

CHAPTER I

INTRODUCTION

1.1 Background

Cambodia is located in the central of South-East Asia surrounded by Vietnam in the east and south, by Laos in the north and Thailand in the west. Its approximate geographical coordinates are 13°N 105°E. Cambodia covers 181,035 km² in the southwestern part of the Indochina peninsula with a population of 14,241,640 peoples. More than half of its land is flat, and Mekong River flows from North to South in the heart of the country (MoP, 2007). The climate is monsoonal and has marked rainy (May to October) and dry (November to April) seasons of relatively equal length. Both temperature and humidity generally are high throughout the year. The average annual rainfall is between 1,200 mm and 1,400 mm and the heaviest amounts fall in the southeast of country (MAFF, 2007).

The most important sector for the economic stability (40-45%) and growth of Cambodia is agriculture. Agriculture in Cambodia is blessed with huge fertile land and rich water of Mekong River system. It employs about 80-85% of the labor force with a high proportion of population are very poor (WB, 2005). There remains a lot of rural dwellers of Cambodia living under poverty line rate at 36 percent. This was mainly caused by low agriculture productivity. Recently, the goal of government is to improve self-sufficiency in stable food production through better crop management practices with crop diversification and integrate farming and at same time protecting environment and human health for all Cambodian. Moreover, the diversified farming farm traditional rice-based production system can also improved agricultural production in Cambodia (AVRDC, 2006).

Vegetable is the second important crop in Cambodia after rice, which provides the main source of nutrition and income for farmers throughout the country (MAFF, 2005). These crop production and consumption are also the basis of economic activity for most farmers, and can be found in almost places in country upland and

lowland areas (CARDI, 2007). However, after the government policy has been changed since 1989, there is considerable scope for developing vegetable production crops and cropping technologies. Major crops in Cambodia are rice, vegetable, maize, cassava, mungbeans, soybeans, and peanut (Table 1.1).

Table 1.1 Major crop production in Cambodia (area: ha and production: ton)

Crop	Legend	2003	2004	2005	2006	2007
Rice	Area	2,314,285	2,374,175	2,443,530	2,374,175	2,517,095
	Production	4,710,957	4,170,284	5,986,179	4,170,284	6,264,030
Vegetable	Area	36,090	32,604	35,762	41,218	44,507
	Production	139,626	179,050	172,399	222,893	223,100
Maize	Area	93,362	91,203	90,732	107,702	107,800
	Production	314,601	256,665	247,760	376,938	377,000
Cassava	Area	25,740	22,749	30,032	96,026	96,500
	Production	330,649	362,050	535,623	2,182,043	2,182,000
Mung bean	Area	44,940	39,089	60,570	83,810	86,584
	Production	31,815	45,253	45,041	59,899	59,900
Soybean	Area	53,064	84,886	118,760	73,815	75,053
	Production	63,188	110,305	179,096	98,289	98,360
Peanut	Area	14,563	19,213	17,237	14,438	16,390
	Production	18,483	21,543	22,629	23,811	23,800

Source: Department of planning, statistics and international cooperation, MAFF, 2007

The composition of crop production in the agriculture sector (Figure 1.1) such as paddy contributed highly at 54% of the total crop production in terms of GVA¹,

¹ Gross Value Added (GVA) for the Agriculture Sector, MAFF, 2007.

followed by cash crops (9%), vegetables (8%), maize (5%), cassava (5%), rubber (5%), soybeans (3%), tobacco (5%) and the permanent crops (8%).

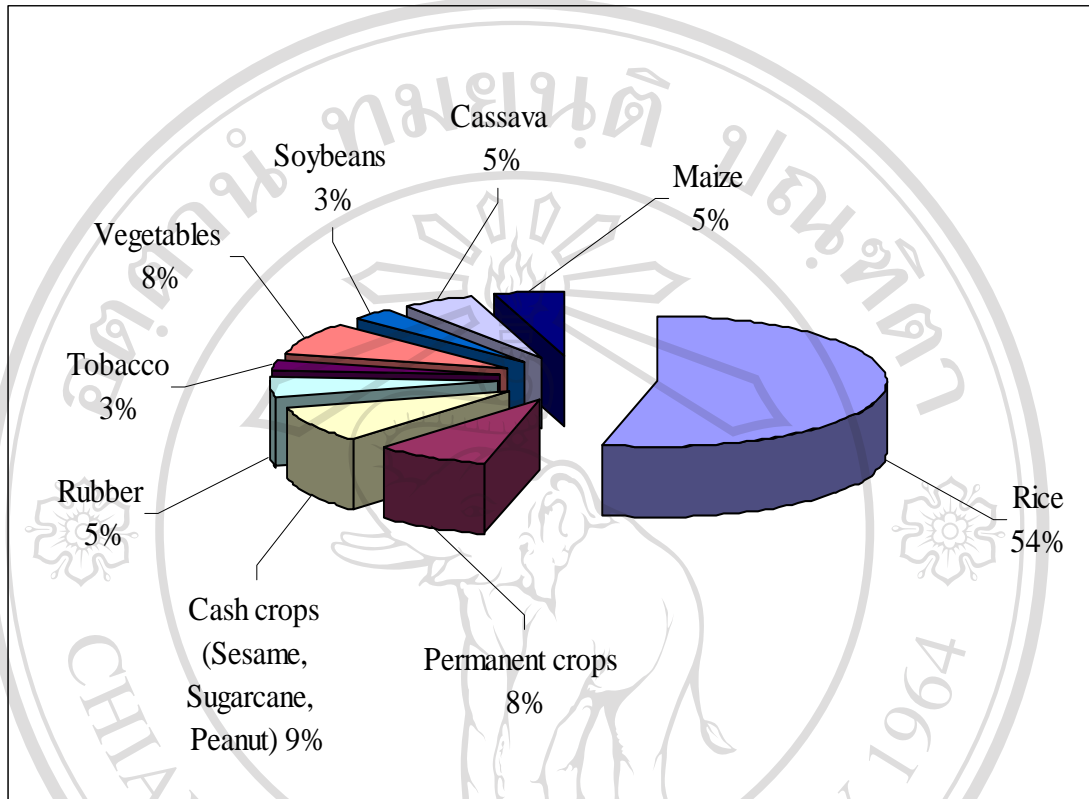


Figure 1.1 The composition of crop production in agriculture sector

Source: National Institute of Statistics, Ministry of Planning, 2006

However, the causes leading to poor performance of vegetable production are many. Access to information and services from governmental agencies is limited. Especially fertilizer management, farmers often depend their information from chemical shops and neighbors (Chhay, 2002; MAFF, 2007). There is also a growing concern about farmer's increasing use of pesticide, and its effects on farmer's health and environment quality (Sodavy *et al.*, 2000).

The agricultural extension is one of important organization to work with farmer at local level to increase agriculture production and improve their livelihoods (Carl, 2007). The major role of extension is facilitating the information flow to strengthen the capacity of farmers to improve food security and increase income generation. The agricultural technical dissemination and information are needed to meet local demand. Therefore, facilitating information is necessary from bottom-up

problem solving approach. The information or knowledge transfer through extension programs is more effective if farmers participate directly in process of problem solving by using participatory extension approach (WB, 2003). Training which employs practical guideline the technology implementation procedures (TIPs) and other participatory activities are the best ways that can help farmers to improve yields and productivities in Cambodia (DOAE, 2007). However, it is important to involved farmer in all extension process, especially in practical process.

Moreover, the key transferring actors should also include government extension offices, farmers, local community, local administrators, and non-government organizations (NGOs). The participatory approaches have become a shifting paradigm within the international and national development communities.

This study, therefore attempts to assess the appropriate and effective technology dissemination service systems by using performance indicators such as the knowledge improved, the management practice, satisfactory of extension etc. However, the analysis was includes relevant economic variables such as cost-benefit return, agro-ecological and social security indicators. The study aimed to improve vegetable production and also to provide practical implications of how to improve the efficiency of extension service systems in Cambodia.

1.2 Rationale of study

There is growing recognition on the effective extension service systems in Cambodia country. Last decade, the policy emphasis has been on government sector provision of service to extend new technologies to farmer. The government extension has and will continue to play an important role in Cambodia. Without government funds for extension, substantial government interests are compromised with privates sector especially those concerned with ecological sustainability and poverty reduction. Nevertheless, there is growing recognition that a narrowly defined model of government prevision of technology transfer services has outlived its usefulness as an effective agricultural development strategy in Cambodia.

The major problems of vegetable productivity are related to the bio-physical conditions such as insecure water availability, poor soil fertility in many areas and

lack of skill and knowledge of farmers (DANIDA, 2006). Furthermore, the pesticides remain available in market place is illegally where the majority of imported pesticide are uncontrolled with the most labels are not in national language (FAO, 2002). JICA (2007) pinpoints that lack of information and knowledge is hazards as well as poverty. Other, illiteracy and lack of health facilities seemed to ensure that pesticide could be a major cause of poisoning and ill health in rural communities.

Recently, Cambodia need human capacity building development for extension officer includes training, strengthening innovation process, building linkages between farmers and other agencies, as well as institutional, private sector and organization development to support farmers in their community.

Kandal extension services in the past few years were less concentrated on disseminating technology on vegetable production, including fertilizer application, pest and disease management, and irrigation. At the past, most of extension program was focusing only the rice farming system because they through rice is main crop to support farmer for consumption with income. Especially, for the government extension worker are facing many difficulties and challenges as follows: low public investment in technology transfer and poor infrastructure of the technology-transfer institutions. The coordination and cooperation are weak and there is lead to technology transfer between researches and farmers (ADB, 2002).

There are various major problems found in Cambodia government extension service systems:

1. Extension service is lacks of capacity to deal with farmers and limit the responses to specific needs of different types of farm household so that the extension performances are still poor, limited and adopted by certain group of farmers (AusAID and MAFF, 2000).

2. Lack of human capacity development. There is a constraint on the ability of government institutions and the private sector to provide farming communities with relevant and efficient services. However, there are a number of ongoing projects aiming at strengthening the capacity of research institution and creating an extension

system. These attempts are part of a long term and less direct approach to the problem of sustainable agricultural production (DANIDA, 2002).

3. Inadequate extension mechanism and systems and lack of coordination and cooperation, participation of technical department, field agents and NGOs. Lack of staff and skilled staff, and extension facilities are at district and field level.

4. Other, technology transfer is weak and farmers and extension workers have a low level of knowledge, access to technology and skills and also the high cost of dissemination and broadcasting extension materials and agricultural technology by mass media stations and highly competitive markets (MAFF, 2006).

The study will focus on three types of extension services and three performances on farmers' productivity. The three main categories of indicators are focusing on farmer management practices that contribute to improved vegetable production, farmer income, and stability of vegetables production systems. First, the efficiency of introduced technology will be measured by the cost and benefit analysis. Second, knowledge improved will be focused on farmers' ability to cope with change and technology adaptation. Third, farmer perception in technology development will be measured by adoption of new practices and farmer perception on extension services. However, the nature of cooperation pattern will be analyzed from difference types of extension service.

Therefore, the key research questions are:

1. What are the production constraints of vegetable production?
2. What are the existing delivery services in study area?
3. What are the disadvantages and advantages of the existing agricultural delivery systems?

The comprehensive understanding of farmer's decision-making process in acceptance of vegetable farm practice should be used to design and implementing technology dissemination programs.

1.3 Objectives of study

The objectives of this study are as follows:

1. To identify the production constraints of vegetable production in Kandal province.
2. To analyze existing technology dissemination systems in vegetable production.
3. To identify improved approach to technology dissemination systems in the study area.

1.4 Usefulness of the study

The study generated information about dissemination of agriculture service, farmers' perceptions of pesticide application, knowledge in pest control in vegetable production, vegetable farming and marketing systems. The assessment of technology dissemination service systems in vegetable production will generate current scenario and decision criteria, which filled the gap between the stakeholders and to improving of technology dissemination in vegetable farming in Kandal province.

It assists in guiding the strategies for extension framework for solving problem on vegetable production. The result from the study served as guide for researchers to plan appropriate research and development in extension programs. The study is expected to help the design for the adaptive researchers and private organizations to development technology dissemination service from farmers.