisation key development priorities as the country integrates into the ASEAN Economic Community (AEC)[2]. In 2010, Cambodia launched its Rice Policy and in 2015 its Industrial Diversification Policy (IDP) to move away from economic reliance on the low-wage garment manufacturing industry.

As Cambodia embarks on its journey of diversification, subsistence agriculture needs to become mechanised and industrialised. The industry must also move towards value-added processing. The 2010 Rice Policy has helped to move Cambodia away from subsistence farming, and there is much opportunity for innovation and development in the sector. Agriculture as a share of GDP has declined since 2010, showing the importance of industry (the construction and garment sector in particular) as well as growth in the service sector. The economy is clearly diversifying although the real contribution of value-added agriculture has yet to be realised. This is apparent in the contribution of agriculture to overall GDP (Figure 1).

Figure 1: GDP share by main sectors, current price[3]



Cambodia's agriculture sector is important to economic growth, but it needs to move away from its reliance on "production only" to value-added creation within the country.

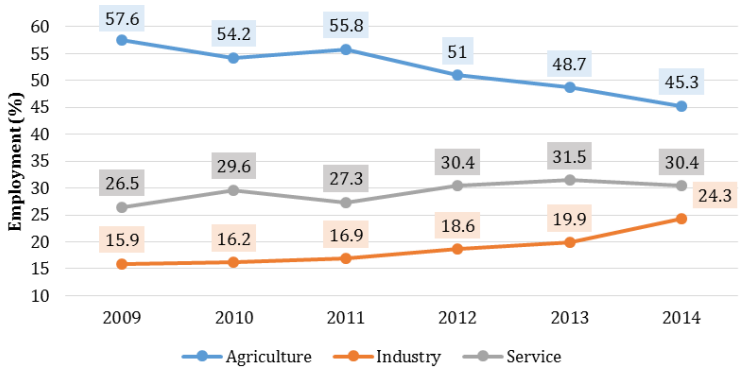
A combination of increased yields, more productive use of labour from mechanization and the expansion of farmland are key drivers to growth of the sector.[4] Key constraints in agriculture production include: (i) Costly and poorly regulated farm inputs; Ineffective regulation has led to distribution of poor quality or counterfeit inputs such as fertilizers, the use of which can result in a reduced crop yield (about USD285-350 per farm per year); (ii) The challenge of persuading farmers to switch to high yield rice seeds from familiar varieties, although progress has been made by the Ministry of Agriculture, Forest and Fisheries (MAFF); (iii) Access to seeds is difficult due to shortage of seed supply –which currently meets just 20 percent of demand – and high prices.; (iv) Credit is one of the most expensive farming inputs, especially for smallholders who rely on the informal credit market; given that access to informal money lenders is often faster than from formal lenders like Microfinance Institutions (MFIs), farmers must accept high interest rate (around 5 percent per month) loans from money lenders; (v) The high cost of transporting produce to market is expensive because of poor infrastructure; (vi) Lack of formal market information.[5]

Cambodia's workforce is young and entrepreneurial. The total population was approximately 15 million in 2013 of which nearly 80 percent[6] lived in rural areas. Cambodia's labour force is approximately 8.5 million people, around 56 percent of the total population. Of the total labour force, women account for around 50 percent.

[2] Note: AEC was formally recognized in December 2015.
[3] MAFF's Annual Report, 2015-2016, using NIS data.
4 World Bank 2015.
5 Dr Theng Vuthy, Cambodia Outlook Brief: Removing constraints to Cambodia's agricultural development. CDRI. 2013.
[6] World Bank Development Indicators, accessed in March 2016.

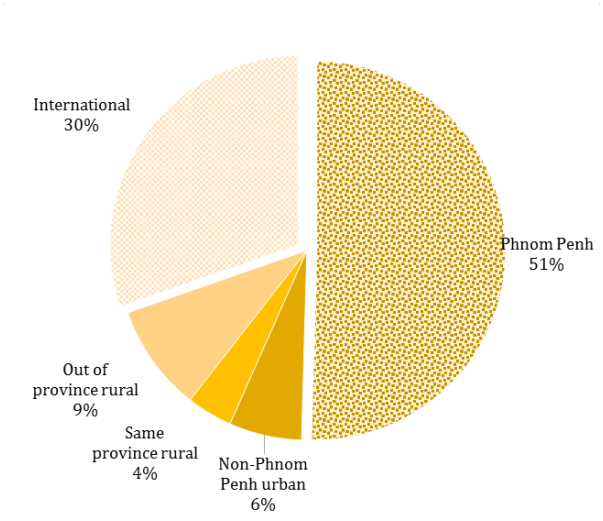
Cambodia faces very little unemployment, but underemployment is particularly pronounced amongst youth in urban areas.

Figure 2: Employment share in agriculture (15-64 years), industry and service sector, percentage[7]



Agriculture is still the main sector absorbing workers compared to industry and the service sector (Figure 2). As the service and industry sector continue to grow and create new and diversified opportunities, employment in the agriculture sector as a percentage of total employment continues to decrease at a rapid rate. As studies have suggested, families who receive remittances tend to have more agricultural machines; it follows then that the more migration that occurs, the more farming families will be able to afford mechanisation. Many rural Cambodians are moving to urban areas in search of better paying employment, primarily in the garment and footwear sector, construction, and the service industry, which includes hotels and tourism. Many have also taken up opportunities to work abroad. These economic opportunities have reduced the share of the population engaged in agricultural activities.

Figure 3: Destination of rural migrants, 2011, percent[8]

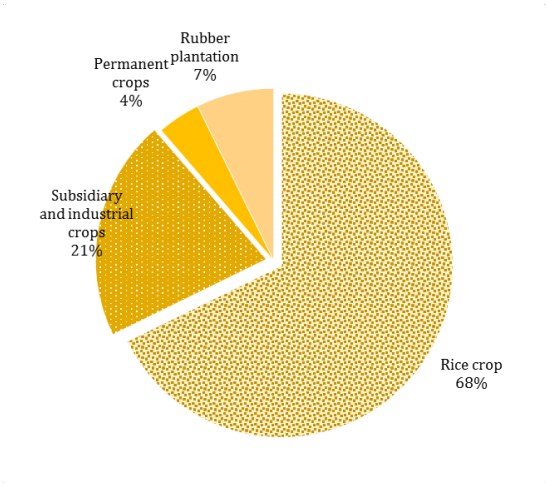


On average, rural villages lose 4 percent of their population each year to migration. According to the Cambodian Rural Urban Migration Project (CRUMP) report of Ministry of Planning (2012), half of these rural migrants moved to Phnom Penh while 30 percent moved abroad. The main reasons for migrating to Phnom Penh were work-related (85 percent) and followed by education (13.2 percent); while reasons to migrate abroad were work-related (97.1 percent) and followed by marriage (1.9 percent).

[7] MAFF's Annual Report, 2015-2016 using NIS's CSES 2014
[8] CRUMP report of MoP, 2012

2.1 Cultivated Areas and Yields – Strengthen Yields and Diversity

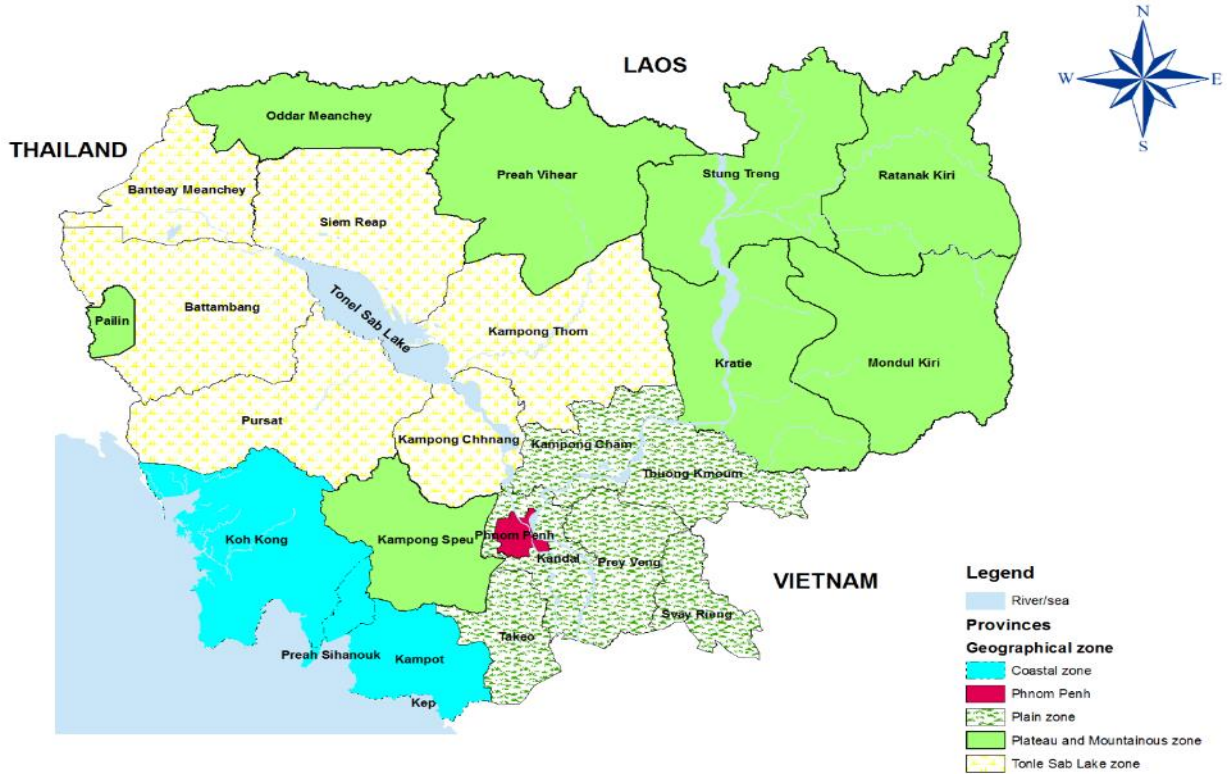
Figure 4: Composition of cultivated areas in 2013[9]



Cambodian farmland covered 4.5 million hectares of land in 2013 out of a total 181,035 square kilometres. Paddy rice is Cambodia's main crop [10]and covers 68 percent of the all cultivated farmland, followed by subsidiary and industrial crops[11] covering 21 percent of farmland, rubber plantations covering 7 percent, and permanent crops[12] covering 4 percent.[13]

Cambodia's geography can be divided into five main zones:[14] Phnom Penh, the Central plain, the Tonle Sap region, coastal and the plateau/mountain zone. Tonle Sap had the largest share of agricultural land at 42 percent followed by the plain zone at 32 percent. Phnom Penh had the lowest share (1 percent) as most of the zone was covered by industrial, commercial, service and residential areas.

Map 3: Geographical zones in Cambodia



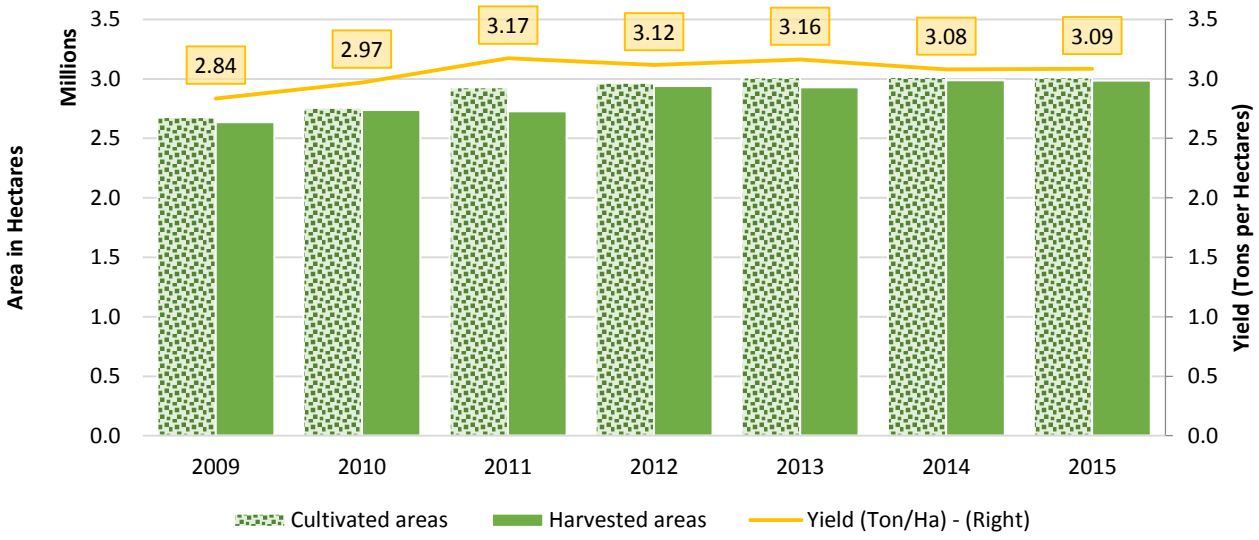
Source: Generated by BDLINK, using NIS data 2015

[9] MAFF's annual report 2013
[10] Note: Paddy rice includes wet and dry seasons, receding and floating.
[11] Note: Subsidiary and industrial crops include maize, cassava, sweet potatoes, vegetables, all kinds of bean, sesame, sugar cane, tobacco etc.
[12] Note: Permanent crops include cashew, banana, oil palm, coconut, mangoes, coffee, durian, pepper, orange, and other fruit etc.
[13] MAFF Annual Report 2013.
[14] Note: the five main zones include Phnom Penh; Plain: Kampong Cham, Kandal, Prey Veng, Svay Rieng and Takeo Province; Tonle Sap: Banteay Meanchey, Battambang, Kampong Thom, Siem Reap, Kampong Chhnang and Pursat Province; Coast: Kampot, Pheah Sihanouk, Kep and Koh Kong Province; and Plateau/Mountain: Kampong Speu, Kratie, Mondul Kiri, Preah Vihear, Ratanak Kiri, Stung Treng, Otdar Meanchey and Pailin Province.

Paddy rice is increasing as a share of all cultivated land. It increased by 12 percent from 2.72 million hectares in 2009, peaking at 3.056 million hectares in 2014 and then dropping to 3.051 million hectares in 2015. Paddy rice has a high harvested area rate (against cultivated area) averaging up to 98 percent between 2009-2015. Climate change, drought and flood are responsible for fluctuations in the amount of land used to cultivate paddy rice.

Paddy rice yields increased from 2.836 tons per hectare in 2009 to 3.173 tons per hectare in 2011, before yields dropped slightly to around 3.085 tons per hectare in 2015. Yields have reportedly improved due to better farm management and cultivation techniques, and a shift towards higher yield rice seeds.[15] In spite of much efforts of the government to disseminate high yield rice seeds, some farmers have been reluctant to switch to the high yield rice seed varieties because they prefer to use seeds with established markets such as IR 504 strain from Vietnam. It can also be difficult to access the seeds due to supply shortages (supply only meets 20 percent of demand) and high prices.[16]

Figure 5: Paddy cultivated, harvest, areas (Million Ha) and yield (tons/Ha)[17]

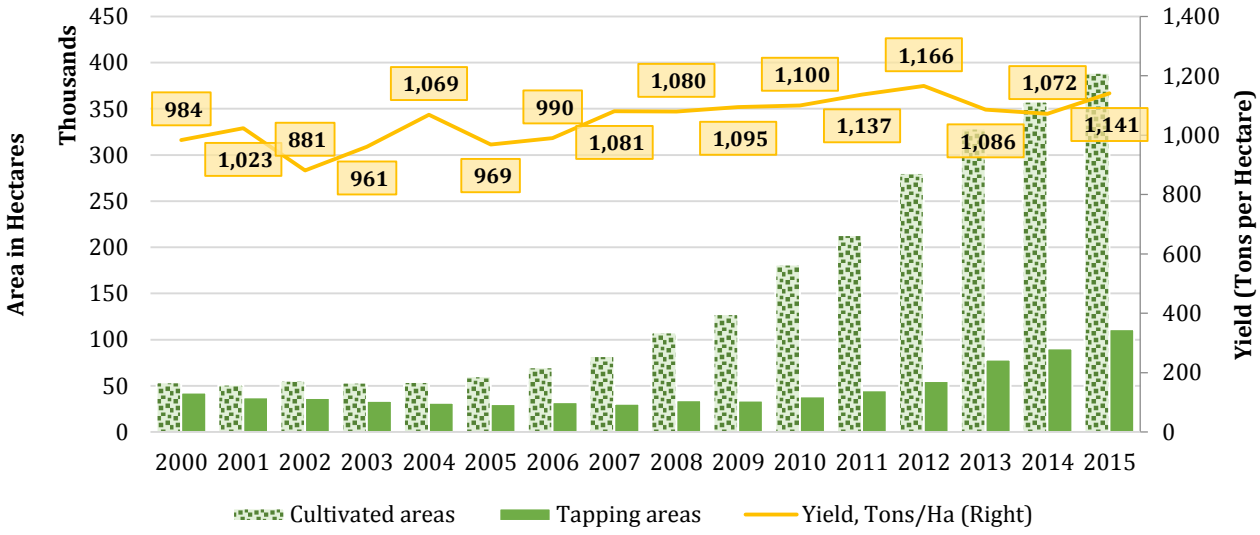


[15] MAFF 2016.
[16] Dr Theng Vuthy, Cambodia Outlook Brief: Removing constraints to Cambodia's agricultural development. CDRI. 2013.
[17] MAFF's annual report 2015-2016

Figure 6 shows the amount of land cultivated for rubber production and yields between 2000 and 2015. Land under cultivation can be divided into two main categories: agro-industrial rubber plantations (state and economic land concessions) and small, family-run rubber plantations. Agro-industrial rubber plantations accounted for 61.47 percent of all land under rubber cultivation (239,000 hectares in 2015, increasing from 218,000 hectares in 2014). Total land under rubber cultivation increased by over 600 percent over the last 15 years, from 537,000 hectares (79 percent for rubber tapping) in 2000 to 389,000 hectares (29 percent for rubber tapping) in 2015. Economic Land Concession (ELC) rubber plantations covered 47.4 percent of all areas under plantation-style cultivation, up from only 2.1 percent in 2007. Rubber yields have increased 16 percent over the last 15 years, from 984 tons per hectare in 2000 to 1,141 tons per hectare in 2015.

Rubber plantations can be found in most provinces. The five top rubber producing provinces are Tbong Khmum, Kratie, Kampong Thom, Rattanak Kiri and Kampong Cham, where 80 percent of all rubber was cultivated in 2015.

Figure 6: Rubber cultivated areas (Thousand Ha), and yield (tons/Ha)[18]



Cambodia's main subsidiary crops include maize, cassava, sweet potato, vegetables, and mung bean. Cassava dominated land used for subsidiary crops in 2015, covering 72 percent of land followed by maize at 13.7 percent. Areas under cassava cultivation grew 36 percent from 2013 to 2015 while maize decreased by 53 percent during the same period. The yield of cassava also increased to 24.34 tons per hectare in 2015. Almost half of the land used for industrial crops[19] was covered by soybean, followed by sesame (19.7 percent) and sugar cane (14.4 percent) in 2015.

[18] MAFF's annual report 2015-2016
[19] Note: Industrial crops here include peanut, soybean, sesame, sugar cane, jute, and tobacco.

Table 5: Subsidiary crop and industrial crop cultivated areas, harvested areas, (Ha) and yield (tons/Ha)[20]

Crops	2013			2014			2015		
	Cultivated areas	Harvested areas	Yield (tons/Ha)	Cultivated areas	Harvested areas	Yield (tons/Ha)	Cultivated areas	Harvested areas	Yield (tons/Ha)
Total	**941,028**	**870,159**	-	**953,597**	**937,521**	-	**931,581**	**890,217**	-
Maize	239,748	217,221	4.27	143,517	135,995	4.04	112,574	104,157	3.84
Cassava	421,375	377,239	21.03	521,459	515,293	23.18	573,624	546,406	24.34
Sweet potato	7,432	7,418	6.81	5,915	5,908	9.18	5,757	5,743	7.91
Vegetables	52,449	52,052	8.71	51,637	51,338	8.09	47,373	47,285	8.58
Mung bean	54,312	53,282	1.27	53,294	52,858	1.15	57,172	53,962	1.1
Total subsidiary crops	**775,316**	**707,212**	-	**775,822**	**761,392**	-	**796,500**	**757,553**	-
Peanut	19,954	19,868	1.47	17,818	17,633	1.57	15,519	15,487	1.62
Soybean	80,688	78,435	1.67	72,511	72,218	1.44	66,824	66,606	1.46
Sesame	34,136	34,127	0.72	28,170	28,019	0.62	26,544	24,673	0.72
Sugar cane	23,810	23,393	38.96	48,357	47,365	32.53	19,514	19,243	36.85
Jute	243	243	0.85	192	192	0.87	135	135	0.56
Tobacco	6,881	6,881	1.28	10,727	10,702	1.3	6,545	6,520	1.24
Industrial Crops	**165,712**	**162,947**	-	**177,775**	**176,129**	-	**135,081**	**132,664**	-

[20] MAFF's annual report 2015-2016

3 Agriculture Sector Governance, Policies and Strategies

The agriculture sector is listed as a priority in the government's National Strategic Development Plan (NSDP 2014-2018) and promotion of agriculture is one of the main pillars of its Rectangular Strategy – Phase III. The four pillars include: i) improved productivity, diversification and commercialization; ii) promotion of livestock farming and aquaculture; iii) land reform and clearance of mines and UXO; and iv) sustainable management of national resources.

> *Besides making ourselves food sufficient, we have to strive to make Cambodia a real exporter of rice and one of the main actors in regional and world food security."*
>
> *Prime Minister Hun Sen 17 August 2010*

The agriculture sector is governed by the Ministry of Agriculture, Forestry and Fisheries (MAFF), (maff.org.kh); however, there are several other ministries involved when it comes to trade and production. A list of ministries and relevant departments are provided in the table below.

Table 6: List of Ministries related to agriculture in Cambodia

Ministry	Website
Ministry of Agriculture, Forestry and Fisheries (MAFF)	www.maff.gov.kh
Ministry of Commerce (MoC)	www.moc.gov.kh
Ministry of Economy and Finance (MoEF)	www.mef.gov.kh
Ministry of Environment (MoE)	www.moe.gov.kh
Ministry of Health (MoH)	www.moh.gov.kh
Ministry of Industry and Handicraft (MoIH)	www.mih.gov.kh
Ministry of Labor and Vocational Training (MoLVT)	www.mlvt.gov.kh
Ministry of Mines and Energy (MoME)	www.mme.gov.kh
Ministry of Water Resources and Meteorology (MoWRM)	www.mowram.gov.kh
Council for the Development of Cambodia (CDC)	www.cambodiainvestment.gov.kh
General Department of Customs and Excise (GDCE)	www.customs.gov.kh
General Department of Taxation (GDT)	www.tax.gov.kh

Table 7: List of key agriculture policies

Policy	Link
Industrial Development Policy	www.cambodiainvestment.gov.kh/content/uploads/2015/09/IDP-English-Version-FINAL1.pdf
Rectangular Strategy – Phase III	www.cambodiainvestment.gov.kh/content/uploads/2013/11/2013-Rectangular-Strategy-III-En8.pdf
National Strategic Development Plan 2014-2018	www.mop.gov.kh/Home/NSDP/NSDP20142018/tabid/216/Default.aspx
Agricultural Sector Strategic Development Plan 2014-2018	www.maff.gov.kh/policies-strategies/1288-2015-09-25-05-10-08.html
Promotion of Paddy Rice Production and Export of Milled Rice	www.gafspfund.org/sites/gafspfund.org/files/Documents/Cambodia_10_of_16_STRATEGY_SNEC-Rice%20Export%20Policy_0.pdf
National Water Resource Policy for the Kingdom of Cambodia	www.mowram.gov.kh/images/stories/Laws/water_resources_policy_english.pdf
The Strategic Planning Framework for Fisheries: 2010-2019	www.faolex.fao.org/docs/pdf/cam143042.pdf

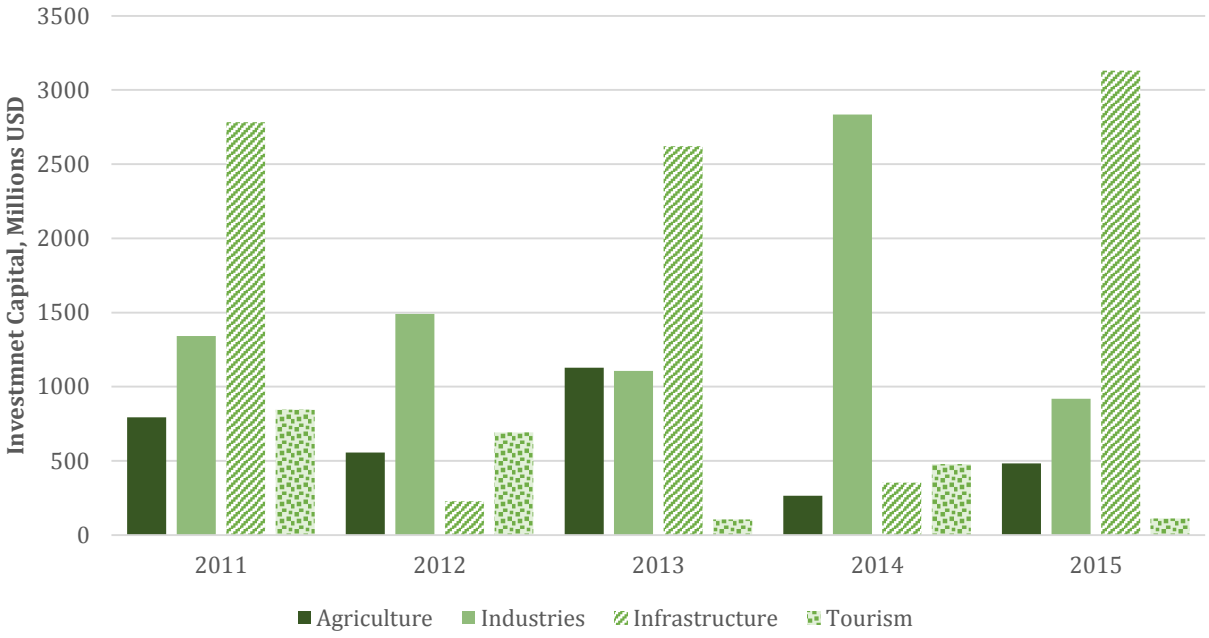
4 Investment in Cambodia's Agriculture Sector

4.1 Investment Capital

Foreign direct investment (FDI) increased by 18 percent from USD3.9 billion in 2014 to USD4.6 billion in 2015.[21] Chinese investment dominated FDI, with other Asian investment accounting for nearly 90 percent of all FDI.

Agriculture received 14 percent of total investment from 2011 to 2015, ranking third after industrial investment (35 percent) and infrastructure (41 percent). In 2015, investment in agriculture amounted to USD482.6 million – or 10 percent of total investment – an increase of 82.3 percent from 2014 which is a positive sign; however, it needs to be balanced in terms of environmental and human rights protection. Data for 2016 was not yet available at the time of publication but a noteworthy agriculture investment included China's Tianrui Group, which signed a memorandum of understanding with the Ministry of Agriculture in the third quarter of 2016[22]. Tianrui Group plans to invest USD2.1 billion in a special economic zone outside Phnom Penh for the purposes of agriculture.

Figure 7: Investment by sector, million US dollars[23]



Despite remarkable inflows of FDI and local investment in agriculture, there are still notable barriers to foreign investment.[24] These include: i) problems with land tenure and lease agreements; ii) unclear guidance as to which institution should be approached to obtain a business license; iii) weak law enforcement; iv) long administrative procedures and red tape; and v) limited mechanisms for problem solving and dispute resolution.

Despite these constraints, Cambodia has made significant developments at the policy and ministerial level. These include the development of the National Commercial Arbitration Centre at the Ministry of Commerce – created with input from the private sector; the development of online licensing programs under certain ministries and tax authorities; and collaboration between the public and private sector in specialised working groups looking at key challenges to Cambodia's business climate. It also important to note that unlike many other countries in the region, foreign investors in Cambodia do not need a domestic partner and can own 100 percent of their investment or business.

[21] The Council of Development for Cambodia, 2015
[22] https://www.cambodiadaily.com/business/chinese-investment-firm-build-2b-food-processing-sez-119520/
[23] The Council of Development for Cambodia, 2015
[24] Saing et all. 2012.

4.2 Economic Land Concessions (ELCs)

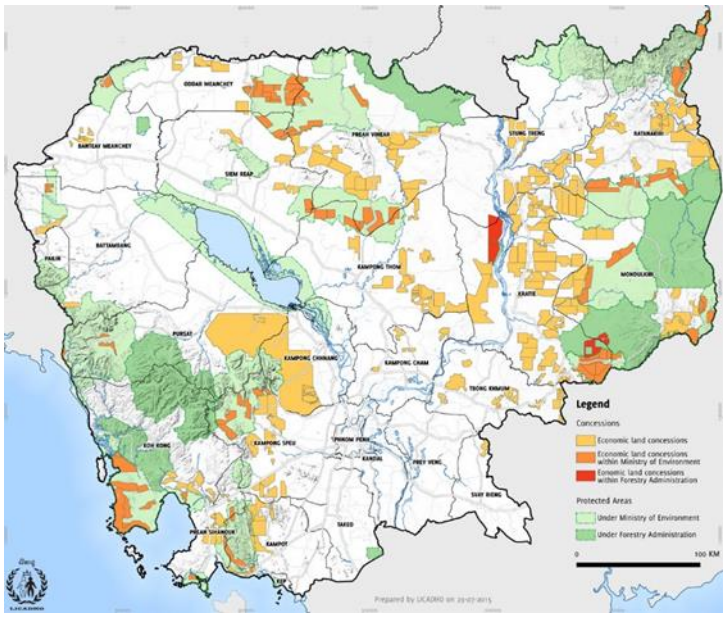
The RGC has granted large scale of land concessions under its ELC policy in order to attract more foreign and local investment in agriculture, with the aim of creating local jobs and national revenue from agro-industrial plantations and agro-processing facilities. As of 2015, the MAFF granted ELCs to 113 companies in 17 provinces covering a total area of 1,090,322 hectares with 735,759 hectares under production.[25]

A great challenge with many of the ELCs granted is that the majority have not realised the intended economic benefits. Some ELCs concessions experienced lack of labour supply in particular in remote areas. Moreover, the livelihood and land tenure rights of the local people were adversely affected by the large-scale ELCs, threatening the biodiversity of the country.[26] In May 2012, the government announced a moratorium on granting new ELCs. An inter-ministerial committee was established to conduct a nationwide review of the existing ELCs, with the aim of cancelling projects that did not abide by the law or ELC contracts.[27] As of 2015, the RGC cancelled 78 contracts covering a total land area of 630,895 hectares.[28]

Foreign Investment and Economic Land Concessions: Foreigners cannot own land in Cambodia although the review of laws and regulations relating to land ownership are being reviewed. It is advised to seek latest update information from your local British or European Chamber of Commerce.

Regarding Economic Land Concessions, the RGC offers three types under which state land is leased to domestic and foreign investors[29] namely: (i) Social Concessions; (ii) Economic Land Concessions; (iii) Development or Exploitation Concessions.

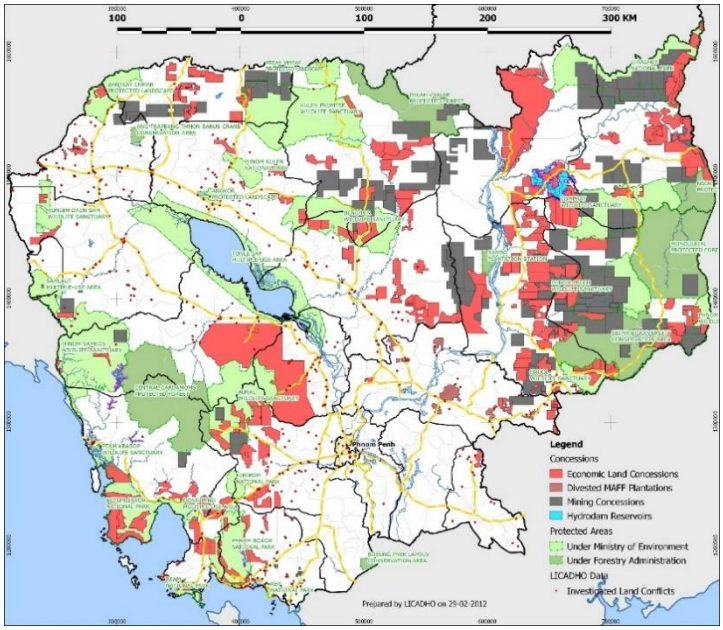
Map 4: Economic Land Concessions by Ministry



ELCs permit beneficiaries to clear land for industrial or agricultural exploitation. The legal framework governing ELCs consists primarily of the 2001 Land Law, which distinguishes between public state land and private state land, and Sub-Decree (RGC) No. 146 ANK/BK on Economic Land Concessions (SD-ELC), which sets out the criteria, procedures, mechanisms and institutional arrangements for initiating, granting, monitoring and reviewing land concessions. ELCs can be granted by the Ministry of Agriculture, Forestry and Fisheries for a maximum of 10,000 hectares, and no more than 99 years.

[25] MAFF's annual report 2016.
[26] Chan Sophal 2015.
[27] Ibid.
[28] MAFF's annual report 2016.
[29] Hem Socheat, 2012

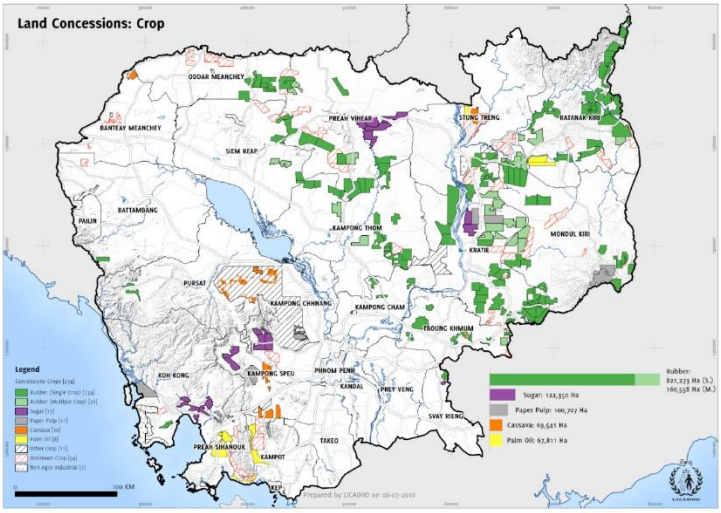
Map 5: Economic Land Concessions and Hydro Dam Reservoirs



Objectives of ELCs: ELCs may be granted to achieve the following purposes (SD-ELC Article 3): (i) Develop intensive agricultural and industrial agricultural activities that require a high rate of initial capital investment; (ii) Achieve a specific set of agreements from the investor for developing land in an appropriate and ongoing manner based on a land use plan for the area; (iii) Increase employment in rural areas within a framework of intensification and diversification of livelihood opportunities and within a framework of natural resource management based on an ecologically appropriate system; (iv) Generate state, provincial and communal revenues through economic land use fees, taxation and related service charges.

Conditions for Granting ELCs: An ELC may be granted only on land that meets all of the following five criteria (SD-ELC Article 4): (i) The land has been registered and classified as private state land in accordance with the Sub-decree on State Land Management; the Sub-decree on Procedures for Establishing Cadastral Maps and Land Register; and the Sub-decree on Sporadic Registration; (ii) A land use plan has been approved by the Provincial–Municipal State Land Management Committee; (iii) Environmental and social impact assessments have been completed with respect to the land use and development plan; (iv) There are solutions for resettlement issues, in accordance with the existing legal frameworks and procedures; the contracting authority shall ensure that there will not be involuntary resettlement by lawful land holders and that access to private land will be respected; (v)There have been consultations with territorial authorities and local residents.

Map 6: Economic Land Concessions by Crop



Proposals for ELCs are evaluated on the following criteria (SD-ELC Article 5): (i) increase in agricultural and industrial–agricultural production using modern technology; (ii) employment creation; (iii) improvement of living standards; (iv) environmental protection and natural resources management; (v) avoidance or minimizing of adverse social impacts; (vi) linkages and support between social land concessions and economic land concessions; (vii) processing of raw agricultural materials, to be specified in the concession contract.

4.3 Investment Opportunities in Economic Land Concessions

Table 8: Summary: Investment opportunities in ELCs

	**Large Investors:** Investment in ELCs require larger amounts of investment capital and on a practical level, a local partner to facilitate discussions and necessary permits. Land concessions are therefore of interest to primarily to large investors who can obtain assistance from local embassies and business chambers.

5 Irrigation: Innovative Solutions Needed to Diversify Farming Activities

Agricultural water management (AWM), particularly irrigation, is promoted by the RGC as a major component of poverty alleviation and economic development. Irrigation is necessary to intensify rice production, particularly during dry season and for commercialised farming; it is also necessary to ensure that households secure their wet season crops and diversify crop production in the dry season.[30]

A key challenge with irrigation systems in Cambodia is that the majority are large works of public infrastructure, and it is necessary figure out how these systems can be maintained both financially and physically.

Irrigations systems are still limited and irrigated areas remain low in Cambodia. Irrigated paddy rice fields made up only 22 percent of total land under paddy rice cultivation in 2015.[31] Irrigation is still considered to be a public good that should be provided by the government, and any fees imposed are considered to be a tax.[32] Irrigation is an opportunity for investment an innovation – such as how to make systems more affordable – although the use of irrigation is constrained by high upkeep costs.

Government projects to improve irrigation systems include the rehabilitation of defunct or poorly constructed systems and the construction of new ones. Most irrigation schemes are large scale (65 percent cover more than 500 hectares)[33] and all irrigation is surface irrigation[34]. Farmer Water User Committees were established to support the management of irrigation schemes, although the results were mixed.

> *New and innovative approaches are needed (in irrigation) which are carefully considered to fit the country's characteristics, including smaller scale simple water resource management projects (systems) that are easier to implement."*
>
> *ADB 2010*

Today, there is quite a lot of informal irrigation due to access to portable pumps (see mechanisation), which farmers use to pump water from rivers, reservoirs or catchment areas. In addition, farmers may create catchment areas if they have sufficient land. Private sector investment in irrigation does exist, although mostly through local entrepreneurs as discussed below.

Wet Season Rice Irrigation: The wet season rice harvest, reliant on rainfall, makes up the majority of Cambodia's food supply and 77% of total rice production. The MAFF estimates that around half of the total wet season rice crop is cultivated with access to irrigation. The largest areas under irrigation in Cambodia are only suitable for wet season irrigation. However, studies indicate that wet season irrigation has little impact on rice yields[35] Wet season irrigation is not an attractive investment opportunity given that public sector infrastructure already exists. Public-private partnerships could be used to share knowledge on revenue collection, maintenance and services to meet the diversified irrigation needs of farmers.

Dry Season Rice Irrigation: Dry season rice is often referred to as the "commercial" rice crop. It has higher yields than wet season rice because of higher solar radiation, better water control, and the cultivation of more fertilizer-responsive varieties of rice[36]. IWMI estimates that total input costs in dry season are around USD800 per hectare, of which water is a relatively small component of the total cost. Irrigation is therefore essential to ensure crop yields. For poor farmers or households, dry season rice cultivation is not possible due to the high cost of inputs. Dry season rice is generally grown under commercial cultivation,[37] and drives the use of inputs and mechanisation in the sector. Farmers who grow a dry season rice crop tend to own larger holdings. Investment in innovative dry season irrigation for multiple cropping is an attractive opportunity for exporting knowledge and technology to Cambodia.

[30] Agricultural water Management Planning in Cambodia, IWMI, 2013.
[31] The provincial socio economic survey, 2015.
[32] http://www.cavackh.org/promoting_irrigation/index/en. Accessed on 9 June 2016.
[33] USAID 2015
[34] Ibid
[35] IWMI Agricultural Water Management Planning in Cambodia.
[36] USAID 2015
[37] IWMI

Table 9 shows that overall, irrigation of rice paddy areas by province is improving although much needs to be done to invest in more comprehensive irrigation systems. Data represents irrigated areas for small holdings or family farms and does not include large industrial/commercial farms.

Table 9: Irrigated paddy areas (hectares) and percentage of irrigated paddy areas by province, 2013-2015[38]

No	Provinces/Year	2013		2014		2015	
		Irrigated paddy areas	% of total paddy areas	Irrigated paddy areas	% of total paddy areas	Irrigated paddy areas	% of total paddy areas
1	**Banteay Meanchey**	45,546	14.7	31,696	10.3	52,220	17.0
2	**Battambang**	124,482	25.0	127,495	24.8	123,841	24.1
3	**Kampong Cham**	53,227	37.2	49,932	35.8	53,994	38.3
4	**Kampong Chhnang**	41,953	26.0	50,057	32.3	53,021	34.2
5	**Kampong Speu**	16,869	13.7	17,353	14.1	17,451	13.7
6	**Kampong Thom**	52,360	18.7	52,246	18.1	65,947	21.6
7	**Kampot**	15,393	11.7	14,175	10.7	20,652	8.6
8	**Kandal**	84,859	65.8	87,294	68.1	73,163	57.5
9	**Koh Kong**	565	4.4	474	3.7	697	5.4
10	**Kratie**	17,057	29.8	15,883	27.5	18,793	31.6
11	**Mondul Kiri**	3,321	11.0	3,311	11.8	1,689	6.0
12	**Phnom Penh**	4,602	26.4	3,802	28.3	3,317	26.5
13	**Preah Vihear**	2,553	3.2	1,022	0.1	1,150	1.2
14	**Prey Veng**	100,451	32.6	101,451	32.8	101,539	32.8
15	**Pursat**	50,876	9.9	41,887	4.6	36,213	24.6
16	**Ratanak Kiri**	295	0.9	4,410	12.7	893	2.6
17	**Siem Reap**	52,969	24.7	47,292	11.4	50,935	12.0
18	**Preah Sihaknouk**	10,666	38.3	10,785	38.6	10,916	49.0
19	**Steung Treng**	1,033	2.6	1,408	3.1	610	1.3
20	**Svay Rieng**	14,752	8.7	20,518	12.2	14,343	8.8
21	**Takeo**	89,756	36.9	84,523	34.8	96,330	40.1
22	**Otdar Meanchey**	2,532	1.2	5,518	2.3	1,754	0.9
23	**Kep**	1,899	62.4	1,945	64.0	1,903	61.2
24	**Pailin**	2,182	26.8	-	-	3,682	34.4
25	**Thbong Khhum**	13,758	14.2	16,356	16.7	12,329	12.5
	Total	803,956		790,833		817,382	

[38] Author compiled from socio-economic annual report 2015 of every Provincial Department of Planning.

5.1 Diversified Irrigation: Private Sector Participation Needed

While most irrigation projects are focused on rice production, farmers are increasingly using irrigation on fruit and vegetable farms. **Drip irrigation is the fastest growing irrigation technology** in Cambodia.[39] It reduces water and fertilizer requirements, improves yield and quality of vegetables, and reduces diseases. Drip irrigation systems can be described as a system of moveable pipes, through which water is directed to relevant crop areas and drips onto the crop. The speed of the drops of water is controlled by a tap at a water outlet. Drip systems enable farmers to expand their production periods and take advantage of higher off season market prices.

Other types of irrigation include simple **sprinkle irrigation**, which is also moveable and generated by the pressure of water into a pipe and nozzle generating a fine mist of rain. Sprinkle irrigation can also be adjusted based on the speed and pressure of water released. These innovative irrigation systems allow for small farmers in particular to more effectively use water, deliver fertilizer and improve yields for their vegetables. Demand for cost effective, durable and innovative irrigation systems will only continue to grow, in particular for vegetable production as Cambodia meets only 30 percent to 45 percent of its domestic demand.

Double cropping is taking place, albeit slowly. Double cropping is the ability to produce more than one crop and use a piece of land of more than one purpose. IWMI studies shows that double cropping has been successfully established outside of formal irrigation systems by using small-scale ground water pumps (tube wells) or small service reservoirs (natural or man-made). Within larger systems of irrigation, double cropping has been limited. The reasons include inflexible water delivery systems, which are designed for rice irrigation and not adaptable to other crops. Private pumps are emerging as a popular mode of securing water supply. The more farms and households that undertake diversification of cropping and double cropping, the more demand there will be for mechanisation and innovative irrigation systems.

5.2 Private Irrigation Investment and Public-Private Partnerships In irrigation

One way to improve irrigation methods is to establish public-private partnerships (PPPs) for irrigation projects, which are currently limited in Cambodia. The Ministry of Water Resources and Meteorology (MoWRAM) has been engaged in reviewing and establishing various PPPs in irrigation infrastructure. A study by MoWRAM identified several different types of models including the following three:

1. **(Irrigated land services) Private irrigated land and services provided by an entrepreneur:** In this model, an entrepreneur builds a reservoir to store water for irrigation. After building the reservoir, the land is rented out at a price which includes the cost of using and maintaining reservoir. Farmers do not generally do not practice double cropping in this model.
2. **(Large and medium irrigation service) Rehabilitation and redistribution:** An entrepreneur invests in the rehabilitation of irrigation infrastructure and the installation of a pumping station to pump to supply irrigated water to farmers. Once rehabilitated, the entrepreneur will charge for delivering the water to farmers and maintaining the irrigation system. The farmers under this model adopt double cropping as the irrigation system is easy to access.
3. **(Small Scale irrigation service) The Preks model of private small-scale irrigation services provided by local entrepreneur.** The entrepreneur has a contract with a public sector to provide private irrigation services to farmers. The services include operations and maintenance of irrigation systems and pumping water. Depending on the contract, the entrepreneur can also be required to rehabilitate infrastructure and roads. In this model, farmers will generally practise double cropping.

[39] USAID 2015.

5.3 Investment Opportunities in Irrigation

Many investment opportunities exist in irrigation, including the provision of irrigation technology to small and medium scale farmers that will enable them to cultivate dry season rice or pursue double or multiple cropping.

Table 10: Summary: Investment opportunities in irrigation

	**Exporters:** Opportunities exist to export innovative irrigation technology to Cambodia, given that irrigation is relatively unused. The export of irrigation systems for small holding farmers as well as medium and large farms is an untapped market open to exploration.
	**Large Investors:** Large investors interested in developing technology and irrigation systems in Cambodia could focus on manufacturing or research and development opportunity – with the opportunity to export to regional markets. Opportunities also exist for large irrigation developments or PPPs, and would require further research into locations and opportunities given the limited research on private sector investment in irrigation.
	**SMEs and Entrepreneurs:** SMEs and entrepreneurs could manufacture, install and develop irrigation systems in Cambodia. For local entrepreneurs, opportunities may also exist to develop PPPs and provide a sustainable water supply to farms.

6 Agricultural Mechanization: A Changing Way of Work and Employment

Mechanizing Cambodian agriculture will help to improve productivity and address challenges from a declining labour force in the countryside. It will also bring new business opportunities to import machinery, as well as new employment opportunities to operate and repair machines. Off-farm employment significantly raised farmers' investment in agricultural machinery.[40] In other words, the migration of workers from rural to urban areas – and their remittances home – has enabled farmers to buy more agricultural machinery and accelerated the process of mechanisation.

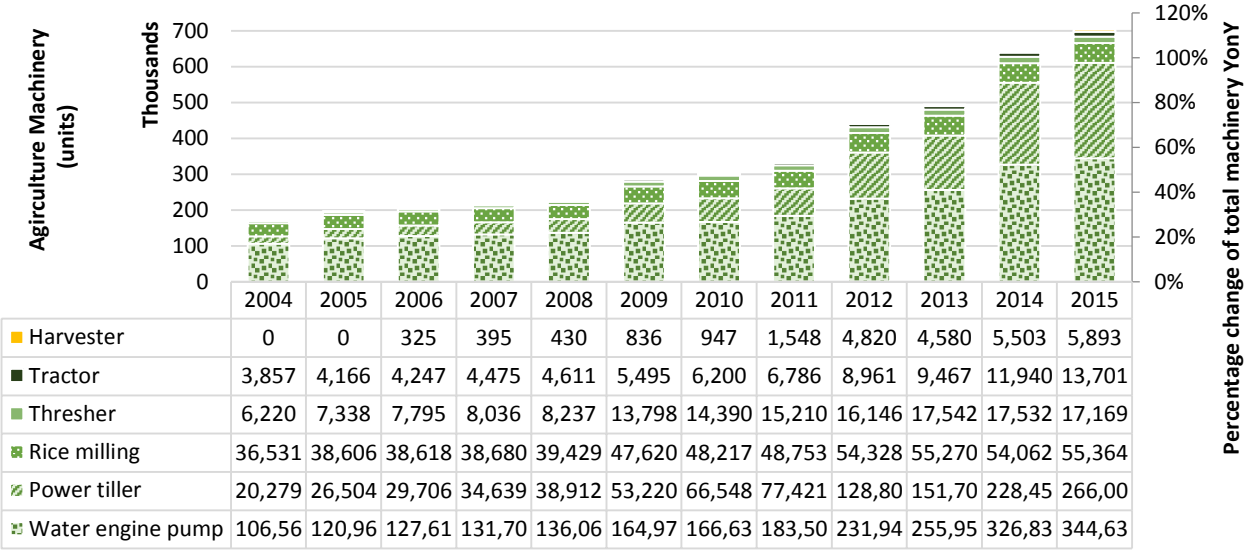
While rural to urban migration has led rural villages to lose 4 percent of their population each year, the study indicates a positive relationship between the number of migrant household members and the level of investment in agricultural machinery. This observation is likely due to remittances from family members who make a higher income in urban areas. With continued growth in the agriculture sector and government dedication to improving agricultural productivity,[41] it is clear that the market for agricultural machinery and upkeep services will become increasingly important in Cambodia.

The use of machinery is determined by farm size, the type of crop under cultivation and the geographical zone of the farm. Farmers who operate large farms tend to use more agricultural machinery such as tractors, power tillers, or harvesters, whereas farmers who have small plots of farm land do not. Nationwide, the use of machinery has steadily increased for planting, irrigation, threshing and more recently, harvesting since the 1990s.[42]

The rice industry is starting to adopt mechanisation, although some steps like transplanting rice crops and fertilising fields are still done manually and present interesting investment opportunities.[43] Other crops such as corn, cassava, bean, rubber, sugar cane and fruit trees also require machinery for land preparation, transportation and planting. Harvesting, spraying and weeding, in particular for large commercialised farms, are also investment opportunities.

Figure 8 provides a breakdown of agricultural machinery in Cambodia. Simple machines dominate agricultural mechanisation, although use of all types of machinery have dramatically increased over the past ten years.

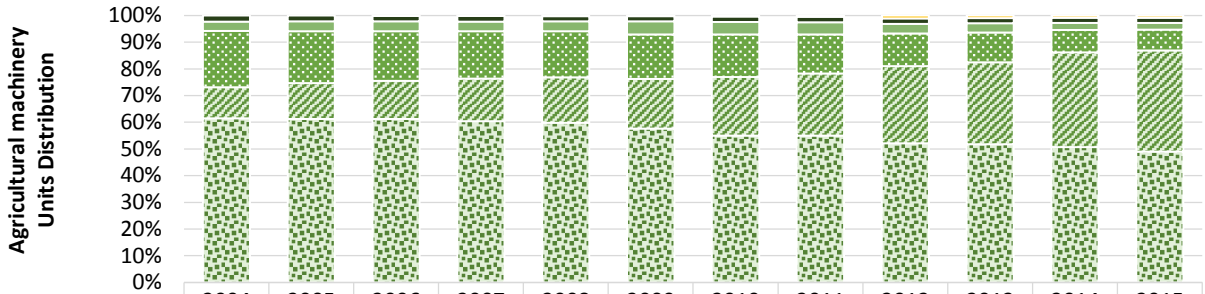
Figure 8: Usage of main agricultural machinery, unit[44]



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Harvester	0	0	325	395	430	836	947	1,548	4,820	4,580	5,503	5,893
Tractor	3,857	4,166	4,247	4,475	4,611	5,495	6,200	6,786	8,961	9,467	11,940	13,701
Thresher	6,220	7,338	7,795	8,036	8,237	13,798	14,390	15,210	16,146	17,542	17,532	17,169
Rice milling	36,531	38,606	38,618	38,680	39,429	47,620	48,217	48,753	54,328	55,270	54,062	55,364
Power tiller	20,279	26,504	29,706	34,639	38,912	53,220	66,548	77,421	128,80	151,70	228,45	266,00
Water engine pump	106,56	120,96	127,61	131,70	136,06	164,97	166,63	183,50	231,94	255,95	326,83	344,63

[40] Chhim, Buth, and Ear, 2015.
[41] The Agricultural Sector Strategic Development Plan 2014-2018, the sub-program 1.6
[42] Saruth, 2014.
[43] Chan, 2014.
[44] MAFF's Department of Agricultural Engineering and MAFF's annual report 2015-2016

Figure 9: Distribution of total machinery units by year



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Harvester	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%
Tractor	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Thresher	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	3%	2%
Rice milling	21%	20%	19%	18%	17%	17%	16%	15%	12%	11%	8%	8%
Power tiller	12%	13%	14%	16%	17%	19%	22%	23%	29%	31%	35%	38%
Water engine pump	61%	61%	61%	60%	60%	58%	55%	55%	52%	52%	51%	49%

The use of agricultural machinery varies by region. In northwest Cambodia, notably the provinces of Pailin, Battambang, and Banteay Meanchey, households tend to operate larger farms and thus prefer combine harvesters and large tractors with over 50 horsepower. In southern Cambodia where dry season rice is cultivated, there is an increasing use of tractors. In provinces around the Tonle Sap –Kampong Thom, Kampong Chhnang, Pursat, and Siem Reap –low lift water pumps are used to irrigate rice fields, with power tillers often used to drive the pump's engine. In provinces close to Phnom Penh like Takeo, Kandal and Prey Veng, farmers often use centrifugal pumps.[45]

Figure 10 shows the share of farmland ploughed by cattle versus agricultural machinery. Mechanical ploughs are increasingly used across Cambodia, with a sharp drop in the use of cattle from 52 percent in 2012 to 25 percent in 2015.

Tractors and power tillers (Figure 11) are typically used for mechanised ploughing. The number of tractors per 100 hectares of total ploughing areas rose from 0.254 to 0.389 per 100 hectares between 2012 and 2015, while the number of power tillers per 100 hectares rose from 3.654 to 7.558 over the same period.

Figure 10: Ploughing areas by cattle and machinery, Ha

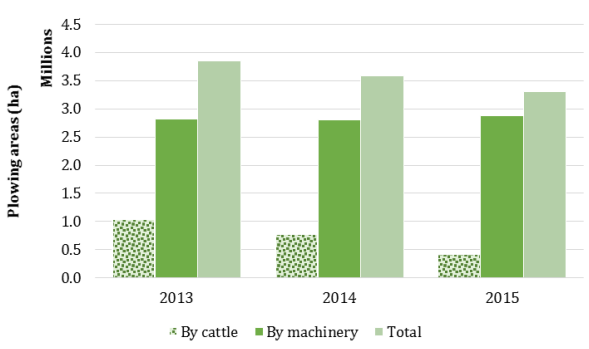
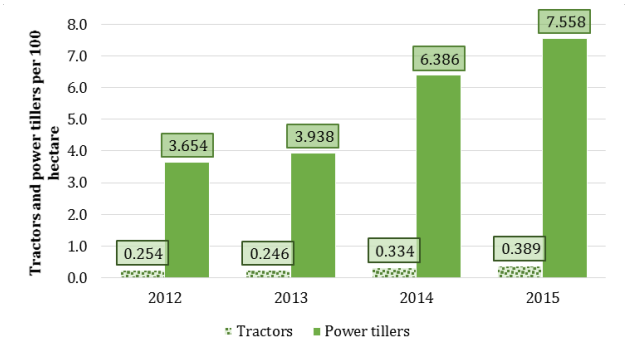


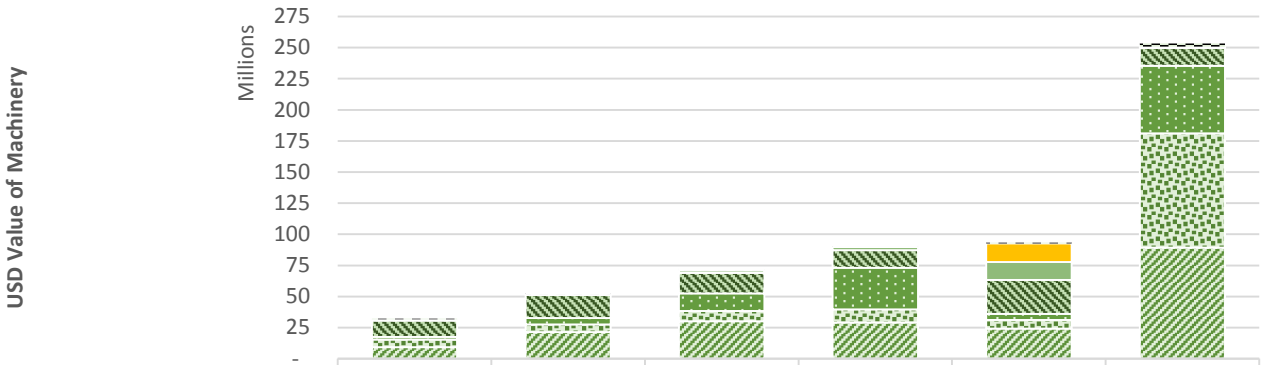
Figure 11: Tractors and power tillers per 100 Ha of ploughing areas



[45] Saruth, 2014.

6.1 Value of Imported Agricultural Machinery

Figure 12: Imported value of agricultural machinery from 2010 to 2015[46]



	2010	2011	2012	2013	2014	2015
Threshing machinery	-	27,000	46,000	4,000	2,000	41,000
Pumps	681,000	932,000	964,000	401,000	1,654,000	3,430,000
Harvesting machinery	132,000	12,000	367,000	616,000	15,037,000	719,000
Water pumps	692,000	908,000	1,882,000	2,705,000	14,295,000	199,000
Centrifugal pumps	13,157,000	18,455,000	16,563,000	14,146,000	27,317,000	14,378,000
Pedestrian controlled tractors	2,022,000	5,062,000	14,237,000	33,395,000	4,861,000	54,205,000
Combine harvester-threshers	6,202,000	6,075,000	8,096,000	10,355,000	6,920,000	91,885,000
Wheeled tractors	9,423,000	21,545,000	30,206,000	29,237,000	24,237,000	89,348,000

Figure 13: Distribution of total value of imports by year and product: machinery

	2010	2011	2012	2013	2014	2015
Threshing machinery	0%	0%	0%	0%	0%	0%
Pumps	2%	2%	1%	0%	2%	1%
Harvesting machinery	0%	0%	1%	1%	16%	0%
Water pumps	2%	2%	3%	3%	15%	0%
Centrifugal pumps	41%	35%	23%	16%	29%	6%
Pedestrian controlled tractors	6%	10%	20%	37%	5%	21%
Combine harvester-threshers	19%	11%	11%	11%	7%	36%
Wheeled tractors	29%	41%	42%	32%	26%	35%

[46] ITC calculations based on UN COMTRADE statistics. Available at http://www.trademap.org/Country_SelProductCountry_TS.aspx. Accessed on 01 May 2016

6.2 Agriculture Machinery Exports to Cambodia: A competitive market

Table 11 is a reconstruction of ASYCUD Statistics from the General Department of Customs and Excise for import statistics on agricultural machinery. The table shows the top three suppliers between 2011 and 2016, as well as the top three suppliers from the European Union over the same period. All EU countries that export to Cambodia are listed under the machinery type, including how many countries have exported to Cambodia since 2011

Table 11: Summary of machinery export to Cambodia by top three suppliers

Machinery and country data	Top 3 suppliers since 2011 to Q2 2016 Units exported to Cambodia		Top 3 EU suppliers since 2011 Units exported to Cambodia	
Pedestrian Controlled Tractors **18 countries.** European countries: Italy, United Kingdom, Belgium, France, Latvia, and Lithuania	Thailand	216,795	Italy	49
	China	21,764	United Kingdom	23
	Japan	17,579	Belgium	12
	Period Total (All Non-EU countries)	**260,112**	**Period Total (All EU)**	**99**
Wheeled tractors **33 countries** European countries: Belgium, Bosnia and Herzegovina (potential EU member), Denmark, France, Germany, Italy, Latvia, Lithuania, Spain and Ukraine	Thailand	6,271	Lithuania	508
	Japan	4,207	United Kingdom	399
	India	764	Germany	186
	Period Total (All Non-EU countries)	**13,846**	**Period Total (All EU)**	**1,404**
Combined Harvester-threshers **14 countries.** European countries: France, Netherlands	Thailand	6,656	Germany	3
	Japan	331	Netherlands	2
	China	312	France	1
	Period Total	**7,570**	**Period Total (All EU)**	**6**
Pumps **20 countries.** European countries: France, Germany, Hungary, Italy, United Kingdom	China	708,255	Italy	308
	Thailand	34,724	United Kingdom	60
	India	33,163	France	7
	Period Total (All Non-EU countries)	**897,019**	**Period Total (All EU)**	**378**
Threshers **3 countries** European countries: None	China	339	None	None
	Japan	3	None	None
	South Korea	3	None	None
	Period Total	**345**	**None**	**None**
Centrifugal Pumps **21 countries.** European countries: France, Germany, Italy, Netherlands, United Kingdom	China	1,016,919	Italy	30
	South Korea	16,942	Germany	12
	India	3,641	France	7

Machinery and country data	Top 3 suppliers since 2011 to Q2 2016 Units exported to Cambodia		Top 3 EU suppliers since 2011 Units exported to Cambodia	
	Period Total (All Non-EU countries)	**1,042,505**	**Period Total (All EU)**	**56**

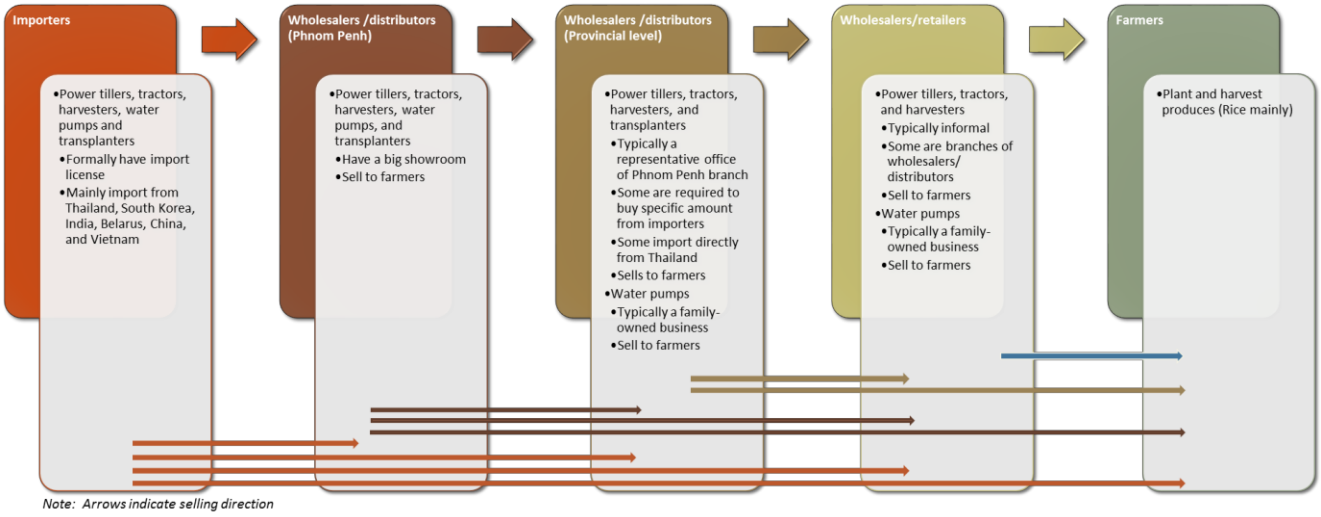
6.3 Distribution Channel of Agricultural Machinery

The distribution of machinery in Cambodia is systematic. Exporter to Cambodia work with importer firms or large wholesalers/distributors who manage all matters related to imports, customs duties and other government paperwork. When exporting to Cambodia, it's important to have a relationship with a local business or partner who can facilitate the import process.

Once goods arrive in the country, there is a systematic distribution of machinery to the market as presented in the figure below. Exporters to Cambodia provide relevant marketing and support in developing capacity to sell, present, and operate machinery. These skills and demonstrations can be shared down the distribution channel to all actors involved in distribution.

Machine maintenance and supply of additional parts is still an underdeveloped subsector and would help Cambodia transition towards the use of more sophisticated machinery.

Figure 14: General distribution channel of agricultural machinery[47]



[47] BDLINK survey implementation

6.4 Investment Opportunities in Machinery

Table 12: Summary: Investment opportunities in machinery

	**Exporters:** The main opportunity for exporters is to provide machinery from other countries, in partnership with local distributors or entrepreneurs who are familiar with the customs and import procedures. Additional marketing and service support would help to further develop demand for more sophisticated technology.
	**Large Investors:** For large investors, the opportunity for investment lies in setting up manufacturing plants to produce agricultural machinery to meet local and regional demand. The risk here lies in finding skilled employees, which could require partnering with a local vocational training school.
	**SMEs and Entrepreneurs:** For SMEs and entrepreneurs, investment opportunities include research and development as well as production of machinery in Cambodia. Secondary investment could be made in a service industry to provide installation and training for farmers.

7 Organic Agriculture

Cambodia is latecomer to the organic agriculture industry. In 2006, stakeholders including NGOs, business leaders, development agencies, and relevant government ministries created the Cambodia Organic Agriculture Association (COrAA), a domestic organisation that promotes public and private initiatives to promote organic agriculture.[48] At present, there is no government body responsible for certifying organic agricultural products or farms in Cambodia. However, the CorAA has filled this role, certifying organic products for the local market.

Overall, there is a growing appreciation for organic products, as consumers learn more about the health benefits from chemical-free fruits and vegetables. Domestic demand for organic agriculture products is expected to increase with income and education.

Over 8,000 hectares of organic rice was cultivated between 2009 and 2010. However, only a small percentage of the rice was certified as organic, and very little was exported. The local demand for organic rice is increasing, although it still holds a small market share with only 1,000 tons of organic milled rice sold in 2010.[49]

[48] COrAA, 2011.
[49] Ibid

Box 1: Potential for Cambodian organic rice[50]

- Many farmers grow aromatic varieties such as the award-winning Phka Malis
- About 20 percent of rainfed rice fields do not use synthetic fertilizers
- More than 8,000 organic farmers have experience with group certification schemes
- Farmers' associations and cooperatives can work closely with suppliers
- Cambodian organic rice is already exported to the USA.
- Several NGOs promote sustainable practices among rice farmers. Over 100,000 farmers have learnt about sustainable cultivation.

The organic vegetable industry faces steep competition from Vietnamese imports, which are cheaper than domestically-grown produce, so there is little incentive for local farmers to switch to organic production. Most domestic vegetable farmers – including those who raise organic produce – sell to wholesalers in Phnom Penh.[51] Cambodia's organic vegetables are in demand in neighbouring countries, but domestically more needs to be done to promote the value and health benefits of organic produce. Larger suppliers for super market chains are looking for more organic produce, but it can be challenging to find a consistent supply of products.

For cashew nuts, only about 10 percent of cashews produced of Cambodia were certified as organic in 2011. Given the low number of external inputs required to grow cashews, farmers could easily convert to organic practices.

There are other opportunities for organic agricultural production such as **organic pepper and palm sugar.** In 2010, Kampot pepper and Kampong Speu palm sugar were the first Cambodian goods to obtain the World Trade Organization's-Geographical Indication status.[52]

Organic agriculture is a huge opportunity for the Cambodian agriculture sector. The demand for organic produce is increasing from year to year in the world market and the prices paid by end-consumers are exceptionally high, particularly in the West.[53]

Box 2: Certification process by COrAA[54]

- The first step is an independent inspection by COrAA employees of a farm seeking organic certification. COrAA inspectors carry out interview with the famers and carry out a comprehensive analysis of the farm's yield, storage facilities, on-farm processing facilities, production sites, and the surrounding area.
- The next step is risk assessment. In this process, potential risks are listed in order to help inspectors and farmers figure out new procedures that will yield the best results for famers. The usual risks are: point source soil contamination, usage of agro-chemicals and misrepresentation in which the farmers sell conventional products as organic products.
- Farmers are then informed about the results, corrective actions, and inspectors' suggestions. The results are recorded in an internal farm inspection checklist that includes all features of internal organic standards, potential issues, evaluation of farmers' compliance, corrective actions, and yield predictions.
- In the final step, COrAA reviews the application. Inspection forms will be submitted to COrAA's certification committee by internal inspectors. The group will later approve or disapprove the forms. In case of violations, the committee will decide on sanctions to impose on the farmers.

[50] COrAA Leaflet, available at http://www.coraa.org/userfiles/file/Leaflet%20Cambodian%20Organic%20Rice%20A5%20web%2014%2010%2013.pdf. Accessed on 10 June 2016.
[51] COrAA, 2011.
[52] Prices of GI-labelled products are often higher than those without the certification. Available from: http://www.opendevelopmentcambodia.net/odc_main_category/maize-corn-crops-products-and-commodities-agriculture-fishing/. Accessed on 15 June 2016.
[53] Srey Chanthy, Briefing paper: agriculture and agro-industry sector in Cambodia. CUTS International.
[54] COrAA's Common Guidelines for Internal Control System (ICS), 2007, available at www.coraa.org/userfiles/file/Common%20guideline%20Interal%20Control%20System-English.pdf. Accessed on 10 June 2016.

Box 3: Case Study: Cambodian vegetable farmer: From export to domestic market focus.

The farm was established in 2011 under the supervision of a group of companies. This farm has around 500 hectares on which it **grows groundnuts and chilli peppers** including about 10 hectares used for **various organic vegetables.**

Before 2015, the company exported groundnuts and chilli to Malaysia but due to increased pressure from lower priced competitors in Vietnam, exports have stopped. Another challenge in exporting the produce was the lengthy export process which impacted the quality of produce.

Today the company continues to grow only groundnuts and vegetables but it **focuses on the domestic market**, especially supplying larger supermarkets and organic vegetable stores in Phnom Penh. The company is planning to increase the supply of the products.

To support the farm's operation, its owners are **moving towards mechanized agriculture** with tractors, transplanting machine, and water supply equipment imported from South Korea and China in 2013.

The company has faced challenges w common to most farms including the impact of climate change, lack of standard water supply equipment and low land fertility. Despite this, the company has **many future aspirations** to expand the farm's size in order to grow more **organic vegetables** for the Cambodian market. They believe that the demand of organic vegetable will increase in the future. The farm will also continue to produce ground nuts.

8 Cambodia's Crops and Livestock: Diversification and Value-Added as Key Drivers of Growth

Cambodia is a rice surplus country, and it also export products such as natural rubber, cassava, palm oil, maize, sugar cane and fish. It is estimated that Cambodia imports 60 percent to 70 percent of its vegetables in order to meet domestic demand, primarily from Vietnam. Fruit, milk and dairy products, livestock and poultry are produced in Cambodia, but the majority of these products are imported from neighbouring countries.

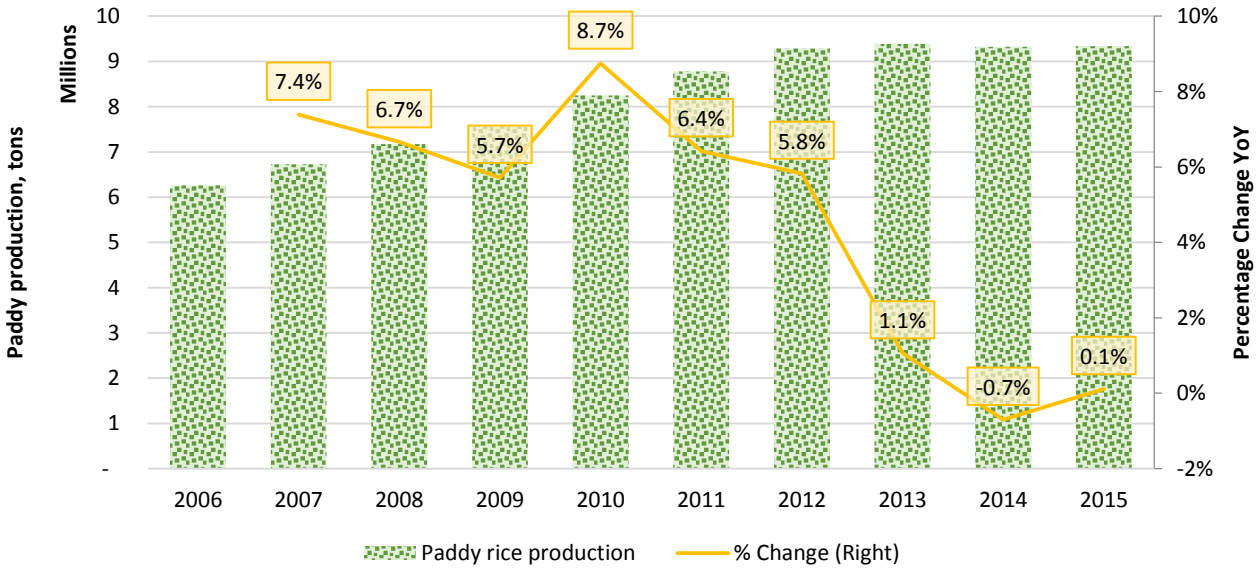
Cambodia saw significant increase in its export of raw and partly processes agricultural products from 0.137 million tons in 2010 to 3.45 million tons in 2014, and over 4.16 million tons in 2015. Cambodia exported 66 raw and partly processed agricultural products in to regional and global markets[55] in 2015, up from 47 products in 2014.

As Cambodia is a price-taking country in the global marketplace, quality and efficiency of agriculture from planting to harvesting, to adding value and exporting need to be carefully managed and coordinated. There is a high demand for services that can help improve agricultural efficiency –– whether business services, inputs, machinery or sharing knowledge with farmers to improve productivity.

8.1 Paddy Rice

Paddy rice production increased 50 percent over the last nine years, from 6.3 million tons in 2006 to 9.34 million tons in 2015 and an average annual growth rate of 4.6 percent. In 2014, insect infestation and drought adversely affected production. Paddy rice is produced each year over the course of two seasons: rainy season and dry season. Rainy season paddy rice accounts for the vast majority of Cambodia's rice crop, averaging up to 77 percent between 2011 and 2015. The increase in the total production is largely due to the increase in the total area under cultivation and improved yields. However, Cambodia has failed to meet its full potential in terms of yield, output and progress up the value-added chain.[56]

Figure 15: Paddy rice production, million tons[57]



Paddy rice is grown across Cambodia. The provinces of Prey Veng, Takeo, Battambang, Kampong Thom and Banteay Meanchey were the top five producers in 2015; they accounted for 50 percent of all rice paddy produced in 2015 and 49 percent of total land under paddy rice cultivation the same year.

[55] MAFF's annual report 2015-2016
[56] Dr Theng Vuthy, Cambodia Outlook Brief: Removing constraints to Cambodia's agricultural development. CDRI. 2013.
[57] MAFF's annual report 2015-2016

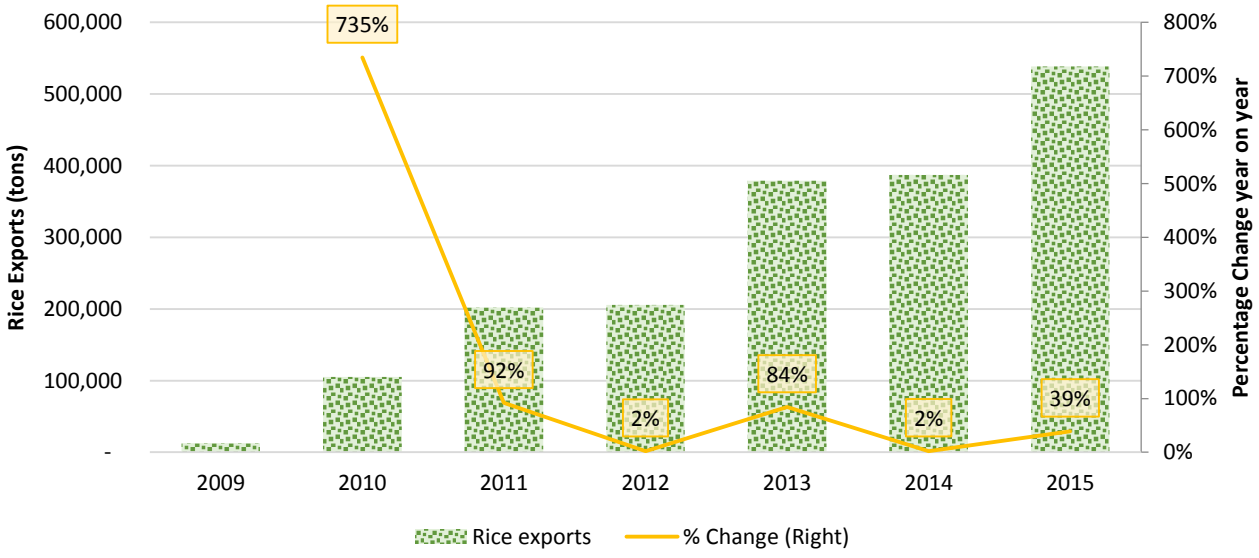
In terms of trade, rice exports continue to grow steadily year on year. The RGCs Policy Paper on Paddy Production and Rice Export in 2010 set an export target of 1 million tons by 2015 –a goal that was unfortunately not met. Both internal and external factors played a role in Cambodia's failure to meet its target. Internally, production inefficiency and high infrastructure costs like electricity impacted the country's competitive edge and production capacity. As a price taking country, Cambodia was forced to compete with cheaper exports from Thailand and was adversely affected by Thailand's release of its rice stock, which led to a global drop in prices. Neighbouring countries also receive subsidies that can impact their positioning in the rice market.

Cambodia's biggest competitors in terms of rice are Vietnam and Thailand. Much of Cambodia's rice paddy goes directly to Thailand and Vietnam where it is processed, although neither of these countries hide its origin. The efficiency of mills in Vietnam and Thailand allow them to sell Cambodian rice at a cheaper price than if it was milled in Cambodia. Another incentive for farmers to sell their rice paddy directly is that many traders provide them with inputs (seeds, fertilizers, etc.) in return for their crops. Cambodian rice mills need to engage more intensively with farmers, and be more proactive in supporting government policies so as to enable Cambodia to keep value-added processing inside its borders.

While it produces rice, Cambodia also imports it as well. Rice imports, however have dropped from 62,600 tons in 2000 to 41,000 tons in 2013[58].

In 2015, Cambodian exported milled rice to 60 countries. The five largest destination countries were China (117,000 tons), France (75,000 tons), Poland (58,000 tons), the Netherlands (58,000 tons), and Malaysia (55,000 tons). Europe is a large market for Cambodia – which exports milled rice to 26 countries – thanks to its Everything But Arms (EBA) treaty which provides favourable conditions for Cambodian exports. Exports to Indonesia are expected to increase after both countries signed a memorandum of understanding under which Indonesia agreed to buy Cambodian rice.[59]

Figure 16: Rice exports, tons[60]



[58] Rice imports data available at http://faostat3.fao.org/browse/T/TP/E. Accessed on 3 June 2016.
[59] http://www.phnompenhpost.com/business/govt-eyes-million-tonne-rice-quota-deal-indonesia
[60] MAFF's annual report 2015-2016

8.2 Subsidiary and Industrial Crops

8.2.1 Subsidiary Crops

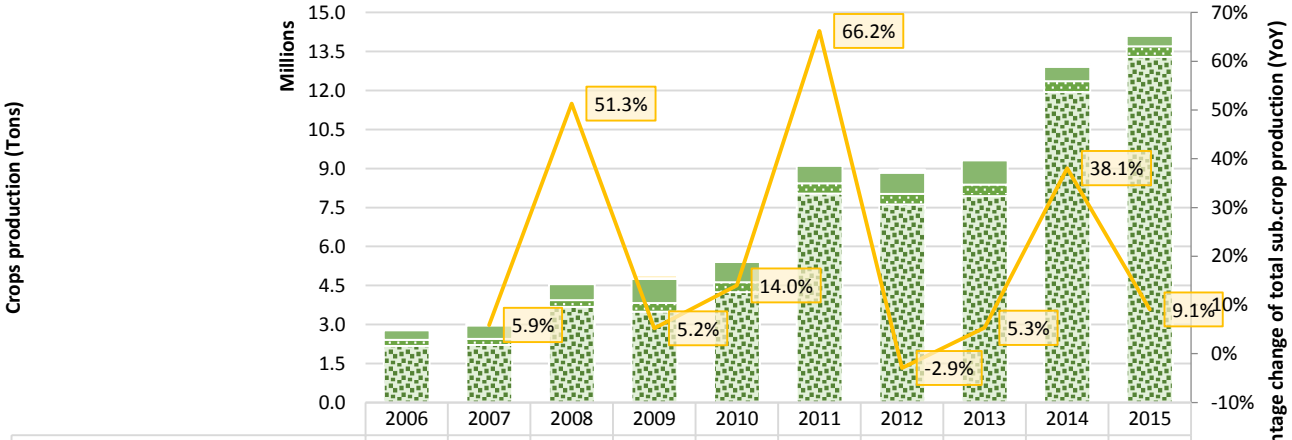
Cambodia's main subsidiary crops include maize, cassava, sweet potato, vegetables and mung bean. Their respective annual production has fluctuated due to weather patterns, market prices (in particular international prices) and demand for individual crops.[61] The total production of subsidiary crops increased almost 400 percent between 2006 and 2015. Cassava production increased a dramatic 500 percent over that period, from 2,182 thousand tons in 2006 to 3,298 thousand tons. Vegetable production increased 82 percent in the same period, from 223 thousand tons in 2006 to 405.5 thousand tons in 2015. Maize production increased from 377 thousand tons in 2006 to its peak of 926.8 thousand tons in 2013, before its dropping to 399.6 thousand tons in 2015. Production of sweet potato and mung bean was consistent between 2006 and 205, averaging 50 thousand tons and 60 thousand tons respectively.

Battambang dominates the maize industry, producing 129,960 tons or 33 percent of total maize in 2015. Overall, seven provinces – Battambang, Kampong Cham, Kandal, Kratie, Preah Vihear, Pailin and Tbong Khmum –produced the majority of Cambodia's maize (87 percent) in 2015.

Cassava is grown primarily in Battambang, Pailin, Banteay Meanchey, Kratie, Otdar Meanchey and Kampong Thom, which together produced 11 million tons of cassava (83 percent of total production) in 2015. Mung beans can be found in Preah Vihear, Siem Reap, Kampot, Kampong Cham and Battambang, which produced about 40,000 tons (68 percent of total production) in 2015. Vegetables are mainly grown in Kandal, Kampong Cham, Kampong Chhnang, Siem Reap and Takeo, which together were responsible for 60 percent of total production in 2015.

While Cambodia's crop yields are increasingly, the industry is still volatile is volatile and fluctuates considerably from year to year (Figure 17 and Figure 18). The government has identified weather conditions and planting techniques as key factors impacting yield, both positively and negatively. Adverse weather condition like drought and flooding can be mitigated with supporting infrastructure like irrigation and reservoirs, as well as diversified techniques (double cropping) and use of better inputs (improved seed varieties).

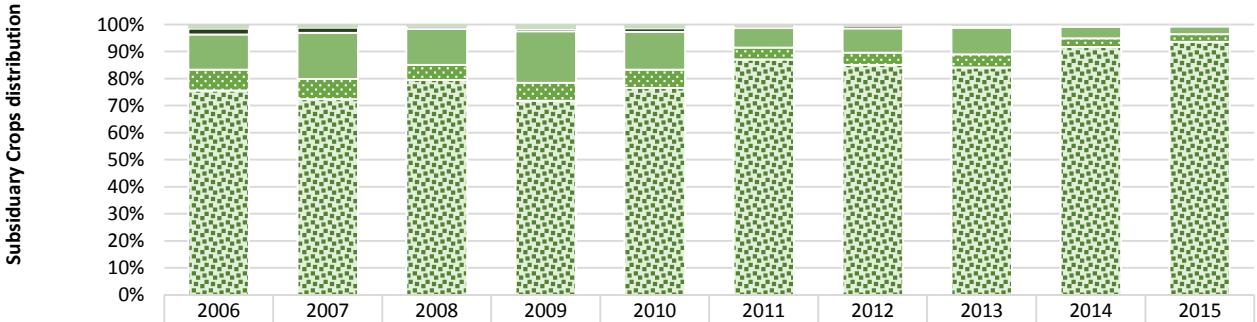
Figure 17: Subsidiary crop production, tons[62]



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sweet potato	45,300	38,300	39,600	78,900	79,300	46,600	48,800	50,541	54,259	45,424
Mung bean	59,900	54,500	38,600	44,600	71,500	76,200	74,700	67,561	60,652	59,220
Maize	376,900	522,700	611,900	924,000	773,300	668,400	806,800	926,846	549,607	399,649
Vegetables	222,900	226,400	259,600	322,700	376,500	400,000	411,400	453,200	415,239	405,527
Cassava	2,182,00	2,215,40	3,676,20	3,497,30	4,248,90	8,033,80	7,613,70	7,933,38	11,943,2	13,298,1
Percentage Change Year on Year		5.9%	51.3%	5.2%	14.0%	66.2%	-2.9%	5.3%	38.1%	9.1%

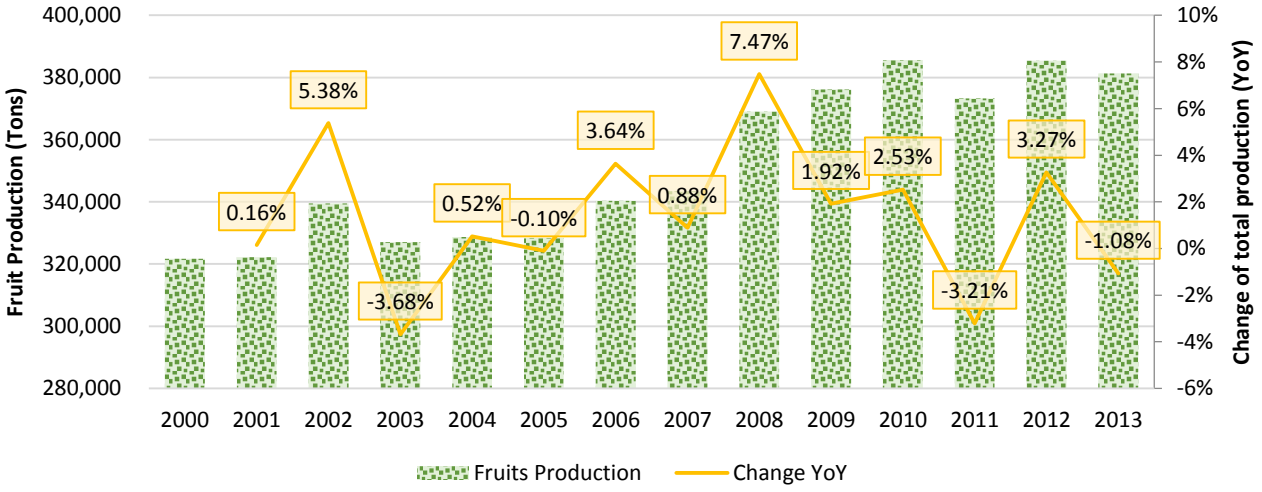
[61] Based on Agricultural Sector Strategic Development Plan 2014-2108. English version. p13
[62] MAFF's annual report 2011-2016

Figure 18: Subsidiary crops distribution of total production



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sweet potato	2%	1%	1%	2%	1%	1%	1%	1%	0%	0%
Mung bean	2%	2%	1%	1%	1%	1%	1%	1%	0%	0%
Maize	13%	17%	13%	19%	14%	7%	9%	10%	4%	3%
Vegetables	8%	7%	6%	7%	7%	4%	5%	5%	3%	3%
Cassava	76%	72%	79%	72%	77%	87%	85%	84%	92%	94%

Figure 19: Fruit production, tons



Cambodia exports some of its subsidiary and industrial crops, although once again it fails to meet its full potential. In 2013, dry cassava chips and fresh cassava (manioc) were Cambodia's top exports at 1,269,653 and 750,450 tons, respectively.

Table 13: Subsidiary and industrial crop exports in 2013, tons[63]

Export commodities	Export quantity (tons)
Dry cassava chips	1,269,653
Fresh manioc	750,450
Sugarcane	236,122
Yellow corn	184,746
Tobacco leaf	83,468
Cashew nut	81,209
Soybean	63,362
Crude palm oil	19,827
Mixed vegetable	3,079
Ground nut	2,866
Vegetable and fruit	1,687
Mung bean	1,000
Pepper	679
Sesame	644
Mango	600
Lotus seed	500
Raw cotton	215

China was a huge consumer of Cambodian produce in 2015. Exports of **cassava** (dry sliced cassava, cassava starch, and residue cassava) to China alone doubled to 0.21 million tons between 2014 and 2015.

Moreover, there are more and more companies (additional 5 companies in 2015, totally 67 qualified companies) evaluated and registered to export dry cassava chips to China. Other agricultural produce including **corn, banana, mango, soybean, and milled rice** will be exported to China after all the protocols are completed. MAFF also signed the protocols for exporting mango to the Republic of Korea.

For **vegetables**, the domestic market is dominated by imports from neighbouring countries, namely Vietnam and Thailand. The import of the vegetables from the two countries made up 40 to 50 percent of the vegetables consumed in the country and other half was the local production.[64]

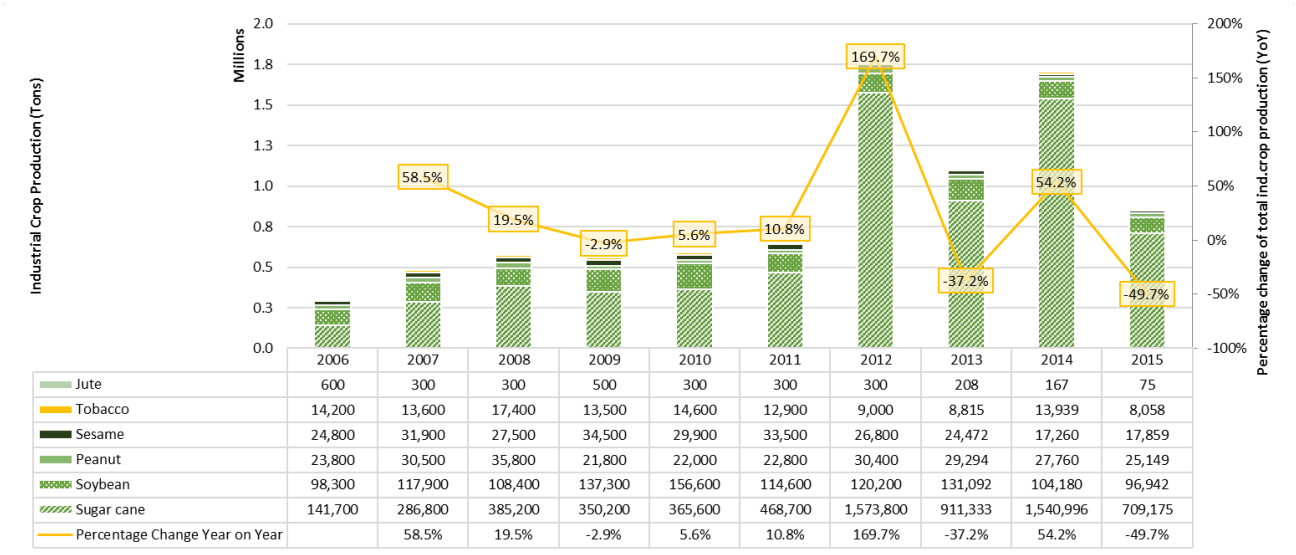
8.2.2 Industrial Crops

Figure 20 shows industrial crop production over the last 10 years from 2006 to 2015. **Sugar cane production** dramatically increased from about 140,000 tons in 2006 to 1.574 million tons in 2012, and then down to 709,000 tons in 2015. **Sesame** also saw its huge increase from around 25,000 tons in 200 to 33,500 tons in 2011 before it decreased to an average of 20,000 tons from 2012 to 2015. **Other industrial crops including peanuts, soybean, jute and tobacco** fluctuated slightly but maintained an average of 27,000 tons (peanut), 100,000 tons (sobyean), 300 tons (jute) and 10,000 tons (tobacco).

Peanuts are grown in Kampong Cham, Mondulkiri, Preah Vihear, Kampot and Tbong Khmum provinces. The total production of the five provinces amounted to nearly 20,000 tons or 79 percent of total peanut production in 2015. Battambang, Kampong Cham and Preah Vihear are the top provinces growing **soybean**, sharing 23 percent, 20 percent, and 20 percent of production, respectively, in 2015. Kampong Cham is the main producer of **sesame**, producing 41 percent of total production in 2015. Sugar cane is grown primarily in Kampong Speu, Svay Rieng, Koh Kong, Kratie, Preah Vihea and Kampong Cham, which together accounted for 79 percent of total production in 2015. Kampong Cham alone produced the majority of **tobacco** – 60 percent of total production –in 2015.

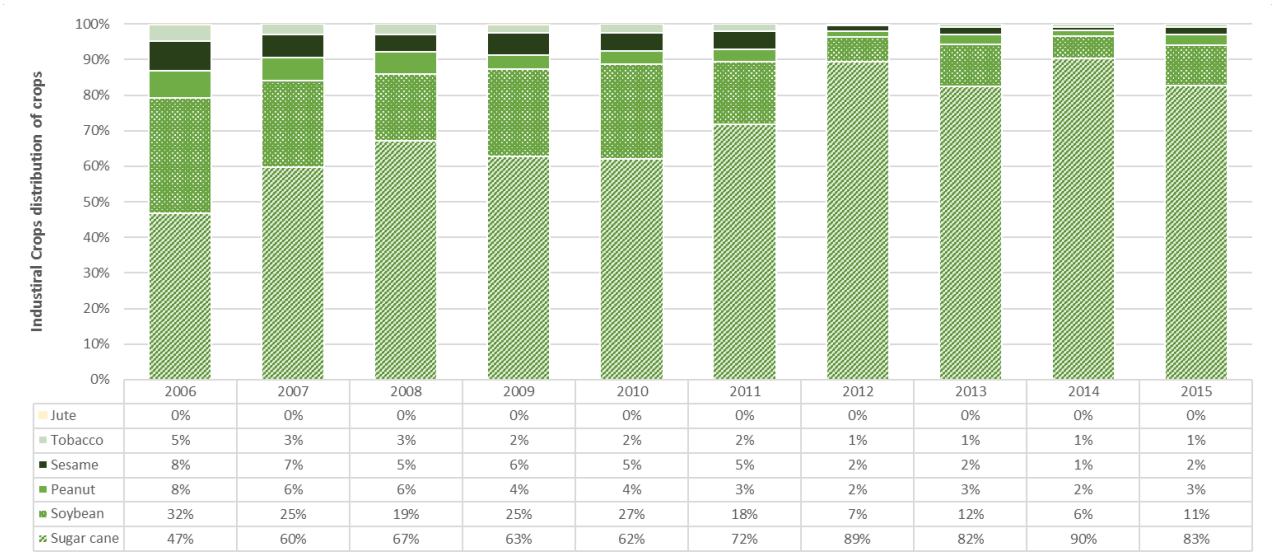
[63] MAFF's annual report 2014
[64] COrAA, 2011

Figure 20: Industrial crop production, tons[65]



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jute	600	300	300	500	300	300	300	208	167	75
Tobacco	14,200	13,600	17,400	13,500	14,600	12,900	9,000	8,815	13,939	8,058
Sesame	24,800	31,900	27,500	34,500	29,900	33,500	26,800	24,472	17,260	17,859
Peanut	23,800	30,500	35,800	21,800	22,000	22,800	30,400	29,294	27,760	25,149
Soybean	98,300	117,900	108,400	137,300	156,600	114,600	120,200	131,092	104,180	96,942
Sugar cane	141,700	286,800	385,200	350,200	365,600	468,700	1,573,800	911,333	1,540,996	709,175
Percentage Change Year on Year		58.5%	19.5%	-2.9%	5.6%	10.8%	169.7%	-37.2%	54.2%	-49.7%

Figure 21: Industrial crop distribution by total production per year[66]



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jute	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Tobacco	5%	3%	3%	2%	2%	2%	1%	1%	1%	1%
Sesame	8%	7%	5%	6%	5%	5%	2%	2%	1%	2%
Peanut	8%	6%	6%	4%	4%	3%	2%	3%	2%	3%
Soybean	32%	25%	19%	25%	27%	18%	7%	12%	6%	11%
Sugar cane	47%	60%	67%	63%	62%	72%	89%	82%	90%	83%

[65] MAFF's annual report 2011-2016
[66] Ibid

8.2.3 Investment Diversity and Opportunities: Selected Crops Description

The following section provides an overview of a few selected Cambodian subsidiary and industrial crops.

8.2.3.1 The Soybean

Soybean is a crop that is classified in government statistics as an "industrial" crop although it has multiple uses, such as food, animal feed, oil and pressed oil cakes. Soybeans are increasingly grown as a second crop after rice. In 2015, Cambodian farms cultivated 70,000 hectares of soybeans with a yield of just below 1.5 ton per hectare. Half of the crop was exported to China.

There are no large scale facilities in Cambodia to produce soybean oil, although there is a cottage level industry that produces oil and soybean curd. Industrial production is thus a potential investment opportunity. Other potential areas for investment include:

- Introduction of higher yield varieties of soybeans suited to Cambodia's climate, as such varieties yield more oil
- Greater investment in soybean farmers to ensure that they can meet the demand of oil producers
- The establishment of an oil extraction and purifying plant, with a packaging line
- Facilities for cleaning and storing soybeans poor to export; a facility to store pressed oil cakes, as they otherwise have a short shelf life

It is recommended that investment be made with consideration for the entire supply chain, as each level can greatly impact the one before and after it.

8.2.3.2 Vegetables and Fruits: A Growing Market

The fruit and vegetable industry is highly fragmented and dominated by smallholders; they grow produce for personal consumption and sell their surplus at the local market, Phnom Penh suppliers, or neighbouring countries if they live near the border. There are unfortunately very few statistics about fruit production because many farmers may only have one or two trees, and very few large-scale orchards exist except in the northwest. Due to this unreliable supply, half of all fruits and vegetables consumed in Cambodia are imported from other countries.

There is some cottage level processing into value-added goods – such as frying, picking or drying products like banana chips – which may make their way to Phnom Penh, but there is very little large scale commercial production. Two production plants include one that provides fruit juice to Phnom Penh, and another that exports fruit products to Khmers living outside Cambodia.

There is opportunity for investment at every level of the supply chain, although a large-scale investment or plantation would require obtaining an ELC. An alternative method would be to supply contracted suppliers with seeds and inputs to ensure consistent yields for export or processing, which in turn create their own investment opportunities at each level of the value chain/supply chain. These include:

- Produce collection, initial processing and storage at a farm or village level
- Cold chain transportation
- Processing, canning and bottling
- Snap freezing for vegetables
- Cool or cold storage for fresh produce
- Controlled atmospheric storage to facilitate artificial ripening

8.2.3.3 Kampot Pepper

Kampot pepper is one of Cambodia's premium agricultural products. Kampot pepper received geographical indicator (GI) status from the World Trade Organisation in 2010, which products from produce to dairy receive due to unique qualities derived from their place of origin. In the case of Kampot pepper, the province's proximity to the

Gulf of Thailand and unique soil composition provide an exception climate to grow pepper. Kampot pepper is often referred to as the "champagne of pepper" and even "the world's best pepper" and is highly sought after in the culinary world.

The harvest season for pepper lasts from January to May. In 2015, pepper production almost doubled due to the expansion of land under cultivation as well as improved farming techniques.[67] According to the president of the Kampot Pepper association, there are now 100 hectares of land under cultivation of which only 25 hectares were harvested in 2015, when total production was approximately 50 tons.

Pepper farming requires a substantial amount of investment-prior to returns. Small and medium farms often struggle to acquire sufficient investment to expand their operations, and access to financing can be a challenge. Other challenges include irrigation, a lack of organic fertilizer and limited access to information and improved farming techniques.

Opportunities in the pepper sector lie in investment and financing in particular, as well as supply of inputs. Other value-added opportunities also exist, such as using pepper in chocolate, blending with liquors etc.

8.2.3.4 The Cambodian Cashew Nut

Cashew nuts are a favourite snack food and a confectionary ingredient in many countries. The cashew nut market is estimated at 350,000 tons of cashew kernels, and they are second only to almonds in the global tree-nuts market. Major cashew markets include the United States, the European Union, India and China. The United States alone consumes 73,000 tons per annum. Vietnam and India are the largest producers of cashew kernels.

Organic cashew nuts presently comprise a small percentage of the world market for cashew nuts (estimated 3.5 percent of total European imports of cashew nuts). That share is expected to grow as consumers are increasingly conscious of the health and environmental aspects of their purchases. Cashew prices, especially for organic nuts, have been remarkably resistant to the effects of the past recessions.

Most of Cambodia's in-shell cashew nuts are produced by small farmers, who tend only a few hectares of cashew orchards, lack horticultural skills, and generally use little or no purchased inputs such as pesticides and chemical fertilizers. This lack of chemical input use provides an opportunity to develop an organic cashew supply chain, in distinct contrast with the situation in neighbouring Vietnam, where government and cashew industry programs are heavily dependent on the use of conventional chemical inputs.

There is substantial value addition to be captured by processing cashew nuts in Cambodia. Existing cashew orchards produce an estimated 60,000 to 100,000 tons of raw cashew nuts (in-shell) each year, making Cambodia the tenth largest producer in the world. Nearly all of this material is exported unprocessed to Vietnam, equivalent to some 20,000 jobs lost to the country, plus the potential tax revenues. Cashew processing, however, is labour intensive, requiring mostly only semi-skilled workers who are usually women

With significant financial support from the EU and the International Finance Corporation (IFC)[68], 4,000 farmers have formed 120 organic cashew farmer associations. In 2011, about 3,600 of these farmers were awarded full European and USA organic certification through an accredited certification body. This amounts to a raw material supply of about 6,000 tons, sufficient for a financially viable domestic processing facility. Significant additional certified organic supply could also be developed.

8.2.3.5 Cambodian Cassava

The large cassava-growing industry has much opportunity for investment, as there are multiple uses for raw cassava. The Cambodian government classifies cassava as a "subsidiary [food] crop" although that represents probably a small proportion of the total production. In 2015, Cambodia harvested 550,000 hectares of cassava, producing more than 13 million tons – a six-fold increase over the past decade.

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[67] http://www.phnompenhpost.com/business/high-2015-yields-pepper-growers

[68] See Prospects for Cambodia's Cashew Sub-sector. http://www.ifc.org/wps/wcm/connect/d2365500470d5d268251d7b2572104ea/Prospects+for+Cambodia+Cashew+Sub-sector.pdf?MOD=AJPERES

Cassava exports, which amount to 750,000 tons, are mostly unprocessed or partly processed products such as fresh cassava, dry chips, and starch. Processing and export of finished products such as alcohol and starch is very limited. Thailand and Vietnam are two major export destinations but the trade with China is growing and more than 60 companies are certified for export there. Most of the cassava exported from Cambodia is processed at its final destination into products.

There are several companies in Cambodia processing cassava into livestock feed, and two companies producing cassava starch for noodles. There are a very limited number of investment in using cassava as the raw material for production of ethanol however these facilities have faced challenges with supply and quality of machinery in production facilities.

Investment in the cassava should focus on processing cassava into value-added within Cambodia.

8.2.3.6 Palm Oil

Mong Reththy Group (MRG) is the largest producer of palm oil in Cambodia and as of 2014, has planted 16,000 hectares with ultimate goal of reaching 30,000 hectares.[69] Its farm is run on an ELC in a joint venture with Thai company TCC Group, which has certification from the Roundtable on Sustainable Palm Oil. MRG Group alone exported around 21,000 tons of crude palm oil in 2015, mainly to Malaysia, China, South Korea and the EU.[70] At least two other companies also have large, commercial palm oil operations but most farms are fairly small at 800 hectares of oil palms.[71]

There is no value-added palm oil manufacturing in Cambodia, and limited manufacturing or bottling of palm oil. However, there are versatile uses for palm oil, such as cosmetic products, food stuffs, and soaps. The opportunity to produce value-added palm oil products has not yet been realised, and the industry is open to investment.

8.2.3.7 Other

Cambodia has a number of different types of crops that provide innovative opportunities for value-added manufacturing and services. Besides those listed above, beans, peanuts, coffee, herbs, spices, vanilla and other crops should be explored.

[69] http://www.mongreththy.com/
[70] Ibid
[71] http://www.phnompenhpost.com/business/palm-oil-yields-crop-matures.

8.2.3.8 Summary of Investment Opportunities: Subsidiary and Industrial Crops

Table 14: Summary: Investment opportunities in crops

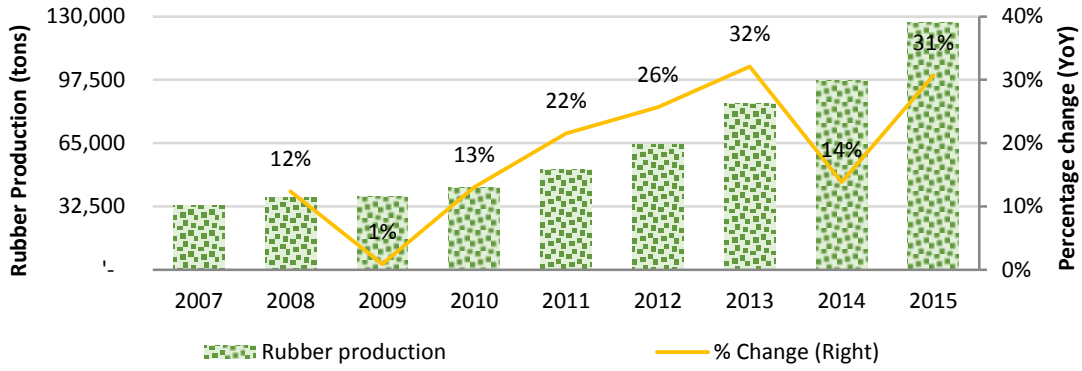
	**Exporters:** for exporters to Cambodia, opportunities are likely limited unless value-added processing increases across crops. This will create opportunities for machinery supplies and maintenance as well as supply of materials or raw materials for production.
	**Large Investors:** Opportunities include investment in plantations, agro processing, value-added crops, expanding successful production like cashew nut or expanding into untapped markets like vanilla. Other opportunities range from inputs into agriculture (R&D, seed varieties), to production (mechanized farming, irrigation) and value-added manufacturing.
	**SMEs and Entrepreneurs:** For SME and entrepreneurs, there are many opportunities to develop, market and distribute unique Cambodia products.

8.3 Rubber

The rubber industry is quite old and well established in Cambodia. While previously plantations were, state owned, today most plantations are owned by foreign interests including Chinese, Vietnamese, Korean and French firms. In addition to plantations there are also a large number of smallholders.

Rubber production has experienced steady growth with an average annual growth rate of around 19 percent from 2007 to 2015. The total production is composed of two components: agro-industrial rubber (ELC and plantation rubber) and smallholdings rubber. Smallholding rubber productions made up almost 70 percent of total production in 2015, up from 64 percent in 2013. Agro-industrial rubber decreased its share in total production between 2013 and 2015.

Figure 22: Rubber production, tons[72]



8.3.1 Rubber Trade

Rubber exports overall have steadily increased during the last 10 years (2005-2015). The first five years saw fluctuating exports, however, since 2005 they have grown steadily. Overall average exports increased 16.4 percent over the last 10 year. Cambodia imports a small amount of rubber, as well, averaging six tons per year from 2008 to 2013.[73]

Figure 23: Rubber exports, tons[74]

[72] MAFF's annual report 2014-2016
[73] Rubber import data available at http://faostat3.fao.org/browse/T/TP/E. Accessed on 3 June 2016.
[74] MAFF's annual report 2015-2016

Cambodia is a relatively small player in the global market of rubber. Rubber prices have dropped in recent years, impacting the sector, but a rise in prices would help to revive the market. Rubber exports were valued at USD154 million in 2014, down 18.61 percent from USD189 million in 2013 even though total export volume increased. This was due to a 30 percent drop in global rubber prices, from USD2,201 per ton in 2013 to USD1,539 per ton in 2014. The Cambodian rubber price continued to fall 21.83 percent in 2015 to USD 1,203 per ton.[75] Rubber prices have started to recover in 2016 and initial reports suggest that exports are increasing significantly in terms of value as the global sector recovers.

There is limited manufacturing or processing of rubber in Cambodia. It is usually processed into graded dry blocks for export.

8.3.2 Rubber Investment Opportunities

There are limited opportunities for investment in rubber production, unless a plantation was put on the market

Table 15: Summary: Investment opportunities in rubber

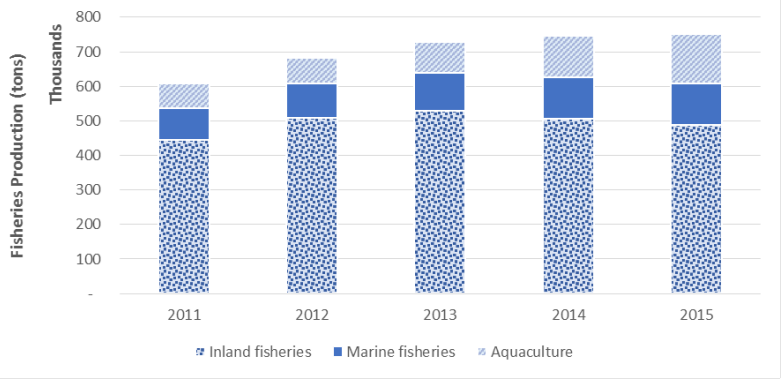
	**Exporters:** Limited unless to supply of production machinery.
	**Large Investors:** Limited unless a planation is sold. However, there are opportunities to add value to rubber by producing pharmaceutical products such as condoms, dental products, surgical gloves or other types of supplies such as toys, balloons, household cleaning gloves, adhesives etc. The market remains untapped in terms of adding value to rubber within Cambodia.
	**SMEs and Entrepreneurs:** Opportunities lie in innovation of value-added production or finding ways to reuse raw rubber and old trees. Tourism and education opportunities may be attached to rubber plantations including field visits, walking around or horse-riding in rubber plantations etc.

[75] MAFF's annual report, 2016.

8.4 Fisheries

Figure 24 illustrates total fisheries production between 2011 and 2015, from inland fisheries (fishing lots, family fisheries, and rice field fisheries), marine fisheries and aquaculture (including fish and shrimp). Inland fisheries produce the vast majority of fish at 70 percent of total production. Aquaculture is playing an increasingly important role in fisheries production, with its share rising from12 percent in 2011 to 19 percent in 2015. Marine fisheries produced 16 percent of total fish in 2014 and 2015.

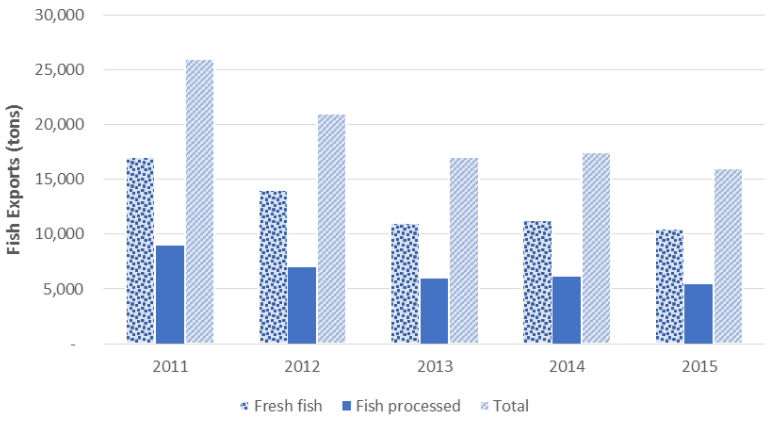
Figure 24: Fisheries production, tons[76]



Fisheries and trade: Total fish exports (fresh and processed) decreased 38 percent between 2011 to 2016, from 26,000 tons to16,000 tons. The export of fresh fish dropped from 17,000 tons in 2011 to only 10,500 tons in 2015 while the processed fish also dropped to 5,500 tons during the same period.[77] Cambodia exports fresh and processed fish (in the form of smoked and frozen) to Thailand, Vietnam, Hong Kong, China, Malaysia, Singapore, South Korea and others.[78]

8.4.1 Fisheries Trade and Processing

Figure 25: Fish exports, tons[79]

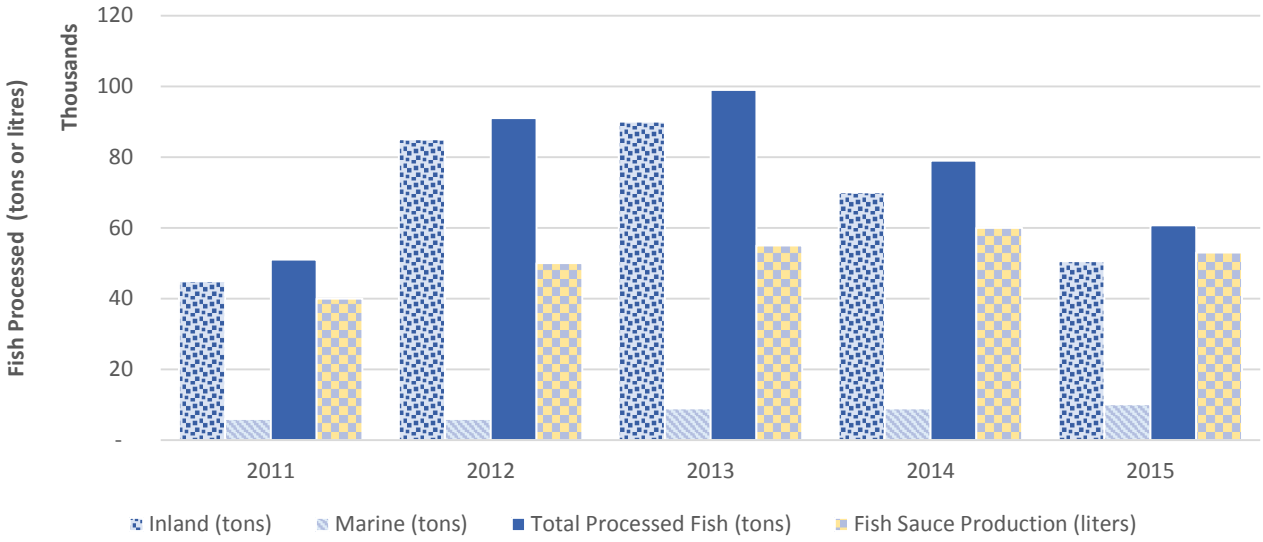


Cambodia also imports fish from other countries especially from neighbouring countries, namely Vietnam and Thailand. Live fish imports amounted to 4,580 tons in 2014, up from 1,554 tons in 2010. The vast majority (over 90 percent) of fish is imported from Vietnam[80].

Fish processing exists in Cambodia, although it is limited in scope. Fish processing increased from 2011 until 2013 but declined thereafter. The reasons for decline were not included by ministry officials contacted by the research team.

[76] MAFF's annual report 2015-2016.
[77] MAFF's annual report 2015-2016.
[78] Available at http://www.trademap.org/Country_SelProductCountry_TS.aspx. Accessed on 2 June 2016.
[79] MAFF's annual report 2013-2016 and Statistical Yearbook of Cambodia 2013 of MoP.
[80] Fish import data available at http://www.trademap.org/Country_SelProductCountry_TS.aspx?nvpm=1|116|||0301|||4|1|1|1|2|1|2|2|1. Accessed on 3 June 2016.

Figure 26: Fish processing in Cambodia



8.4.2 Fisheries Investment Opportunities

Investment into fisheries is quite diverse including development of fingerlings (juvenile fish), which can be sold to prospective farmers and improve the varieties available. There are also ample opportunities in value-added manufacturing – from drying fish to producing fish sauce, fish paste, fish balls and other food products.

Table 16: Summary: Investment opportunities in fisheries

	**Exporters:** Limited unless exporters have products that add value to fisheries production and/or processing. Inputs could include veterinary, fish food, pumps or machinery for inland fisheries production etc.
	**Large Investors:** Opportunity for investment includes the production/import of fingerlings or manufacturing facilities to produce value-added fish products.
	**SMEs and Entrepreneurs:** Opportunity for investment lies in value-added processing, and production/import of fingerlings for fish supply purposes.

8.5 Livestock and Poultry

The vast majority of livestock and poultry are raised on small farms, although there are several large commercial farms in Cambodia.

Total production of **cattle and buffalo** was 3.4 million heads in 2015 down from 3.6 million heads in 2014, a five percent decrease in on one year. Disease, unofficial inflow of cow and buffaloes into the country and the increasing use of agricultural machinery such as tractors by farmers reportedly led to the decline in numbers.

Pig production amounted to 2.7 million heads in 2015, a 1.46 percent increase from 2014.

Notably **poultry production** has steadily increased by 57 percent from 2011 to 2015, thanks to improved farming methods.

Figure 27: Livestock production, thousand heads[81]

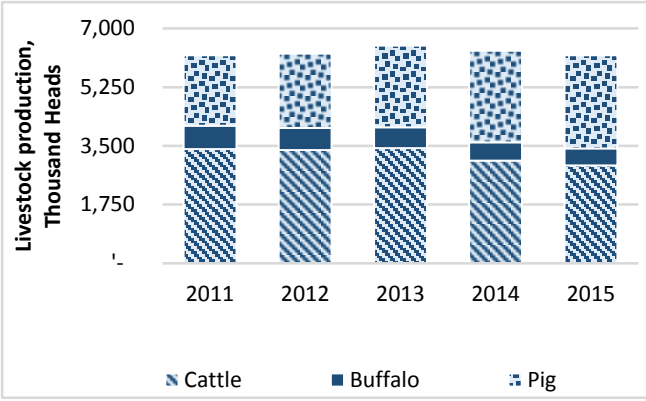
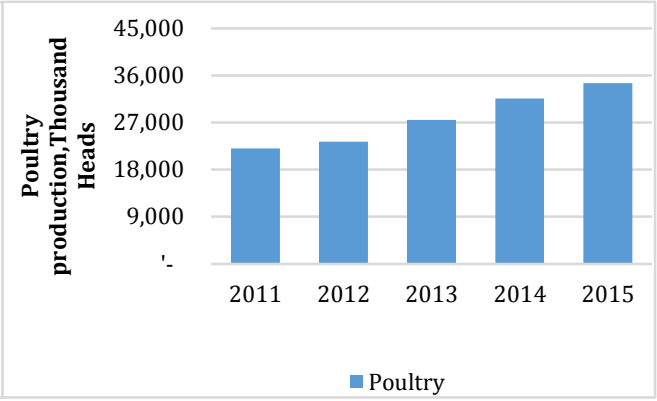


Figure 28: Poultry production, thousand heads[82]



Commercialized livestock and poultry farming is growing across the country, with a 21 percent increase in the number of farms between just 2014 and 2015, from 2,539 farms to 2,856. The increase in the number of farms based increased commercial production of cattle and buffalo, pig, and poultry from 6.3to 8.2 million birds, a 29 percent increase, between 2014 and 2015.

Table 17: Number of farms and production capacity[83]

Livestock / Poultry	2014		2015	
	Number of farms	Heads	Number of farms	Heads
Cattle and Buffalo	40	6,478	86	13,352
Pig	385	374,894	500	417,775
Poultry	1,934	5,953,630	2,270	7,739,398
Total	2,359	6,335,002	2,856	8,170,525

[81] MAFF's annual report 2015-2016
[82] Note: This data does not include those for slaughter and exports. Source: MAFF's annual report 2015-2016.
[83] MAFF's annual report 2015-2016

8.5.1 Livestock and Poultry Exports and Imports

In 2015, Cambodia exported 7,335 heads of cattle and buffalo, and 2,021 pigs; there is no available data on the export of poultry. Cambodia imported 500,000 pigs and 1.55 million birds including chickens and ducks in 2015.[84]

Box 4: Case Study: Small Cambodian pig farmer: From pig production to feed production

This Cambodian-owned farming operation began in 2000 on five hectares of land in Thmor Kol District, Battambang. It raises young pigs and sells juveniles to other farms.

Mechanising and developing: Pigs are purchased from a supplier in Kampot province and feed is purchased from distributors in Phnom Penh. In 2016, the farm purchased agro-processing machinery to start producing pig feed. This included a feed milling machine and a corn milling machine purchased from importers in Phnom Penh at a cost of USD850 and USD450, respectively. Those two machines help the farm reduce feed costs.

Pricing and volume trends: Demand for pork is met through imports, although the prices can fluctuate based on import quantities. Price is the greatest challenge for local producers, although the government has stepped in to make Cambodian pork more competitive with cheap Thai imports. This action has improved the financial outlook for the farm.

Customer base: The farm sells to other farms, NGOs, and slaughter houses in Battambang, Siem Reap, Pursat, Pailin, and Banteay Meanchey.

Main obstacles: Diseases, low prices, and a shortage of labour are the main obstacles for the farm. The low price of pigs could be mitigated with government monitoring and intervention.

Future outlook: The farm hopes to expand its operations with more investment.

Key takeaways from our discussions with this farmer:

- A need to distinguish how Cambodian pork is different from the competition
- It may be to compete in the "high quality" market rather than "mass-produced" pork, with premium or organic meats
- A need to expand production for local farmers to be more competitive and increase skill sharing

8.5.2 Untapped Resources

Cambodia has a variety of untapped and innovative opportunities when it comes to livestock, including "unusual" livestock such as buffalo, crocodiles, ducks, pigeons, crickets, and insects.

Bird's nest – or swallow nests – are an example of a prized, expensive product that is in high demand. The global market is worth $5 billion a year and China is the main customer. Indonesia and Malaysia are the world's leading suppliers of bird's nests, but Cambodia could become a contender.[85] Birds Nest currently fetches a price of $2,000 per kilo, which makes it a very lucrative industry. Cambodia could export more bird's nests if it could meet sanitary standards of customers like China. Cambodia's capacity to produce bird's nest is reported to be around one to 2.5 tons per month.

Cambodia's ability to focus on niche products, rather than mass production is one way to distinguish itself from competitors. The opportunity for agro processing in the livestock sector is also untapped – from curing meats, to creating sauces and utilizing all parts of the livestock to produce dog or cat food.

[84] MAFF's annual report 2015-2016.
[85] http://www.phnompenhpost.com/search/node/birds%20nest

8.5.3 Livestock and Poultry Investment Opportunities

Table 18: Summary: Investment opportunities in livestock and poultry

	**Exporters:** Working with local producers to bring varieties of livestock and poultry into the country. Exporters could also be interested in investing in veterinary services or supplies for livestock and poultry.
	**Large Investors:** Opportunities lie in farming, production and agro processing of livestock and poultry including value-added processing of meats. Investment into slaughter houses of international standards is required in Cambodia.
	**SMEs and Entrepreneurs:** Opportunities lie in farming, production and agro processing including value-added processing of meats.

8.6 Milk and Dairy Products

Cambodia is not a milk producing country, and imports milk and dairy products to meet domestic demand. Official data on the production of milk related products is difficult to understand, given that dairy products like yoghurt and drinks are produced by SMEs and often not recorded in data. But there is a growing and innovative "milk producing" SME sector which is starting to supply supermarkets with yoghourt and ice-cream.

In May 2016, the USD23 million Angkor Dairy Factory –Cambodia's first milk manufacturing factory –officially launched operations in Phnom Penh Special Economic Zone (PPSEZ). The factory is a joint venture between Vietnam's Vinamilk and BPC Trading Co Ltd. It plans produce a range of products including Ultra High Temperature milk, yoghurt, condensed milk, and Angkormilk liquid milk for children. The factory has the capacity to process 19 million litres of liquid milk, 64 million cups of yoghurt and 80 million cans of sweetened condensed milk. Raw materials will be imported from Vietnam (milk powder) and the United States and New Zealand (raw milk).[86]

Production of fresh milk is currently negligible in Cambodia as most domestic cattle have low levels of milk production and a low quality that is not suitable for processing. The majority of processing at present would be cottage industry level for home consumption. Cambodia's buffaloes are also not "milk" producing, and goats are not kept in numbers large enough numbers to create a goat's milk industry.

8.6.1 Trade in Milk and Dairy Products

Milk imports are increasing at a rapid rate. Official data shows a 48 percent increase of un-concentrated or non-sweetened milk since 2014 and a 500 percent increase since 2011. This data indicates a changing consumer market towards more dairy consumption. Similar results are seen for sweetened milks, buttermilk and yogurt and all other types of milk products.

Table 19: Imported quantity of milks and dairy products, tons[87]

Code	Product label	2011	2012	2013	2014	2015
'0401	Milk and cream, not concentrated nor sweetened	3,469	4,186	5,726	17,879	18,709
'0402	Milk and cream, concentrated or sweetened	1,681	2,672	4,136	4,036	13,667
'0403	Buttermilk and yogurt	854	1,341	1,620	5,431	4,909
'0404	Whey and natural milk products n.e.s	72	-	3	7	4,177
'0406	Cheese and curd	162	164	230	575	845
'0405	Butter and other fats and oils derived from milk	187	183	413	1,229	456

[86] http://www.phnompenhpost.com/business/angkormilk-factory-launched. Accessed on 7 June 2016.
[87] ITC calculations based on UN COMTRADE statistics. Available at http://www.trademap.org/Product_SelCountry_TS.aspx. Accessed on 2 June 2016.

8.6.2 Milk and Dairy Investment Opportunities

There are many opportunities for investment in the dairy industry, assuming that consumer trends continue towards increasing consumption of milk and dairy products. Cambodia will likely continue to import milk-based baby formula, although there are no available statistics. There is an opportunity to build a second processing plant to turn imported milk powder and fresh milk into new products. There may be some future opportunity to export milks, cheese, and dried milk products to other countries.

Table 20: Summary: Investment opportunities in milk and dairy

	**Exporters:** Limited unless investing in machinery or products required to manufacture value-added milk and dairy products.
	**Large Investors:** Opportunities lie in producing milk of dairy products and processing raw inputs. Other opportunities include combining fruits and dairy into yoghurt or ice cream for the domestic and regional market.
	**SMEs and Entrepreneurs:** Opportunities lie in small-scale processing and production of milk and dairy products and suppling local markets.

9 Agricultural Financial Services and Insurance

Unlike other countries, Cambodia offers very few insurances services for farmers. However, products like weather insurance crop insurance are under development. Microfinance institutions and insurance agencies are in the midst of feasibility studies to determine how such products could be marketed in Cambodia. They have yet to publish their findings, so little data is currently available. If successful, "micro-insurance" could be an important industry in Cambodia and a chance for foreign investment, as foreign companies can fully own insurance agencies.

Table 21: Summary: Investment opportunities in financial services

	**Exporters:** Limited.
	**Large Investors:** Development of agricultural financial services and insurance or partnering with local insurance companies to provide "micro-insurance".
	**SMEs and Entrepreneurs:** Limited unless they develop an innovative business plan or are backed by an investor

10 Agro-processing: An Industry in the Making

10.1 Overview of Agro-processing in Cambodia

"Agro-processing" can be defined as the processing of raw and intermediate inputs derived from the agricultural sector, such as crops, livestock, fish, and forestry products, according to the United Nations Food and Agricultural Organization (FAO).[88] A very large number of agricultural products undergo some degree of transformation between harvesting and final use. Transformation processes can range from simple preservation (such as sun drying) and operations closely related to harvesting to the production, by modern, capital-intensive methods, of such articles as textiles, pulp and paper.[89]

The Cambodia agro-processing industry can be classified into the following categories: i) food and beverage; ii) tobacco products; iii) paper and wood products; iv) textiles, footwear and apparel; v) leather products; and vi) rubber products.[90]

In the **food industry,** agro-processing typically involves processes for "preserving" goods for end user consumption; it may or not include valued added processing.

Non-food agro-processing also occurs in Cambodia, such as in the case of tobacco. Non-food agro-processing typically require a high degree of processing and may involve the addition of inputs like synthetics and artificial substitutes to natural raw materials.

Other types of classifications that exist for agro processing include **upstream industries** that are engaged in the initial processing of agriculture commodities such as rice and flour milling, leather tanning, oil pressing, saw milling and fish canning**. Downstream industries** undertake further manufacturing of intermediate products made from agricultural materials and include examples such as bread, cookies, noodles, textile spinning and weaving, paper production, clothing and footwear manufacturing and rubber manufacturing. Cambodia has enterprises engaging in upstream and downstream manufacturing.

Cambodia exports a large number of unprocessed crops such as paddy rice, cassava, and cashew nuts to Thailand and Vietnam, which process the raw materials into value-added goods which can be re-exported back to Cambodia. Improving Cambodia's agro-processing industry is central to government policy.

Only 10 percent of Cambodia's agricultural goods are processed – a figure that has stayed relatively consistent since 1998.[91] Cambodia's exports market is vastly dominated by the garment and footwear industry, thanks in part to government policies that have made both industries attractive to investment. However, the government hopes to increase agriculture exports up to 10 percent (of export products) by 2020 and 12 percent in 2025.[92]

The rice industry, however, has struggled to meet government targets, which were set at the export of 1 million tons of rice in 2015. While several internal constraints have impacted Cambodia's ability to reach its targets, it has also suffered from policies of neighbouring countries such as Thailand that have made Cambodian rice more expensive than the competition. Cambodia's infrastructure is also not yet at competitive standards. Facilities for processing, storing, and distributing rice must be improved.

Expanding the agro-processing sector is also a priority in the 2015 Industrial Development Policy (IDP). The policy outlines the government's plans to diversify Cambodian industry beyond the garment and footwear sector, and value-added agricultural products have been identified as a potentially important export.

> *"Promoting the development of manufacturing and agro-processing industries by way of encouraging FDI and domestic investment as well as strengthening the capacity of both domestic and foreign SMEs so as to boost their production of goods both for export and for import substitution"*
>
> *Industrial Development Policy, 2015*

[88] http://www.fao.org/docrep/w5800e/w5800e12.htm. Accessed on 13 June 2016.
[89] Ibid
[90] http://www.fao.org/docrep/w5800e/w5800e12.htm. Accessed on 14 June 2016.
[91] Industrial Development Policy of the Royal Government of Cambodia, March 2015.
[92] Ibid

10.2 Agro-processing Enterprises

Cambodia's agro-processing industry sector is still underdeveloped and so there are many opportunities for investment from research and development to transportation and marketing. At the present time, the industry is dominated by micro, small and medium enterprises (MSMEs), which hold an 80 percent market share.

Accurate data on the number of such enterprises and their activities can at times difficult to assess as many smaller enterprises may not register with any government ministry, while larger operations may register with multiple ministries.

In 2012, there government recorded 30,600 SMEs carrying out agro-processing in the food, beverage and tobacco industry.[93] However, the definition of "agro-processing" in these cases can be quite loose. Many MSMEs, for example, supply local markets with products such as snacks, baked goods, and fried chicken – while these are value-added products, the "processing" is relatively simple compared to a larger commercial enterprise. In other cases, however, MSME goods might have more value than their commercial counterparts, such as in the case of handwoven silk.

The commercial industry is run by medium and large enterprises, and include rice millers and exporters, beer manufacturers, tobacco manufacturers, boutique breweries, and specialty food exporters. The Ministry of Industry, Mine and Energy (MIME)[94], recorded 45 food enterprises, 17 beverage enterprises, and 12 tobacco factories in 2012. This data, however does not include enterprises registered with the Ministry of Commerce or Ministry of Tourism which register restaurants that may also produce commercial foods such as coffee or chocolates that can be taken home.

Given the small number of commercial companies operating Cambodia, there are many investment opportunities.

The table below provides an overview of particular crops or segments of the Cambodia market that could be open to agro-processing, organised according to the UN's International Standard Industrial Classification Scheme.

[93] NIS's Statistical Year Book 2015 of the Ministry of Planning (p. 144),
[94] Note: Ministry of Industry, Mine and Energy (MIME) was divided into two separate ministries namely Ministry of Industry and Handicraft and Ministry of Mines and Energy.

Table 22: Agro-processing industries and investment opportunities: Food, Beverages and Tobacco

Food, Beverage and Tobacco	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter 	Large Investor 	SME 
Beverage production				
Large formal enterprises	Breweries and soft drinks Main players: Coca-Cola, Pepsi, Angkor Beer, Cambodian Brewery, Phnom Penh brewery, Angkor Brewery, CAMBREW	Exporting beer brands to Cambodia Possible to fill containers that have exported to Cambodia with local beers for domestic market	Commercial production Importing Cambodian beers and brands Production of fruit juices from Cambodian fruit	Production of Cambodian-made drinks – from fruit juice to alcohol
Boutique producers	An array of boutique breweries Main provinces/cities: Phnom Penh, Siem Reap	Limited unless filling containers for export with boutique breweries	Limited unless investing in purchasing an established brewery Production of other types of alcohol, spirits. soft drinks or fruit juices	Production of Cambodian-made drinks – from fruit juice to alcohol
MSME market	Dominated by rice wine producers used for medicinal and social purposes Main provinces: Nationwide	Limited	--	Formalising production of local producers including bottling, marketing, packaging etc.
Other – wines and liquors	Production of wines and liqueurs Currently exporting and also supplying domestic market	Filling up export containers with Cambodian produce Wines, soft drinks, spirits	Liquor and alcohol production as well as soft drinks	Production and innovation of liquors and Cambodian-made wines and liqueurs
Rice				

Food, Beverage and Tobacco	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter 	Large Investor 	SME 
Rice milling	Established but not fully productive in terms of milling. Currently export half a million tons There are over 800 rice mills in Cambodia, 200 of which are medium or large scale. (Medium mill: 5-10 tons/hour capacity; and large mills: 12-80 tons/hour milling capacity	Supply and maintenance of rice milling machinery – see agro processing machinery	Additional export markets required	Limited
Value-added on rice	Simple snacks; e.g. Visoth peanut snacks	Limited at present unless production of value-added manufacturing using rice develops in Cambodia	Production of rice products and snacks	Production of rice products and snacks
Cassava				
Cassava	The processing of cassava to products such as flour / starch or alcohol is still limited with few processing factories Export of dry cassava chips was 1.2 million tons in 2013 and export of fresh manioc was 0.75 million tons in 2013. Mostly exported to other countries especially Thailand in the unprocessed forms or as dry sliced cassava. Export of dry sliced cassava, cassava starch, and residue cassava to China have doubled with more enterprises evaluated and registered to export to China.	Limited at present unless manufacturing and value-added production on cassava takes off in Cambodia	Value-added on cassava, whether creating products (noodles, chips etc.) or flour for domestic and export markets. Combining poor quality cassava with other products to create animal feed or other types of products	Same as large investor
Sugar and sugar cane				
Sugar	Production is increasing, although very few sugar mills in the country. Sugar cane export was 0.236 million tons in 2013 Phnom Penh Sugar Co., Ltd officially launched its first sugar factory to produce refined sugar for domestic market and export in late 2012. In early 2016, another Chinese-owned agricultural company launched its Rui Feng (Cambodia) International Co., Ltd sugar factory operation in	Machinery and supplies for large investors setting up manufacturing facilities to produce sugar related products.	Setting up manufacturing facilities to produce products from sugar or incorporating sugar.	Setting up manufacturing facilities to produce products from sugar or incorporating sugar.

Food, Beverage and Tobacco	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter 	Large Investor 	SME 
	Preah Vihear province. The supply of sugarcane comes from farmers and company plantation.			
Maize				
Maize	Most of the crop was exported in un-processed forms to Thailand and Vietnam. Maize also went to local animal feed factories	Machinery and supplies for large investors	Value-added on maize Machinery for processing maize at commercial and semi-commercial level so that SMEs can build enterprises on utilizing maize as a crop Manufacturing and production of maize into flour or other products	Value-added on maize Machinery for processing maize at commercial and semi-commercial level so that SMEs can build enterprises on utilizing maize as a crop Manufacturing and production of maize into flour or other products
Cashew Nuts				
Cashew nuts	Cashew nuts export was 81,000 tons in 2013.	Limited	Processing and packaging for exports, especially organic cashew nuts	Processing and packaging for exports, especially organic cashew nuts
Soy Beans				
	Soybean exports were 63,000 tons in 2013.	Machinery and supplies for large investors	Processing plants for oil or value-added on soy bean	Processing plants for oil or value-added on soy bean
Fruits and vegetables and meats				
Enterprises innovating food	Development of locally-processed foods in supermarkets such as jams and dried fruits	Limited unless a larger agro-processing sector needing machinery and supplies	Export manufacturing facilities: jams, juice etc.	Export and local supply manufacturing

Food, Beverage and Tobacco	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter	Large Investor	SME
Dried pork and dried beef	SMEs dominate local supply, including local butchers experimenting with curing meats	Limited unless a large agro-processing sector needing machinery and supplies	Export manufacturing Curing pork and beef	Export and local supply manufacturing Curing pork and beef
Sweets and snack makers	Ly Ly foods is the largest producer of snacks and exporting but struggles with standards and compliance requirements Aprati Foods – American liquorice company – is setting up a sweet manufacturing and research and development station in the Phnom Penh Special Economic Zone.	Limited at present unless value-added production develops in Cambodia	Sweets and snack production	Sweets and snack production
Insects	Insects are eaten by many Cambodians as a source of nutrition and a snack No data on as to quantities consumed in Cambodia.	Limited	Undetermined if large investment needed	Production of commercial insect farms. Processing of insects

Table 23: Agro-processing industries and investment opportunities: rubber

Rubber	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter	Large Investor	SME
Rubber	Production increasing but dependent on international commodity prices. Exports generally increasing Exported in semi-processed form (dry rubber blocks)	Limited	Manufacturing of rubber products – cars, pharmaceuticals, household products, toys	Manufacturing of rubber products – cars, pharmaceuticals, household products toys

Table 24: Agro-processing industries and investment opportunities: paper and wood products

Paper, wood products	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter	Large Investor	SME
Paper		Paper production		
Paper based products	Few enterprises making tissues Imports of paper, pulp and paperboard, increased from USD103 million in 2010 to USD476 million in 2014, mainly from China, China Hong Kong and Thailand. Three enterprises manufacturing paper; 63 enterprises in printing production; six in paper manufacturing and paper/box manufacturing registered in 2012.	Limited unless a large agro-processing sector needing machinery and supplies	Manufacturing and export of paper based products including napkins, toilet paper, boxes etc.	Manufacturing and export of paper based products including napkins, toilet paper, boxes etc.
Wood Products		No investment in making paper		
Producers	Only three enterprises in 2012, excluding furniture companies Dominated mostly in production by small enterprises. Local entrepreneurs working in office design or hotel infrastructure, often design locally and produce in neighbouring countries and install in the country – especially when using "fake wood" or wood imitation products. Note: Sector has challenges from illegal logging	Limited unless a large agro-processing sector needing machinery and supplies	No commercial carpentry or production of large-scale frames or furniture	No commercial carpentry or production of large-scale frames or furniture

Table 25: Agro-processing industries' and investment opportunities: textiles and production of leather

Textiles and Production of Leather	Current Status and Key Indicators	What does not exist or where possible opportunities lie		
		Exporter 	Large Investor 	SME 
Textiles	Excludes description of Garment and footwear sector in Cambodia			
SME producers	SME producers dominate textile innovation from printing to weaving traditional designs on hand looms. Cambodia imports almost all of its raw materials for clothing and other types of production including dyes.	Machinery but limited at present	Possible for large-scale textile manufacturing	Semi commercial machinery for weaving Production of textiles made from natural resources for example bamboo, lotus etc.
Production of Leather				
General data	Most leather is imported – no data available on volumes Large commercial shoe sector that uses synthetic and leather. Possibility for importing European raw materials.	Importing European raw materials	Leather production including handbags, accessories or niche products	Domestic production for local and export market
Leather producers (commercial)	Crocodile farms in Siem Reap which produce leather as well as design and make products	Machinery, tannery,	--	Production of high-end niche products
Down-stream industrial	Factory producing dog bones and dog food for US markets in Phnom Penh. Imports processed leather pieces from Vietnam and abroad	Limited unless a large agro-processing sector needing machinery and supplies	Opportunity to set up industrial factories for any types of processing.	Innovation and R&D and production that is scalable
Down-stream handicrafts	Most handicraft producers are SMEs	Limited unless a large agro-processing sector needing machinery and supplies	Development of Christmas decorations or household decorations factories	Entrepreneurs from Europe who want to use Cambodia as a base station for design and innovation

10.2.1 Constraints to Agro-processing

Constraints in the agro-processing sector identified by enterprises include:

(i) Strengthening the quality and consistency of inputs

(ii) Market information and information systems

(iii) Lack of market access

(iv) Informal payments

(v) Government policies for the agro processing sector and government encouragement

(vi) Energy and electricity costs

(vii) Supporting skills training programs for technical and machinery

(viii) Transportation and road infrastructure

(ix) Marketing and branding of Cambodian products

(x) Access to technology and modern machinery

(xi) Exporting procedures that are manual and administratively intensive

The survey conducted in May 2016 with agro-processing companies and agricultural input importers revealed that a lack of market information and poor market information system, corruption, the absence of a reliable market, a lack of supportive policies and encouragement from the government, and high electricity costs as the top give constraints to the agro-processing sector.

Other constraints were also considered and included: i) irregular and insufficient supply of the raw materials (agricultural produce); ii) high cost of transportation; iii) lack of skilled labours for maintenance and operation of the processing machinery; iv) poor road connection from farm to factory; v) competition from imported products which are perceived to be a higher quality than local products; vi) advanced technology that needs to be imported; and vii) exporting procedures which are costly and require significant paperwork.

10.3 Overview of Agro-processing Equipment

The market for agro-processing equipment can be divided into two segments: large commercial enterprises who have a substantial capital to invest, and MSMEs/ home-based enterprises.

For MSMEs and home-based enterprises, capital and access to finance have been be key constraints in the past to accessing new technology. Cambodia's Microfinance sector, however, has greatly expanded access to credit and financing over the past 10 years.

Since 2010, large commercial factories operating in the agro-processing sector have started investing heavily in modern technology as well as certification of facilities. Quality and pricing of machinery and spare parts remain a key constraint to accessing machinery as well as availability of skilled technicians to maintain and repair machinery, to maintain productivity and efficiency of business operations.

Source: Picture taken during field implementation, 2016

Rice milling is a capital-intensive production process, requiring a large up-front investment. Before the launch of Cambodia's 2010 Rice Policy, the majority of rice millers in Cambodia relied on used equipment

imported from Vietnam and China. The machinery, however, led to higher incidences of broken rice, which are not suitable in export-grade rice. Today, most exporting millers have invested in higher quality machines.

Box 5: Case Study: Small rice miller, Battambang province

A Cambodian-owned firm set up in 2008 with registered capital of USD10,000,000 and business operations focused on milled rice exports. This rice mill is situated on a 16.2 hectare plot and provides a lot of employment to local people.

Modern Machinery:

- Two dryers were imported from Taiwan valued at USD600,000 per unit
- One rice mill which cost USD2,000,000 was purchased from Japan
- One processing machines with the price of about USD1,500,000 was imported from Japan.

The machinery imported by this firm was not available in the local market and had to be sourced. The firm, however, did not consider the cost of repair and maintenance of machinery in its business plan.

Customs Procedures: The firm said the suppliers helped to prepare all of the import documents and the firm followed customs procedures. Besides VAT, the import of those machines was exempted from other taxes.

Purchasing Paddy: The miller purchases quantities of paddy rice from farmers other local rice millers in Battambang, Banteay Meanchey, and Pursat province. Paddy purchases have significantly increased since 2013 according to the miller. **Concerns were raised** as to the uncertainty of paddy rice purchases due to limited supply in the first quarter of 2016 compared to the same period in previous years.

Markets: The firm focuses mainly on overseas markets rather than the local market. However around 4,500 tons of milled rice was supplied to the local market in 2015. Fragrant milled rice is exported to Asia, Europe, North America, Africa, and Oceania – in total 33 countries. Exported quantities have grown significantly over the period between 2013 and 2015. The firm hopes for a minimum of a 10 percent increase in exports in 2016 compared to 2015 exports, which were around 45,000 tons.

Exporting challenges: Concerns were raised about fragrant milled rice exports in 2016. The firm is concerned that exports could decrease 50 percent compared to 2015 due to the lower market prices, high milled rice specification requirements from buyers, and a lack of paddy rice supply. In order to export, the firm needs to prepare invoices and packing lists to the authorized ministry to ask for export permits such as certificate of origin, test report or certificate of quality, certificate of quantities, certificate of sanitary and phytosanitary conditions(SPS) and other necessary documents. Time-consuming administrative procedures are a challenge for rice exporters, in addition to a lack of capital, inflow of milled rice from Vietnam, and high electricity costs.

Future Plans and Outlook: The firm is concerned about its 2016 performance and the lack of fragrant paddy rice supply in particular. While the firm wants to continue to expand, their future business plan will heavily depend on year on year performance and global market outlooks on pricing for Cambodian rice.

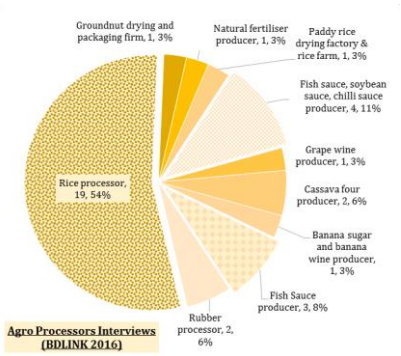
There is very little processing capacity for **natural rubber production in Cambodia.** This is due to a lack of investment in modern processing facilities that can process natural rubber products in sufficient quantity and at an acceptable standard for export. The extent of rubber processing in Cambodia is just producing dry rubber for export, with very basic cooling and drying facilities. For other processing industries, such as cassava, cashew, fish, and tobacco production, etc., the level of processing technology is limited as well.

Agro-processing equipment is not locally manufactured and has to be imported – including spare parts and often services too. The government has limited data on imports of agro-processing equipment, but some statistics can be extracted from ASYCUDA Statistics of GDCE, which will be discussed in the section on import data and customs.

10.4 What Products Are Agro-processors Purchasing?

The following box shows the types of machinery that agro-processors have recently purchased.

Box 6: Case Study on recent investment in machinery by type of agro-processor[95]

Type of Agro-processor	Recent Machinery Investments
Agro-processors interviewed during this study.	
Rice Millers	Export-oriented processors import machinery Only one rice miller imported a silo for their rice milling operation. Processing machines include colour sorters, de-stoners, dryers, grading machines, huskers, milling machines, packaging machines, polishers, packaging machines, separators, silos, and whiteners. Note that milling machines refer to machines used for the whole production line of rice milling.
	Rice millers buy machinery from distributors based in Cambodia who have imported machinery from other countries Types of machinery they purchase include colour sorters, grading machines, de-stoners, dryers, milling machines, packaging machines, paddy cleaners, polishers, and whiteners.
Grape wine producer	Contract farming and growing of grapes to produce wines and liqueurs Fermenting machine, clamping machine, milling machine and ripening machine from China
Banana sugar and banana wine producer	Two cutting machines from Vietnam at the price of USD3,000 per unit in 2014; three stirring machines from China and Vietnam at USD3,000 per unit in 2014; one filtering machine from Italy at USD5,000 per unit in 2016; and also, one filtering machine from Vietnam at USD1,200 per unit in 2015.
Groundnut drying and packing firm	Imported dryer from Vietnam but the packing is still done manually. The imported value and quantities was not reported.
Paddy rice drying factory and rice farm	Imported two sets of dryer with the price of USD650,000 per set in 2015, one colour sorter at a price of USD125,000 in 2015, and one seed sifting machine at a price of USD40,000. The firm plans to import a milling machine from Taiwan in 2016.
Rubber processors	Importing equipment and machinery from Malaysia and Vietnam No clear data on value and types of machinery

[95] BDLINK 2016 Agro-processor interviews

Type of Agro-processor	Recent Machinery Investments
Cassava flour processor	One set of milling machine at a price of USD30,000 in 2013 bought from importers in Phnom Penh, and two packing machines at a price of USD2,500 per unit bought from wholesalers/distributors in Phnom Penh in 2013. One cassava flour producer did not report on their machines.
Fish sauce, soybean sauce, and chili sauce producer:	Two fillers and two packing machines bought from importers in Phnom Penh while the rest are manually produced. The average cost of fillers and packing machines was USD 67,500 and USD5,500 per unit, respectively.

10.5 Import Data and Customs Procedures

10.5.1 Import Data of Agro-processing Machinery by Country of Origin

Table 26: Imported quantities of machines for cleaning, sorting or grading seeds, grain or dried leguminous vegetable s by country of origin from 2011 to 2016 (units)[96]

Year	2010	2011	2012	2013	2014	2015	2016	Grand Total
All countries (Total Export to Cambodia)	**98**	**46**	**963**	**2786**	**2268**	**57**	**43**	**6261**
China	23	31	621	2724	2143	56	26	5624
India			197	2			5	204
Thailand			98	1	34			133
Taiwan			13	31	48		6	98
Malaysia	72	0		1	5		6	84
Other countries	3	15	34	27	38	1	0	118

Other countries include: Korea (39), Japan, US, Hong Kong, Vietnam, UK (6, 2013), Germany (5, 2012, 2014), Indonesia, Norway (1, 2013), Singapore (1)
Listed in descending order of exports to Cambodia. Only highest and lowest country data provided plus any EU country data and years of export to Cambodia.

Table 27: Imported quantities of rice hullers and cone type rice mills by country of origin from 2011 to 2016 (units)[97]

Years	2010	2011	2012	2013	2014	2015	2016	Grand Total
Total Export to Cambodia	**5,164**	**1,489**	**5,900**	**5,376**	**7,282**	**2,020**	**1,047**	**28,278**
China	324	1,423	5,290	3,814	5,158	1,092	509	17,610
Vietnam		2	345	1,529	1,923	925	532	5,256
South Korea	4,833	22	28	9	93	1		4,986
Thailand	6	31	180	9	4	2		232
Taiwan			24	2	60			86
All other countries	1	11	33	13	44	-	6	108

Other countries include: Japan (62), Hong Kong, India, Indonesia, Malaysia, Germany (1, 2016), Philippines (1)
Listed in descending order of exports to Cambodia. Only highest and lowest country data provided plus any EU country data and years of exporting to Cambodia.

[96] Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016
[97] Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016

Table 28: Imported quantities of polishing machines for rice, sifting and sieving machines, bran cleaning machines and husking machines by country of origin from 2011 to 2016 (units)[98]

Year	2010	2011	2012	2013	2014	2015	2016	Grand Total
Total export to Cambodia	**98**	**3870**	**713**	**1602**	**2071**	**550**	**470**	**9374**
China	10	3796	455	35	24	51	5	4376
Vietnam		3	27	1394	1987	471	430	4312
Thailand		15	184	30	46	28	29	332
Taiwan		23	4	129			2	158
South Korea	86	18	14	5	1			124
Other countries	2	15	29	9	13	0	4	72

Other countries include (Japan (47), Hong Kong, Malaysia, Indonesia, United States, Singapore (1)
Listed in descending order of exports to Cambodia. Only highest and lowest country data provided plus any EU country data and years of exporting to Cambodia.

Table 29: Imported quantities of dairy and milking machines by country of origin from 2013 to 2015 (units)[99]

Dairy Machinery				
Year	**2013**	**2015**	**2016**	**Grand Total**
Grand Total	10	12	1	23
Vietnam	10	8		18
China		4	1	5
Milking Machinery				
Year	**2013**	**2014**	**2015**	**Grand Total**
Grand Total	1	531	1	533
Malaysia		384		384
Thailand		147		147
Japan	1			1
New Zealand			1	1

[98] Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016
[99] Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016

Table 30: Imported quantities of machinery for sugar manufacturing by country of origin from 2011 to 2016 (units)[100]

Years	2010	2011	2012	2013	2014	2015	2016	Grand Total
Grand Total	**29**	**90**	**1**	**20**	**46**	**102**	**7,480**	**7,768**
China	24	11		18	10	101	7,465	7,629
Malaysia		59						59
Singapore		1			25			26
Japan		19						19
Taiwan	4		1		10			15
Other countries	1	-	-	2	1	1	15	20

Other countries: Netherlands (14, 2016), Hong Kong, South Korea, France (1, 2015), New Zealand (1)
Listed in descending order of exports to Cambodia. Only highest and lowest country data provided plus any EU country data and years of exporting to Cambodia.

Table 31: Imported quantities of machinery for preparing and processing tobacco by country of origin from 2011 to 2016 (units)[101]

Years	2010	2011	2012	2013	2014	2015	2016	Grand Total
Grand Total	**2**	**15**	**312**	**33**	**4**	**25**	**1**	**392**
Italy			301					301
China			11	30		1	1	43
France		12		1	1			14
Malaysia						12		12
Bangladesh		2				5		7
Other Countries	2	1	-	2	3	7	-	15

Other countries include: Pakistan (6), Singapore, Netherlands (2, 2014), Hong Kong, Indonesia, Korea, UK (1, 2015)
Listed in descending order of exports to Cambodia. Only highest and lowest country data provided plus any EU country data and years of exporting to Cambodia.

[100]Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016
[101]Author compiled from ASYCUDA Statistics of GDCE by Import Statistics by Products 2011-2016

10.5.2 Import Duties by Product

Table 32: Import duties and taxes of selective machinery (percent)[102]

Tariff code	Items	CD	ST	VAT
8437.10	Machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables			
8437.10.10	For grains, electrically operated; winnowing and similar cleaning machines, electrically operated	0	0	10
8437.10.20	For grains, not electrically operated; winnowing and similar cleaning machines, not electrically operated	0	0	10
8437.80.10	Rice hullers and cone type rice mills, electrically operated	0	0	10
8437.80.20	Rice hullers and cone type rice mills, not electrically operated	0	0	10
8437.80.51	Polishing machines for rice, sifting and sieving machines, bran cleaning machines and husking machines	0	0	10
8434.10	Milking machine, electrically and not electrically operated	15	0	10
8434.20	Dairy machinery	15	0	10
8438.30	Machinery for sugar manufacture, electrically and not electrically operated	15	0	10
84.78	Machinery for preparing or processing tobacco, not specified or included elsewhere in this section	15	0	10
8422.30.00	Machinery for filling, closing, sealing or labelling bottles, cans, boxes, bags or other containers; machinery for capsuling bottles, jars, tubes and similar containers; machinery for aerating beverages	15	10	10

10.5.3 Customs Procedure by Product

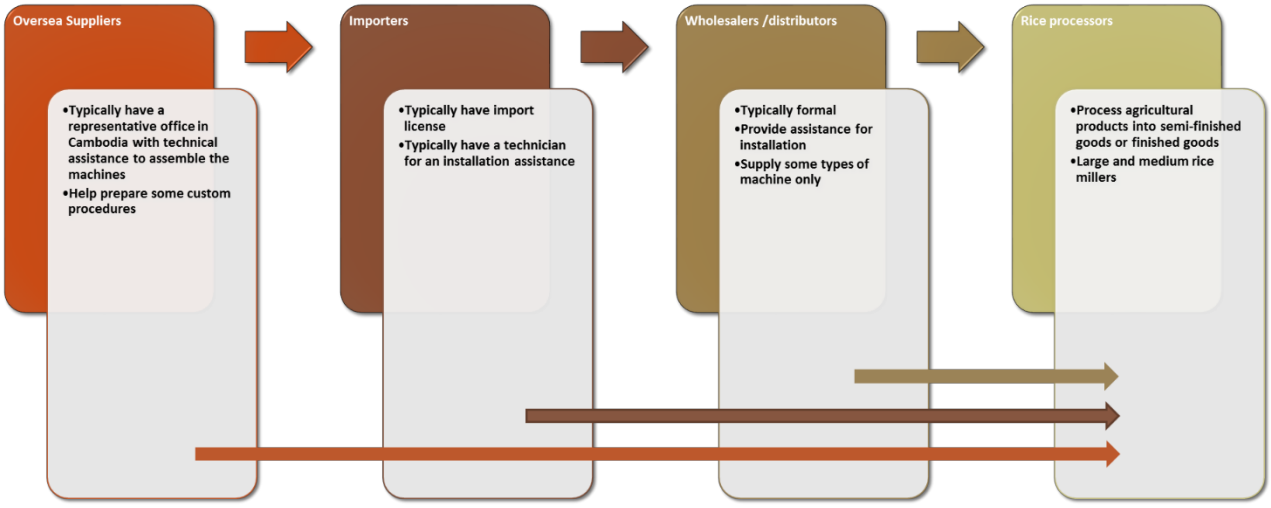
The custom procedure for agro-processing equipment is the same as from the custom procedures for other agricultural inputs and machines.

[102] http://www.customs.gov.kh/publication-and-resources/commodity-code-en/. Accessed on 01 May 2016

10.6 Distribution Channel of Agro-processing Machinery

Exporters to Cambodia either have a brick and mortar office in Cambodia or work closely with importers to manage the respective paperwork and procedures required to import machinery. Machinery is then supplied to wholesalers and/or distributors in different provinces.

Figure 29: Distribution channel of rice processors[103]



10.6.1 Summary of Investment Opportunities in Agro-processing

Table 33: Summary: Investment opportunities in agro-processing

	**Exporters:** Machinery and supplies for agro-processing sector as the sector develops.
	**Large Investors:** Manufacturing and production facilities; supply local markets; export value-added products
	**SMEs and Entrepreneurs:** Design; manufacturing and production facilities; supply of local markets; export of value-added products

[103] BDLINK Survey Implementation, 2016

11 Modern Agriculture Inputs

Productivity gains in the agriculture sector not only depend on irrigation and other infrastructure requirements, but also inputs such as high-quality seeds, fertilizers, insecticides, and herbicides. The 2010 Rice Policy has created incentives to invest in the sector, including zero tariffs on the import of agricultural inputs – such as those listed previously – and machinery. The following section reviews important agriculture inputs that are necessary to diversify and improve the quality and yield of the agriculture sector in Cambodia.

11.1 Overview of the Seed Market: Quality Seeds Are Essential

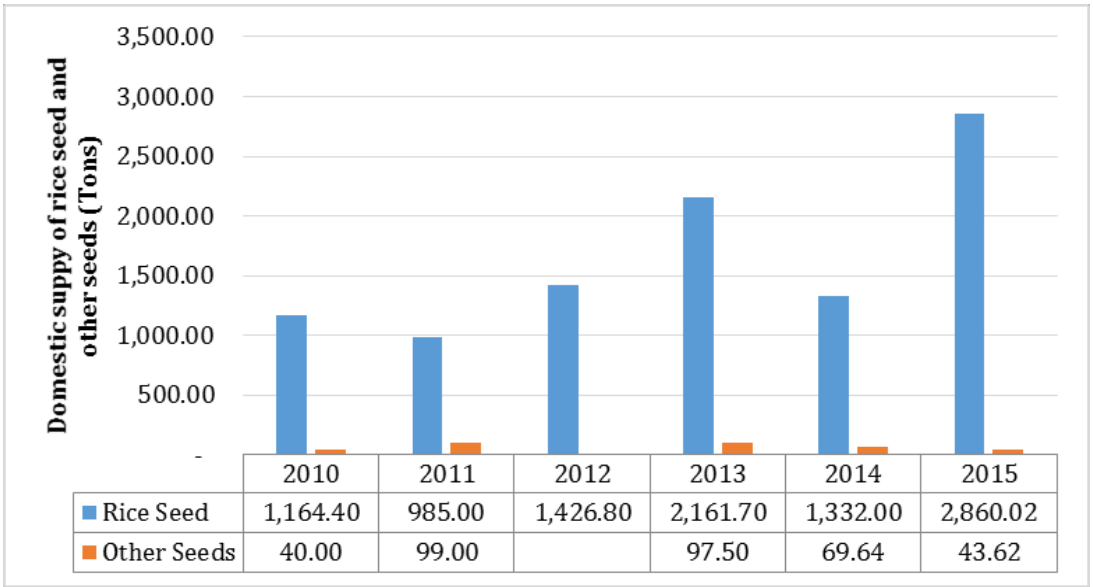
Quality seeds are an important input for improving agricultural productivity and have significant benefits including higher yields, lower production costs, and better crop quality. In the rice sector, uniform grain size is a desirable characteristic because it enables efficient processing and fetches a higher market price.

The **limited existence of formal seed production** in Cambodia has created a market for seed imports to support the expansion and intensification of sustainable seed production.[104] A study by the World Bank in 2015[105] demonstrates that access to high-quality seeds are essential to attain Cambodia's growth targets. Farmers' investments into quality seeds and other modern inputs such as fertilizers and machinery will also bring higher rates of return.

Cambodia's seed market has been constrained by a number of factors including poor management and lack of coordination between the public and private sectors. Agriculture input distributors and dealers selling seeds are often not well equipped to serve farmers lacking commitment to providing services that meet the farmers' needs.[106] The 2008 Law on Seed Management and Breeder's Right sets out legal protections for plant breeding, seed import, and sales etc. along with legal penalties for breaches. The seed law is discussed later in in Section 11.5 Laws on agricultural inputs.

There has been and still is a **huge disparity between the demand and supply of seed inputs** enabling a variety of investment opportunities. In the rice industry alone the estimated market demand for quality seed has grown to 38,500 tons by 2015, and will be 50,000 tons by 2020[107] but in 2015 the availability was only 8,765 tons.

Figure 30: CARDI domestic supply of rice seeds and other seeds from 2010 to 2015 (tons)[108]



	2010	2011	2012	2013	2014	2015
Rice Seed	1,164.40	985.00	1,426.80	2,161.70	1,332.00	2,860.02
Other Seeds	40.00	99.00		97.50	69.64	43.62

[104] Ministry of Commerce, 2014
[105] World Bank, 2015
[106] World Bank, 2011
[107] Ibid.
[108] Author compiled from MAFF's annual report 2010-2015

The Cambodia Agriculture Research and Development Institute (CARDI), a semi-autonomous government institute under the MAFF, is the country's main body when it comes to seeds yet it is has limited resources and capacity to supply the market. Figure 30 above shows the increase in rice seed production since 2010 for rice, although it also shows limited increases in the domestic production capacity of vegetables and other crops. In terms of total Cambodian market production, CARDI is the primary domestic seed supplier with no corresponding capacity in the private sector.

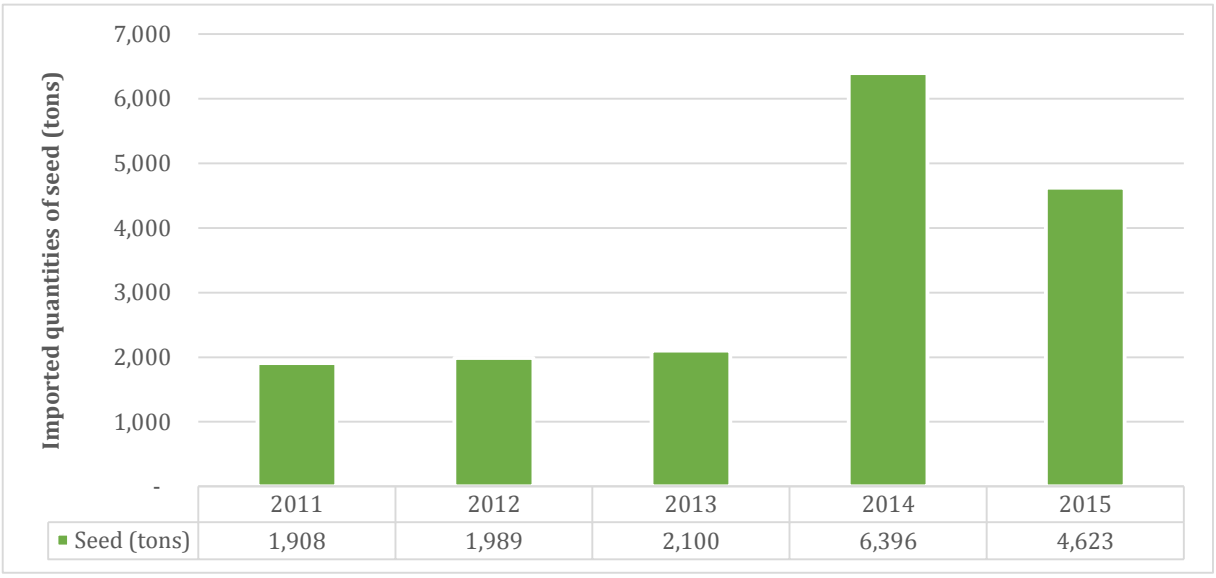
There is limited data of rice imports from government authorities and it is not segregated by type of seed. Data shows how dramatically the import data has changed, for those transactions that are formally traded. Cambodia has the potential to increase production in both vegetables and rice, which will require a corresponding supply of high quality seeds and convincing farmers that they are a superior choice.

Imported quantities of seed increased by 142 percent between 2011 – 2015 with a peak of 6,396 tons imported in 2014. The seed market will continue to grow significantly as population demographics change and a greater focus on health on nutrition is entrenched in the new generation.

Cambodia's lack of modern equipment, facilities, technical skills and technology has limited its ability to generate sufficient high quality seeds to meet market demand and as a result, has imported large quantities from neighbouring countries such as Thailand and Vietnam mostly.

As of August 2014, there were 32 active import permits, seven of which were held by CARDI for rice seed importation for experimental purposes. Of the remaining 25 import permits, 14 are held by private sector companies, eight of which have permits for importing maize seed. One firm reportedly controls 70 percent of the maize seed market.[109]

Figure 31: Imported quantities of seeds from 2011 to 2015 (tons)[110]



[109] USAID, 2015
[110] MAFF's annual report 2011-2015.

11.1.1 Rice Seed Production

As mentioned previously, rice seed production in Cambodia is dominated by CARDI. CARDI undertakes plant breeding and then bulks-up the selected varieties in order to produce foundation seeds. These seeds are provided to a small network of partner companies and farmer's cooperatives which further increase the amount of seeds which can then be released onto the market. Partners in the certified seed process include AQIP Seed Company, MAFF's Tuol Samrong Seed Farm, and OFAT Farmers Cooperative, NGOs and a few exporters or rice millers.

Farmers' networks such as Champei Agricultural Development Community in Takeo province (and other similar communities), CEDAC Farmers Seed Association, rice millers and exporters are all important actors in the seed supply chain that ensures farmers receive a quality product. Farmers' networks are still relatively small – some have around 90 members. These are however, important actors in the seed supply chain because they have they already have established relationships with individual farmers.

Some private rice seed producers also exist, but they mainly import seeds from Vietnam and Thailand. A large proportion of seeds are also supplied through informal networks discussed below and through business arrangements between middlemen and farmers.

More than two-thirds of households, regardless of geographical area, utilize local seed varieties although they would likely use better ones if they were available. Local varieties are saved from the previous harvest and do not have any special characteristics of high quality seeds (Figure 32). This observation has been confirmed by the National Institute of Statistics' 2015 report which found that 71 percent of households produce their own rice seeds (Figure 33).

Figure 32: Percentage of households with agricultural land holdings sourcing rice seed from various sources by zone

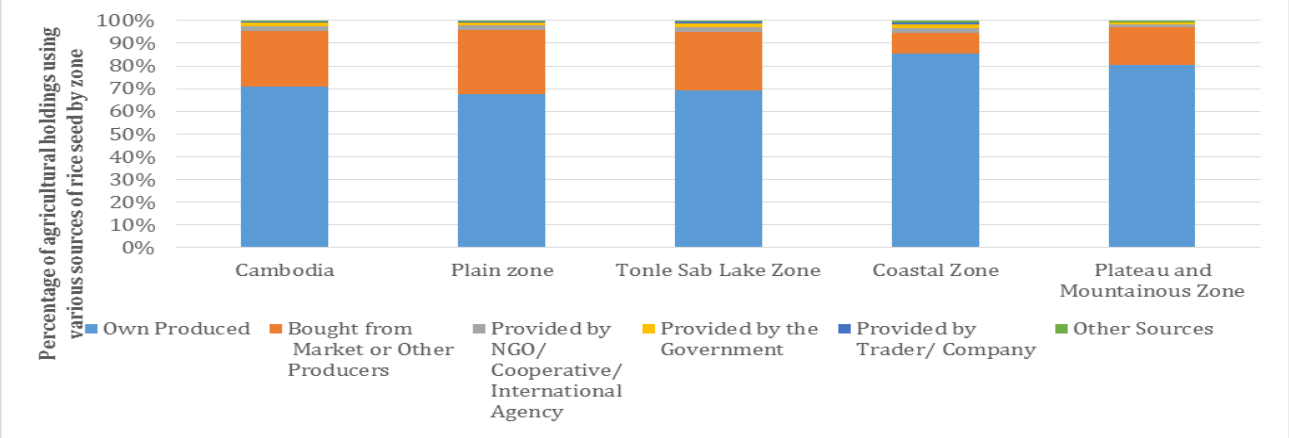
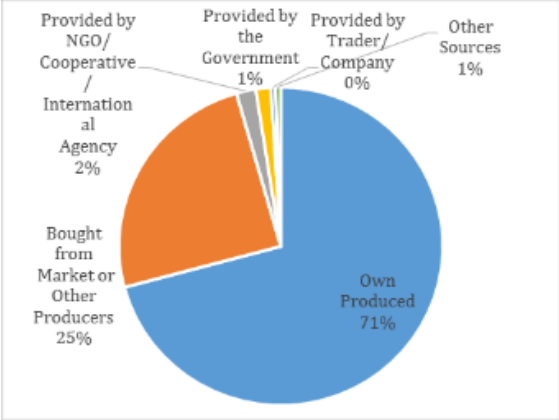


Figure 33: Percentage of households sourcing rice seed from different sources



Official data, however, does not provide any insights into informal networks supplying seeds, such as middlemen or buyers who work directly with farmers. While official data shows that over 70 percent of rice seed are produced by farmers, USAID studies have indicated over 90 percent of seed was generated from the previous season's harvest or traded between farmers. Various studies, including by the World Bank, also indicate that a key supplier of seeds are middlemen. For example, seed varieties are often provided to farmers by middlemen for dry season irrigated cropping cycle, which are sourced from their Vietnamese trading partners. Most of this crop will be subsequently traded back to Vietnam through informal cross-border trade.

Cambodia's rice has won the World's best rice award for three years in a row at the annual TRT World Rice Conference. With its milled standards for both and fragrant rice promulgated by Royal Decree in 2013, and with quality assurances in place, Cambodia's rice today boasts DNA fingerprints for fragrant rice varieties, an important trait for premium rice.

11.1.2 Vegetable and Other Seed Production

There is only one vegetable research station, Kbal Koh Vegetable Research Station, in Kbal Koh Commune, Kien Svay District, Kandal Province. It researches string beans, mustard, tomatoes, local cucumbers, chilies, long and round eggplants, mungs bean, soybeans, glutinous corn and sweet corn. There is also one seed farm, a MAFF-owned facility, named Chamkar Leu Seed Farm, located in Chamkar Leu District, Kampong Cham Province. This farm is focussed mainly on producing soybean and mung bean seeds.

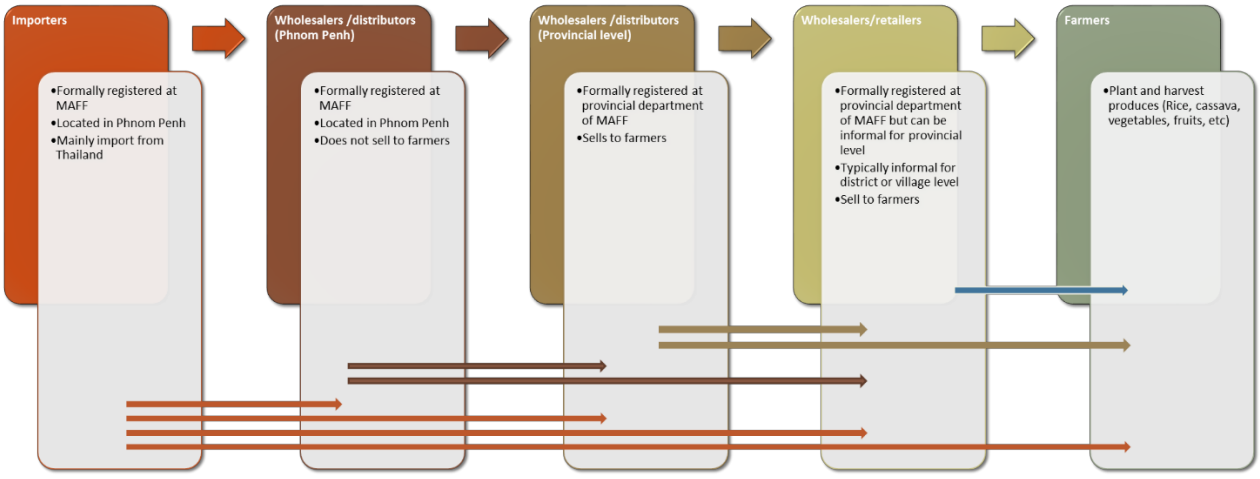
Given the limited production capacity in Cambodia, many other companies import seeds from either Vietnam or Thailand to supply in Cambodian market. However, domestic seed production is a potential investment opportunity given the low level of domestic competition.

11.1.3 Distribution Channels for Seeds

Seed importers are formally licensed with the MAFF. Most of them are located in Phnom Penh, although importers can also be found in other major city hubs. Importers then distribute to wholesalers and distributors in Phnom Penh, who then in turn distribute to wholesalers and distributors in the provinces. Provincial wholesalers and distributors work with smaller retailers who engage directly with farmers, although provincial wholesalers also have direct links to farmers.

Essential to exporting seed is to have a knowledgeable and reputable import partner who has an established distribution channel that is working directly with farmers and promoting quality seed varieties.

Figure 34: Distribution channel of seeds[111]



[111] BDLINK Survey Implementation, 2016

11.1.4 Seeds: Summary of Investment Opportunities

Table 34: Summary: Investment opportunities in agriculture inputs: Seeds

General	
Main takeaways	• Seed production is dominated by NGOs and CARDI. Limited private sector investment and innovation • Lack of quality standards in seed development and production • Farmers mostly use seeds from their previous harvest. • No consumer protection or investor protection at present
Rice	
Key data	• Seed Demand: 38,500 tons 2015 • Seed Supply: 8,765 tons 2015
Main take away	• There is a demand for seeds, in particular high quality seeds. • Farmers like to use seeds from their previous harvest and often are supplied with inputs from traders or middlemen in return for crops. • Difficult to enter this market but not impossible. • Cambodia has well established brands with a DNA trace. • Will be difficult to convince growers to try a "new rice" variety unless there are clear incentives and established market prices to grow a new rice seed.
Premium Rice	• Cambodia has well established brands with a DNA trace • Cambodia has premium rice
Other types of rice	• Possibility for further research and development on drought resistance or other types of rice that are more resilient to difficult weather conditions
Hybrid rice	• n/a
Opportunities	• Production and sale of certified seeds. This might involve sourcing seed varieties from CARDI and bulking up through contracted farmers. Would require an established market and potentially could work with rice millers. • Export of seeds to Cambodia
Vegetables	**Cambodia produces only 40% to 50% of its total vegetable consumption**
Key data	• Seed Demand Needed: 4623 tons of seeds imported, excluding rice in 2015 • Seed Current Supply: 43.62 tons produced, excluding rice in 2015.
Main take away	• Opportunity for export/supply of high quality seeds into established distribution channels – will require marketing and value proposition to persuade farmers to swap brands they know grow. • Demand for high quality seeds which enable further value-added production, such as high oil content varieties of soybeans seeds to produce soy bean oil • Demand for seeds with a higher yield • Demand for more variety of seeds with special characteristics like drought or pest resistance • Possible demand for more variety in niche vegetable markets and diversification
Research and Development	• Does not currently exist in private sector. • Investment opportunity to set a vegetable seed production base in Cambodia to meet local and even regional demand

11.2 Fertilizer: A Rapidly Expanding Market

Fertilizer is a vital agricultural input – not only because it helps farmers to meet production needs, but also because of its impact on environment and land quality for future generations. In order to improve agricultural production, farmers will need to more towards crop intensification, switching to higher crop yields and multiple cropping. In order to maintain the integrity of farmland, farmers cannot overly rely on chemicals which can damage the quality of the soil in the long-run.

Source: Picture taken during field implementation, 2016

There has been a rapid expansion of fertilizer use in Cambodia. Demands will continue to increase as farmers become more aware of the importance of fertilizer – both in terms of production as well as maintaining healthy soil standards. Unlike the seed market, the fertilizer market is led by the private sector with prices set by market forces.

Data on fertilizers in Cambodia is difficult to obtain with significant discrepancies between international data and government data sets. In spite of these differences, both data sets show similar growth patterns in fertilizer imports.

FAO statistics show that from a base of 14,274 tons in 2003 total fertilizer use rose to 58,924 tons in 2013. Nitrogenous fertilizers are used in greater quantities than phosphate and potash. In addition to "chemical" fertilizers, there is substantial use of organic fertilizer (manure, compost) but no statistics are available.

Table 35: Fertilizer consumption by nutrient in Cambodia, 2003 to 2013 (tons)[112]

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nitrogen (N)	5,209	7,467	11,053	10,657	8,590	12,447	16,905	21,022	33,388	43,905	44,786
Phosphate (P2O5)	8,166	11,672	17,380	18,190	23,882	14,874	19,502	23,998	26,782	20,652	11,992
Potash (K2O)	899	715	1,556	763	792	952	947	1,028	1,710	3,489	2,146
Total	14,274	19,854	29,989	29,610	33,264	28,273	37,354	46,048	61,880	68,046	58,924

In December 2012, **Cambodia saw its first significant investment into fertilizer production.** Vietnamese firm Five Star International (Cambodia) Co. Ltd is the largest fertilizer plant in Cambodia with a capital investment of USD80 million. The capacity of the plant is estimated to start at 350,000 tons per year and reach a total capacity of 500,000 tons per year. While this is an achievement for Cambodia, it is still insufficient to meet current demand of 617,000 tons of fertilizer annually to fertilise 4.1 million hectares of farmland[113].

The supply of fertilizers has increased rapidly in response to agricultural intensification. International Trade Centre (ITC) provides data on the quantities of fertilizer imported into Cambodia. ITC data suggests a massive increase of fertilizer products between 2008 and 2015. Since the launch of the Rice Policy Paper for Promotion of Paddy Production and Export of Milled rice in mid-2010, imports into the country have soared. MAFF data shows significantly higher quantities of imported fertilizer (Figure 35).

Vietnam and Thailand are the two main countries exporting fertilizer to Cambodia as shown in Table 36. Cambodia imported USD181,132,000 worth of fertilizer from Vietnam in 2014 up from USD21,860,000 in 2010 –

[112] FAOSTAT 2016. Available at http://faostat3.fao.org/download/R/RF/E . Accessed on 01 May 2016
[113] Theng, Khiev, and Phon 2014

a 730 percent increase. Imports from Thailand were valued at USD24,720,000 in 2014 compared to USD14,812,000 in 2010.

Figure 35: Disparities of imported quantities of fertilizers between MAFF's reports and ITC's database from 2011 to 2015 (tons)[114]

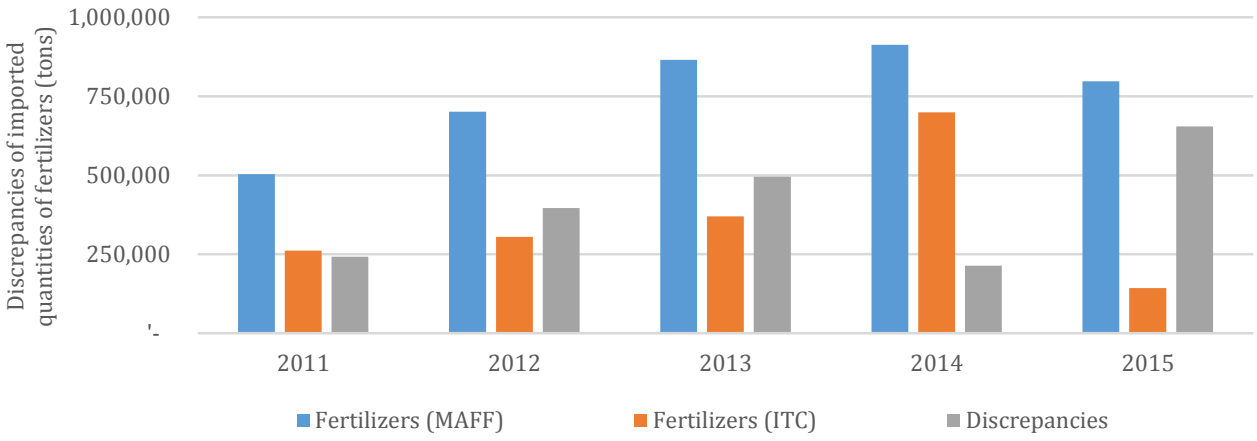


Table 36: Imported value of fertilizers by country from 2010 to 2014 (USD thousand): ITC[115]

Exporters	2010	2011	2012	2013	2014
World	38,416	53,315	72,618	105,901	232,572
Viet Nam	21,860	35,305	39,201	77,775	181,132
Thailand	14,812	13,367	13,644	13,472	24,720
China	251	2,174	9,205	7,859	17,567
Japan	135	1,470	2,842	2,435	3,771
Ukraine	-	-	-	-	1,116
Malaysia	85	115	347	429	1,083
Others (23 countries)	1,274	883	7,378	3,931	3,182

[114] MAFF's annual report 2011-2015 and ITC's database. Accessed on 01 May 2016
[115] ITC calculations based on UN COMTRADE statistics on fertilizers export to Cambodia. Available at http://www.trademap.org/Product_SelCountry_TS.aspx. Accessed on 01 May 2016

Table 37: Imported quantities of fertilizers from 2008 to 2015 (tons): ITC[116]

Product label	2008	2009	2010	2011	2012	2013	2014	2015
NPK	56,784	67,591	86,012	103,098	72,060	29,301	89,951	66,350
Nitrogen	7,837	17,052	25,977	56,644	96,819	126,642	290,282	43,072
Phosphate	47,262	61,930	62,158	72,591	105,743	171,273	278,333	1,914
Potash	29	25		120	4,205	6,208	13,154	7,650
Others	17,280	42,238	25,066	28,907	25,974	36,556	27,359	24,499
Total	**129,192**	**188,836**	**199,213**	**261,360**	**304,801**	**369,980**	**699,079**	**143,485**

Table 38: Imported quantity (tons) and imported value (USD thousand) of fertilizers from 2010 to 2015: ITC[117]

Product label	2010		2011		2012		2013		2014		2015	
	Quantity (tons)	Value	Quantity (tons)	Value	Quantity (tons)	Value	Quantity (tons)	Value	Quantity (tons)	Value	Quantity (tons)	Value
NPK	86,012	14,908	103,098	18,592	72,060	18,992	29,301	12,566	89,951	32,132	66,350	27,229
Nitrogen	25,977	6,053	56,644	13,237	96,819	24,926	126,642	37,419	290,282	100,737	43,072	14,098
Potash	-	-	120	28	4,205	795	6,208	1,530	13,154	5,917	7,650	3,013
Phosphate	62,158	13,482	72,591	16,226	105,743	22,147	171,273	47,566	278,333	87,591	1,914	950
Others	25,066	3,973	28,907	5,232	25,974	5,758	36,556	6,819	27,359	6,195	24,499	3,292
Total	**199,213**	**38,416**	**261,360**	**53,315**	**304,801**	**72,618**	**369,980**	**105,900**	**699,079**	**232,572**	**143,485**	**48,582**

[116] ITC calculations based on UN COMTRADE statistics on fertilizer exports to Cambodia. Accessed on 01 May 2016. Available at http://www.trademap.org/Product_SelCountry_TS.aspx.
[117] ITC calculations based on UN COMTRADE statistics on fertilizers export to Cambodia. Available at http://www.trademap.org/Product_SelCountry_TS.aspx. Accessed on 01 May 2016

11.2.1 Organic and Chemical Fertilizers

It is safe to assume that most imported fertilizers are overwhelming chemical or inorganic in nature. While there is a high demand for fertilizer, Cambodian farmers lack a deep understanding of organic fertilizer. This trend can be seen in the National Report of Census of Agriculture of Cambodia 2013 conducted by NIS and Ministry of Planning in collaboration with MAFF and published in 2015 – which includes the latest data on fertilizer usage. The data reveals that while a large proportion of households are using organic fertilizers, chemical/inorganic fertilizer remains dominant. Organic fertilizer companies in Cambodia are an important partner in meeting this demand.

Table 39: Number of households with agricultural holdings that grow crops with fertilizer[118]

Zone/Province	Inorganic fertilizer	Organic fertilizer
Cambodia	**1,508,242**	**1,067,257**
Plain zone	**769,703**	**540,471**
Kampong Cham	123,871	100,007
Kandal	107,260	78,966
Pnhom Penh	17,094	17,410
Prey Veng	185,238	130,208
Svay Rieng	105,787	79,134
Takeo	143,441	66,029
Tboung Khmum	87,012	68,717
Tonle Sab Lake Zone	**473,802**	**278,091**
Banteay Meanchey	66,255	32,301
Battambang	98,326	56,505
Kampong Chhnang	74,127	66,776
Kampong Thom	78,127	37,493
Pursat	55,081	39,150
Siem Reap	75,220	34,711
Oddar Meanchey	21,530	9,902
Pailin	5,136	1,253
Coastal Zone	**121,831**	**95,294**
Kampot	105,011	85,858
Koh Kong	4,060	3,509
Preah Sihanouk	7,944	4,128
Kep	4,816	1,799
Plateau and Mountainous Zone	**142,907**	**153,399**
Kampong Speu	120,211	125,871

[118] NIS 2015. Available at http://nis.gov.kh/nis/CAC2013/CAC_2013_Final_Report_En.pdf. Accessed on 01 May 2016

Zone/Province	Inorganic fertilizer	Organic fertilizer
Kartie	14,900	12,921
Mondul Kiri	934	4,222
Preah Vihear	2,386	4,103
Ratanak Kiri	4,091	5,579
Stung Treng	385	703

Box 7: Case Study on organic fertilizer production

The company was established in October 2011 as a joint-venture firm with majority Cambodian ownership. The company manufactures organic fertilizers made of composted chicken manure and other ingredients, which is then sold to distributors and wholesalers. They in turn sell to farmers.

The company sold 1,000 tons of organic fertilizer in 2013, but sales have decreased to 900 tons in 2014 and 2015 due to a decreased demand for organic fertilizers. In 2015, the unit price of organic fertilizer dropped nearly 50 percent from USD400 to USD250, due to higher demand for imported chemical fertilizer. It also faces competition from imported organic fertilizers which were described as "much cheaper and difficult to compete with" by the company.

The company remains optimistic and hopes to increase sales up to 2,000 tons in 2017 and 2018.

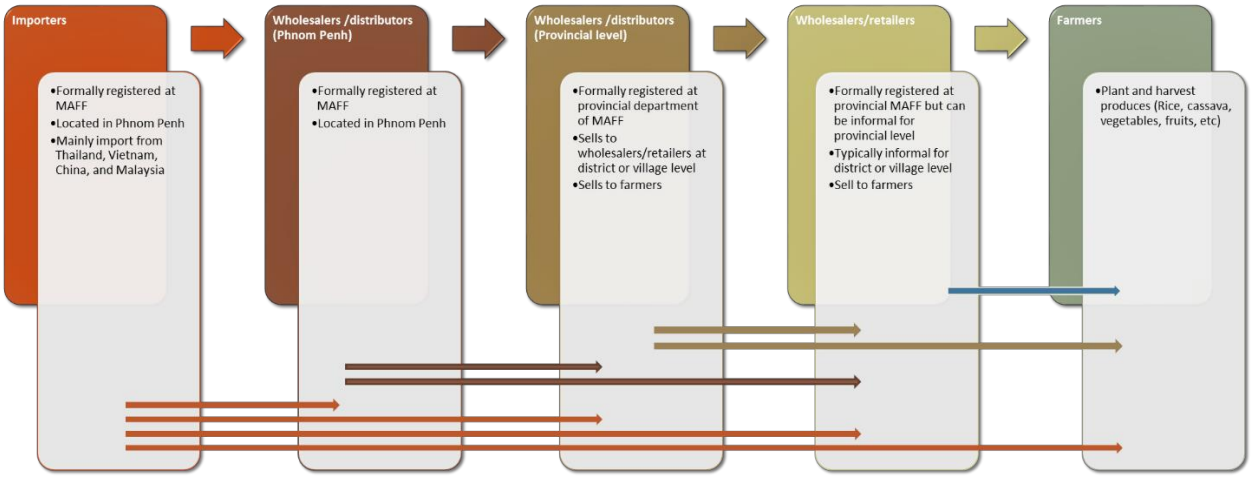
Our discussions with the company revealed the following points:

- Imported fertilizers are the main competition for domestic producers
- Organic fertilizers are perceived to have a delayed impact on yields as opposed to chemical fertilizers which have a quicker and "visibly instant" impact.
- Organic fertilizers are also perceived to require more input – more kilograms per hectare are required of organic fertilizers compared to chemical fertilizers.
- Government support is required to promote the manufacturing of value-added inputs in Cambodia
- Government support is also needed to monitor the impact of chemical fertilizers on the environment and encourage the use of more organic fertilizer by highlighting higher market prices
- Cambodia's ability to compete with international producers lies in its efficiency of production. It is not likely to compete with "low-priced mass produced" fertilizer but could still compete on other selling points, including marketing and branding of quality inputs.

11.2.2 Distribution Channel for Fertilizer

The distribution channel of fertilizers is standardized using a structured distribution channel. Importers sell mostly to wholesalers and distributors in Phnom Penh, but in some cases directly to farmers in the provinces. Wholesalers / distributors in Phnom Penh sell to provincial distributors who work with retailers for local distribution. Overall, farmers have access to the entire distribution channel to purchase fertilizer depending on their knowledge, access and frequency of travel to the Phnom Penh and/or a distribution centre.

Figure 36: Distribution channel of fertilizers[119]



[119] BDLINK Survey Implementation, 2016

11.2.3 Fertilizers: Summary of Investment Opportunities

Table 40: Summary: Investment opportunities in agriculture inputs: Fertilizers

Main Takeaways	• Only one private sector production facility which aims to produce 500,000 tons of fertilizer. Progress needs to be reviewed as to whether or not targets can be achieved. • Most fertilizer can be classified as "chemical"/nonorganic and there is clearly a competitive market for exports to Cambodia • Easy to enter and establish operations, particularly when exporting and working with established suppliers in the distribution channel • Quality of fertilizer is important • Limited focus or marketing and promotion of organic fertilizer • Demand Needed: 617,000 tons in 2015 • Current Supply: 143,485 tons in 2015 (ITC)
Risks	• Environmental risks given the large volumes of chemicals used • Lack of regulation and monitoring what kinds of fertilizers are being used and sold
	**Exporters:** Opportunities for supplying fertilizer as there is a need for additional imports in the short term if the new producer cannot meet its production targets.
	**Large Investors:** Organic fertilizer production on a commercial scale.
	**SMEs and Entrepreneurs:** Opportunities for organic fertilizer production on a commercial scale; Opportunities for innovative fertilizer production at the cottage level; Recycling of foodstuffs on a commercial and cottage scale.

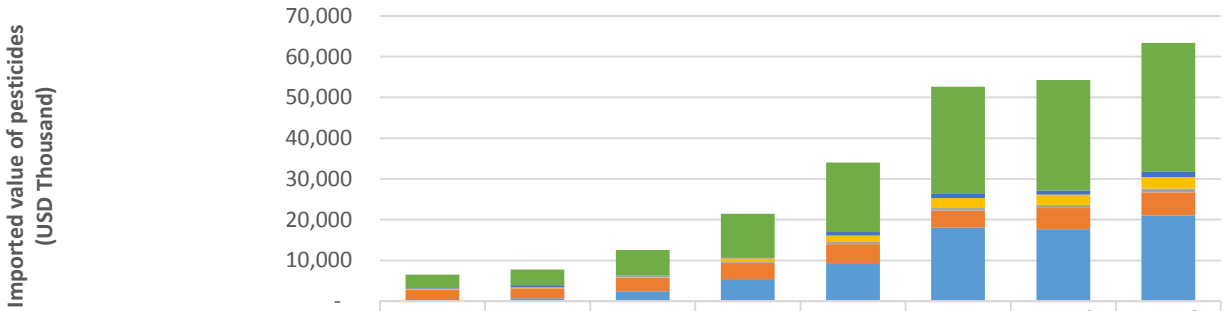
11.3 Pesticides: A Growing Market in Need of Careful Management

Cambodia is not a manufacturer or exporter of pesticides. Pesticide consumption in Cambodia's agriculture sector has increased considerably over the years, especially in the vegetable sector and in dry-season rice cultivation. More than 3.2 million litres of 100 different kinds of pesticides are used each year, according to the Cambodian Organic Agriculture Association in 2011. Most pesticides are imported from Vietnam and Thailand with limited quantities coming from China and the European Union.

Unofficial and illegal trade is also prevalent, with some unofficial reports suggesting that between 60 to 80 percent of imported pesticides are illegally imported. These pesticides are bought along the Thai and Vietnamese borders and fake labels attached to the packaging. These pesticides are of a substandard quality and often harmful to the environment. Official data indicates that as of December 2013, there are 750 registered pesticides used in Cambodia, while there are only 35 licensed holders (retailers).[120]

Limited data on imported pesticides remains a challenge. Trade statistics from the FAOSTAT database on pesticides show that the import of pesticides (including hazardous pesticides, insecticides, herbicides, fungicides, and disinfectants) has grown significantly. The import of insecticides (excluding hazardous insecticides) and hazardous pesticides has increased the most. The increase in hazardous pesticides is not a positive trend in terms of long term environmental sustainability as well as associated health risks for farmers if used incorrectly.

Figure 37: Imported values of pesticides from 2008 to 2015 (USD thousand)[121]



	2008	2009	2010	2011	2012	2013	2014f	2015f
Total (Pesticides)	3,243	3,893	6,292	10,728	16,992	26,301	27,144	31,687
Disinfectants, etc (excl. Haz. pest.)	155	512	214	225	871	1,008	1,033	1,186
Herbicides (excl. Haz. pest.)	287	257	169	728	1,621	2,408	2,437	2,873
Fungicides (excl. Haz. pest.)	11	6	189	250	530	696	786	931
Insecticides (excl. Haz. pest.)	2,210	2,386	3,305	4,074	4,655	4,147	5,189	5,683
Hazardous pesticides	581	731	2,414	5,451	9,315	18,042	17,698	21,015

Understanding the distribution and usage of different types of pesticides is useful for investment planning. The table below shows the number of households in different zones and provinces in Cambodia by type of chemical usage.

[120] Preap and Kang N.D.
[121] FAOSTAT 2016. Available at http://faostat3.fao.org/download/R/RT/E. Accessed on 01 May 2016 (Imported values of 2014f and 2015f are forecasted)

Table 41: Number of households with agricultural holdings that grew crops and used chemicals, by type of chemicals, by zone/province[122]

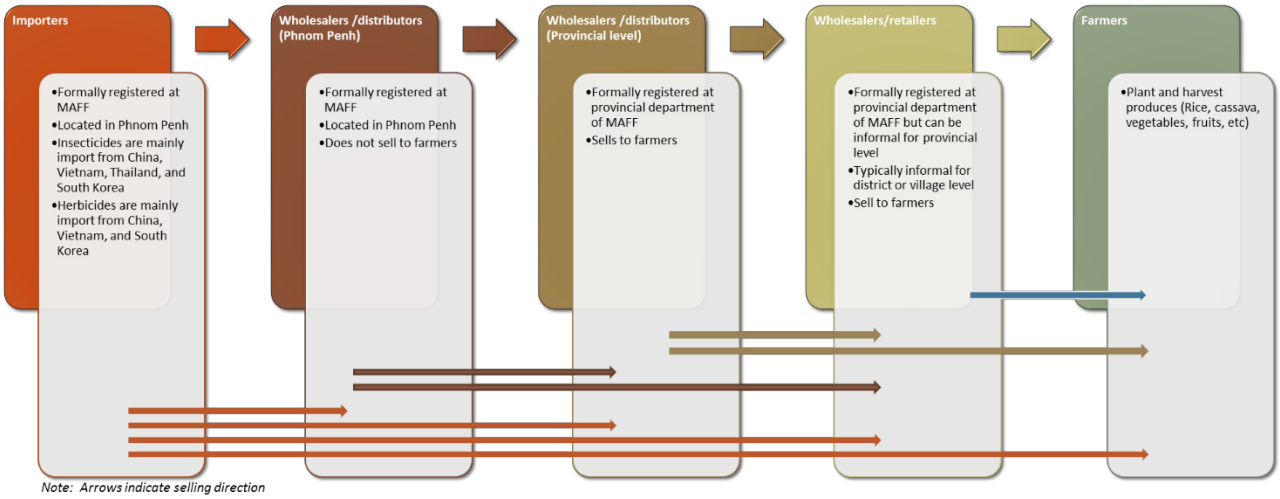
Zone/Province	Pesticides	Fungicides	Herbicides	Other Chemicals Used
Cambodia	**710,845**	**184,560**	**675,927**	**66,113**
Plain zone	***444,395***	***126,086***	***393,944***	***32,091***
Kampong Cham	79,328	27,504	64,533	3,932
Kandal	80,289	38,588	66,204	4,108
Phnom Penh	11,152	532	7,726	2,946
Prey Veng	120,581	21,564	101,744	4,565
Svay Rieng	53,261	14,529	50,099	5,317
Takeo	69,874	17,413	64,353	9,912
Tboung Khmum	29,910	5,956	39,285	1,311
Tonle Sap Lake Zone	**218,082**	**46,490**	**233,215**	**23,595**
Banteay Meanchey	39,667	7,699	53,191	4,891
Battambang	65,123	15,076	75,694	8,193
Kampong Chhnang	24,509	6,190	11,143	1,379
Kampong Thom	36,936	3,501	34,625	3,521
Pursat	27,475	10,183	25,985	792
Siem Reap	16,962	3,459	18,921	3,767
Oddar Meanchey	2,808	152	6,850	211
Pailin	4,602	230	6,806	841
Coastal Zone	**17,506**	**3,270**	**14,220**	**4,411**
Kampot	13,238	2,621	9,642	798
Koh Kong	1,389	345	1,146	22
Preah Sihanouk	2,851	304	3,404	52
Kep	28	-	28	3,539
Plateau and Mountainous Zone	**30,861**	**8,714**	**34,547**	**6,017**
Kampong Speu	13,256	413	3,188	335
Kratie	12,259	6,498	14,962	1,019
Mondul Kiri	980	95	1,328	25
Preah Vihear	1,362	125	1,219	2,565
Ratanak Kiri	2,261	642	11,263	437
Stung Treng	743	941	2,587	1,636

[122] NIS 2015. Available at http://nis.gov.kh/nis/CAC2013/CAC_2013_Final_Report_En.pdf. Accessed on 01 May 2016

11.3.1 Distribution Channel of Insecticides and Herbicides

Importers are formally registered with the relevant ministry and located in Phnom Penh. They work with the entire distribution channel to bring products to market. Importers mostly sell to wholesalers and distributors in Phnom Penh and the provinces, through which traders and smaller retailers will access product to sell to farmers.

Figure 38: Distribution channel of insecticides and herbicides[123]



11.3.2 Pesticides: Summary of Investment Opportunities

Table 42: Summary: Investment opportunities in agriculture inputs: Pesticides

Main Takeaways	• No existing producers, Cambodia is an importer of pesticides • Mostly chemical fertilizers are imported • Main exporters to Cambodia are Thailand, Vietnam, Malaysia and more recently China. • It is easy to establish a market and work with existing distribution channels.
Risks	• Environmental and health risks due to chemicals • Lack of regulation around pesticides, monitoring and registration of pesticides • Limited use or information on organic types of pesticides – demand is there, however marketing and convincing farmers needs to come with the package
	**Exporters:** Exporting environmentally-friendly pesticides.

[123] BDLINK Survey Implementation, 2016

	**Large Investors:** For large investors, production of pesticides if feasible. Opportunity for environmentally-friendly pesticide production
	**SMEs and Entrepreneurs:** Opportunity for bioenergy, green technology or SME production of or setting up home-based fertilizer systems to generate fertilizer from food waste, home waste or other types of waste. It is not clear how much of Cambodia's overall food waste is repurposed for fertilizer.

11.4 Import Duties and Custom Procedures

11.4.1 Import Duties

Duties and taxes are levied on a wide range of imported and exported goods before releasing them from customs, except for goods with special exemption as dictated by law or regulation. As shown in Table 43, custom duties rates for imported goods are 0 percent, 7 percent, 15 percent, and 35 percent. Special tax rates vary from 0 percent to 50 percent. In addition, all imported goods are subject to 10 percent VAT.

Table 43: Rate by types of duties and taxes[124]

Types of duties and taxes	Rate
Import	
Custom Duties (CD)	0%, 7%, 15%, 35%
Special Tax (ST)	0%, 4.35%, 5%, 10%, 15%, 20%, 25%, 30%, 45%, 50%
Additional Tax (AT)	0.02$/litre on gasoline, 0.04$/litre on diesel fuel
Value-added Tax (VAT)	10% flat rate
Export	
Export Tax (ET)	0%, 5%, 10%, 15%, 20%, 50%

There are many incentives to encourage firms to import agriculture inputs such as seeds, fertilizers, pesticides and agricultural equipment. They have zero tariffs, are priority Qualified Investment Projects (QIPs), with a tax holiday of three years and a possible total of nine years (as determined by Decree NS/RK/0609/009 of 2009). Additional incentives for investment are planned for processing facilities, rice milling for export and irrigation.

[124] General Department of Customs and Excise of Cambodia 2015. Available at http://www.customs.gov.kh/publication-and-resources/publications/. Accessed on 01 May 2016

Detailed tariffs for types of agriculture produce is available and updated on the customs website which provides information in English and Cambodian language.

Important Link!

http://www.customs.gov.kh/publication-and-resources/commodity-code-en/

Duty and tax rates are separated into 23 sections on the website covering 98 specific items and their corresponding duties and tax rates displayed. The website cautions that confirmation of duties and taxes must be obtained to ensure most recent data is available. For updated information or queries, please contact your local European Chamber.

The table below provides a summary of 23 sections and elaborates subsections related to agriculture and agro-processing. Investors can click on the link above and find the relevant agriculture resource for updated rates of duties and taxes.

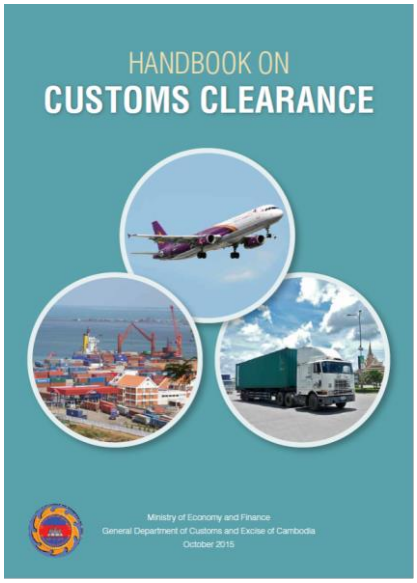
Table 44: Duties and taxes reference lists

Section	Coverage	Subsectors Covered (by numbering system)
Section 1	Live animals: Animal Products	1. Live Animals 2. Meat and edible meat offal 3. Fish and crustaceans, mollusc and other aquatic invertebrates 4. Dairy produce; bird's eggs; natural honey; edible products of animal origin, not elsewhere specified or included 5. Products of animal origin, not elsewhere specified or included
Section 2	Vegetable Products	6. Live trees and other plants, bulbs, roots, and the like; cut flowers and ornamental foliage 7. Edible vegetables and certain root and tubers 8. Edible fruits and nuts; peel of citrus fruit or melon 9. Coffee, tea, mate and spices 10. Cereals 11. Products of the milling industry; malt; starches; inulin; wheat gluten 12. Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder 13. Lac; gums, resins and other vegetable saps and extracts 14. Vegetable plaiting materials; vegetable products not elsewhere specified or included
Section 3	Animal or vegetable fats and oils and their cleavage products; Prepared edible fats; Animal or vegetable waxes	15. Animal or vegetable fats and oils and their cleavage products; prepared edible fats, animal or vegetable waxes.
Section 4	Prepare foodstuffs; Beverage; Spirits and Vinegar; Tobacco and Manufactured Tobacco Substitutes	16. Preparations of meats, of fish or of crustaceans, mollusc or other aquatic invertebrates 17. Sugar and sugar confectionery 18. Cocoa and cocoa preparations 19. Preparations of cereals, flour, starch or milk; pastry cooks' products 20. Preparation of vegetables, fruit, nuts or other parts of plants 21. Miscellaneous edible preparations 22. Beverages, spirits and vinegar 23. Residues and waste from the food industries; prepared animal fodder. 24. Tobacco and manufactured tobacco substitutes
Section 5	Mineral Products	25. Salt, sulphur; earths and stone; plastering materials, lime and cement 26. Ores, slag and ash

Section	Coverage	Subsectors Covered (by numbering system)
		27. Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
Section 6	Products of the Chemical Or Allied Industries	28. Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotope 29. Organic chemicals 30. Pharmaceutical products 31. Fertilisers 32. Tanning or dyeing extracts; tannins and their derivatives; dyes pigments and other colour matter; paints and varnishes, putty and other mastic; inks 33. Essential oils and resinoid; perfumery, cosmetic or toilet preparations 34. Soap, organic surface active agents, washing and lubricating prep., artificial or prepared waxes, polishing or scouring prep., candles and similar, modelling pastes, dental waxes and prep. with basis of plaster 35. Albuminoidal substances; modified starches; blues; enzymes 36. Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations 37. Photographic and cinematographic goods 38. Miscellaneous chemical products
Section 7	Plastics and Articles Thereof; Rubber and Articles Thereof	39. Plastics and articles thereof 40. Rubber and articles thereof
Section 8	Raw hides and Skins, Leather, Fur Skins and Articles thereof; Saddlery and Harness; Travel goods, Handbags and Similar Constrainers; Articles of Animal Gut(Other than Silk-Worm Gut)	41. Raw hides and skins (other than fur-skins) and leather 42. Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worn gut) 43. Fur-skins and artificial fur; manufactures thereof
Section 9	Wood and articles of wood; wood charcoal; cork and articles of Straw, of esparto or of other plaiting materials; basket ware and wickerwork	44. Wood and articles of wood; wood charcoal 45. Cork and articles of cork 46. Manufacturers of straw, of esparto or o other plaiting materials; basket-ware and wickerwork
Section 10	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard; paper and paperboard and articles thereof	47. Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard 48. Paper or paperboard; articles of paper pulp, of paper or paperboard 49. Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans
Section 11	Textiles and Textiles articles	50 - 63
Section 12	Footwear, headgear, umbrellas, Sun umbrellas, Walking Sticks, Seat Sticks, Whips, Riding-Crops and Parts thereof, Prepared feathers and articles made therewith, Article Flowers; Articles of Human Hair	64 - 67
Section 13	Articles of stone, plaster, cement, asbestos, mica or similar materials, ceramic products, glass and glassware	68 - 70

Section	Coverage	Subsectors Covered (by numbering system)
Section 14	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof, imitation jewellery, coin	71
Section 15	Base metals and articles of base metal	72 - 83
Section 16	Machinery and mechanical appliances Electrical equipment, parts thereof, sound recorders and reproducers, television image and sound recorders and reproducers and parts and accessories of such articles	84 - 85
Section 17	Vehicles, aircraft, vessels and associated transport equipment	86 - 89
Section 18	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clock and watches; musical, instruments, parts and accessories thereof	90 - 92
Section 19	Arms and ammunition, parts and accessories thereof	93
Section 20	Miscellaneous manufactured articles	94 - 96
Section 21	Works of art collectors' pieces and antiques	97
Section 22	Special transaction not classified according to kind	98

11.4.2 Customs Procedure



According to ASDP 2014-2018 (MAFF 2015), the MAFF is the facilitator for import clearance procedures for rice seeds, fertilizers, agricultural inputs and machinery.

Based on the Handbook on Custom Clearance of General Department of Customs and Excise of Cambodia (October 2015), customs procedures cover four different categories including: (i) general procedures, (ii) special procedures, (iii) pre-clearance procedures, and (iv) other procedures.

These four categories and their subcategories are printed below. A copy of the publication **Handbook on Customs Clearance of General Department of Customs and Excise of Cambodia (October 2015)** can be found in the footnote link[125]. The Handbook is a very useful and practical guide for investors wanting to understand customs procedures in Cambodia.

[125] http://www.customs.gov.kh/publication-and-resources/publications/

11.5 Laws on Agricultural Inputs

11.5.1 Law on Seed Management and Plant Breeder's Rights

The law on seed management and plant breeder's rights was ratified by the National Assembly in April 8, 2008. The purpose of this law is to manage and control the breeding, release, modification, listing, distribution and export/import of seeds and the protection of new varieties of plants in the Cambodia. In addition, the purpose of this law is also to ensure the management, encouragement and sustainable development of seeds for social, economic, and environmental benefit. The Ministry of Industry, Mines, and Energy[126] is responsible for granting the rights for new plant variety protection while the Ministry of Agriculture, Forestry and Fishery is in charge of managing all other matters relating to seeds such as trade, quality control, and export/import.

11.5.2 Law on the Management of Pesticides and Fertilizers

The Cambodian legislature promulgated the law on the management of pesticides and fertilizers on January 14, 2012, which provides regulations for the use of pesticides and fertilizer by agricultural producers. The MAFF is in charge of regulating agriculture. Those seeking entry into the agricultural sector must apply for a pesticide registration certificate (plentiful registration and permanent registration) and agricultural fertilizer registration certificate from the MAFF. These certificates are valid for a period of three years from the date of registration and can be renewed. The Law also governs patent protection rights for pesticides and agricultural fertilizer, which are legally registered. The valid period of agricultural fertilizer protection and pesticide protection is 5 years and 8 years respectively from the date of registration.[127]

11.5.3 Requirements for Trading Agricultural Inputs

11.5.3.1 Seeds

According to Law on Seed Management and Plant Breeder's Rights, a physical person or a legal entity who imports or exports seeds shall fulfil the required conditions as stated in Table 45.

Table 45: Requirements for seed import and export[128]

Required conditions for seed import (Article 52)	Required conditions for seed export (Article 56)
Make the declaration accurately	Make the declaration accurately
Hold a certificate for seed quality issued by the authority of the exporting country	Hold an export permit issued by the Ministry of Agriculture, Forestry and Fisheries
Have an import permit issued by the Ministry of Agriculture, Forestry and Fisheries	Notify the nearest phytosanitary officer at least one working day before the seeds arrive at the Cambodian border exit point
Inform the Ministry of Agriculture, Forestry and Fisheries at least 10 working days before the seeds arriving at the Cambodian border entry point	Hold a certificate for seed quality
Comply with the phytosanitary regulations of the Kingdom of Cambodia	Comply with the phytosanitary regulations of the importing country

[126] It was separated into two ministries, Ministry of Industry and Handicrafts and Ministry of Mines and Energy.
[127] BNG, 2012.
[128] Law on Seed Management and Plant Breeder's Rights (MAFF 2009). Available at http://www.maff.gov.kh/gda/attachments/article/89/Seed%20Law-translated-final%2025-7-11.pdf. Accessed on 01 May 2016

11.5.3.2 Fertilizers

According to the Law on Management of Pesticides and Fertilizers, a physical person or legal entity who imports or exports fertilizers should have a permit issued by the Ministry of Agriculture, Forestry and Fisheries. During the importation and exportation of fertilizers, importers/ exporters shall comply with the conditions of standard requirements as mentioned in the Table 46 below.

Table 46: Standard requirements for fertilizer importers/exporters[129]

No	Standard requirements
1	Fertilizers shall have been approved for registration according to the provision and procedures of Law on Management of Pesticides and Fertilizers
2	Shall comply with the standard of package, label or leaflet for instruction in Khmer which have been approved for registration
3	Shall have the records related to import/export of fertilizers
4	Shall notify the Ministry of Agriculture, Forestry and Fisheries to undertake the primary inspection, in prior to distribution
5	Shall obtain the certificate of analytical result on the guaranteed analysis of the nutrients issued by a competent authority of the exporting country of origin, in prior to export
6	Shall attach the document indicated the companies or branches who contracted with, for the distribution of imported fertilizers
7	Shall comply with other conditions as required by the Ministry of Agriculture, Forestry and Fisheries

Physical person or legal entity who distributes, wholesales or retails fertilizers shall comply with the conditions of standard requirements as illustrated in Table 47.

Table 47: Standard requirements for fertilizer distributors/wholesalers/retailers[130]

No	Standard requirements
1	Shall obtain a certificate of professional training on "good housekeeping practices" in accordance with the training materials as determined by the Ministry of Agriculture, Forestry and Fisheries
2	The distributor shall have a contract of being a distributor or a branch of a company importing, formulating or repacking fertilizers and holding a permit according to Law on Management of Pesticides and Fertilizers
3	Wholesaler or retailer shall have the list of fertilizers for sale and relevant fact sheets issued by the company, who distributes the fertilizers to their shop
4	Shall comply with the standard requirements of packaging and label in Khmer
5	Shall distribute or wholesale/retail only fertilizers that have been approved for registration and have a legal source of distribution according to Law on Management of Pesticides and Fertilizers
6	Shall comply with other conditions as required by the Ministry of Agriculture, Forestry and Fisheries

[129] Law on Management of Pesticides and Fertilizers (MAFF 2012). Available at http://cambodiantr.gov.kh/kcfinder/upload/files/Law%20on%20Management%20of%20Pesticides%20and%20Fertilizers%20-%20EN.pdf. Accessed on 01 May 2016

[130] IBID

11.5.3.3 Pesticides

According to the Law on Management of Pesticides and Fertilizers, a physical person or legal entity who imports or exports pesticides should have a permit issued by the MAFF. During importation, exportation of pesticides, importers/ exporters shall comply with the conditions of standard requirements as indicated in Table 48.

Table 48: Standard requirements for pesticide importers/exporters[131]

No	Standard requirements
1	Pesticides shall have been approved for registration in accordance with the provision of Law on Management of Pesticides and Fertilizers
2	Shall comply with the standard for container, label or leaflet for instructions in Khmer which have been approved during registration
3	List of pesticide items to be imported or exported, shall be coded by the harmonized system of custom codes
4	Shall comply with the safety measures on import/export of pesticides as required by the Law on Management of Pesticides and Fertilizers
5	Shall have the records of information related to the import/export operation of pesticides
6	Shall inform the Ministry of Agriculture, Forestry and Fisheries to undertake the primary inspection during import/export operation or prior to the distribution
7	Shall attach relevant documents which listed the companies or branches that contracted with, for the distribution of imported pesticides
8	Shall comply with other conditions as required by the Ministry of Agriculture, Forestry and Fisheries

A physical person or legal entity who distributes and wholesales/ retails pesticides shall comply with the conditions of standard requirements as demonstrated in Table 49.

Table 49: Standard requirements for pesticide distributors/wholesalers/retailers[132]

No	Standard requirements
1	Shall obtain a certificate of professional training on "good housekeeping practices" in accordance with the training materials which is determined by Ministry of Agriculture, Forestry and Fisheries
2	Wholesaler or retailer shall have a list of pesticides on sale and relevant records, indicate the companies that distribute the pesticides for their shops
3	Distributor shall have a contract of being a distributor or a branch of the company that imports, formulates or repacks pesticides, holding a permit in accordance with Law on Management of Pesticides and Fertilizers
4	Shall comply with the standard of packaging and label in Khmer
5	Shall distribute and wholesale/retail pesticides which have been registered and originated from legal sources in accordance with Law on Management of Pesticides and Fertilizers
6	Shall comply with other condition as required by the MAFF

[131] Ibid
[132] Ibid

12 Investment Opportunities Summary Matrix

12.1 By Theme

Table 50: Investment opportunity summary matrix, by major theme

Sector / Subsector	Facts	Opportunity to		Other comments and opportunities
		Export to Cambodia	Export from Cambodia	
Modern irrigation	Demand for irrigation for smaller holdings Modern irrigation such as sprinkler systems or sprays are becoming popular, however have not yet taken off Will be increasingly in demand as double cropping or multiple cropping becomes more popular	Yes	No	Public-private partnerships on large scale irrigation Import of sprinklers or irrigation systems for rural and smaller farm holdings to enable double and multiple cropping. Manufacturing of sprinkler systems in Cambodia with the possibility
Modern agriculture machinery (production)	Demand for agricultural machinery is increasing. Increase in commercial farming. Increase in double cropping	Yes	No	Work with existing distribution networks Build a brand of machinery and provide servicing Manufacturing plants which could assemble machinery or produce machinery parts Recycling of old pumps and machinery could be an investment opportunity as all current machinery may need to be replaced in ten years.

Sector / Subsector	Facts	Opportunity to		Other comments and opportunities
		Export to Cambodia	Export from Cambodia	
Modern agriculture machinery (Agriculture supply chain)	Untapped	Yes	No	Cold storage trailers that can be hooked onto transport Quick freeze technology – commercial but also semi-commercial for smaller holdings Green technology cold storage – for commercial and semi-commercial purposes Commercial and semi-commercial processing machinery
Seeds	The needs for high yield and high quality seeds Limited private sector involvement in seed production in Cambodia Limited capacity in country to meet the seed demand thus exporting opportunities increasing, and R&D opportunity for investment.	Yes	No	Opportunity to invest in seed manufacturing in Cambodia
Fertilizer	Increasing demand for inputs including fertilizer, and pesticides Limited private sector investment in fertilizer production	Yes	No	Opportunity to invest in fertilizer production or even home-based fertilizer production systems Green energy / biofuels / food / oil waste management for large farms/hotels
Pesticides	No production in country Everything is imported Challenges with fake and harmful pesticides especially if labels are not in the local language	Yes	No	Import

12.2 By Crop

Table 51: Investment opportunity summary matrix, crops and agro-processing

Sector / Subsector	Facts	Opportunity to		Other comments and opportunities
		Export to Cambodia	Export from Cambodia	
Rice	Yields need to be improved. Good prospects for increased exports of fragrant rice to China and other countries. More MOUs for rice export signed between the government and some countries Paddy rice areas under irrigation are still low. More investment into irrigation system is needed in order to extend irrigation Limited access to high yield rice seeds by farmers due to supply shortage and high prices.	No	Yes	Investment in current mills is a possibility Opportunity for inputs supply (see above) Focus on premium brands only with the most value No premium "rice flour milling" or other food production with Cambodian rice – i.e. rice bars, health snacks etc – there is great potential given the variety of inputs to set up food processing and additional value-added on rice
Rubber	Production of natural rubber and export of rubber is increasing. Global market prices impact Cambodia production	No	Yes	Production of goods with rubber – no value-added on rubber, whether condoms, plastic bags, consumer goods or even medical products.
Other crops such as cassava, maize, soybean, cashew etc.	Production increasing Quality is good No processing except for drying Attractive market opportunities	No	Yes	Manufacturing or value-added based processes to be done in Cambodia All crops need quality inputs (See table above)
Fruits and vegetables	Cambodia imports around 30 to 40 percent of its domestic consumption Small export market (e.g. bananas to China, Mango to China and Korea) but production needs to intensify	No	Yes	No value-added processing on Cambodian fruits and vegetables at a commercial level NGOs process at a cottage level Dried mangoes, jams, preserves, or other snacks

Sector / Subsector	Facts	Opportunity to		Other comments and opportunities
		Export to Cambodia	Export from Cambodia	
Live stock	Large amount of imports of livestock Low local production of livestock for commercial purposes.	Yes	No	Animal husbandry for local production i.e. import breeds from Europe to build up a credible stock in Cambodia similar to an MRT group testing this method with pigs. Curing, preserving or value-added processing of meat is not at a commercial level yet - opportunities exist to open this industry
Fisheries	Government promotes aquaculture	Yes	No	Investment in harvest and post-harvest technology to meet global market standards would provide a catalyst for improved access to export markets. Value-added fish products such as commercial fish ball production for export High value-added species are already produced and there are opportunities for others, such as sultan fish, catfish and freshwater shrimp in intensive and extensive systems. Specialty species like rice field eel and frogs Bighead carp can produce a high grade fillet for export.
Milk and dairy products	Large quantities of milk and dairy products imported into the country with very low local supply. Still very low investment in milk and dairy production	Yes	No	Value-added production such as yoghurts and milk-based products. Niche products could make for attractive exports – combine a health bar with Kampot pepper, premium rice, chocolate as an example. Huge opportunity to export milk, cheese, yoghurt, baby milk, baby powders etc. to Cambodia

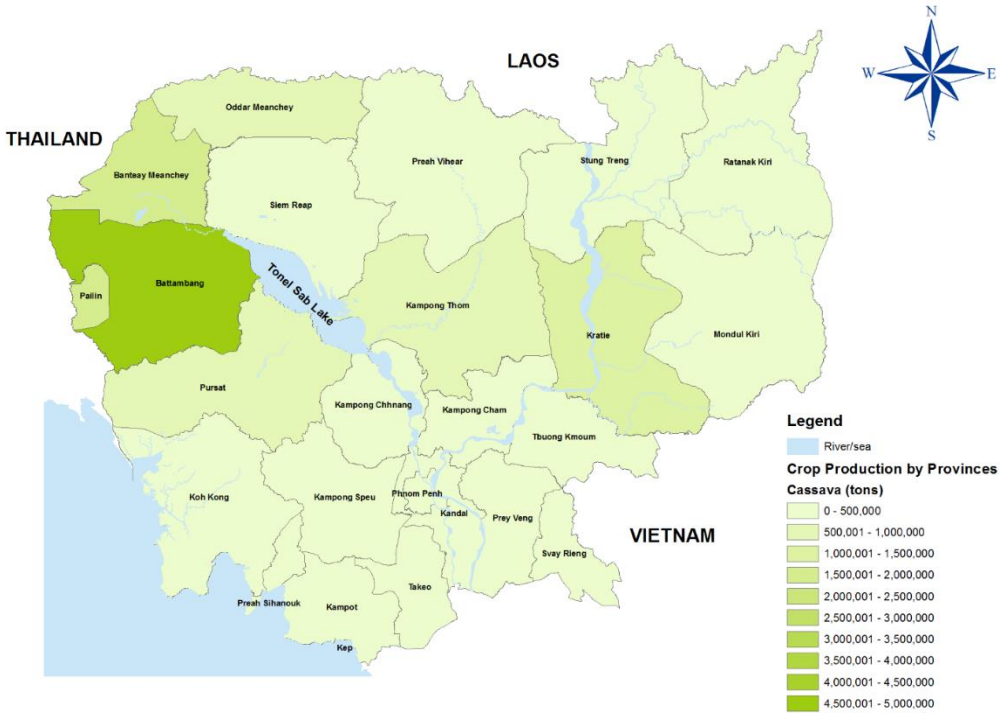
12.3 By Investor Type

	Exporter	Large Investor	SME
			
Modern irrigation	Export modern irrigation equipment to Cambodia for small, medium farms	Investment into irrigation systems and distribution of water Manufacturing plants for irrigation systems	PPPs in irrigation Production and manufacturing of innovative irrigation systems
Modern agriculture machinery (production)	Export to Cambodia and support marketing and maintenance services for all types of agricultural machinery	Manufacturing plants for agriculture machinery or parts of agriculture machinery	Maintenance and production/manufacturing of machinery
Seeds	Export high quality and drought/flood resistant seeds to Cambodia. A need for high quality inputs.	Research and development of seeds and seed varieties in Cambodia Production of seedlings in Cambodia	Research and development of seeds and seed varieties in Cambodia Production of seedlings in Cambodia
Fertilizer	Export high quality and organic fertilizer to Cambodia	Limited production of fertilizer	Production of fertilizer
Pesticides	Export high quality and environmentally-friendly pesticides to Cambodia	Production of pesticides that are environmentally-friendly	Production and development of pesticides that are environmentally-friendly.
Rice	Limited	Production and milling Agro-processing and product development	Product development and agro-processing
Rubber	Limited unless related to machinery and development of agro-processing sector	Agro-processing and product development Manufacturing of rubber products	Agro-processing and product development Manufacturing of rubber products

	Exporter	Large Investor	SME
			
Other crops such as cassava, maize, soybean, cashew etc.	Limited	Agro-processing and product development Value-added manufacturing and creating Cambodian-made products	Agro-processing and product development Value-added manufacturing and creating Cambodian-made products
Fruits and vegetables	Limited	Agro-processing and product development	Agro-processing and product development
Live stock	Limited	Value-added manufacturing and creating Cambodian-made products	Value-added manufacturing and creating Cambodian-made products
Fisheries	Limited	Agro-processing and product development	Agro-processing and product development
Milk and dairy products	Limited	Agro-processing and product development Value-added manufacturing and creating Cambodian-made products	Agro-processing and product development Value-added manufacturing and creating Cambodian-made products

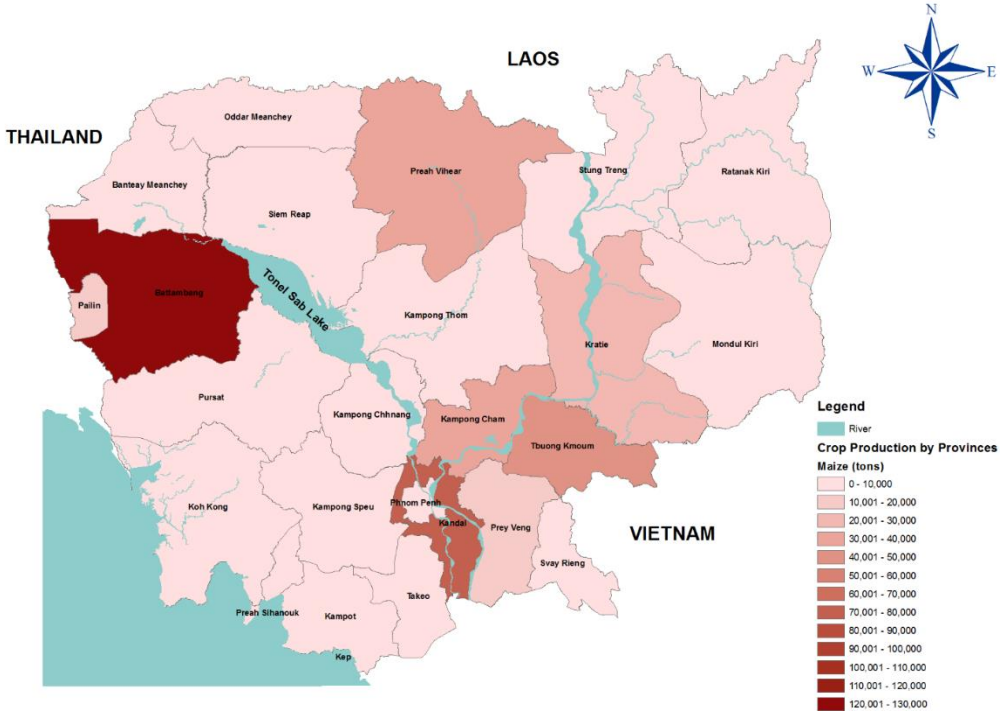
Appendix: Cambodia Maps by Agriculture Production

Map 7: Cassava production by province in 2015 (tons)



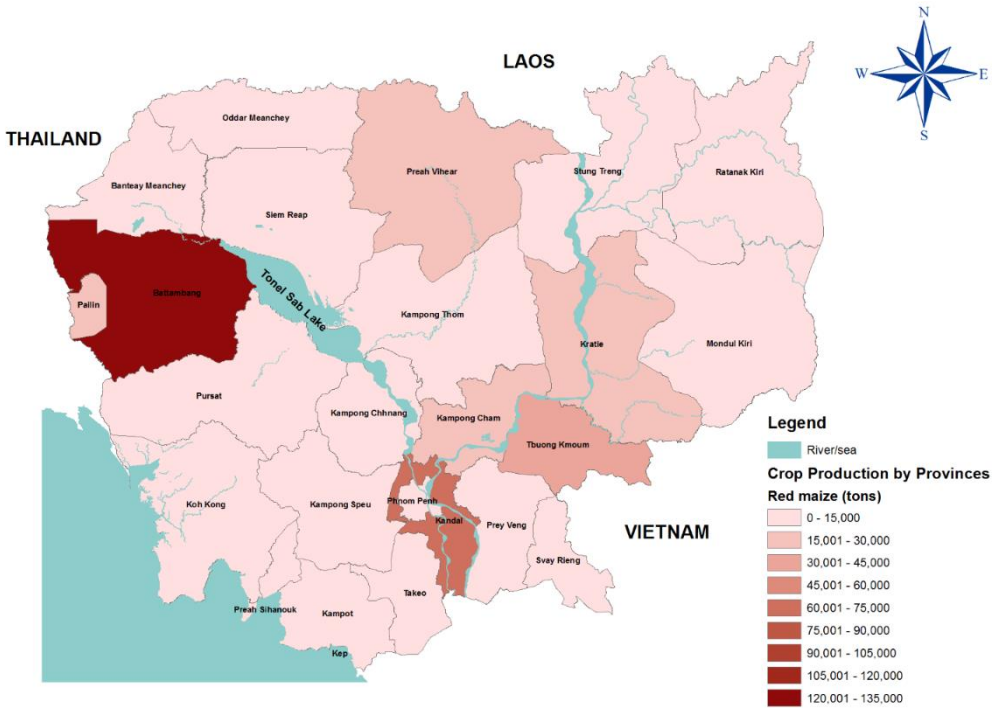
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 8: Maize production by province in 2015 (tons)



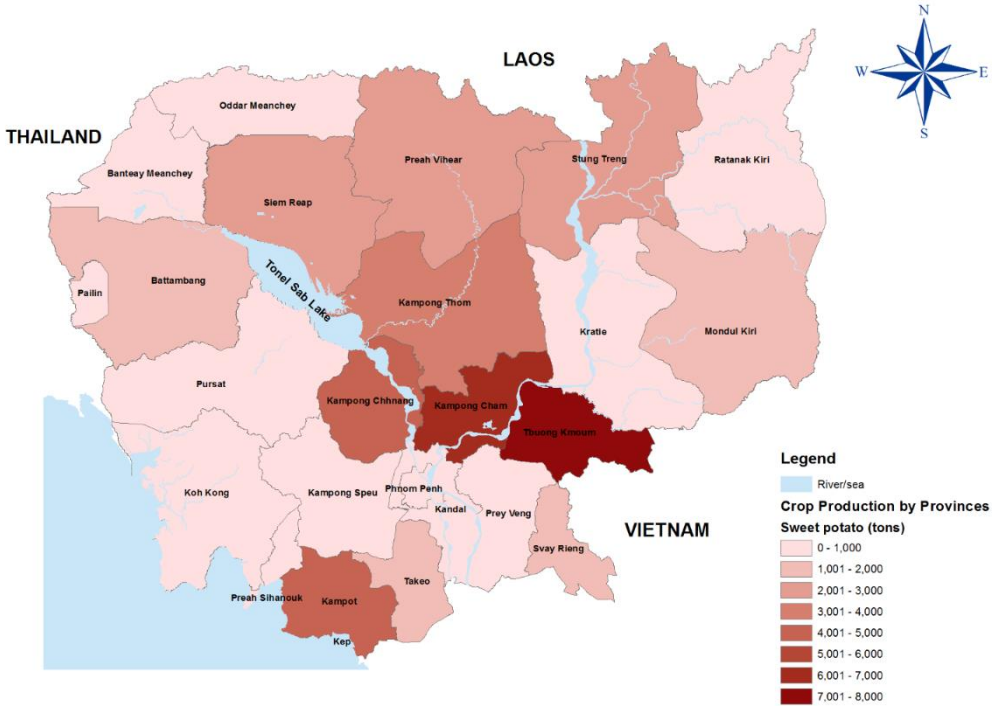
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 9: Red maize production by province in 2015 (tons)



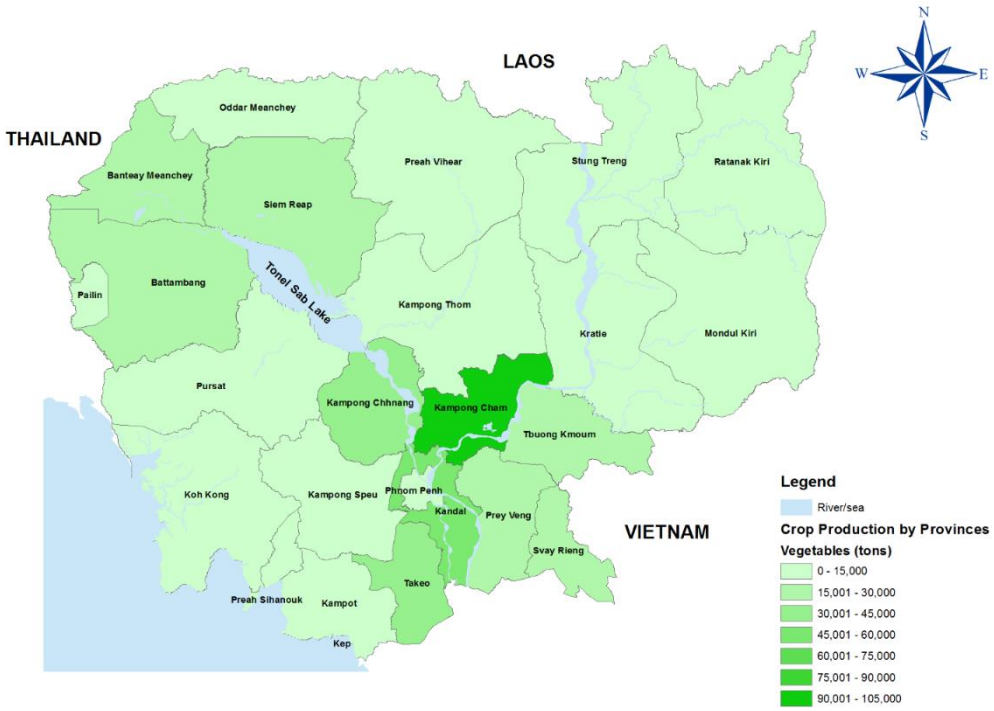
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 10: Sweet potato production by province in 2015 (tons)



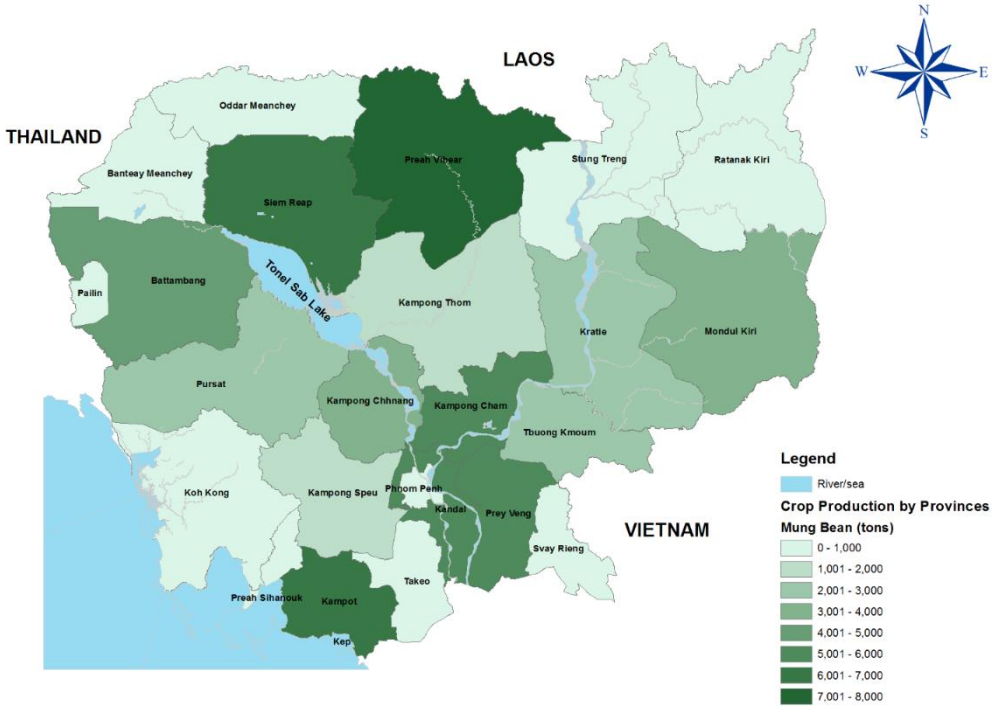
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 11: Vegetable production by province in 2015 (tons)



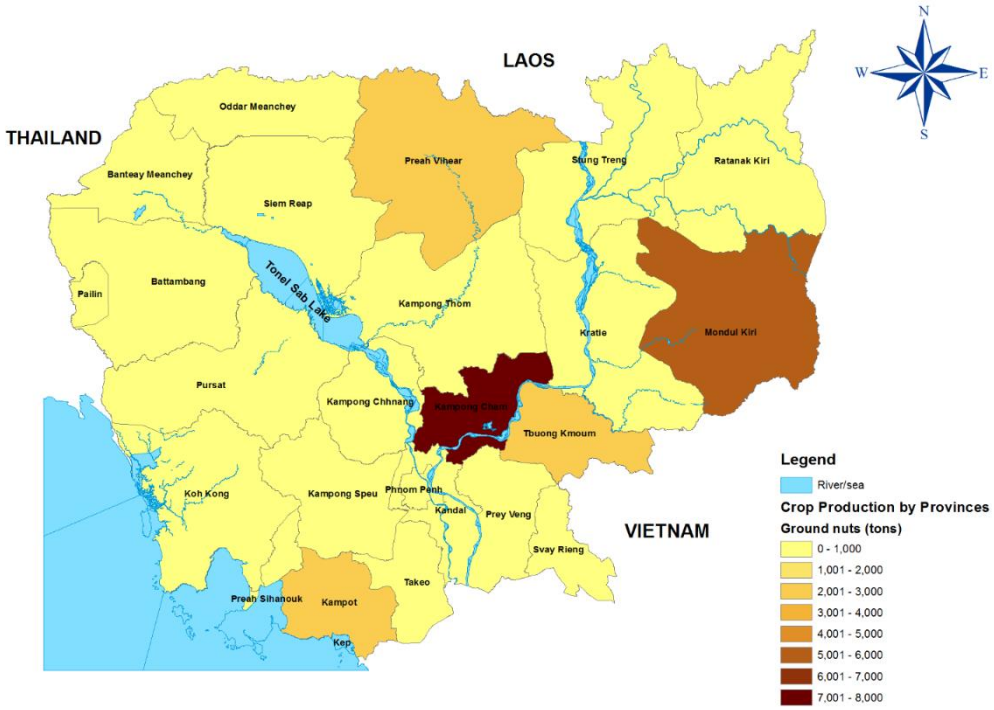
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 12: Mung bean production by province in 2015 (tons)



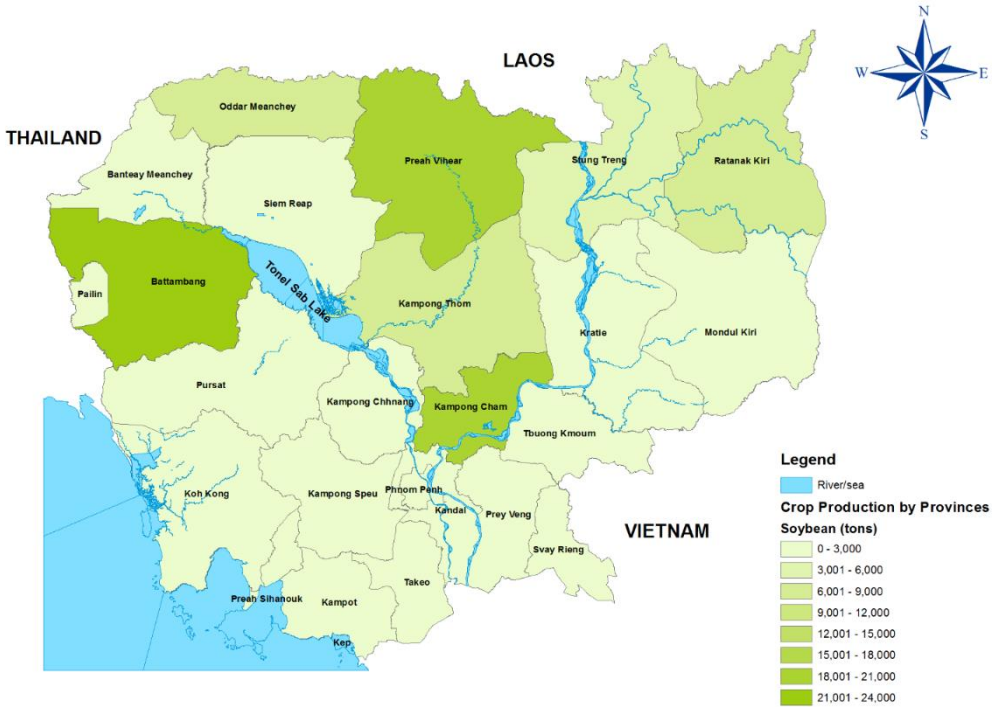
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 13: Groundnut production by province in 2015 (tons)



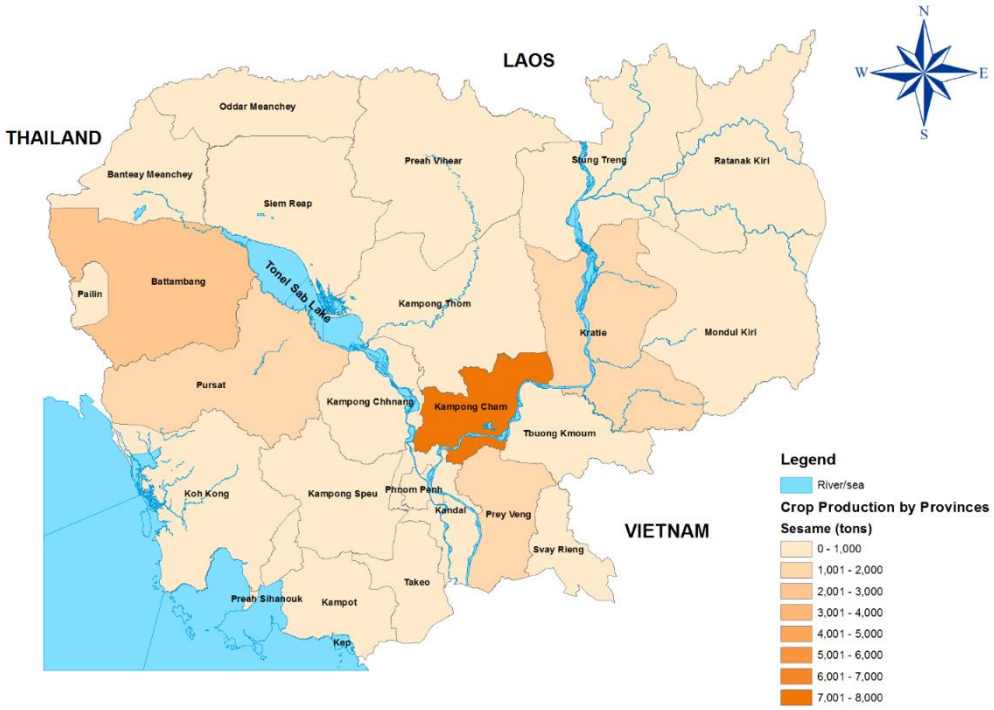
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 14: Soybean production by province in 2015 (tons)



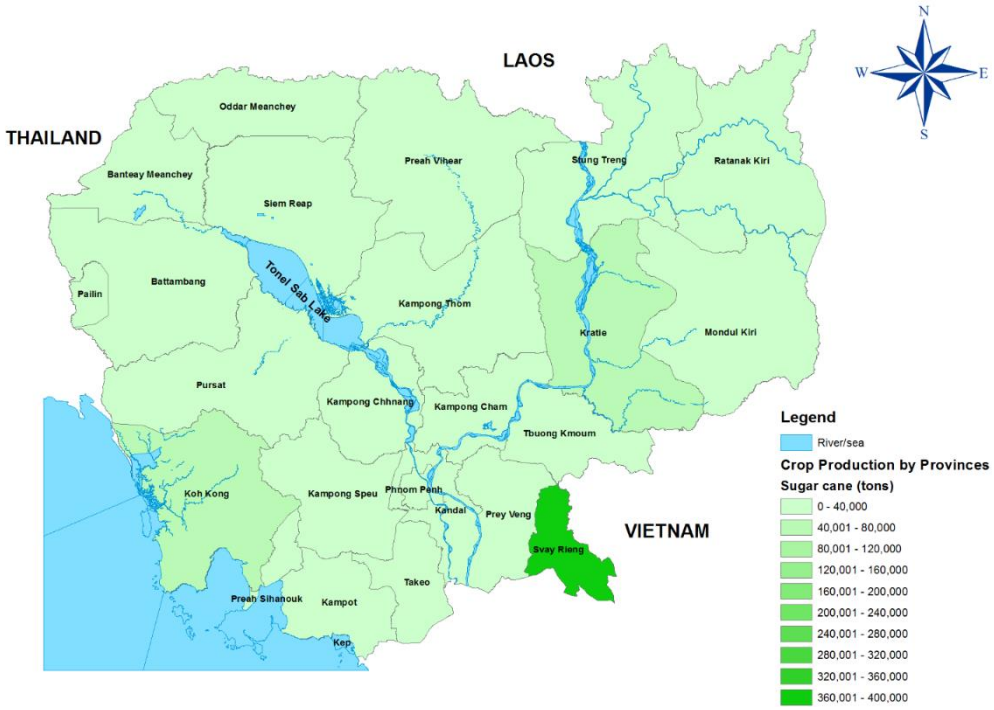
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 15: Sesame production by province in 2015 (tons)



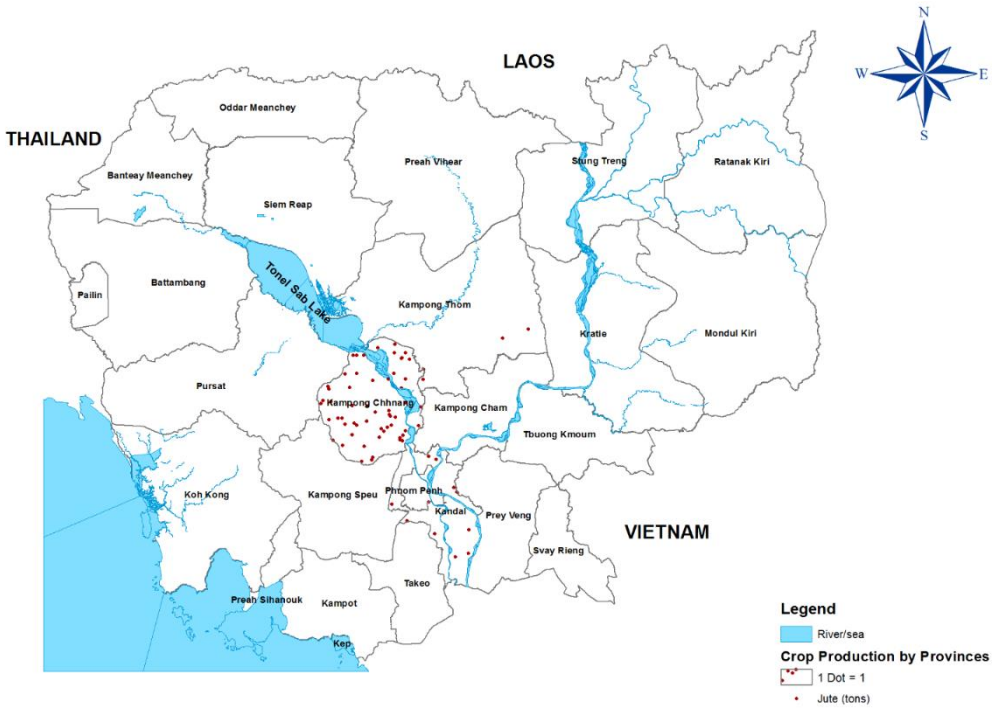
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 16: Sugarcane production by province in 2015 (tons)



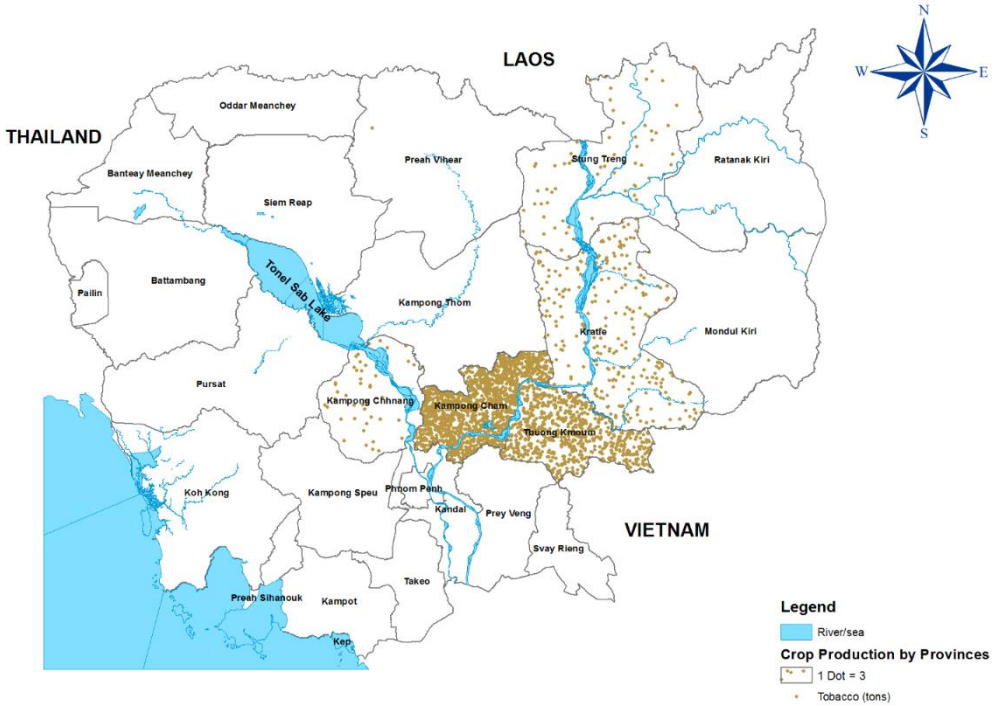
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 17: Jute production by province in 2015 (tons)



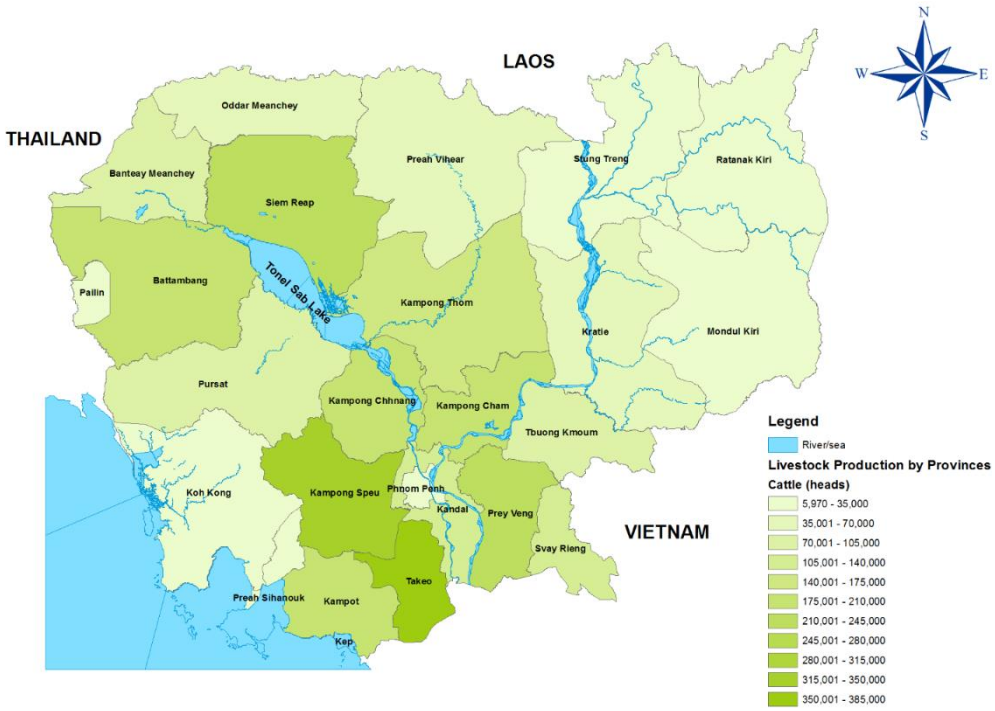
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 18: Tobacco production by province in 2015 (tons)



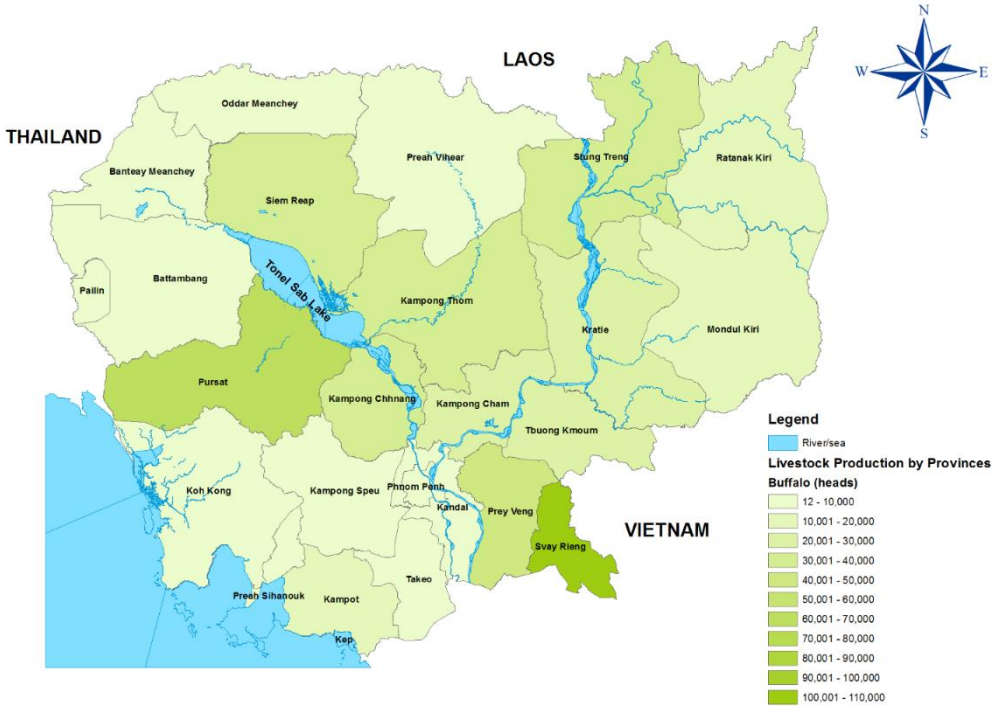
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 19: Cattle production by province in 2015 (heads)



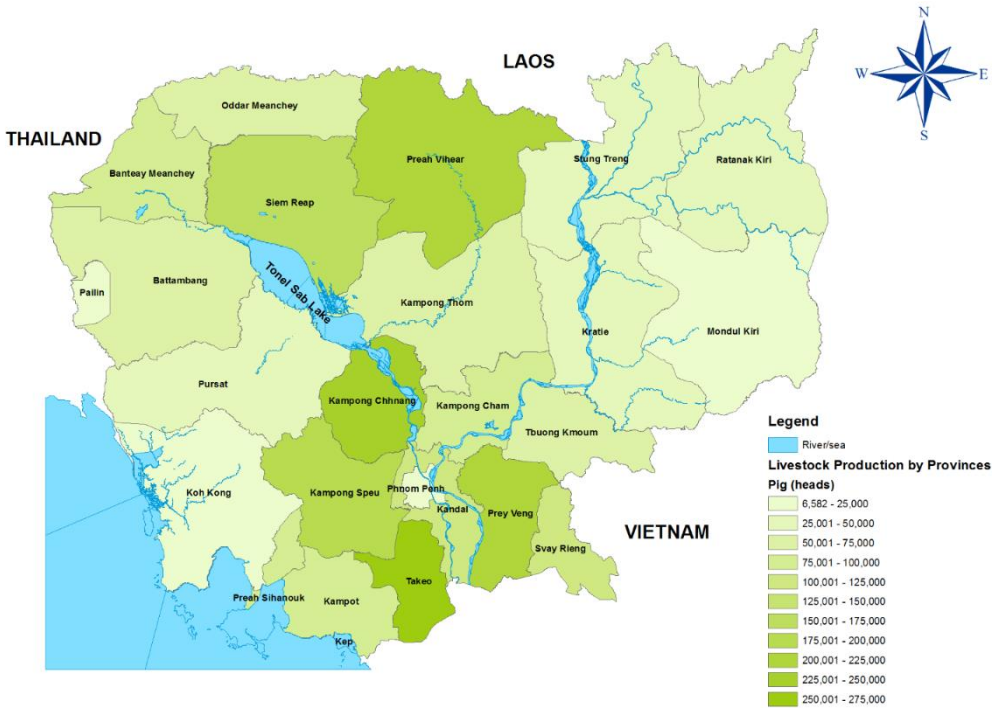
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 20: Buffalo production by province in 2015 (heads)



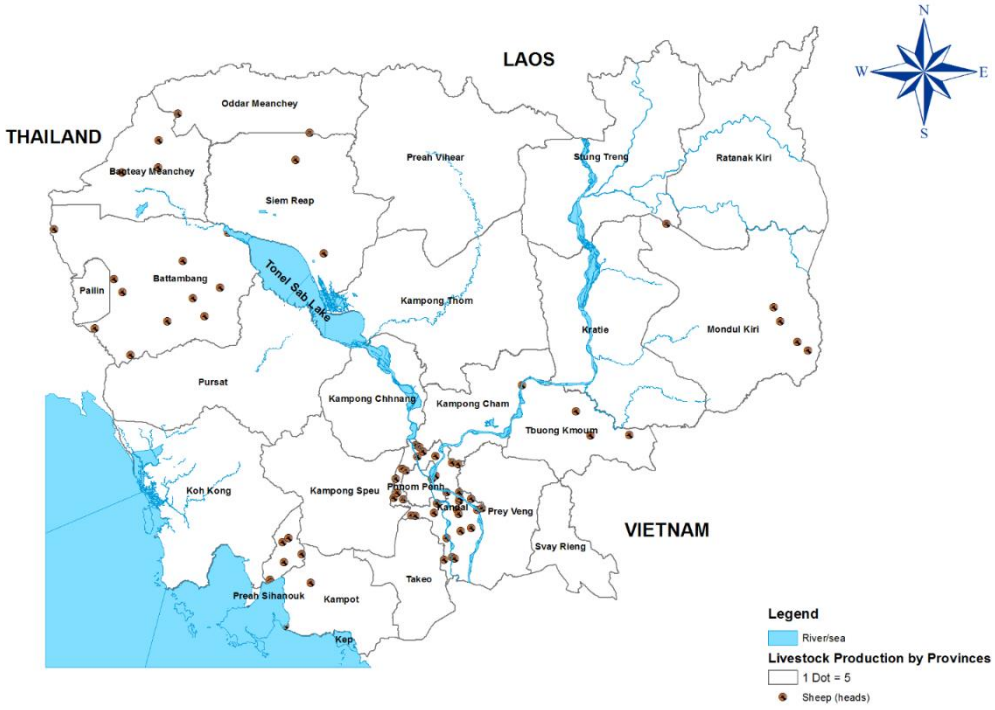
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 21: Pig production by province in 2015 (heads)



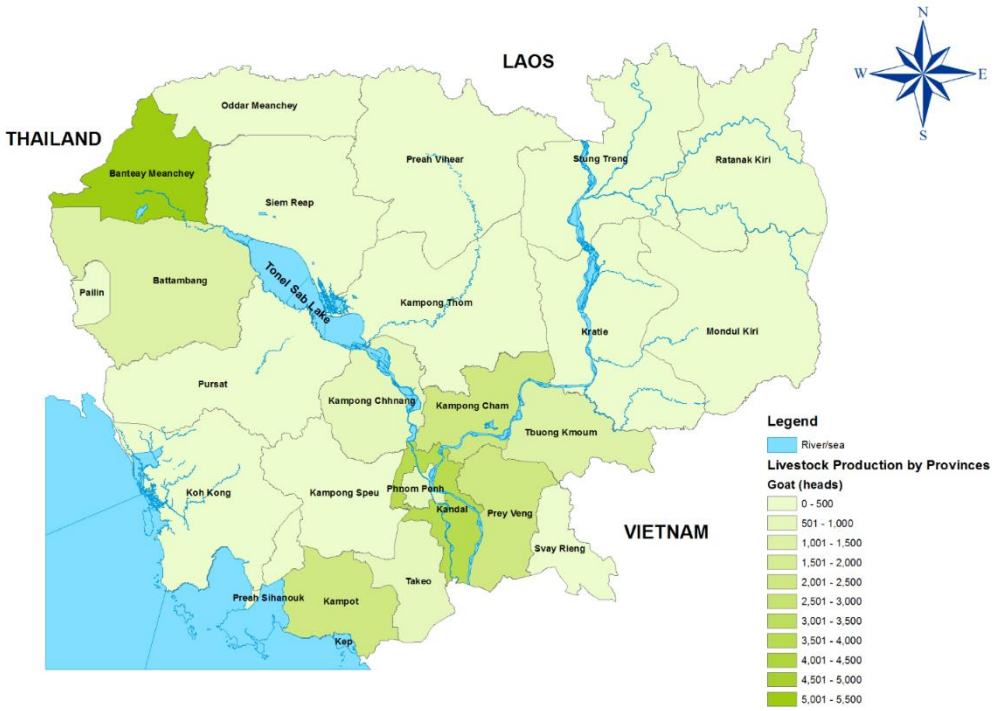
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 22: Sheep production by province in 2015 (heads)



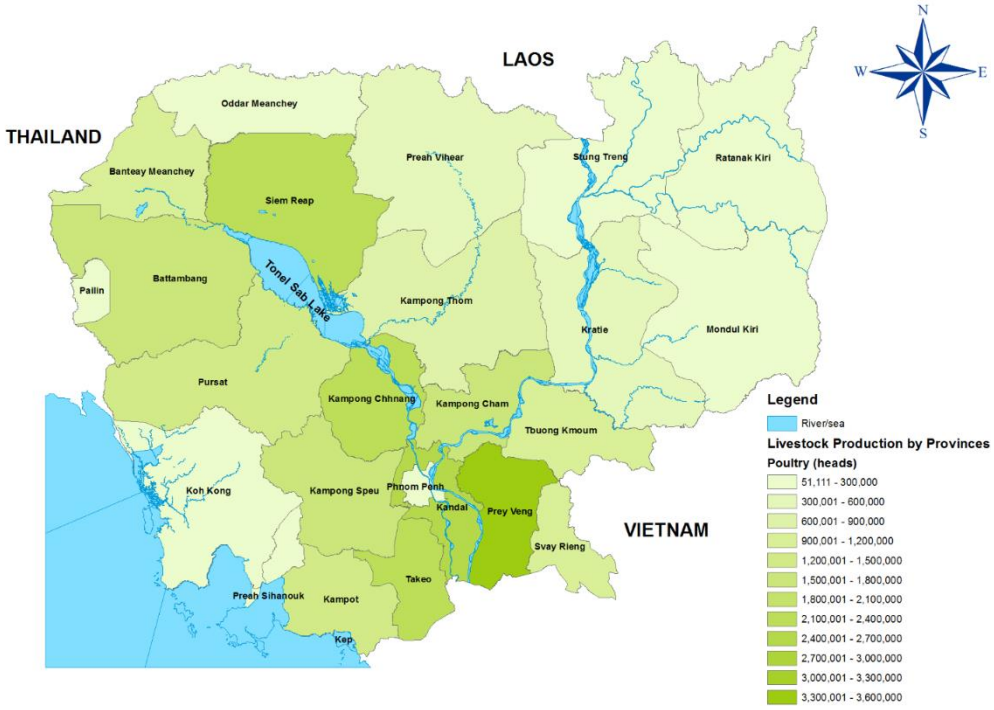
Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 23: Goat production by province in 2015 (heads)



Source: Generated by BDLINK, using MAFF's report 2015-2016

Map 24: Poultry production by province in 2015 (heads)



Source: Generated by BDLINK, using MAFF's report 2015-2016

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