

CHAPTER IV

GENERAL PROFILE AND PRODUCTION SYSTEMS OF THE STUDY AREA

The chapter provides general profiles of the study area covering biophysical and socio-economic circumstances. Two vegetable production systems, namely yard long bean and cucumber which are the major vegetables in the study area are described.

Somroung Thom commune is one of the twelve communes of Kien Svay districts under Kandal province in Cambodia. It lies on the east part of the province. This commune consists of six villages, which are located 43 km east of Phnom Penh city. It shares boundary with Takeo province and Prey Veng province and also with Vietnam along Mekong River and the national road number 1 (Figure 4.1).

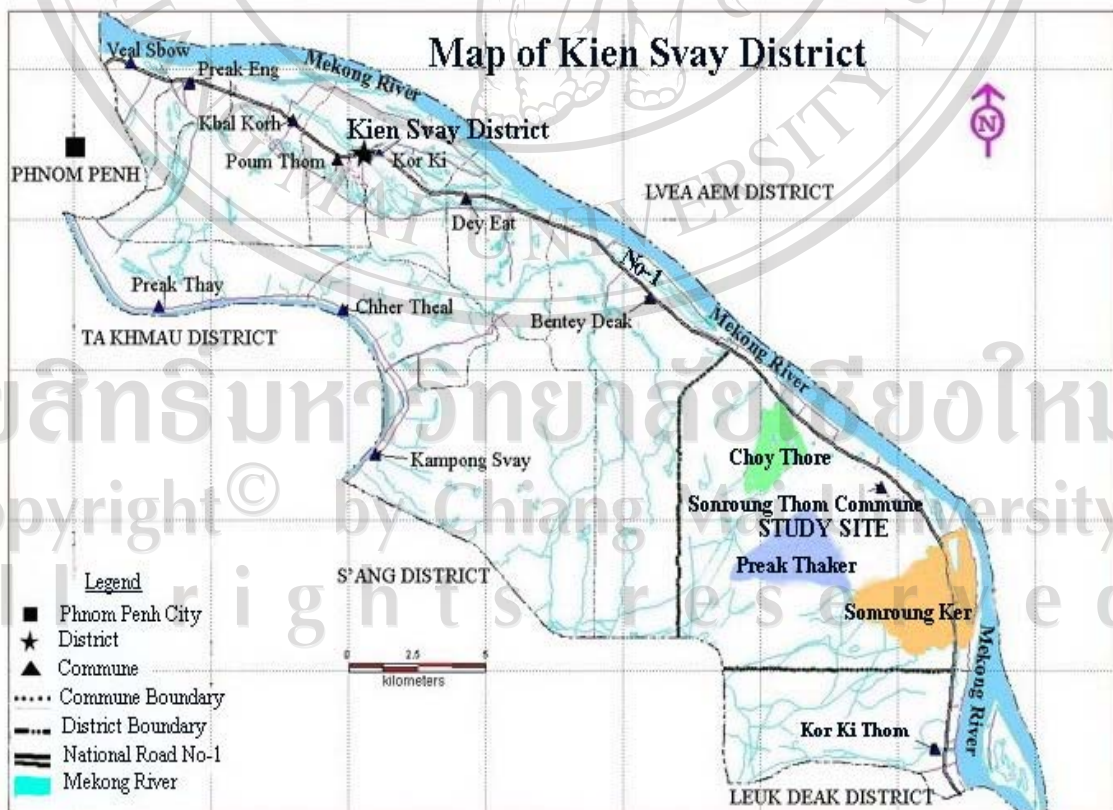


Figure 4.1 Map of study area, Somroung Thom commune, Kien Svay district

4.1. Biophysical condition

4.1.1 Climate

The study site is located in subtropical climatic zone. The annual average temperature is varying between 29-32 °C with a total annual rainfall of about 998.8 mm in 2007. Figure 4.2 presents the rainfall pattern for 12 months in the study area in 2007. The rainfall started from April and ended in October with higher level of rainfall in June, August and October. Two different seasons are noted, namely, the dry season that starts from November to April that is influenced by the North-West monsoon and the rainy season that starts from May and ends in October. The rainy season is mainly influenced by the South-West monsoon. In the dry season rainfall is regularly very low. Therefore, crop cultivation is not possible without irrigation. But the irrigation is poorly developed and managed, which poses a problem both in dry and rainy seasons. However, the study area is located along the Mekong River. It floods every year from late August or early September to December with depth of water ranging from 1.5 - 2.5 m, making farming less feasible.

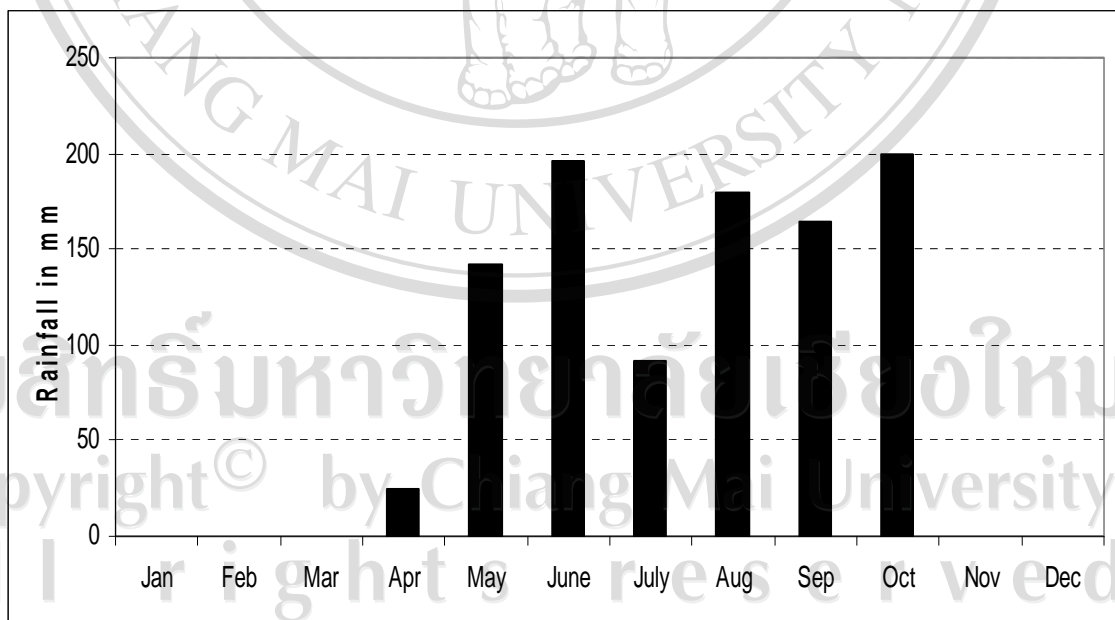


Figure 4.2 Rainfall distribution of study area in Kien Svey district

Source: Kien Svay districts meteorology and hydrology office, 2007

4.1.2 Socio-economic setting

In study area, all most people living have improved their livelihood by increasing the income through enhancing in agriculture productivity. Farmer organizations and people in this commune traditionally work together. The farmers purchase agricultural input such as vegetable seeds, chemical fertilizers and insecticides through the local market of Char Impove, which is located at a distance of 38 km from the Somroung Thom commune. However, farmers sell their agriculture products either through the middlemen who come to purchase in farmers field or directly in provincial market at a distance ranging from 19 - 41 km (Table 4.1).

Table 4.1 Distance travel to market from the studied villages

Village	Average distance to market (km)	Standard deviation
Preak Thaker	34.40	± 2.38
Somroung Ker	41.46	± 0.90
Chroy Thore	19.40	± 10.99

Source: Survey data, 2008

4.1.3 Soil

From information obtained during PRA, it was found that soil in the study area is brown and loamy on the surface layer and light brown and loamy on subsoil. The soil type is classified as Kien Svay soil. It is relatively easy to manage and it has a high potential for agricultural production.

4.1.4 Land use

Samroung Thom covers 8,478 ha and divides in four part of land such as rice (1,300 ha), vegetables and fruit trees (1,500 ha), settlement (605 ha) and other lands like river and forestry (5,073 ha), while the farmers predominantly growing vegetables like yard long bean, cucumber, tomato and others, fruit tree like coconut, mango, jack fruit, milk fruit and banana can be seen in the home garden (Figure 4.4). Other crops like maize, soybean and groundnut are also grown in rice based cropping systems. Among these crops, yard long bean and cucumber are the main source of household income in the commune (NCSC, 2008).

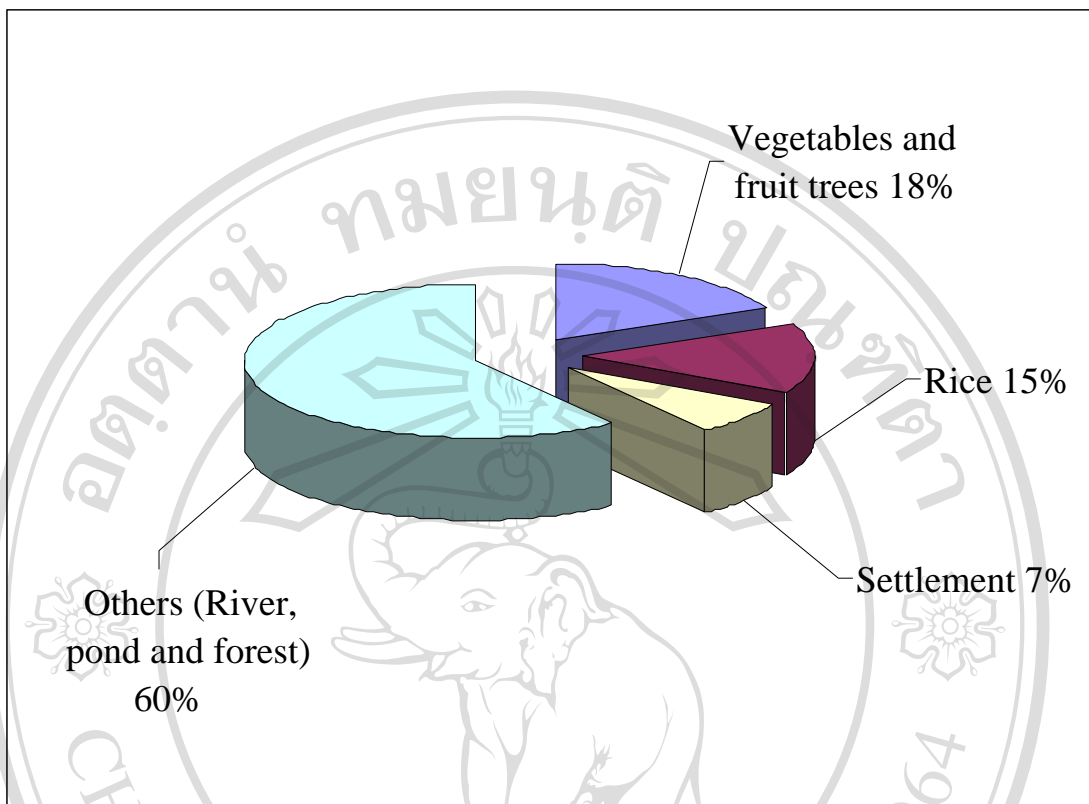


Figure 4.3 Land use in Somroung Thom commune

4.1.5 Sources of income

Main source of income in the study area is from agriculture vegetables such as yard long bean and cucumber. Other, there was some income from off-farm activities like factory work. The annual average income farmers in Preak Thaker was received 3.9 m Riel and non-government organization farmer at Somroung Ker received annual income 4.8 m Riel and farmer- group at Chroy Thore received 3.7 m Riel. The vegetable farmers in Somroung Ker village associated with NGO were able to earn more incomes than other two villages (Table 4.2).

Table 4.2 Sources of annual income in three villages (x1, 000 Riels)

Village	Annual income	Vegetables income	Other incomes*
	(m Riel)	(m Riel)	(m Riel)
Preak Thaker	3.923	2.332	0.397
Somroung Ker	4.867	2.893	0.587
Farmer to farmer	3.770	2.462	0.402

* *Other incomes as rice, fruit tree, fishery and livestock.*

Source: Survey data, 2008

4.2 Agricultural production at study area

The agricultural production plays a significant role, contributing to the major share of income for the local people. The main income comes from vegetable production.

4.2.1 Major crops

In study area, where many crops growing are like rice, vegetables, maize, mung bean, sesame, sugarcane, peanut, cassava, jute and sweet potato. Vegetable is a main cash crop and rice becomes a second essential crop, at 54 per cent of cultivated area is vegetable, while 46 per cent of the cultivated area is rice. However, vegetable is general growing for commercial and home consumption. Its surplus is sold for cash income, while rice is general grown for home consumption only.

Table 4.3 Land use for agriculture in Somroung Thom commune

Crop	Cultivated Area (ha)	Percentage (%)
Rice	1,300	46
Vegetables	347	13
Maize	257	9
Mung bean	231	8
Sesame	183	7
Sugarcane	174	6
Peanut	105	4
Cassava	89	3
Jute	76	3
Sweet potato	38	1
Total	2,800	100

Source: District statistics, 2007

4.2.2 Fruit tree production

There are many fruit trees that are grown in the home garden with range of maturity. Fruit trees are cultivated in small scale farming. Most of the fruits are seasonal in this commune, but there are also some fruits like papaya that can be harvested throughout the year. The technical knowledge of fruit growing comes from their own experience or from parents. Nevertheless, almost fruit tree as coconut, jack fruit and mango are grown for long time even though it exceeds its economic for farm family. During the survey time, most of farmers had grown fruit trees for home consumption purpose (see Table 4.4).

Table 4.4 Types of fruit trees grown in three villages of Somroung Thom commune

Description	Number of household growing (N=68)			Percentage of household
	Prek Thaker	Somroung Ker	Chroy Thore	
	Mango	5	4	
Jack fruit	2	3	7	18
Coconut	3	2	3	12
Banana	1	3	4	12
Milk fruit	1	2	3	9
Guava	2	3	1	9
Pomelo	1	2	2	7
Papaya	2	1	1	6
Wood apple	1	1	1	4

Source: Survey data, 2008

4.2.3 Livestock production

Livestock is an integral component of farming and very popular in the study area, especially cattle. Almost average of household has at least one cattle kept for cash income rather than for plowing. The rage of livestock is kept for cash income rather than for plowing. The major market for those cattle is export to Vietnamese market across the border. On the other hand, livestock keeping is considered essential for maintaining soil fertility. Integrating livestock into the crop production system has therefore enabled farmers to maintain their animals as well as crop production.

The result from the survey also indicated that livestock or poultry production is the one of main enterprise contributing to income of farmers in the study area. (see Table 4.5).

Table 4.5 Livestock of Somroung Thom commune

Description	Number of animal (head)
Cow	7,704
Buffaloes	1,156
Pigs	11,556
Poultry	26,964

Source: District statistics, 2007

4.2.4 Land holding

The agriculture land use is designed mainly for agricultural production such as crop cultivation, animal husbandry and aquaculture. The settlement land (village) is used primarily for housing construction and other service activities. Result of survey indicated that vegetable is grown in all six villages, vegetable among which Somroung Ker village has the largest growing areas (Table 4.6).

Table 4.6 Land use in six villages under Somroung Thom commune

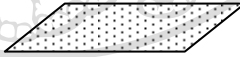
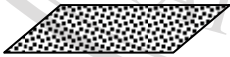
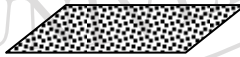
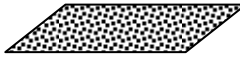



Village	Land use type (ha)		
	Rice	Vegetables and Fruit trees	House
Chaynodom	328.0	193.39	131.20
Preak Thaker	132.5	182.62	140.20
Chroy Thore	296.0	309.82	121.4
Sreng	152.5	170.73	115.6
Preak Treak	210.0	224.70	103.6
Somroung Ker	272.5	512.63	158.4

Source: District statistics, 2007

4.3 Cropping pattern

The lowland farmers have diversified farming systems integrating rice, vegetable, fruit trees and livestock. Rice is cultivated in rainy season from April to July with early maturing varieties. Vegetable crops are cultivated almost throughout the year, with three main growing seasons. The early season begins in January till March, and then followed by mid-season planting from May to July. The annual flooding during August to early October interrupts the vegetable cultivation. The post-rainy vegetable growing season then begins the early October until December. The common commercial vegetable are yard long bean and cucumber, while tomato is cultivated more in Preak Thaker and Somroung Ker which are under the government and non-government organization supported extension system. The vegetables were also produced as home garden system (Table 4.7, Figure 4.4, and Figure 4.5).

Table 4.7 Cropping systems in Somroung Thom commune

Cropping calendar	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice												
Vegetables												
Fruit tree												
Livestock												
Flooding												

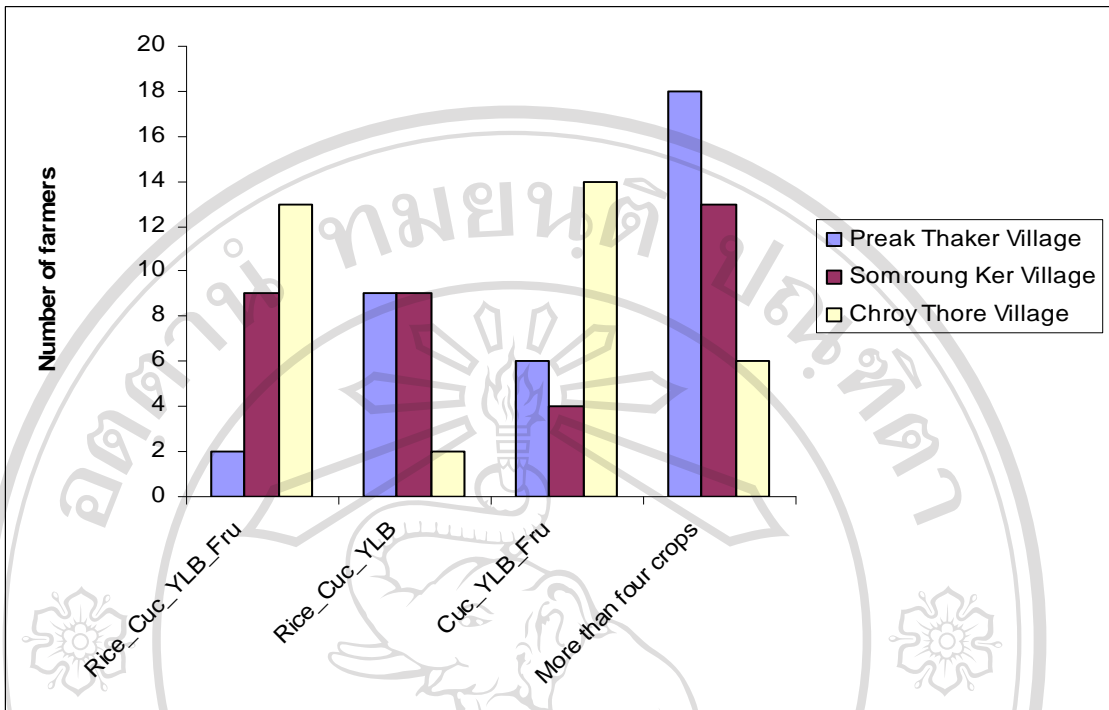


Figure 4.4 Cropping per year in three villages of Somroung Thom commune

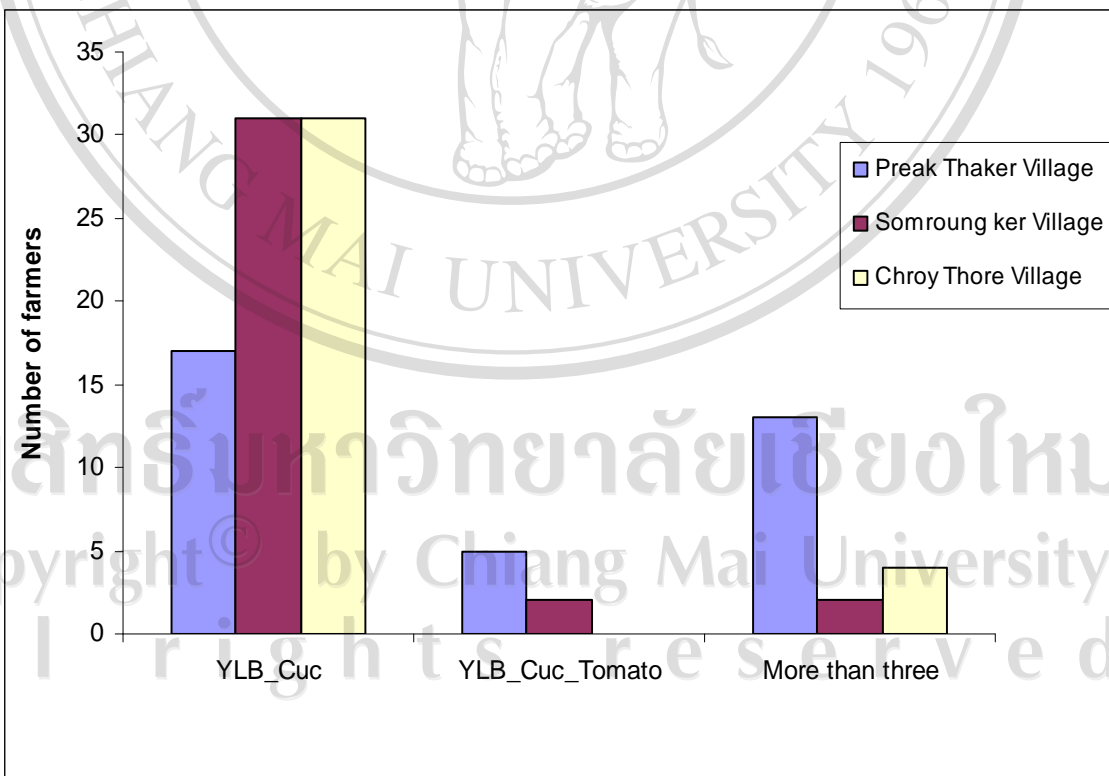


Figure 4.5 Type of vegetables planted in study area

Source: Survey data, 2008

4.4 Vegetable production

Vegetable is cultivated near homestead and along river banks (HKIC, 2003). The cultivation of vegetable is influenced by local climate, seasons, and soil characteristic. Nevertheless, vegetable production is more intensive in this area where there is market demand. Several varieties of vegetable are cultivated throughout the year but the most abundance can be observed from middle of October to the end of March.

4.4.1 Yard long bean production

In Somroug Thom commune, yard long bean and cucumber are popular vegetables for farmers and Pahnom Phen fresh market, while Kandal province supports more than 70 percent of yard long bean and cucumber per day. These vegetables are rich in vitamin A and contain a fair amount of vitamin C. But yard long bean is principally a warm-season crop and will survive extreme humidity and heat. It can be grown in a wide range of climatic conditions but is very sensitive to cold temperatures. Best for grown yard long bean at average daily temperature between 24-28 C° in this area from October to February. The crop prefers a light, well-drained soil with a pH of 5.5 to 6.8, enriched with organic matter, such as compost or dried manure.

Propagation and planting

Propagation is through direct seeding and transplanting. But in study area farmers practise direct seeding. Planting seeds 2-3 cm deep in warm soil with 3-4 seeds per hill. Germination will take place within 3-5 days. Farmers soak the seeds in water before sowing, for better germination. Normal row spacing is 60 cm with hill spacing of 50 cm apart depending growing on raised beds or ridges. Dwarf variety can be planted much more densely. The plants are supported with poles.

Varieties

There are three common varieties of yard long bean in Cambodia such as Kbal koh 1 (Local), Kbal koh 2 (YBK3) and Kbal Koh 3 (YBK3).

In Somroug Thom prefer Kbal koh 1(local) because farmers can keep the seed for planting.

4.4.2 Cucumber production

Cucumber is one of the preferred vegetables for uses with others assist food becomes more delicious in Cambodian food. Varieties of cucumber are grown either to be eaten fresh or to be pickled. It has vitamin A and rich with vitamin B.

Cucumber is primarily all seasonal easy to grow and maintain. It survives extreme humidity and heat. It can be planted in a wide range of climatic conditions but good time for growing cucumber is at average daily temperature between 28-30 °C. The crop prefers a light, well-drained soil around pH of 6.5. Farmers are recommended to apply organic compost before planting.

Propagation and planting

Land is ploughed at least one time and some compost is added to improve the soil structure. For cucumber, farmers are usually make the seedbed because it is easy watering, weeding and maintaining. Farmers practise direct seeding. Planting seeds 2 mm deep soil with 3-5 seeds per hill. The spacing between rows is 75 cm- 80 cm and hill spacing is 25 cm – 30 cm.

Varieties

There are three types of varieties of cucumber based on maturity for cultivation in Cambodia, early varieties (hybrid), medium varieties (local) and late varieties (local).