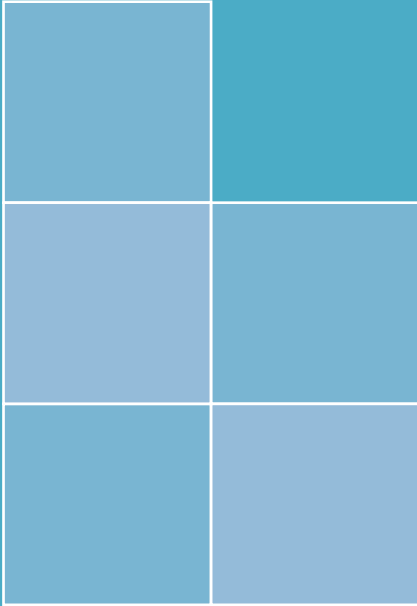


**MAY**

**2011**



# **Research on Agro-tools Market Mapping and Analysis**

## **Final Report**

**By**

**Dynamic Alliance Consulting**

**(DAC Group)**

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## SUMMARY

1. Cambodian Agricultural Value Chain (CAVAC) has granted Dynamic Alliance Consulting Group (DAC) to conduct a study on Agro-tools Market Mapping and Analysis in the three target provinces of CAVAC (Kampong Thom, Takeo, and Kampot). The study includes the determination of agro-tools companies, importers, distributors, dealers, and local manufacturers involved in agro-tools such as power tillers, tiller accessories, spray machine, pumps and engines, weeders, threshers, combine harvesters, tractors, tractor accessories, etc.
2. Cambodia agricultural sector increases slowly due to the economic crisis and the growth follows an uncertain pattern. The sector accounted a GDP of 29% in 2010, an increase from 26.8% in 2008 and 28% in 2009. 43% of GDP was accounted for service sector and 28% for industrial sector. Although agriculture occupies 70% of workforces.
3. The country plans to rise rice production to 9 million tons of paddy by 2015. The Royal Government of Cambodia (RGC) plans also to export 1 million tons of milled rice by 2015. To achieve this target, the country needs more foreign investment, especially the installation of rice mill facilities. At present, most of the Kingdom's paddy rice is sent to Vietnam or Thailand to be milled and re-exported.
4. In term of agribusiness market, there is great potential to further develop agriculture in Cambodia such as infrastructure, technology, irrigation as well as the availability of land, cheap labor, growth of consumption, etc.
5. Cambodian agricultural administration has three main stratum: the Ministry of Agriculture, Forestry, and Fisheries, the twenty Provincial Departments of Agriculture (PDA) and the District Office of Agriculture. The instruction is given by MAFF to the PDA which then hand over to the District Office of Agriculture (DOA). The main tasks of DOA are to collect data, identify disease outbreak, and disseminate the decision taken at the Ministry.
6. The agricultural policy of the RGC is to accelerate the agriculture sector as a dynamic force for economic growth. The RGC has developed the policy on Promotion of Paddy Production and Rice Export which takes measures related to paddy production, paddy collection and processing, rice export facilitation system, and marketing. Thus until present the agricultural policy to agro machinery was not developed. Meanwhile agro machinery plays an important role in agricultural development such as in the neighboring countries Thailand and Vietnam.
7. The Department of Agricultural Machinery was inactive during a long period. Recently as the RGC set the goal of export 1 million ton of milled rice in 2015, this department has resumed the activities as well as the Office of Agricultural Machinery at provincial level. The provincial level comprises the staffs of 3 to 6. MAFF just put in disposal more than 100 tractors to intervene within

the 24 provinces of Cambodia. All tractors belong to MAFF and have to be sent back to MAFF after intervention.

8. The Department of Agricultural Machinery has major responsibilities in conducting research and indicating appropriate agricultural machinery zone, formulating principles and technical norms, initiating agro-tool production, providing technical advices and extension.

9. Agricultural machinery (tractors, water pump, harvester, spare parts) is tax free for Specific Tax (SP) and Custom Duty (CD), but it is required a VAT of 10%. However in the real practice, importers and companies arrange with the government official to do the process.

10. Agricultural machinery company registration is under the Ministry of Commerce (MOC) and the Ministry of Economy and Finance (MEF). All agro-tools to be imported have to be declared and approved by the Department of Agricultural Legislation of the Ministry of Agriculture, Forestry and Fisheries (MAFF). As the legal process at MAFF takes longer time and huge amount in term of financing (around 12,000 USD), importers often skip this process.

11. Since 2001, agricultural machinery has increased 6-fold. The use of tractors, small power tillers and mechanical harvesters were widely adopted. In 2001 farmers owned around 1,000 tractors and 10,000 power tillers. Until 2011, there are roughly 6,000 tractors and about 60,000 power tillers. Mechanization of farm operations offers several advantages which include timeliness of operation, efficiency in performing farm operations, reduction in labor man-hours, and increasing land and labor productivity.

12. During the solidarity system (1979 – 1987) only the State could use agricultural machines and all cultivated lands belonged to the State. By 1987, since the government began the reforms by widely open free market mechanism, more and more farmers started using machines and changed from producing for family consumption to trading.

13. The use of agricultural machinery is more advance in Takeo province. Kampong Thom province just adopted by 2005 when the movement of dry season rice production began. The use of agricultural machinery in Kampot province does not evolve much and the number of machines used is very low compared to Takeo and Kampong Thom.

14. Most of agro-machineries are imported from abroad such as Japan, Thailand, China, Russia, etc. The majority of importers are in Phnom Penh which have their distributors in provinces and around Phnom Penh. Marketing and promotion of products, as well as technical assistant and services are provided by importers and head firm in Phnom Penh. Several modalities of payment practiced including cash payment at once, credit of 1 to 3 months. Some credits extend to 6 months. Siam Kubota is a dominant product in the market.

15. Siam Cement Group (SCG), represents Siam Kubota products, is the big player in the power tillers sector. The products cover in almost all provinces in Cambodia where in each province there is

one Siam Kubota Agent Dealer (AD) or distributor. The sale volume of Siam Kubota power tiller in 2011 was 9,000 units in Battambang, 3,000 units in Kampong Cham, 1,000 units in Kampong Thom, 600 units in Takeo and 600 units in Kampot. Meanwhile Chinese power tillers and 2<sup>nd</sup> hand Japanese power tillers still occupy important market.

16. The market of tractor is more concentrated in the western region of Cambodia (Battambang, Pailin, and Bantey Mean Chey). Some key importers play in this sector including RMA Group which represents John Deere tractor, BVB Machinery Trading which represents New Holland and Mitsubishi tractor. There are also some importers who represent Chinese tractor such as Shandong Agriculture Machinery, Uy Tong Enterprises, and some other importers. Importers of Chinese machinery do not have Agent Dealer in provinces. The products are sold directly from Phnom Penh to end users in provinces.

17. In all the three provinces, Siam Kubota products occupy the big parts of market. In Kampong Thom province, nearly 80% of market share of power tiller is covered by Siam Kubota dealer. The remaining market shares are for the other two distributors. In Kampot province, there is only one Siam Kubota dealer in the sector. The other players who sell Chinese products are small and could not compete with Siam Kubota products. In Takeo province, there are two main players in sector. One represents Siam Kubota products and another one sell mixed products. Currently the market in Takeo is dominated by Siam Kubota products.

18. There are not many players in the manufacture sector. In Phnom Penh, the manufactures are located in Russey Keo commune. Each manufacturer has its specialty such as producing accessories for tractors, thresher, local truck, etc. In Kampong Thom, there are around 10 manufacturers who produce mainly thresher. The production volume is 60 – 70 units per year. The price of threshing machine in Kampong Thom rank from \$1,200 to \$1,700 according to the size and power engine. There are 4 manufacturers in Takeo province of which only one manufacturer plays the important role and claims his products are the most advanced technology with the threshing capacity of 3 tons to 6 tons/hour (2.5 tons/hour for normal thresher). The prices start from \$7,000 to 10,000 per unit. There is no manufacturer in Kampot province. The products are bought mainly from Takeo.

19. There are around 100 land leveling service providers in Takeo province and 70 in Kampong Thom. In Takeo, the services started in 2001 and the demands grew by 2008. In Kampong Thom, the services started in 2003 and the high demand grew by 2006 following the movement of dry season rice cultivation. Most of land leveling service providers use tractor Belarus 80 hp or Ford 60 hp and spare parts bought from local manufacturers in Russey Keo, Phnom Penh. In Kampong Thom, the service fee is \$30/hour and \$20/hour in Takeo. There is no land leveling service provider in Kampot province.

20. For water pumping services, the study was conducted in Koh Andeth district of Takeo province and in Bantey Meas district of Kampot province. In Koh Andeth, there are 7 service providers who cover on average 300 ha of cultivated land per provider. In Bantey Meas, there are

only 3 service providers. 90% of pumping engines are Chinese products. The power engine ranks between 25 and 35 HP. All support equipments are bought from manufacturers in Vietnam which have higher pumping capacity. The service fee is 500kg to 600kg of paddy per ha of irrigated land in Takeo and 200kg per ha in Kampot but farmers are responsible for fuel. The services have been started in 2005 in both Takeo and Kampot provinces. But in Kampot the service is not much evolved until 2009 when farmers have good irrigation system.

21. Agricultural machinery sector in Cambodia face several constraints including high cost of products, difficulty in access to loan to buy agro-tools, big investment for distributors (high risk), low quality of local manufactured products, low knowledge in the use and maintenance, low profitability resulted from the use of poor quality agro-tools.

22. There is a big change in agricultural machinery sector. Local threshing machine is being replaced by small harvesters and combine harvesters. There is a growth of the use of power tillers and the switch from using Chinese tiller to Kubota tiller. Farmers predict that in the future people will switch from power tiller to small tractor. New agro-tools such as rice dryer, seedling machine, pesticide sprayer, fertilizer machine, etc., will be present widely in Cambodian agricultural fields in the future 3 – 5 years. Local production such as plow, harrow, shovel, etc. (accessories for tractors) and spare parts will increase as well thanks to the growth of rice, cassava, maize cultivation and rubber plantation.



## **1. INTRODUCTION AND BACKGROUND OF THE STUDY**

Cambodia has a population of nearly 14 million and depends on agriculture (mainly rice), followed by livestock, fisheries, and forestry (Agricultural Sector Strategic Development Plan 2006 – 2010). Agriculture remains the mainstay of the Cambodia economy, employing about 80 percent of labor force. During the first mandate, the Government of Cambodia changed the main focus of national institutions, particularly economic institutions in compliance with the free market economic performance.

In the context of a free market economy, the Ministry of Agriculture, Forestry and Fisheries had transformed the policies related to subsidy and production into policies more related to service. Technical, extension, supply and intervention services were provided to farmers, who comprise about 80 percent of the population.

Agriculture is also the most important sector for employment, employing more than half of the country's total labor force. Agriculture is more important for the rural poor as it provides their most important source of income. Rice is the dominant crop in Cambodian agriculture and a rice-based farming system has existed in the country for more than 2,000 years (Nesbitt, 1997). As a low-income country, Cambodia is dependent on rice as a strategic commodity for income growth, poverty reduction, and national and household food security.

Cambodian agricultural machinery is still very low; the majority of farming, especially rice cultivation, still uses traditional tools. Animals are the main draft sources – 54% of farmers still use cattle and buffaloes. The use of small machinery is growing, especially for tillage. The number of tractors is growing as well. Since 2001, agricultural mechanization has increased 6-fold. Beside the growth of the use of power tillers, the use of combine harvesters for rice harvesting is still limited.

The study was granted to Dynamic Alliance Consulting Group (DAC) the consultants were mobilized into the field by February 2011. The DAC team consisted of Meak Pramol, Heang Suo-Saravorn, and Chey Tech.

### **Objectives of the Study**

The objectives of the study are:

1. To determine the companies, importers, dealers, distributors, and manufacturers involved in agro-tools such as power tillers, tiller accessories, spray machines (including knapsacks and tractor mounted), pumps and engines, weeders, threshers, combine harvesters, tractors, tractor accessories, etc. especially for rice, cassava and vegetables;
2. To study Agrotol supply market within Phnom Penh and the 3 CAVAC target provinces of Takeo, Kampot, and Kampong Thom;

3. To make a list of the equipment that is available to growers within each of the 3 provinces and the distribution and/or manufacturing, distribution and marketing;
4. To study the companies' business models;
5. To study the trend of sales over the past 3 years of imported vs. locally made for each Agrotol in terms of supply of each of the various agro-tools by suppliers;
6. To gather information on preferences of farmers on pumps and threshing machines and the trend for the future.

## 2. METHODOLOGY OF THE STUDY

### Implementation of the Survey

Field work has been conducted from February 10 until April 24 in 3 provinces and in Phnom Penh capital. The 3 provinces namely Kampong Thom, Takeo, and Kampot, are the target provinces of CAVAC.

The following table shows the location and individuals and groups of stakeholders who have been interviewed or were invited for a group discussion in each studied province.

**Table 1: Location and participants contacted**

Location	Participants Contacted
Phnom Penh	Department of Agricultural Machinery, Importers, distributors, retailers, manufacturers
Kampong Thom	PDA, distributors, manufacturers, land leveling service providers, farmers, dry season rice association
Takeo	PDA, DDA, distributors, manufacturers, land leveling service providers, water pump service providers, growers
Kampot	PDA, DDA, distributors, retailers, water pump service providers, growers

*There is no manufacturer in Kampot*

### Questionnaires and Focus Group Interviews

The Team has developed questionnaires in consultation and exchanged with CAVAC team. By using means of structured interview, the Team has attempted to collect information as following:

- Type of business

- Agricultural equipment traded (quantity, power class, brand, price, volume of sale, country of import)
- Type of clients and their preferences
- Payment modality
- Business constraints
- Market trend over the past 3 – 5 years and future trend

The Team has used guideline for Focus Group Discussion with land leveling and water pumping service providers. The guideline focuses on following aspects:

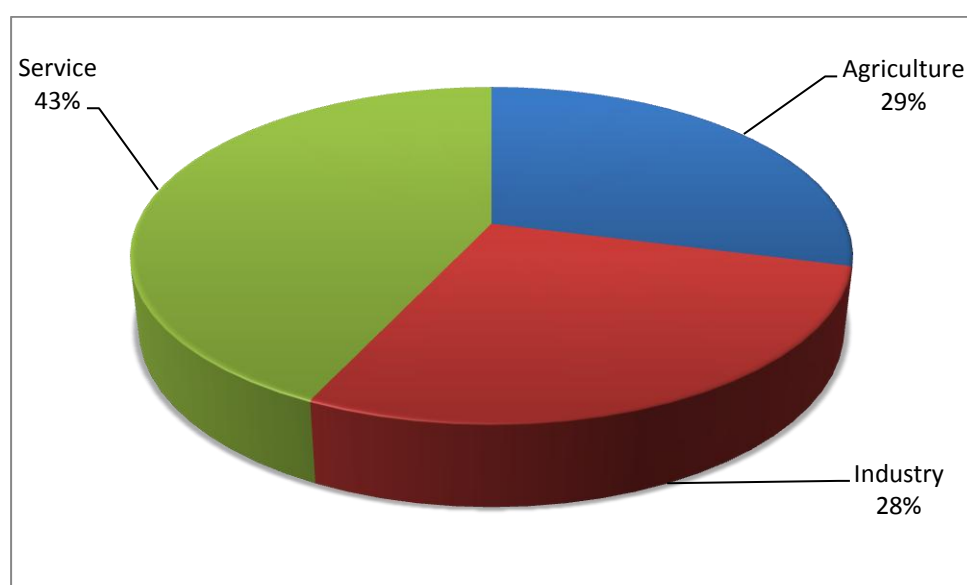
- Equipment used in providing services including power class, brand name, country of import, price, etc.
- Number of people who received services per year
- Service fees charged and modality of payment
- Constraints in providing the services
- Trend over the past and future trend in term of demand and new services.

### 3. CAMBODIA AGRICULTURE AT A GLANCE

The agriculture is considered as a very important sector which contributed to the economic acceleration and this sector continues to provide food for daily living condition, raw materials for industry and also a main source for national revenue.

Cambodia agriculture accounted a GDP of 29% in 2010, an increase from 26.8% in 2008 and 28% in 2009, while 28% of GDP was accounted for industrial sector and 43% for service sector. The slow increase of the agricultural sector was due to the economic crisis which affected other sectors. Agriculture occupies 70% of workforces.

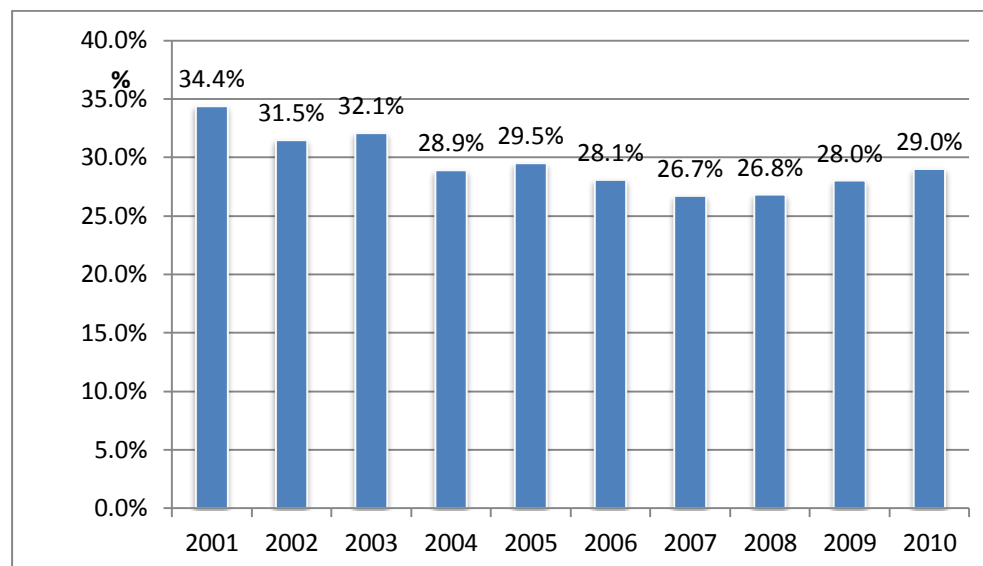
**Figure 1: Share of Agriculture in GDP, 2010 (%)**



MAFF, 2011

The agricultural growth follows a pattern very uncertain due to its dependence on climate conditions and the effect of economic crisis. It is recognized that the agricultural production is highly dependent on the natural condition. However, there is a stabilization of growth which continues in 2009 and 2010.

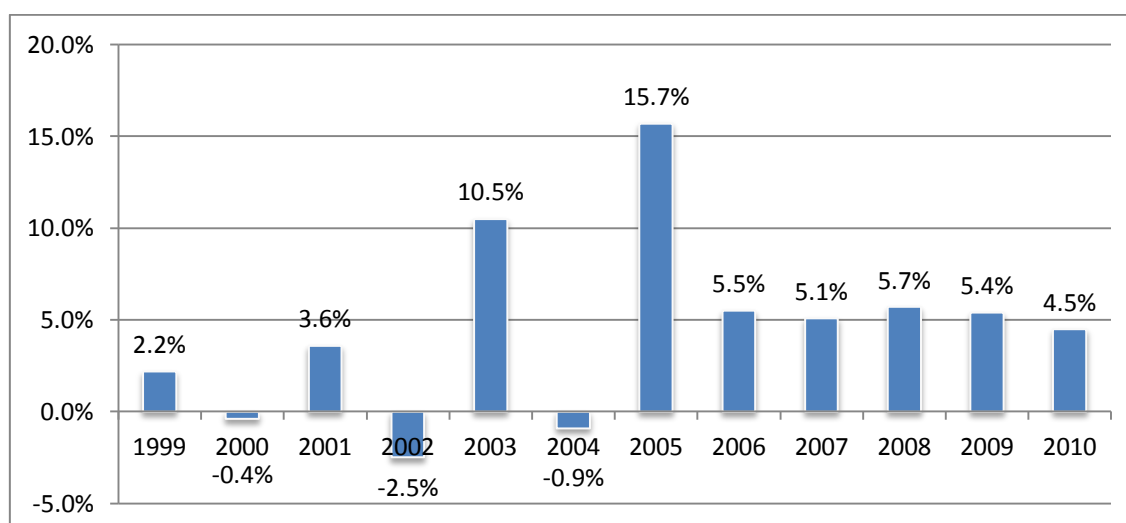
**Figure 2: Share of Agriculture Sector in GDP, 2001 – 2010 (%)**



MAFF, 2011

The growth rate of agriculture has increased substantially on the average of 4-5% per year over the period of 2006-2010. In 1999, the growth rate of agriculture was reported at 2.2% and 3.6% in 2001, 10.5% in 2003, and sharply increased to 15.7% in 2005 thanks to the better climate condition and less damages by insects.

**Figure 3: Agricultural Growth 1999 – 2010 (%)**



MAFF, 2011

The country plans to raise rice production to 9 million tons of paddy by 2015, up from the current 7 million tons. Also, the RGC plans to export 1 million tons of milled rice. To achieve this target, Cambodia needs more foreign investment in order to construct rice mills. At present, most of the Kingdom's paddy rice is sent to Vietnam or Thailand to be milled and re-exported (Invest in Cambodia, [www.investincambodia.com/agriculture.htm](http://www.investincambodia.com/agriculture.htm)).

In 2009, Kuwait and Qatar including other Middle East countries have shown interest to invest in Cambodia agricultural sector. Qatar has granted \$US 500 Million loan to develop irrigation and infrastructure in Battambang and Kampong Thom. Bangladesh is negotiating with RGC. Australian investors have also promised \$600 millions of investment dollars into agriculture in Cambodia. Many other investors from China, Singapore wish to invest in Cambodian agriculture.

The Royal Government has introduced a number of measures aimed at boosting the country's rice-export capacity. It is urging local banks to provide money for rice-related business and has pledged to guarantee 50 percent of commercial bank lending to producers. Capital at the Rural Development Bank has been doubled to \$36 million, and license requirements for exporters are being scrapped (Invest in Cambodia, [www.investincambodia.com/agriculture.htm](http://www.investincambodia.com/agriculture.htm)).

Other government plans include strategies to build irrigation systems, provide technical services, land reform, financing, marketing, developing farming communities and improving institutions (Invest in Cambodia, [www.investincambodia.com/agriculture.htm](http://www.investincambodia.com/agriculture.htm)).

According to the Ministry of Commerce, 4,369 tons of milled rice was exported from January to June 2009. But in the first half of 2010, the ministry says 107,291 tons of milled rice was exported – an increase of 2,356 percent. This represents a value of \$13.438 million, up from \$2.193 million in 2009 (Invest in Cambodia, [www.investincambodia.com/agriculture.htm](http://www.investincambodia.com/agriculture.htm)).

#### **4. AGRIBUSINESS MARKET IN CAMBODIA**

There is great potential to further develop agriculture in Cambodia. The Government of Cambodia has recognized this and has placed extra emphasis on making agriculture a key priority, with an aim to improve the population's living conditions, agriculture's contribution to GDP and to grow Cambodia's export base. A series of government initiatives aimed at boosting agricultural production were introduced in 2010 and led to a significant increase in Cambodia's rice exports. However, Cambodia's rice yields are still the lowest in the region at 2.6 tons per hectare, while China leads at 6.2 tons per hectare. This reflects the slow adoption rate of modern technologies and highlights the potential for investments in agricultural technology and infrastructure (Exporter Guide, 2011) as well as the availability of land, cheap labor, growth of consumption, etc.

Agriculture is one of the four pillars of the Cambodian Government's strategy for growth and development (the others being infrastructure, private sector development and human resource

development). The strategy for agriculture is focused on: improving productivity and diversification, land reforms, fisheries reforms and forestry reforms.

There are also several private players in the market including Agrokhmer, Nokorthom Agriculture Development, Natural Garden, Southern Seeds, Baitang, Aqip, DuPont, 7NG and CP for seeds and equipments. For land concessions, 52 percent of firms are foreign companies and 40 percent of those are Chinese companies. Western companies are a minority (5 percent only), (Exporter Guide, 2011).

There are a variety of opportunities in Cambodia for businesses involved in agribusiness:

1. *Infrastructure* – Opportunities to improve infrastructure such as irrigation facilities and transport (e.g. roads).
2. *Technology* – Cambodia requires modern technology that is affordable and of benefit to farmers. Milling equipment is also important, given the government's aim of improving rice exports. Most supplies of equipment are imported from Vietnam or Thailand.
3. *Irrigation* – Is a large market for irrigation systems to improve productive capabilities (particularly in rice), to increase the growing season and improve the annual yield per hectare.

At present, the Cambodian Government is actively promoting investment in the agriculture sector, although investment still remains small and accounts for only 9 percent of approved investments in the last 15 years. Approved foreign investment in the agriculture sector was about US\$600 million in 2009 (Exporter Guide, 2011).

## 5. CAMBODIAN AGRICULTURAL DEVELOPMENT POLICY

Agriculture is the field area of the Ministry of Agriculture, Forestry, and Fisheries in which the budget was double in 2008, represented 2% of the State budget. Meanwhile the Ministry of Water Resources and the Ministry of Rural Development have also the actions impacting the agriculture which created some difficulties at the time of the division of duties among the different actors.

Cambodian agricultural administration has three main stratum: the Ministry of Agriculture, Forestry, and Fisheries, the twenty Provincial Departments of Agriculture (PDA) and the District Office of Agriculture. MAFF gives the instruction to the PDA which then hand over to the District Office of Agriculture which composed of around 10 Officers and must deal with the communes, villages and farmers, mainly for collecting statistical data, identify disease outbreak, and disseminate the decision taken at the Ministry.

Being aware of the significant role of agriculture in poverty reduction, the government integrates agriculture to be one of the priorities in Royal Government of Cambodia's Rectangular Strategy. The National Strategy for Agriculture and Water, 2006- 2010, was developed through a consultative process and adopted in 2007.

The agricultural policy of the RGC is to accelerate the agriculture sector as a dynamic force for economic growth and this will be contributing to the poverty reduction. In this context, the RGC will increase domestic resources, plus technical and financial supports from development partners, for implementing the agricultural intensification in order to ensure the sustainability of economic growth, job creation, increase of rural income as well as ensuring food security, improving nutrition and increasing commodity export.

The Royal Government of Cambodia has developed the policy on Promotion of Paddy Production and Rice Export. In this policy MAFF will take measures related to:

- (i) Paddy production: focus on facilitation of import clearance procedures for rice seeds, seeds, fertilizers, agricultural inputs and machinery and strengthening institutional and technical capacity of CARDI, research stations, development centers, reviewing the framework for agricultural extension services and supporting the establishment of Farmer Organizations.
- (ii) Paddy rice collection and processing: focus on improvement of capacity of farmer organizations by developing and implementing the concept of “Open Paddy Market” and providing related activities to their members such as contract farming, weighing, drying services, paddy mortgage scheme, high quality seeds and fertilizers for market driven rice production.
- (iii) Rice export facilitation system: focus on Development and dissemination of procedures on import-export of agricultural products subject to plant quarantine inspection; develop “Cambodian Rice Standard, Develop a Law on Sanitary and Phyto-Sanitary (SPS).
- (iv) Marketing: focus on Dissemination of domestic, regional and international prices of rice via radio, television; short message services (SMS), bulletins and website.

However, until present the agricultural policy to agro machinery was not developed. Meanwhile agro machinery plays an important role in agricultural development such as in the neighboring countries Thailand and Vietnam.

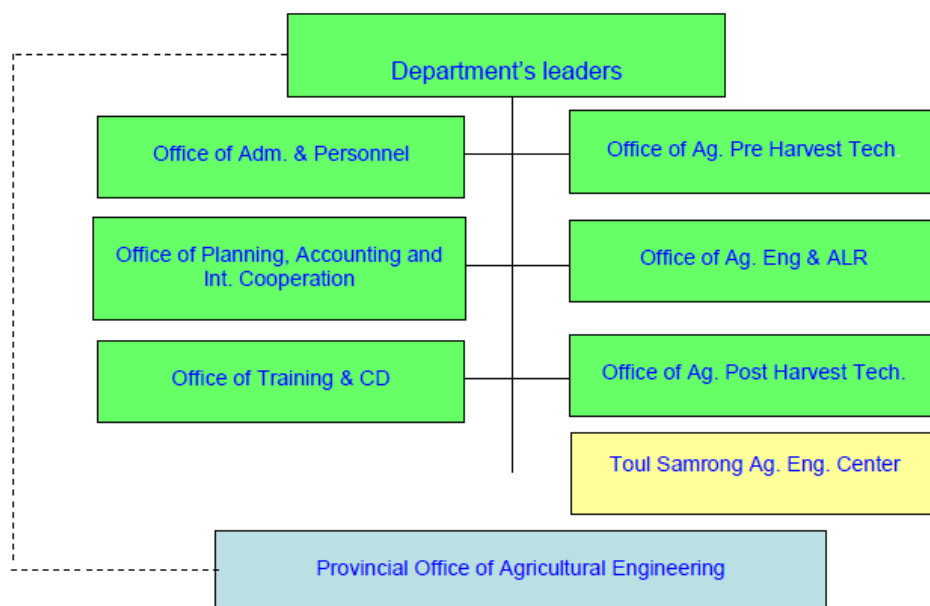
## **6. DEPARTMENT OF AGRICULTURAL MACHINERY**

The Department of Agricultural Machinery was inactive during a long period. Recently as the RGC set the goal of export 1 million ton of milled rice in 2015, this department has resumed the activities as well as the Office of Agricultural Machinery at provincial level. At the provincial level, officer staffs of the Office of Agricultural Machinery comprised on average from 3 to 6 staffs.

In this measure to achieve the RGC’s goal, MAFF has more than 100 tractors to provide intervention within the 24 provinces of Cambodia. Any PDAs who need the intervention have to submit the proposal to MAFF. All tractors belong to MAFF (under DAM), and after intervention, they have to be sent back to MAFF.

Below is the structure of Department of Agricultural Machinery.

**Figure 4: Structure of Department of Agricultural Machinery**



## 6.1. Major Responsibilities

The Department of Agricultural Machinery shall bear the following obligations:

1. Conduct research activities and indicate the zones where can be used appropriate agricultural machinery based on the characteristics of soil classification and kinds of crops in order to develop agricultural sector;
2. Formulate principles and technical norms on potentiality and effectiveness of agricultural machinery in crop production;
3. Research and initiate to produce agricultural tools and equipment for reducing labor uses in production;
4. Advise and extend the techniques of machinery uses for improvement of agricultural production and productivity; and
5. Undertake other duties which to be given by the leaders of the Ministry.

## 6.2. Major Activities:

The Department of Agricultural Machinery is undertaking several activities to be solved facing problems in the central and local levels.



For the contribution of agricultural development of Cambodia, it is the priority for application of the Government policies to reduce poverty and to preserve food security.

The following are major activities of this department:

***Agricultural Machinery Management***

- Establishment of agricultural machinery center at local level.
- Collecting data and statistics of production means.
- Research and development of agricultural mechanization.
- Legislation for future agricultural machinery management.
- Computerization of agricultural machinery management.

***Production and Contribution of Agricultural Machines and Tools***

- Production of prototypes and machines as disk plough, moldboard plough, leveler, seeder, reaper, power thresher, pump, power pump, dryer and mill.
- Experiment of machines and tools.
- Repair and ameliorate machines and tools.
- Production of documents and books for agricultural machinery.
- Technical design for agricultural machines.

***Education and Extension of Agricultural Mechanization***

- Conduct short-term training for agricultural machinery users.
- Production of documents and books for training.
- On field-demonstration of farm machines and tools.
- High-level training for staff and officials of the department.
- Extension of agricultural mechanization technology to farmers.

## **7. REGULATORY ASPECTS OF AGROMACHINERY**

### **7.1. Duties and tariffs**

The question on importer or distributor about duties and tariffs is very sensitive point. Almost all the interviewees in this agro-tool survey did not want to discuss with us about this issue because it is internal regulation of the company and it could not be shared to outsiders.

According to the Customs Tariff of Cambodia 2010 of the Ministry of Economy and Finance (MEF), specific tax (SP) and custom duty (CD) for agricultural machinery (tractors, water pump, harvester, spare parts) is 0. There is a VAT of 10%. However in practice, there is unofficial or under table payment/commission but it can be arranged between the company and government official in charge of tax.

## 7.2. Licensing and registration requirement

Licensing and registration of Agro-machinery Company are under the Ministry of Commerce and the Ministry of Economy and Finance. The importer has to register company first, and then apply for import license at the Ministry of Commerce. All these licenses must be approved by the Department of Agricultural Legislation of the Ministry of Agriculture, Forestry and Fisheries (MAFF). However in the real practice, the importer rarely goes to make the approval from MAFF due to the high payment imposed by the Department of Agricultural Legislation. Importer can obtain license from the Ministry of Commerce which is much lower. Importer will pay around 12,000 USD for the legal process at MAFF.

In most cases, importer arranges with the specialist (or legal agency) to do the whole process, nevertheless the process will take longer or fail. To do this, importer has to pay the unofficial payment. This payment affects the importer/investor to do the business in Cambodia.

## 8. AGRICULTURAL MACHINERY SECTOR IN CAMBODIA

### 8.1. Agriculture Machinery Sector at a Glance

According to expert from the MAFF, farm mechanization has increased 6-fold since 2001. During the steady growth of the agriculture sector in the past decade, farmers have been rapidly increasing the use of tractors, small power tillers and mechanical harvesters. The mechanization is more concentrated in the western provinces where many large scale farmers operate.

In 2001, the Department of Agricultural Machinery stated that farmers own around 1,000 tractors and 10,000 power tillers or two wheel tractors. Until now there are roughly 6,000 tractors and about 60,000 power tillers.

During the past decade, the agriculture sector has seen slow but steady growth of about 5 percent annually. A new government rice policy aims to drastically increase rice exports to 1 Million tons by 2015 – but it makes no mention of mechanizing agriculture.

**Table 2: Evolution of Agriculture Mechanization in Cambodia**

Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Tractor	3,072	3,293	3,310	3,857	4,166	4,247	4,475	4,461	5,495	5,893
Tiller	8,789	9,782	13,693	20,279	26,504	29,706	34,639	38,912	54,163	60,941
Harvester	-	-	-	-	-	395	395	430	836	859
Thresher	3,780	4,199	4,967	6,220	7,338	7,795	8,036	8,237	13,798	14,262
Engine pump	64,406	82,622	99,875	106,569	120,968	127,610	131,702	136,061	164,482	167,152

*Statistic books 2001 – 2011*

In an agricultural country like Cambodia, agricultural mechanization is essential to increase the land labor and crop productivity. Mechanization of farm operations offers several advantages which include timeliness of operation, efficiency in performing farm operations, reduction in labor man-hours, and increasing land and labor productivity.

**Table 3: Existing farm practice in Cambodia**

Operation	Power Sources	Implement/Methods of Application
Tillage	- Animal - Machines	-Traditional plow with mild steel share -Disc plow, moldboard plow, disc harrow
Soil leveling	- Animal - Machines	- Comb harrow -Rotovator, Comb harrow
Irrigation	- Human - Machines	- Swing bucket, Snach, Pedal pump -Low lift pump, centrifugal pump
Weeding	- Human - Machine?	- Hand pushed weeder, hand tools, spraying ( weedicide)
Spray	- Human  - Machine	- Hand spray (type made of bamboo, plastic or metal tube), knapsack spray - Knapsack sprayer 16 L – 25 L
Harvesting	- Human - Machines	- Sickle -Reaper, Combine harvester
Threshing	- Human  - Animal - Machines	-Beating against wood, walking over the swath. -Walking over the spread harvests -Tractor/hand tractor go drive over the spread harvest, threshers
Winnowing and drying	- Human  - Machines	- Shaking against air, Drying is done by spreading the swath on the field over in the sun, by spreading the paddy on the mat or other flat surface. - Electrical fan, Dryers (local made)

## 8.2. Existing Traditional tools for agriculture

Agricultural mechanization, such as the use of plowing and harvesting machines, paddy seed transplanting machines, tractors, "hand held tractors " for plowing wet rice field before planting " threshing machines, paddy milling machines etc., into planting, harvesting, and production and manufacturing system, is being accepted, and gladly preferred by farmers. The group expert officials has tried to provide training, as well as tests for manufacturing and production officials, continually showing the use of agricultural machine in the agricultural production to farmers at the basis (Chao Lay, 2009).

**Table 4: The existing traditional tools for agriculture**

Name of Equipment	2008	2009	2010
Plough	849,856	828,008	828,008
Harrow	765,839	741,788	831,788
Cart	585,148	569,189	570,170
Rotary plow	8,252	8,243	8,243
Water wheel	2,812	2,810	2,810
Wind cleaner	18,533	13,744	13,744
Long handle scoop	48,492	48,128	48,128

*Source: MAFF Annual Report 2008 – 2011*

According to the country report of Chao Lay (2009), farmers in the north provinces of Cambodia prefer using agricultural machines because they can save more time than using traditional equipment such as plowing by cattle, or transporting by using ox-carts. Moreover, they do not have to care about food for their cattle, or to take care and to protect them from diseases. Since they use the machines, they can do more tasks.

In Cambodia, more and more farmers prefer to use machines, since the government began reforms starting in 1987 by widely open free market mechanism. Most farmers produced to feed their families; some places began agricultural production for trading, because agricultural mechanization and other agricultural techniques were spread by experts into the agricultural system (Chao Lay, 2009).

Since the liberation from Khmer Rouge regime until 1987, Cambodia practiced the solidarity land system which all cultivated lands belonged to the State. During that period only the state used agricultural machines, and agricultural officials organized programs to plough farmers' land every year at the beginning of the rice planting season.

## 9. RESEARCH FINDINGS

### 9.1. General Situation of the studied provinces

Based on the survey-information of Agro-machinery in Kampong Thom, there are three distributors of Agricultural machineries and 10 local manufacturers in this area.

Nowadays, two wheels tractors and combine harvesters have increased. The 4 wheels tractors are also hired from Battambang and Banteay Mean Chey provinces during the harvest.

The Table 5 below shows the trend of Agricultural Machineries used in Kampong Thom such as tractors, power tiller, water pump and thresher. According to MAFF Statistic book, in 2010, the tractors have increased 89% in comparison to 2004, power tillers have a huge increase of 2,790%; also for water pumps increased 1,041%, and threshers have drastic increased in the same period.

The threshers are produced by the local manufacturer in Kampong Thom province and are sold to other provinces such as to Takeo, Kampong Speu, Kandal, Kampong Thom, etc. The use of this thresher is decreased in Kampong Thom because of increasing combine harvesters.

**Table 5: The use of Agricultural Machinery in Kampong Thom**

Kg. Thom	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Tractor</b>	150	150	150	149	153	153	153	153	281	281
<b>Tiller</b>	25	25	28	82	450	450	450	450	2,370	2,370
<b>Water pump</b>	573	573	573	727	1,768	1,768	1,768	1,768	1,768	1,768
<b>Harvester</b>									7	7
<b>Thresher</b>	12	12	12	20	202	202	202	202	1,833	1,833

Source: Department of Agriculture Kampong Thom, Office Agricultural Machinery

Table 6 shows the use of agro-machineries in Takeo from 2001 to 2010. Harvesters play a big role from 2006. From 2004 to 2010, the tractors are increased from 154 to 242, which mean increased 57%. The use of power tiller is rapid increased, 723% from 2004 to 2010. The use of water pump engines is more than in Kampong Thom and Takeo. In 2010, the water pump engines are increased 63% in comparison to 2004. The local produced threshers are also increased 123%, in the same period.

**Table 6: The use of Agricultural Machineries in Takeo**

Takeo	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Tractor</b>	82	154	154	154	211	211	211	211	242	242
<b>Tiller</b>	65	265	361	361	1,522	1,522	1,522	1,522	2,970	2,970
<b>Water pump</b>	9,648	20,184	18,458	18,458	28,120	28,120	28,120	28,120	30,169	30,169
<b>Harvester</b>	-	-	-	-	-	190	190	190	351	351
<b>Thresher</b>	133	408	408	408	700	700	700	700	910	910

Source: Department of Agriculture Takeo, Office Agricultural Machinery

Except the water pump engines, the use of agro-machineries are much less in Takeo than in Kampong Thom. In 2004, the water pump engines are increased 288% in comparison to 2001, then the amount look like stable till 2010 (see Table 7).

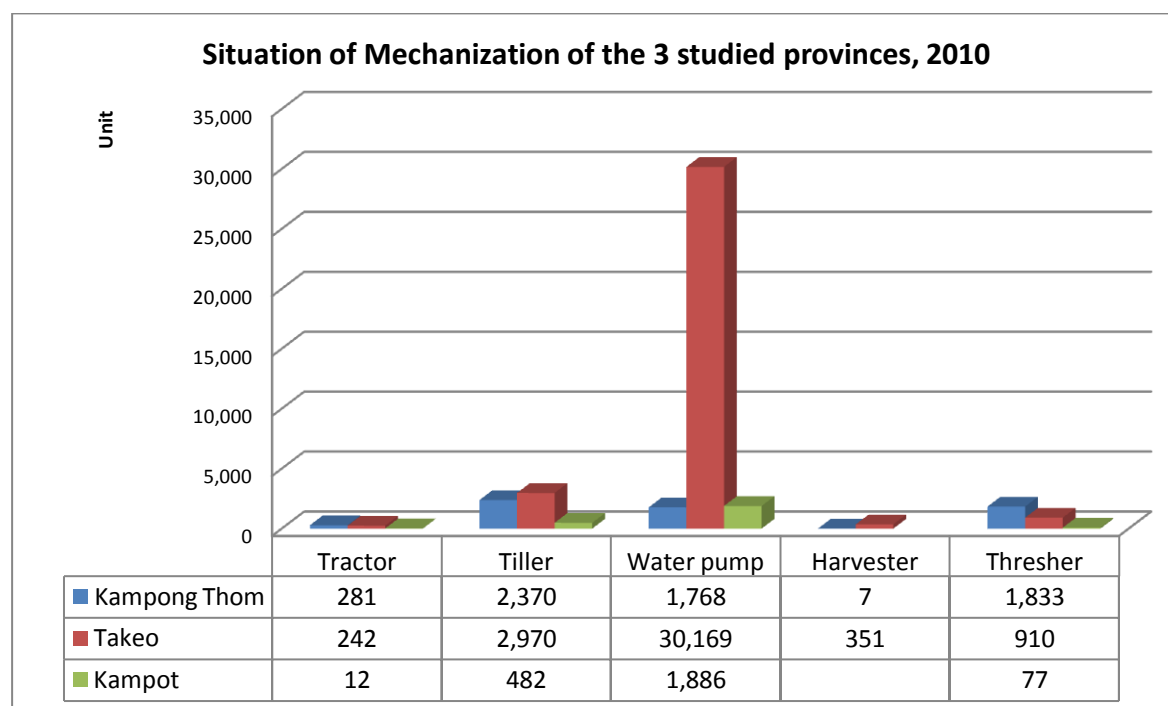
**Table 7: The use of Agricultural Machineries in Kampot**

Takeo	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Tractor</b>	15	14	15	14	12	12	12	12	12	12
<b>Tiller</b>	5	117	326	477	482	482	482	482	482	482
<b>Water pump</b>	490	544	1,269	1,900	1,886	1,886	1,886	1,886	1,886	1,886
<b>Harvester</b>										
<b>Thresher</b>	6	7	42	33	77	77	77	77	77	77

Source: Department of Agriculture Kampong Thom, Office Agricultural Machinery

Figure 5 below shows the different use of agro-machineries in 2010 in the studied three provinces. According to MAFF Statistic Books 2010 – 2011, the use of water pump engines, power tiller and harvester in Takeo are higher than in Kampong Thom and Kampot. In Kampong Thom, the uses of tractors and threshers are higher than in Takeo and Kampot.

**Figure 5: Agricultural Machineries in Kampong Thom, Takeo and Kampot**



Source: MAFF, Statistic books 2001 – 2011

## 9.2. Characteristics of Agricultural Machinery Supply Chains

The Agro-machinery business is increasing in the last few years, especially water pump, power tiller, tractors, and combine harvester. All these machineries are imported from abroad such as from Japan, Thailand, China, and Russia, etc. Most of the importers are located in Phnom Penh such as SCT, Heng Development, etc. and delivery the products to distributors around Phnom Penh and to the provinces. The agriculture machineries most are used in the agriculture community to haul rice paddy, corn, cassava, and vegetables produced.

**Table 8: Specification of Agricultural Machinery for rice production in Cambodia**

Items	Specification	Countries of import
Tractor	14-82 Hp	Japan, Thailand, China, Europe
Power tiller	10-14 Hp	Japan, Thailand, China
Irrigation pump	5-30 Hp	China, Thailand, Japan
Combine harvester	4-5 ha/day	China, Thailand, Japan
Thresher	1-6 tones/h	Local manufacturers

All importers interviewed are willing to provide marketing support and technical training to their distributors, but no credit. Based on this survey, the importers support their distributors such as broadcast the products on TV, radio, poster, booklet, etc. and provide technical training to the staffs of distributors.

For trustworthy clients in the agriculture machinery sector, most of the distributor firms are willing to provide credit for 20-60 percent of the total purchase price for 3-6 month. Almost all consumers are farmers. All Distributors, such as Tann Long Chea, Huot Pov, etc. meet farmers/end users regularly and provide them training on how to use and maintain the agriculture machineries, especially at the beginning. They provide such training one to two times during the period six month (at the beginning). Cost and type of transportation is negotiated between distributor and end users. To keep in good sales, some distributors (based on this survey 50% of distributors) provide more benefits to their clients such as warrantee for 6-12 month, free of charge for transportation, gifts at the end of the year and credit with low interest rate (lower than bank, 1% per month).

Criteria – consumers decide to buy the products:

Based on this survey, the consumers have their own criteria to purchase agriculture machineries:

- Consider the famous brand such as Kubota, Yanmar, Ford, etc. but price acceptable
- Ask friends or neighbor that has purchase the machineries
- Look for credit from the distributor
- Ask for the available spare parts (with acceptable price) on the Cambodian market

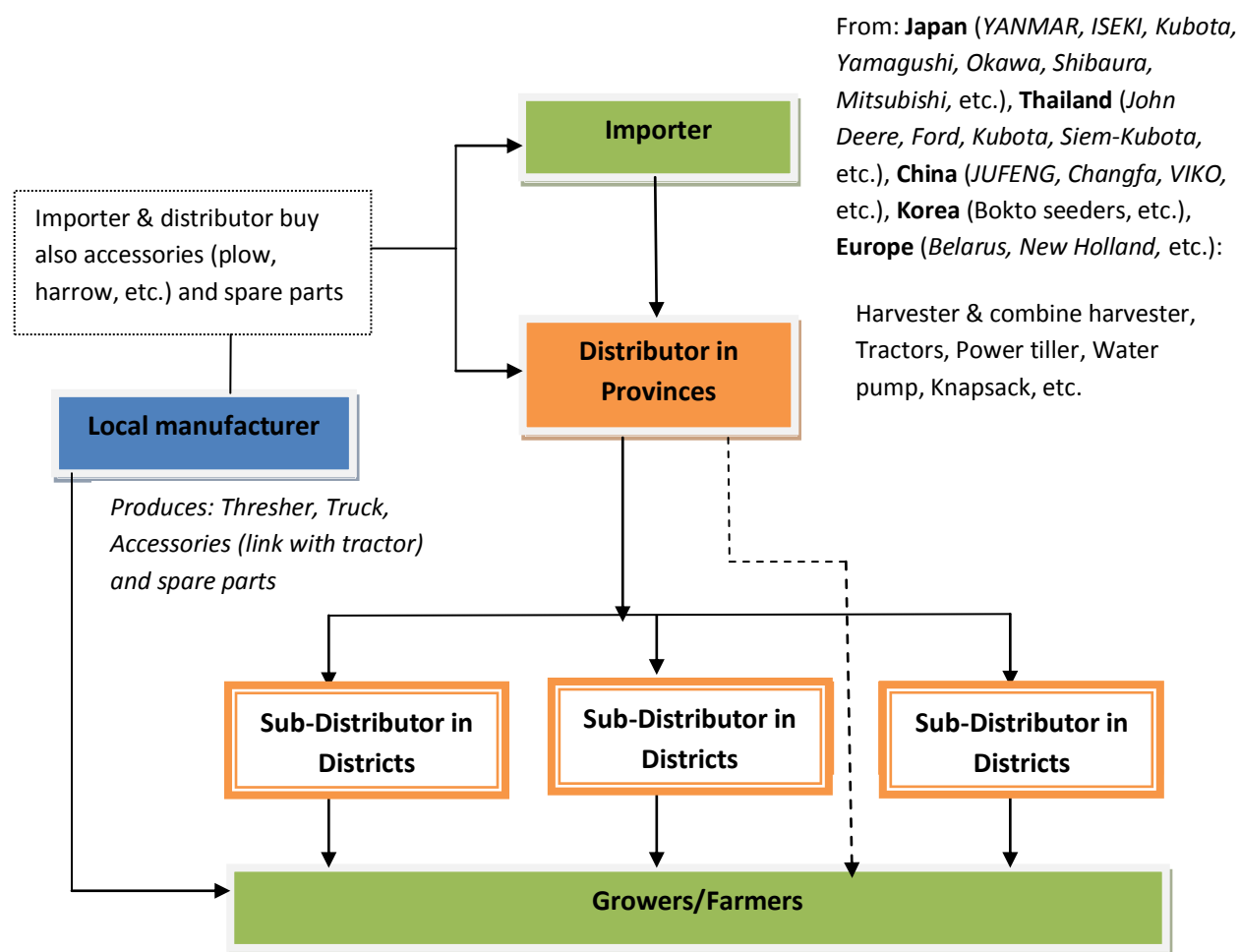


Figure 6: Agricultural Machinery Supply Chain Map

### 9.3. Importer

As stated by the Department of Agricultural Machinery, the majority of farmers use power tillers (60,000 power tillers in 2010). Tractors occupy the second place (10,000 tractors). In the past 10 years, most of the powers tillers were Chinese made and 2<sup>nd</sup> hand Japanese machines. Since 2008, the use of power tillers changed and farmers started to think about good quality Japanese machine.

In the power tillers sector, SCG is the big player who represents Siam Kubota product. SCG covers Siam Kubota products in almost all provinces In Cambodia. The market strategy of SCG is one province one Siam Kubota Agent Dealer (AD). Meanwhile as the market size in the northwest region is big, SCG provides exclusivity to one big dealer in Battambang to cover the products in Bantey Mean Chey, Oudor Mean Chey, Preah Vihear and Siem Reap. SCG Phnom Penh together with a dealer in Battambang manages jointly the markets in Kratie, Stung Treng, Ratanakiri, Mondulkiri and Kampong Cham. The remaining provinces are under the management of SCG Phnom Penh.



The sale volume of Siam Kubota power tiller in 2011 was 9,000 units in Battambang, 3,000 units in Kampong Cham, 1,000 units in Kampong Thom, 600 units in Takeo and 600 units in Kampot.

Chinese power tillers and 2<sup>nd</sup> hand Japanese power tillers are still occupy important market in this sector as in term of price farmers can most afford than Siam Kubota.

For tractor sector, the market is more concentrated in the western region of Cambodia (Battambang, Pailin, and Banteay Mean Chey). Some key importers play in this sector including RMA Group which represents John Deere tractor, BVB Machinery Trading which represents New Holland and Mitsubishi tractor. RMA Group focuses its market in Pailin, Battambang, Banteay Mean Chey, and Kampong Cham where it has one Agent Dealer in each province. BVB Machinery has its Agent Dealers in the provinces of Kampong Thom, Battambang, and Ratanakiri.

In tractor sector, there are also some importers who represent Chinese tractor such as Shandong Agriculture Machinery, Uy Tong Enterprises, and some other importers. In general Chinese tractor is 40% cheaper than Japanese tractor and other European brand made in Thailand, unlike power tiller, cannot hit the market. In all aspects, the quality could not be compared with other tractors. As tractor is an important investment, most of buyers compare its quality and durability.

Importers of Chinese machinery do not have Agent Dealer in provinces. The products are sold directly from Phnom Penh to end users in provinces.

## **9.4. Distributors**

### **9.4.1. Distributor in Kampong Thom province**

The big market for Kampong Thom is power tiller. There are three main distributors in this province of which 2 distributors sell power tillers and other small agricultural machinery. One distributor and also direct import of Chinese products, sell tractors, combine harvester, seeder, and other agro-tools.

Since Siam Kubota products are popular for farmers, the big parts of market segment are occupied by Siam Kubota dealer. At present, we estimate that nearly 80% of market share of power tillers in Kampong Thom is covered by Siam Kubota dealer.

Siam Kubota products could occupy the big market share in Kampong Thom because

- i) the sale strategy of the distributor: farmer can have several options of payment (credit of 1 month, 3 months, and 6 months)
- ii) the good services in both delivery and reparation
- iii) training to farmers
- iv) Prizes / gifts for farmers (power tiller, TV, bike, fan, etc.)
- v) Advertising (on local radio)

Currently Siam Kubota products for Kampong Thom are represented by Tann Long Chea Agricultural Machinery shop. The exclusivity was given in 2009 while before 2009 it was represented by Ngov Torn Chhang Agricultural Machinery. Since the sale volume of this last one could not reach the target of Siam Kubota (600 engines/year), the exclusivity was changed to Tann Long Chea shop. Tann Long Chea, with his market strategy and good customer services, proves to be potential distributor of Siam Kubota products in Kampong Thom. In 2011, Tann Long Chea agricultural machinery sold around 1,000 power tillers.



**Picture 1: Kubota products of distributor, Tann Long Chea**

Besides power tiller, with the emergence of dry season rice cultivation in Kampong Thom, the importer of Chinese machinery could sell around 25 combine harvesters per year. Recognizing the low quality of the products, the sale has been stopped and the importer planned to import new brands from Hong Kong which he thinks it could absorb the market.

In order to maintain the exclusivity from Siam Kubota, distributor has to be able to reach the sales target (600 engines per year). To reach this sale, distributor set different sale strategies such as providing credit payment from 3 to 6 months for farmers without interest (in the reality distributor already added the lowest interest rate in the credit payment), training, reparation service etc. The most attractive strategy is the credit payment which allows farmers who have limited capital to be able to buy product.

#### **9.4.2. Distributors in Takeo province**

In Takeo province, there are only two key players in agri-machinery sector. One distributor represents Siam Kubota products and another one sells mixed products. The big market segment is covered by Siam Kubota distributor, which is represented by Huot Pov agricultural machinery. Since started in 2006, Huot Pov was the 2<sup>nd</sup> agricultural machinery shop in Takeo province. By 2009, Siam Kubota products became popular and absorbed important market share, Chinese power tillers started to lose the market. In 2010, the sale volume of Siam Kubota diesel engines was 600 units and in 2011 he reaches the sale target of 650 engines.

The sole competitor of Siam Kubota dealer is Bunthan Sopheak agricultural machinery who is the first agricultural machinery shop in Takeo. The owner of this shop, Mr. Bunthan, was a former of Takeo DPA Officer. So he sustains good relationship with Takeo PDA and receives some support from PDA. Huot Pov, as the competitor of Bunthan Sopheak, seems could not reach good collaboration from PDA.

Since power tillers market is absorbed by Siam Kubota products, Bunthan Sopheak diversified his products ranges by importing new type of machinery such as 2<sup>nd</sup> hand Japanese combine harvester, hand harvester from Vietnam, seedling machine (transplanter), small scale four wheel tractors and water pump machine. The sale of his new products is still low. Until April 2011, only 3 combine harvesters were sold.

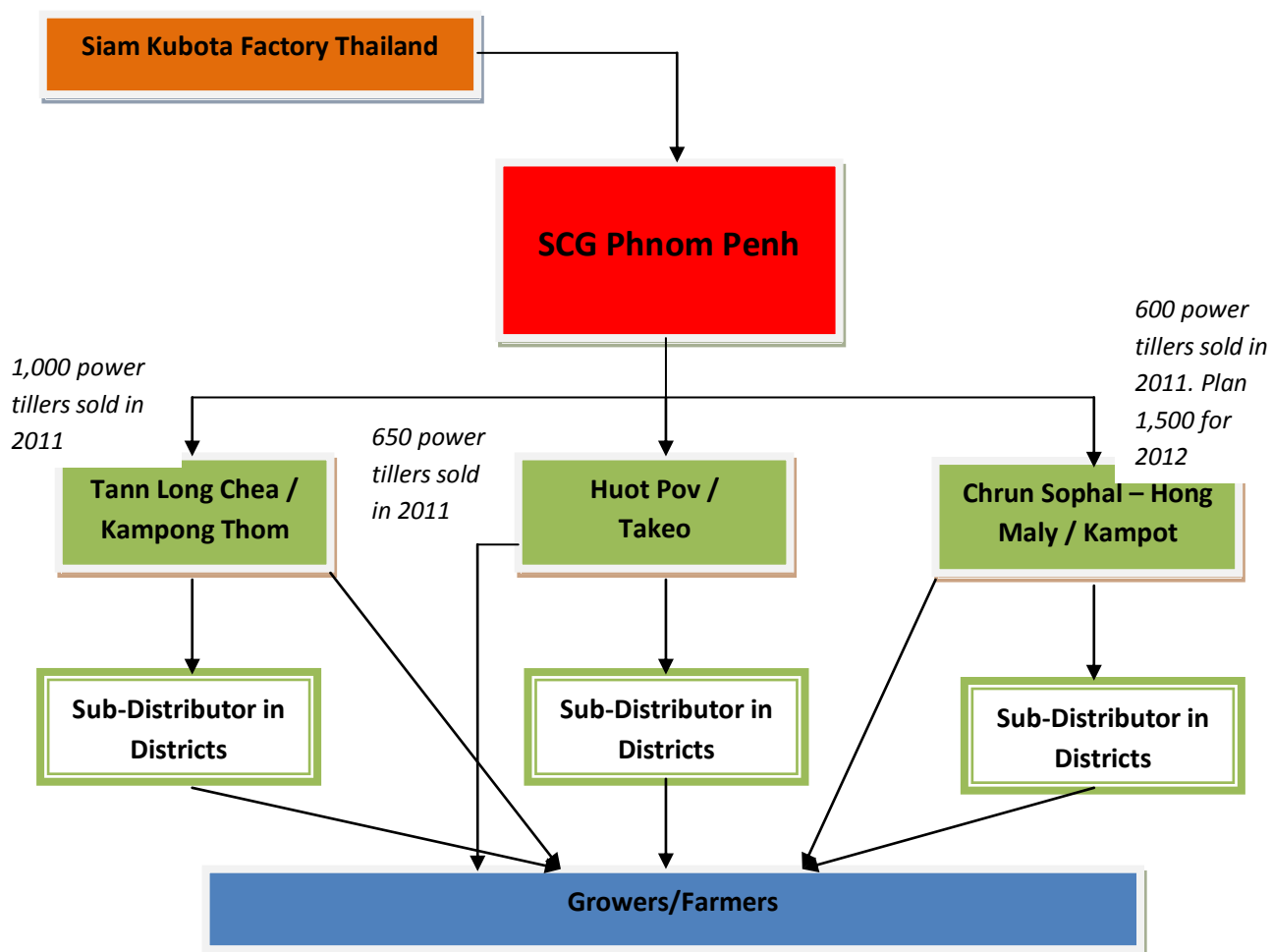
#### **9.4.3. Distributor in Kampot province**

In Kampot province there is only one big distributor of agro-tools, Chrun Sophal – Hong Somaly or Phal Maly, which is located in Chhuk district and represents Siam Kubota products. Beside this distributor there are some few small sellers of agro-tools in Kampot down town and in other districts of Kampot province. He has 7 sub-distributors of Siam Kubota product of which 2 sub-distributors are located in Kampot down town, 1 in Kampong Trach district, and 4 in Chhuk district.

Power tillers are the most demands in the region. Until April 2011, the shop reported the shortage of stock of these equipments. SCG Phnom Penh set target for Agent Dealers in each province and Chrun Sophal shop has reached his target which was planned 600 diesel engines and 3,000 hands clutch. As a result, in this year (2011), he limited the number of 10 power tillers to each sub-distributor.

## 9.5. Case Study of SCG - Siam Kubota products

Figure 5: Supply Chain Map of Siam Kubota products



SCG selects the dynamic and best sellers to be Agent Dealer of Siam Kubota products. In this study, Tann Long Chea is a Siam Kubota distributor in Kampong Thom, Huot Pov is a distributor in Takeo, and Chrun Sopha – Hong Maly is a distributor in Kampot.

SCG provides training on Market Development Strategy to its distributors and provides also technical training to farmers at each province. Technical training is organized by each distributor. On average two trainings are conducted annually in each province and each training regrouped of around 100 farmers.

SGC has technicians to provide reparation services and train farmers the utilization of machines at farmer house. Each distributor has also his own technicians because technicians from SCG alone cannot meet the demands of farmers.

SCG encourages the sale of its distributors by providing different kinds of bonus such as medal, discount on products, business tour to visit factory in Thailand, etc.

For distributors, to achieve high sale, they provide different prizes to farmers in the form of coupon. Farmers could win power tiller, TV, bike, fan, etc. The prize selection is organized by SCG at Phnom Penh. All distributors are responsible for the purchase of the gifts for the prizes.

Also to encourage farmers to buy power tiller, distributor offers different options of purchase. Farmer can buy with the credit of 1 month, 3 months, and 6 months. In most cases, farmers buy with the credit of 3 months. The price varies from each option and to attract farmers, distributors announce that there is no interest for the credit. In the reality distributor has already included the interest in the period of credit. The interest rate is 2.5% to 3% per month.

All Siam Kubota products are guaranteed 1 year on spare parts and 2 years on services. In order to benefit this guaranty, farmers have to follow the conditions of use and maintenance which provided with the machine. The documents are translated in Khmer language.

Mr. Chek Eng, farmer in Krabao village, O'kunthor commune, Stung Sen district, Kampong Thom province, bought Siam Kubota power tiller in the late of 2010 from Tann Long Chea shop. The diesel engine of 14 HP cost US\$ 1,250 and the hand clutch cost also US\$ 1,250. He chose the payment of 1 month credit of which he paid 40% at the 1<sup>st</sup> payment and 60% at the final payment.

The machine can be used for several purposes such as plowing, pumping, transporting products, for boat and for electricity using at house. In term of fuel consumption, it is 50% less than Chinese machine. Moreover it is more efficient.

## **9.6. Local Manufacturers**

### **9.6.1. Local Manufacturer in Phnom Penh**

In total there are five local manufacturers in Phnom Penh, namely "Agricultural Equipments Manufacturer Russey Keo", "Manufacturer CHEANG ROTH" and his son, "Manufacturer CHEANG POUV", and "Manufacturer SOK".

The manufacture in Russey Keo is the biggest one and plays very important role in producing almost all kind of accessories for tractors. The manufacturer was well established since 1996 and the clients appreciate the quality of his products. Recently the demand is high and his production has increased more than double. The quality of his products can compete with other products on the market and the price is acceptable.

For thresher and local truck, the "Manufacturer CHEANG ROTH" plays a big role in the market (see in ANNEX). In average Mr. ROTH sells 100 threshers per year to various provinces. He has two types of clients, distributors and growers. The manufacturer provides service to the clients such as train them how to use and maintain the equipments.

Most of the products from local manufacturers are sold directly to end users/growers and the modality of payment is in cash 100% (no credit) and for distributor or for the clients who are tractors

sellers, they can get credit till one month. Clients such as company or NGOs, bank transfer is practicable.

Some manufacturers want to increase their products to meet the market demands, but they lack capital. There are some big banks such as ACLEDA proposes the credit to them but they hesitate because the interest rate of the loan is very high.

The products from local manufacturer can sell well on the market, because of:

- High demand
- Good services in both delivery and reparation
- training to growers
- Price is acceptable
- Good quality of the products

Local manufacturers face some constraints as following:

- Difficult to find some spare parts
- Besides the harvest season, products cannot be sold (especially thresher)
- The growers have limited access to credit
- Lack of knowledge to produce modern equipment
- The production is low (cannot produce much equipment per day/month – the demand is high) – limited capacity
- The manufacturer is small
- Interest rate for loan from Bank is still high

#### **9.6.2. Local Manufacturer in Kampong Thom**

There are 10 manufacturers in Kampong Thom (all of them are located in the central down town). Most of agricultural machinery manufacturers in Kampong Thom came from Prey Veng province where they learnt techniques from Vietnam when they were technical workers. They come install facilities in Kampong Thom at the early of 2000. A manufacturer in Takeo is a Vietnamese origin. He has mechanic skill and learnt to produce threshing machine by repairing this tools during 4 – 5 years.

The production volume on average is 60 - 70 units per year in Kampong Thom. There is one manufacturer that can produce nearly 100 threshing machines per year. The sale volume in 2003 was around 30 – 40 units per year. But the demand of threshing machines has decreased dramatically these few years since the arrival of combine harvester. However, some manufacturers still can maintain the sales by finding new customers from Oudor Mean Chey and Preah Vihear provinces. Recently, since these last few year, the sale volume has of threshing machines in Takeo has decreased as well.

The price of threshing machine made in Kampong Thom ranges from \$1,200 to 1,700 according to the size of the threshing. The average capacity of threshing is 2.5 tones per hour.

**Table 9 : Price of threshing machine made in Kampong Thom**

Type of Threshing Machine	Size	Power Engine	Price (USD)
Small	2.2 m	16	1,200
Medium	2.4 m	20	1,600
Big	2.5 m	22	1,700



**Picture 2: Workshop of agricultural machinery manufacturing in Kampong Thom**

### 9.6.3. Local Manufacturer in Takeo

There are 4 in Takeo province (1 in central down town and 3 at Tunleap, Vietnamese border). The manufacturer in Takeo claims that his products are the most advanced technology because through his experiences, he has improved the threshing capacity from 3 tons/hour to 6 tons/hour. The prices of his threshing machines start from \$7,000 to \$10,000 per unit. This incomparable price is based on the spare parts used and high quality of steel and engine. His clients are mainly from Takeo, Kampot, Kampong Speu, and Kandal provinces. The life of his threshing machine lasts on average 10 years.





**Picture 3: Rice threshing machine made in Takeo**

## 9.7. Service Providers

### 9.7.1. Land Leveling

The unevenness in land level within a field has a major effect on crop management and crop yields. Unevenness in land level results in uneven water coverage. Uneven water coverage means that more water is needed to wet up the soil for land preparation and plant establishment reducing the effective time available to complete these tasks (IRRI, *land preparation*).

Unevenness in land level results in uneven crop stands, increased weeds and uneven maturing crops. All of these factors result in reduced yields and reduced grain quality.

Effective land leveling will improve crop establishment and care, reduce the amount of effort required to manage the crop, and will increase both grain quality and yields.

#### *Benefits of Land leveling*

According to IRRI, effective land leveling reduces the work in crop establishment and care, and increases yields. Level land improves water coverage that:

- reduces the amount of water required for land preparation
- improves crop establishment and care
- decreases the time to complete tasks
- results in better crop stands
- reduces weed problems
- results in uniform crop maturity



Better land leveling results in benefits to the farmer in yield, weed control, farm operation, seeding practices and efficiency of water use.

### *Equipment*

Land leveling service providers in Kampong Thom use tractor brand Belarus, power engine 80 hp, bought from Phnom Penh. The price of tractors and plough equipment is \$US 22,000. Some spare parts bought from local manufacturers in Russey Keo, Phnom Penh. A shovel manufactured in Phnom Penh cost \$US 1,600. The maintenance cost is estimated around \$1,000 per year.

In Takeo, land leveling service providers use tractors brand Belarus, power engine 80 hp and brand Ford, power engine 60 hp. The price of Belarus is \$US 20,000 including 2 years of warranty and maintenance services. Ford tractor of 60 hp cost around \$US 15,000. This tractor is the most used by land leveling service providers in Koh Andeth district. There are in total 10 land leveling services provider in Koh Angdeth. Most of them use Ford tractor. There is only 1 provider who uses Belarus tractor because he believes that this tractor is more powerful than Ford.

### *Year of starting services*

In Kampong Thom, land leveling activity started in 2003 and a high demand started from 2006 when the dry season rice cultivation movement increased.

In 2003 there were around 40 ha of rice lands which were leveled. Farmers who have rice plots over 1 ha to 2 ha call leveling service. By 2006, small plot lands of 15 – 20a needed also leveling services as they saw the advantages of land leveling in water management. In Kampong Thom, big plots land cover on average 30 – 40 ha per family. One service providers can provide services around 300 – 400 families per year.

In Takeo, leveling activities started since 10 years ago but at that time there was only 1 service provider in Koh Andeth district. Until now in this district there are 10 land leveling services providers and some providers can possess 2 tractors. In the whole Takeo province, there are around 100 tractors in this service. The high demand of leveling services started in 2008. On average, 1 ha of rice land needs around 3 to 4 hours for leveling. Some rice lands require around 10 hours.

Most of service providers acquire skills by learning from relatives, experiences when working as tractor driver for plowing, etc.

### *Cost of Land Leveling*

The service fee charged in Kampong Thom and the service fee charged in Takeo is very different. This service is charged \$US 30 per hour in Kampong Thom. Meanwhile it is charged only \$US 20 per hour in Takeo. In Takeo, farmers can have 2 options of payment. 1<sup>st</sup> option if they pay after leveling, the

service fee is \$US 20 per hour. 2<sup>nd</sup> option if they pay after rice harvest, the service is fee is \$US 22.5 per hour.

### *Constraints*

- The spare parts are often broken
- Small dike, difficult to drive tractor
- Capital and information

#### **9.7.2. Water Pumping**

The study was conducted in Koh Andeth district of Takeo province and in Bantey Meas district of Kampot province.

Koh Andeth district is located near Vietnamese border and is one of the biggest dry season rice areas in Takeo province. Irrigation system is managed by private service providers in 7 stations. One station covers on average 300 ha of cultivated land.

In Bantey Meas, Kampot province, the production size is smaller than in Takeo. There are only 3 big water pumping service providers, but there are more small service providers who provide pump engine as service rental.

90% of pump engines are Chinese equipment. Only few service providers who have station at deep river who need to use Japanese equipment as it is more powerful than Chinese equipment but the price is also higher. The power engine ranked between 25 and 35 HP. All support equipments are bought from manufacturers in Vietnam because the capacity of pumping is higher than the supports come with the engine or produced locally in Cambodia.

The price of a Chinese pump engine of 25 - 35 HP is between \$300 and \$500. The price of a support made in Vietnam is around \$500 – \$600. In general, one pump engine can last maximum 3 periods of crops (around 1 year and a half).



**Picture 4: Water pumping service provider in Koh Andeth, Takeo**



**Picture 5: Small water pumping service provider in Bantey Meas, Kampot**

The service fee charged is mostly practiced by rice collection after harvest. In Koh Andeth, Takeo, the fee is 500kg to 600kg of rice per ha of irrigated land. And each service provider has to contribute 50kg per ha to water community for water management. The service fee at Kampot is around 200 kg of rice per ha but farmers are responsible for fuel.

Water pumping services have been started in 2005 in both Takeo and Kampot provinces. But in Kampot, the service is not much evolved until 2009 when farmers have good irrigation system and by that period, some farmers start to do 3 crops per year.

Constraints:

- Pump engine cannot be used for long period
- Pump engine breakdown often
- When the engine breakdown, it causes the problem of irrigation.

## **9.8. Constraints**

Through different discussion and interview with experts and key players in agriculture machinery sector including importers, distributors, local manufacturers, service suppliers, and farmers, the team can identify the constraints in the whole value chain as following:

- High cost of agricultural machinery. Most of farmers cannot afford
- Low capacity to obtain credit
- Use of poor quality equipment (especially Chinese engine) results low profitability and high cost of maintenance
- Big investment, most of distributors invest through the loan of high interest rate from bank and sell equipments to farmers by credit over the period of 3 to 6 months
- Quality of local manufactured equipment cannot compete with imported equipment
- Low knowledge in utilization and maintenance
- Trade depends totally on USD currency that tightens distributors and importers due to high fluctuation.
- Secondary effect of use of power tillers: according to many users of this equipment, it can cause human health problem. After 2 years of carrying it, farmers feel weak.

## **9.9. Overall Change in Agro-tools and their Trends**

Regarding the threshing machine made locally, according to the interviews with manufacturers, the utilization of this equipment will decrease and will be replaced more and more by small harvesters and combine harvesters which are higher efficient.

Combine harvester (small and medium) is newly present on Kampong Thom and Takeo market. This equipment is accessible mostly by service providers.

In each province, there is similar growth characteristic of power tillers and the switch from using Chinese tiller to Kubota tiller. The sale volume of Siam Kubota tillers in the three provinces has increased dramatically these last two years. Until April 2011, Kampot distributor finished his stock of 650 diesel engines and he estimated that the demand of this equipment for this year in Kampot could be 2,000 and more.

The modernization of agricultural techniques, especially the evolution from using animal draft to power tillers is in high progress. However some farmers predict that people will switch to small tractor, when they can afford to this equipment as it is more efficient and also it does not cause any health problems like power tiller.

Most of importers and distributors predict that agricultural mechanization (harvester, combine harvester, tractors, power tillers, water pumps) will increase fast in the short future as it is part of Royal Government of Cambodia's plan in export of 1 Million tons of white rice in 2015 and also the trend of high price of agricultural products.

New agro-tools such as rice dryer, seedling machine, pesticide sprayer, fertilizer machine, etc., will be present widely in Cambodian agricultural fields in the future 3 – 5 years.

In the future 3 – 5 years, local production such as plow, harrow, shovel, etc. (accessories for tractors) and spare parts will increase because of extension of agricultural fields, especially for cultivation of rice, cassava, maize, rubber plantation, etc.

The agricultural mechanization is rapidly developed. This can indicate clearly the changes of the farmers to use the smaller agricultural machinery including small tractors for farming activities in the country.

## **10. CONCLUSION**

1. Local manufacturers have low knowledge in producing agro-tools. As a result, in these recent years, equipment produced by local manufacturers is suffered from strong competition with high end modern technology from developed countries. Otherwise, if local manufacturers can improve their technology in terms of quality, efficiency, and profitability, it will be beneficial to both end users and manufacturers.
2. The Royal Government of Cambodia promotes rice productivity in order to achieve its goal of export 1 Million tons of white rice in 2015, but in strategic plan, it does not promote the mechanization. The Offices of Agricultural Machinery at provincial level were inactive since the long periods.
3. Remarkable change of the use of power tillers especially the switch from Chinese engine to Kubota engine. Farmers seem clearly see the difference of quality between these two equipment. However the high cost of Kubota and other agro-tools such as tractor, harvester are still the main constrains for farmers. The high cost of agro-tools may result from the high cost of factory and the unofficial fees during import process.
4. In the three studied provinces, Kampong Thom, Takeo and Kampot, since the last few years, Siam Kubota products, especially power tillers take the big market share and Siam Kubota distributors seem to conquer the market in each province.
5. In general, according to the observation and point of views of importers and distributors, agricultural machinery in Cambodia will be modernized in the coming future as the level of farmers' livelihood is improving as well as the improvement of production techniques.
6. Access to credit is the main constraints to both involved parties distributors and farmers. The investment requires of big fortune and distributors have to rely on bank loan with high interest rate. On the other hand, they sell equipment to farmers by credit over the period of 3 to 6 months.
7. Cambodia needs modern agro-tools that is affordable and of benefits to farmers. Combine harvester, milling equipments are very important, given the government's purpose of improving rice exports. It still lack of modern technology/equipments in Cambodia. Most supplies of equipments are imported through international Companies/organizations or are imported from neighbor countries such as from Thailand and Vietnam.

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## 12. ANNEXES

### 12.1. Questionnaire

#### 12.1.1. Questionnaire Importers/Distributor/Retailers/Manufacturer

Date of interview: .....

Name of interviewer: .....

#### General Information: AGRO-TOOL COMPANY

Business name: .....

Name of person interviewed: .....

Position in the company: .....

Telephone: .....

Email: .....

Website: .....

Physical Address: .....

.....

Year of starting this business: .....

Is your business registered? Yes / No

Type of business: *Manufacturer / Importer / regional distributor-retailer / local retailer*

specify: .....

Number of employees:..... full time / ..... part time

Annual turnover (US\$) .....

#### 1. List of Agrottools manufactured or imported or retailed

ENGINES AND TRACTORS					
	Quantity made or imported or retailed (units/year)	Power class (HP or kW)	Brand name	Spare parts (Yes / No)	Sale price (US\$/unit)
Small engine					
2 wheel tractor					
4 wheel tractor					
Other.....					
EQUIPMENT					



	Quantity made or imported or retailed (units/year)	Relevant specification (eg width, HP, capacity, type etc...)	Spare parts (Yes / No)	Sale price (US\$/unit)
Equipment for rice land preparation				
Plough				
Roto-tiller				
Harrow				
Leveller				
Other.....				
Other.....				
Equipment for rice seeding				
Drum seeder				
Mechanised drill				
Seed broadcaster				
Other.....				
Other.....				
Equipment for paddy field irrigation				
Irrigation pump/accessories				
Other.....				
Other.....				
Equipment for mechanical weed control				
Hand Weeder				
Other.....				
Other.....				
Equipment for rice crop/pest/weed spraying				
Knapsack sprayer				
Tractor sprayer				
Spray nozzles				
Spray chemicals				
Other.....				
Equipment for rice harvesting and processing				
Combine harvester				
Power thresher				
Power Miller				
Other.....				
Other.....				
Other Equipment				

Trailer.				
Other.....				
Other.....				

2. Are there any agricultural equipment demanded from your clients but you do not have at the moment? Yes / No  
If Yes, what are they?

.....  
.....  
.....

3. Where do you sell your equipment to? *Provinces /District*

.....  
.....

4. Who are your customers?

.....

5. What are the preferences of customers?

.....  
.....

6. Which agro-tool(s) are the most demanded?

.....  
.....

7. Explain why those agro-tools are the most demanded?

.....  
.....

8. What equipment will be demanded the most in the next 5 year? Why?

.....  
.....

9. Do you provide any supports to your clients? Yes /No

If yes, what kind of support (specify by type of equipment)

*Operation manual, operator training, technical advice, after-sale service: maintenance, repair etc...*

.....  
.....  
.....  
.....

10. Do you include operator safety in any training or advice given? Yes / No

if yes, give example/details:

.....  
.....

11. What is the typical payment modality?

.....

12. Have you ever got any feedback from your clients about agricultural equipment? Yes / No

If Yes, what are the feedbacks or complaints?

.....  
.....

13. In the case you cannot repair agro-tools, where do you refer to get equipment repaired?

.....  
.....

14. Can you compare your products with similar competitors' products?

Quality .....

Price .....

Versatility of functions .....

Other: .....:

Other: .....:

15. Do you advertise to promote your products? Yes/No

If yes, where ? *local newspapers, radio, etc...*

.....  
.....

### Private Services

16. Do you provide any private services to farmers in term of agricultural equipment? (*land preparation, land levelling, harvesting, threshing...etc.*) Yes / No

If Yes, what kind of services?

.....  
.....

17. Can you estimate the number of farmers receive your services each year?

.....  
.....

18. How many services providers are there in your district/town/commune?

.....  
.....

19. What is the payment modality of these services?

.....  
.....

20. What is the trend of the service providing business from 3 or 5 years ago up to now?

.....

Why?.....  
.....

21. What are your constraints on the service providing business?

.....  
.....

22. What are other service providing businesses you think an opportunity?

.....  
.....

Why?.....  
.....

### Market Trends

23. What trends did you observe over the past 3-5 years regarding your business? *E.g. decrease or increase*  
(please specify by type of equipment)

*Country of supply:*.....  
.....

*sales:*.....  
.....

*competition* .....  
.....

*demand for quality:* .....  
.....

*demand for new technology:* ... .....  
.....

*purchase power of customer:* .....  
.....

*Other; \_\_\_\_\_:* .....  
.....  
.....

24. What constraints do you face in your business? And what are the prioritized ones?

.....  
.....  
.....

25. What would the manufacturers/importers/retailers do to deal with the prioritized constraints?

.....  
.....  
.....  
26. What opportunities do you see for the future development of your business?  
.....  
.....  
.....

27. Given more competition, what is the strategy of your company to maintain or increase the market shares?  
.....  
.....  
.....  
.....

28. What is your aspiration related to the agro-tool industry in Cambodia?  
.....  
.....  
.....

**Other remarks/comments**

.....  
.....  
.....

**12.1.2. Focus Group Discussion Guideline**

*Land Leveling/Water pumping/pesticide spraying/threshing*

Type of services provider: land leveling/water pumping/pesticides spraying/threshing

**Presentation**

- brief objectives of the discussion
- duration: 1.30 to 2 hours maximum

**Getting started**

1. What service do all of you provide to farmers?
2. What equipment do service providers use? (maybe different equipment, % can be done for each equipment) Are there any change in the equipment and technology used for the same service? From what to what, when and why that happened?

3. Why do you choose to provide this service?
4. Where do you buy your equipment? What price? What support/service do you receive from your seller?
5. What are the major constraints in using the equipment (used for providing the service) that the service providers use to provide the service to farmers)? What have you done to overcome these constraints?
6. How many providers are there in your commune/district that provides this service? Are they enough in providing the service? If not, what do the farmers do? And how many more needed to meet all farmers' need?
7. In average, how many farmers does each provider provide this service to? Who is the most popular in providing this service and who has the least client? Why are they different?
8. What is the trend of farmers seeking this service over the past years? Increase or decrease? Why?
9. What is the trend of the number of the service providers? Increase or decrease? Why?
10. What are your payment modalities and rate?
11. What are the constraints in providing such services?
12. What are other services farmers want that you think would be an opportunity? And why?
13. General questions(**Optional**)
  - i. *What is the evolution of the use of agricultural machinery in Cambodia?*
  - ii. *What do you think about the future trend of agricultural machinery?*

## **12.2. Company Profile**

### **1) Siam Cement Group (SCG) Co., Ltd.**

SCG is one of the largest and most respected industrial conglomerates in Thailand with interest in 92 companies. SCG comprises of 5 strategic business units – Chemical, Paper, Cement, Building Materials and Distribution. All units operate under the principles of good corporate governance.

In 2010, SCG established Siam Kubota Corporation in joint venture between Kubota Corporation and SCG which aims to enhance its business potential to be the leader in agricultural machinery in Asia, and emphasize its leadership in sustainable agriculture development.

Siam Kubota ranges the agricultural equipment as following: diesel engine, riding tiller, walk behind tractor, tractor, combine harvester, rice transplanter and all spare parts.

SCG covers Siam Kubota products in almost all provinces In Cambodia. The market strategy of SCG is one province one Siam Kubota dealer. Meanwhile as the market size in the northwest region is big, SCG provides exclusivity to a big dealer in Battambang to cover Siam Kubota products in other provinces namely Banteay Mean Chey, Oudor Mean Chey, Preah Vihear and Siem Reap.

SCG together with a dealer in Battambang manage jointly the markets in Kratie, Stung Treng, Ratanakiri, Mondulkiri and Kampong Cham. The remaining provinces are under the management of SCG Phnom Penh.

### **2) Tann Long Chea Agricultural Machinery**

Tann Long Chea agricultural machinery, located in Kampong Thom central town, is the sole distributor of Siam Kubota products. The company employs 10 technical staffs who were trained in Thailand. The exclusivity of Siam Kubota products was awarded in 2009.

The Sales volume in 2011 is 1,000 power tillers. The company forecasts that the sale will increase more than one thousand per year. The sale has increased progressively since 2008. In the future, tractors (small and medium), and combine harvesters are the demands of farmers thanks to the intensive dry season rice cultivation in Kampong Thom.

The company provides 3 options for credit payment: i) 1 month credit, ii) 3 months credit, and iii) 6 months credits. Farmers can pay 40% at the 1<sup>st</sup> payment and 60% at the 2<sup>nd</sup> payment.

### **3) Ngov Torn Chhang Agricultural Machinery**

Located in Kampong Thom central town, Ngov Torn Chhang agricultural machinery sells power tillers, combine harvester, water pump machine, weeder, pesticide sprayers and other agro-tools

imported from China and Thailand. The company was a former distributor of Siam Kubota products in Kampong Thom province. Since the company did not reach the sale target of Siam Kubota, it lost the exclusivity.

The company offers a six-month warranty on each product and provides training to farmers on the use and maintenance of the machine.

#### **4) Animal Feed, Fertilizer, Vegetable seed, Rice seed, Machine Instrument**

Located in Kampong Thom central town, the company starts direct import Chinese machine in 2007 and has a warehouse and a shop in Takhmao, Kandal province.

The company has imported 50 combine harvesters and could sell around 25 units per years during the last three – five years. Nowadays, it is difficult for to sell as because buyers have complained about the quality of products. At the beginning it was well sold, said this importer.

The company provides 1 year warranty for the users and provide free of charge training on the use and maintenance of machines. It offers a payment option of 6 months credit which buyer pays 80% at the beginning and 20% at the end.

In 2011, the company stops the import because the demand has decreased dramatically and the company still has in stock 15 combine harvesters. However the company plans to import new brand from of Chinese machine from Hong Kong and focus more on tractors and seedling machine.

#### **5) Huot Pov Agricultural Machinery / Siam Kubota Distributor**

Huot Pov Agricultural Machinery has started in 2006. It was the 2<sup>nd</sup> agricultural machinery shop in Takeo province. Huot Pov represents Siam Kubota for the whole Takeo province.

Since 2009, Siam Kubota products started to absorb important market share from Chinese engine. In 2010, the sale volume of Siam Kubota engines was 600 units and in 2011 he reaches the sale target of 650 engines. As Kubota engine is more expansive than Chinese engine, most of farmers buy separately the engine and the hand clutch. They install Chinese engine with Siam Kubota hand clutch. As a result, the sale volume of hand clutch is higher than engine. Until April 2011, Huot Pov Agricultural Machinery sells around 1,500 units of hand clutch.

Siam Kubota equipments sold at Huot Pov Agricultural Machinery including:

#### **6) Bunthan Sopheak Agricultural Machinery**



Bunthan Sopheak Agricultural Machinery is the 1<sup>st</sup> agricultural machinery shop in Takeo. The shop does not represent exclusivity of any brand. The majority of agro-tools are 2<sup>nd</sup> hand products. There are some units of Siam Kubota power tillers which are imported from Siam Kubota dealer in Banteay Mean Chey.

2<sup>nd</sup> hand combine harvesters are newly imported directly from Japan this year. The equipment is sold with the warranty of one year on services and 6 months of credit. Until April 2011, 3 combine harvesters were sold.

Since farmers tend to switch from Chinese engine to Kubota engine, his sale decreases dramatically these last few years.

## **7) Chrun Sophal– Hong Somaly (or Phal Maly) / Siam Kubota Distributor**

Located in Chhuk district, Chrun Sophal – Hong Somaly is the biggest agricultural machinery shop in Kampot province. The shop opened in 2006 and represent Siam Kubota products. In Kampot, he has 7 sub-distributors of Siam Kubota product. The sub-distributors are located in Kampot down town, Kampong Trach district, and Chhuk district.

Diesel engine and hand clutch (body of power tiller) are the most sold. As until April 2011, the shop reported the shortage of stock of these equipments. He has reached his target which was planned 600 diesel engines and 3,000 hands clutch. As a result, in this year (2011), he limited the number of 10 power tillers to each sub-distributor.

## **8) Agricultural Equipments Manufacturer Russey Keo**

- Mr. OUCHHOEUN LARANO (owner)
- Mr. PEN NOUV (Technical Advisor)

This manufacture was established in 1996 and operates till present. In total 25 workers and technicians are working here. So many various products are produced in this manufacture such as plow, harrow, accessories for tractor (e.g. for land leveling, etc.). All these equipments/accessories are used in the rice field, corn, cassava, cashew nut plantation and rubber, etc.

Plow and harrow are the most preferred equipments of users.

The main raw material used such as iron is imported from Vietnam, Thailand and China.

Recently the demand is high and his production has increased almost double because he has long time experiences and products with quality and a lot of clients trust him.

At present, he cannot produce as much to meet the demand of the clients. Mr. Larano wants to extend his business but he still needs more capital for that. Moreover, he cannot take the loan from the bank because the interest rate is still high for his business.

The quality of his products can compete with other products on the market and the price is acceptable. For example, the price for plow (for link with tractor 80-125 Hp) costs 1,500 USD, the same size from Thailand is between 2,000-2,200 USD and from Vietnam between 1,200-1,300 USD.

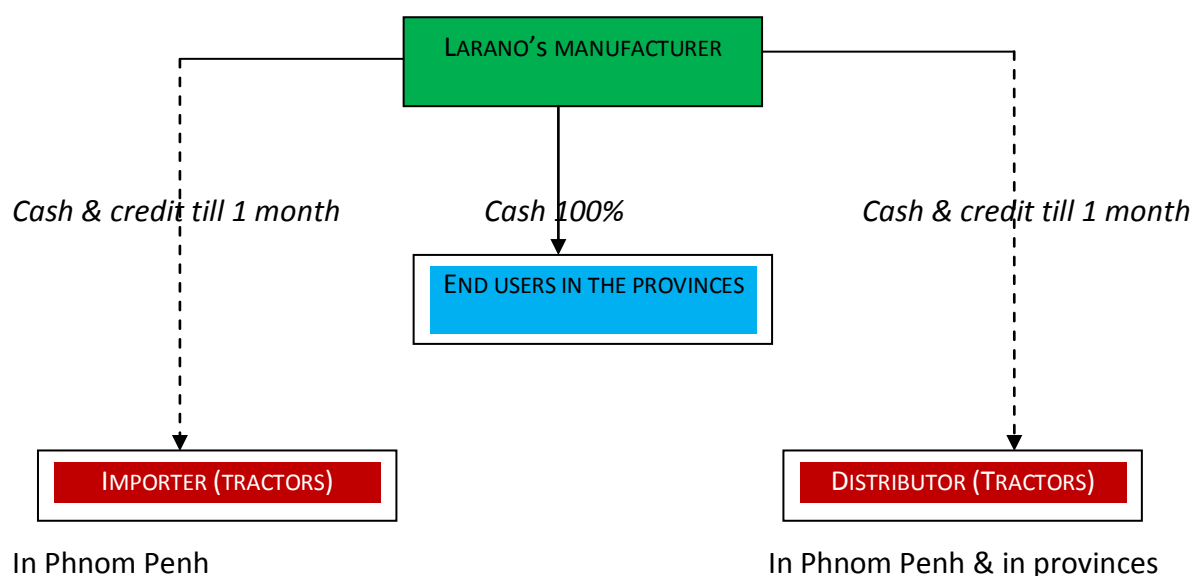
Since few years, the manufacturer has built a warehouse in Kilometer No. 9. He sells direct to end-users and to distributor (that sell tractors) in Phnom Penh and in the provinces such as to Ratanakiri, Kampong Cham, Siem Reap, Kampong Thom, Battambang, Pursat, Kampong Speu, Takeo, Prey Veng, etc. The modality of payment is for end-users 100% cash (no credit) and for the clients that sell tractors (have also tractors in the warehouse) on the market, can get credit till one month.

Until present, the manufacturer has never advertised his products and the clients know the products through telling from one user to one user.

Constraints:

- Lack of knowledge to produce modern equipments
- The production is low (cannot produce much per day/month – the demand is high) – limited capacity
- The manufacturer is small
- Interest rate for loan is still high

**Figure 6: Supply Chain Map of agricultural equipments (Larano's Manufacturer)**



**Equipments sold on the market**



Plows



Harrows



Shovels

For fertilizer application

**Picture 6: Agricultural equipments from Larano's manufacturer**

## 9) Local Manufacturer CHEANG ROTH

Owned by Mr. ROTH, the manufacturer was founded in 1997. The main products are thresher (especially for rice, Mung bean and Soy bean) and local truck (see picture). The manufacturer employs 10 workers including technician. He produces also trailer and harvester which he has copied the model from Vietnam.

The products are well-known in Cambodia, even H.E. Chief of Cambodian National Bank, World Bank chief and chief of ACLEDA recognize these products (see photos below).



**Picture 7: CHEANG ROTH'S THRESHER**

In average Mr. ROTH sells 100 threshers per year to various provinces such as Kampong Speu, Takeo, Kampot, Siem Reap, Battambang, Pursat, Kampong Cham, Stung Treng, etc. For the engine 18 Hp is the price *1,700 USD* per unit, for 22 Hp is *1,800 USD* and for 24 Hp is *1,900 USD* per unit. The thresher with 18 Hp can reach 1 hectare in two hour and with 24 Hp needs maximum in 1.5 hour.

He has two types of clients, distributor and end users. Most of his products are sold direct to end users and modality of payment is cash 100.

As the manufacturer believes in the quality of his products, the products are sold without warranty, but he provides the service to the clients such as training on the use and maintenance of the equipments. If some spare parts are damaged the clients have to buy from him.

Only his distributor can buy his equipments on credit, e.g. for 10 threshers, distributor buys in this season and has to pay in the next season. He has distributors in two provinces namely Battambang and Stung Treng. For organization, company and distributor, he accepts also bank transfer.

His second main product is truck (see picture below) and in average is sold 30 units per year. The small one (4 cubic meters) costs *7,000 USD* per unit and the big one (7 cubic meters) costs *10,000 USD*.



PICTURE 8: CHEANG ROTH'S TRUCK

Mr. ROTH produces also harvester with power 22 Hp and 24 Hp. For the first one costs 3,500 USD per unit and for the second one costs 4,000 USD.

Constraints:

- Some time, it's hard to find some spare parts
- Besides the harvest season can be not sold a lot
- He prefers to use iron from Thailand and the price is ranged between 750-1,000 USD per tones

## 10) Local Manufacturer CHEANG POUV

Owned by Mr. POUV, the manufacturer was founded in 1999. The main products are threshers and trailers. The sales volume per year is 40 threshers. The production volume is very small compared to other manufacturers in Phnom Penh. The main raw material is iron (from China), which cost 650 USD per ton.

He sells the threshers direct to end users in the provinces namely Kampong Speu, Takeo, Kampot, Siem Reap, Koh Kong, Pursat, Battambang, etc. He has no distributor in the provinces. Since the last few years, the sale volume has decreased because of high competition on the market.

The price's ranges of his product are 1,350 USD for 18 Hp and 1,650 USD for 22 HP. These prices are cheaper compared to other manufacturers. Yet it seems that his products are still could not compete and hit the demand. The modality of payment is 100% cash.



## 11) List of Agriculture Machinery Shop in Phnom Penh

No	Name of Company	Contact Address	Products	Type of Business
1	Agriculture Development Co., Ltd	Nº. 1DEo, Oknha Khleang Moeung (St. 70), Phnom Penh. Tel: 023 427 572	Tractors & Spare Parts	Importer (Russia)
2	BVB Machinery Trading Co Ltd	Nº. 17, National Road No 6A, Phnom Penh. Tel: 023 6363 288, H/P: 012 329 999	New Holland Tractor (Made from Europe), Mitsubishi Tractor (Made from Japan), Talaythong Power Tiller (Made from Thailand), Bokto Seeders (Made from Korea), and supply various kinds of attachments (implements) for tractor such as disc plough, disc harrower, lipper, shakerator, fertilizer, sprayer, cart loader etc., which produced from Thailand with high quality materials.	Distributor
3	Cam - World Machinery Co Ltd	Nº. 43GEo, Oknha Peich (St. 242), Phnom Penh. Tel: 012 682 848	Combine Harvester	Importer
4	SCG (Cambodia) Co Ltd	Nº. 100, National Road No 2, Phnom Penh Tel: 023 990 401-5, Fax: 023 990 400	Agricultural Equipments/Machinery	Importer
5	Chhong Lam	Nº. 22, Street 67, west of Central Market, Phnom Penh Tel: 023 213 546, HP: 012 212 286/011 281 865/017 455 267/012 857 936	Engine Pumps, Agricultural tools, Machinery parts, Repairing services.	Retailer
6	Chhun Vanna	Nº. 293, National Road No 6A, Phnom Penh Tel & Fax 023 430 588 HP: 012 982 345/012 815 559/011 805 555	Tractors 2nd hand	Retailer

7	Chou Seng Ny Electric & Water Pump Shop	Nº. 369Eo, Preah Monivong, Phnom Penh. Tel: 023 221 369 Fax: 023 216 877. HP: 016 973 333 / 012 919 855	Pumps machine	Retailer
8	DEG - Dynamic E-Group Ltd	Nº. 18ABC, Confederation de la Russie, Sangkat Phsar Depo III, Khan Toul Kork, Phnom Penh. Tel: 023 992 299	Water pumps all engine class (from Europe)	Importer
9	Ear Tech Ngi Rice Miller Engine Generator & Pump Shop	Nº. 152Eo, Charles de Gaulle (St. 217), Phnom Penh. Tel. 023 219 787 / 012 991 919 / 011 866 666 / 012 912 399 / 012 912 399 Email: <a href="mailto:sokkxim888@hotmail.com">sokkxim888@hotmail.com</a>	Rice Milling Machinery, pumps machine, tractor	Retailer
10	Heng Development Co Ltd	Nº. 27DEF, Preah Monivong, Phnom Penh. Tel: 023 998 989	Tractor, Tools & Equipments, Irrigation System and dripping system, Fresh flowers Production , Flowers in pots production, All supply for agriculture	Importer
11	Hok Chheng Hong	Nº. 92Eo, Street 136, Phnom Penh Tel: 023 428 477, HP: 012 656 700/011 895 070	Engine Pumps, Agricultural tools, Machinery parts, Repairing services.	Retailer
12	Intermotor	Nº. 2166Eo, Kol De Montero (St. 72), Phnom Penh. Tel. 012 957 070 / 011 813 181 / 012 851 171 E-Mail <a href="mailto:intermotor@online.com.kh">intermotor@online.com.kh</a>	Tractor - Agricultural Machinery & Accessories	Importer
13	Khang Seang Ly Selling Machinery Center	Nº. 17 St 93, Phnom Penh Tel: 023 868 888, HP: 017 366 388 / 017 888 699	Tractor, power tiller, pump machine, agricultural machinery & spare parts	Distributor
14	Kenflo Pumps Sales Centre	Nº. 110E, Mao Tse Toung (St. 245), Phnom Penh. Tel/Fax: 023 211 345 HP: 012 878 128. Email: <a href="mailto:kenflob@citylink.com.kh">kenflob@citylink.com.kh</a>	Pumps	Distributor

15	KES Cambodia Co., Ltd	Nº. E06, Street 112KF, Prey Tea Village, Phnom Penh. Tel: 023 993 142	Agricultural Equipments	Retailer
16	LKM Import Export Co Ltd	National Road No 6A, Phnom Penh Tel & Fax: 023 883 384 HP: 015 888 858/012 383 338	Agricultural Equipments/Machinery	Importer
17	Ly Theng An	Nº. 153 St 217, Phnom Penh Tel: 023 880 678 / 012 896 699	Rice miller, power tiller, pump machine, spare parts	Retailer
18	Mean Chey Agriculture Market	Nº. 631, Monireth (St. 217), Sangkat Steung Meanchey, Phnom Penh. Tel. 016 966 482 E-Mail <a href="mailto:mekongcam@online.com.kh">mekongcam@online.com.kh</a>	Tractors, Spare parts	Importer (China)
19	Mekong Agriculture Tractor Co Ltd	Phnom Penh Nº. 117E1, Prey Nokor (St. 126), Phnom Penh. Tel: 023 6969 888	Distributor Mahindra Tractor, Supply spare parts & services, Forage harvester, crops seeder & planter, Rotary, plough, trailer, cutter & digger	Distributor
20	Meng Leng Eav Co., Ltd.	No.121D, Mao Tse Toung (St. 245), 50 meter from Chinese Embassy, right side, near PETRONAS station	Pomp machine, knapsack sprayer, weeder	Importer (China)
21	Multico MS (Cambodia) Co., Ltd	National Road No 6A, Corner Street New Chroy Changvar, Phnom Penh Tel 023 432 130,HP: 077 555 768/012 758 976	Tractors, Spare parts	Importer
22	Noun Seang Lim Tractor Shop	Nº. 24, Street 355, Phnom Penh. HP:011 974 208/012 690 032/012 209 898	Tractors 2nd hand	Retailer
23	Pall Hann Tractor Ford	No. 42, Street 598, Phnom Penh. HP: 012 836 008/012 844 149/099 304 306	Tractors 2nd hand	Retailer



24	Rina Water Pumps Shop	Nº. 59, Street 369, Phnom Penh. HP: 012 625 900	Pumps	
25	RMA Cambodia	Nº. 04075, Sorla (St. 2004) Phnom Penh Tel. 023 882 464-5 Fax 023 882 472 Website <a href="http://www.rmaautomotive.net">http://www.rmaautomotive.net</a>	Tractors, Spare parts	Importer
26	Sambo Meng Heng	Nº. 264, St 182, Phnom Penh Tel 011/012 500 300	Small tractor, harvester	Distributor
27	Seng Leng	Nº. 2178ABE0, Kol De Montero (St. 72), Phnom Penh. Tel: 023 428 773	Tractors	Importer
28	Taing Kim Chhay Machinery Imp & Exp Co Ltd	Nº. 142-144, Charles de Gaulle (St. 217), Phnom Penh. Tel: 023 212 979. Fax: 023 222 225 HP: 012 842 522 / 012 973 939 Email: <a href="mailto:nitachen999@hotmail.com">nitachen999@hotmail.com</a>	Rice Milling Machinery, Pumps	Distributor
29	Tang Kim Heng Rice Millers Shop	Nº. 163, Charles de Gaulle (St. 217), Phnom Penh. Tel: 023 880 537	Rice Mill, Tractor, Diesel Engine Generator, Rice, Reaper, Pump Mini Combine harvester, power tiller, all kinds of machines	Distributor
30	TLH - Taing Hour	Nº. 125Eo, Charles de Gaulle (St. 217), Phnom Penh. Tel. 023 724 897 Fax. 023 883 980 HP: 012 876 368 / 012 961 989 / 011 865 596	Motor Water Pumps, Generators, Bearing	Distributor
31	Wavelink Sdn Bhd	Confederation de la Russie, Unit 35E5, Level 5, Attwood, Tel. (855) 23 866 218 / (855) 16 369 048	Tractors, Spare parts	Representative Office
32	WTG - World Trading Group	Nº. 280, Preah Monivong, Phnom Penh. Tel. 015 812 181 / 012 812 181	Tractor, Tractor sprayer, combine harvester, seed broadcaster	Importer (VN)
33	Uy Tong Enterprises Co., Ltd	74 Eo, St 67, Phnom Penh. Tel 023 212 222, HP 012-016 812 668	Tractors and spare parts from China	Importer

34	Sandong Cambodia Machinery	36, National Road 6A, Chroy Changvar, Phnom Penh. Tel 023 654 9393, HP 097 2338223	Tractors and spare parts from China	Importer
35	Ky You Sreng Company	Hanoi Street, Teuk Thla, Phnom Penh. Tel 012 68 18 16	2 <sup>nd</sup> hand machinery (small tractors, harvester, pump machines)	Retailer
36	Taing Hong Poy	Nº. 223 St 182, Phnom Penh Tel: 017 999 898 / 011 972 911	2 <sup>nd</sup> hand power tiller, tractor, pump machine	Distributor / Retailer
37	Ung Kimleap	1924-1926, National Road 5, Toul Sangke, Phnom Penh. Tel 011 550 094/012 705 383/017 490 202	Pump machine	Retailer
	Hanukman Peanich Co., Ltd	124 St. Sotheaeros, Phnom Penh. Tel 023 677 7786. HP 078 877 779/078 877 778/090 697 777. Email: <a href="mailto:info@hpgroup.com.kh">info@hpgroup.com.kh</a> <a href="http://www.hpgroup.com.kh">www.hpgroup.com.kh</a>	Tractors and spare parts	

## 12) List of Agriculture Machinery Shop in Kampong Thom province

No	Name of Company	Contact Address	Products	Type of Business
1	Tann Long Chea	Khbal Thnal Khdey Daung, National Road 6, 10m from Old Stadium, Kampong Thom. Tel 012 721 388/012 330 846	Power tiller, Tractor, Pump machine	Distributor

3	Animal Feed, Fertilizer, Vegetable seed, Rice seed, Machine Instrument	Village 6, Kampong Thom commune, Stung Sen district, Kampong Thom. Tel 012 615 165. Email: <a href="mailto:khounnavy@yahoo.com">khounnavy@yahoo.com</a>	Tractor, Knapsack sprayer, combine harvester	Importer from China
4	Ngov Torn Chhang	Store 41-42, Kampong Thom Market. Tel 012 938 093/092 260 966	Tractor, Pump machine, Rice milling	Distributor
5	Cheang Then	Village Krachab, Acha Leak commune, Stung Sen district, Kampong Thom. Tel 012 287 090	Threshing machine	Local manufacturer
6	Cheang Sith	Village Krachab, Acha Leak commune, Stung Sen district, Kampong Thom. Tel 012 648 717/017 442 257	Threshing machine	Local manufacturer
7	Cheang Mab	Spean Tbong Cham, Stung Sen district, Kampong Thom. Tel 012 970 783	Threshing machine	Local manufacturer
8	Cheang Heng A	Spean Tbong Cham, Stung Sen district, Kampong Thom. Tel 012 601 237	Threshing machine	Local manufacturer

### 13) List of Agriculture Machinery Shop in Takeo province

No	Name of Company	Contact Address	Products	Type of Business
1	Huot Pov Company	Trapaing Ang village, Sangkat Roka Krao, Krong Daun Keo, Takeo Tel: 017 999 901 / 012 666 617	Power tiller, harvester, pump machine, tractor	Siam Kubota distributor
3	Bunthan Sopheak	Trapaing Ang village, Sangkat Roka Krao, Krong Daun Keo, Takeo Tel:	2 <sup>nd</sup> hand combine harvester, tractor, seedling machine, power tiller, small harvester, pump machine	Distributor / Retailer
4	Hok Kry	No 77, Lory village, Sangkat Roka Knong, Krong Daun Keo, Takeo Tel: 011 746 196	Thresher	Manufacturer

### 14) List of Agriculture Machinery Shop in Kampot province

No	Name of Company	Contact Address	Products	Type of Business
1	Chrun Sophal – Hong Maly	Siam Kubota Kampot, in front of Chhuk Market Tel: 012 330 145 / 097 71 3333 4 / 033 69 00 156	Power tiller, Tractor, Pump machine	Distributor

3	Kao Ror	Siam Kubota Kampong Trach, Tel: 012 70 82 29	Power tiller, pump machine, weeder, pesticide sprayer	Retailer
4	Chou Bunna	No 17 Street 117, Kampot Market Tel: 011 216 216 / 012 216 216	Pesticide sprayer, weeder	Retailer
5	Ly Ly	Kampot Market	Power tiller, pump machine, pesticide sprayer, weeder	Retailer