

CHAPTER 1

INTRODUCTION

1.1 Background

Thailand is largely an agricultural country with a land area of 513,115 square kilometers and a population of around 66 million. The agricultural sector comprises mainly of small farms, 5.1 million in number, and farmers engaged in agriculture constitute 59.66 percent of the total population. The growth rate of the gross domestic product (GDP) from agriculture increased from minus 4.6 percent in 1990 to 8.9 percent in 2009. The gross domestic product (per worker) from the agricultural sector in 2008 was reported to be 381.1 million baht.

Before 1940, when the population was smaller than it is today, it was common for farmers throughout the world to grow organic food, and yields were similar to those of prehistoric times. The farmers focus on growing enough food to feed themselves and their families. However, as the world's population increased, growing organically was no longer a feasible way to feed society. A more efficient way to feed a population that had almost doubled in size became necessary. This led to the introduction of intensive technologies, including fertilizers, mechanized cultivation, and biocides such as pesticides and herbicides, which helped produce greater yields for the larger population. These farming practices became integral parts of what we know as conventional farming (Melissa, 2003).

The arrival of the Green Revolution in the 1960s has dramatically changed the Thai countryside. The Green Revolution promoted the use of new varieties of crops that depend agrochemicals to produce higher yields. The new varieties were often susceptible to insect and disease pests and so insecticides and fungicides had to be introduced to combat pest. The use of chemical fertilizers in Thailand started to increase exponentially in the 1970s; between 1961 and 2003 fertilizer use increased

94 times, a spectacular increase from 18 thousand tons in 1961 to 1700 thousand tons in 2003 (FAOSTAT, 2007).

Consequence of Green Revolution has been reviewed. It has led to reduced genetic diversity, increased vulnerability to pests, soil erosion, water shortages, reduced soil fertility, micronutrient deficiencies, soil contamination, reduced availability of nutritious food crops for the local population, the displacement of vast numbers of small farmers from their land, rural impoverishment and increased tensions and conflicts. The beneficiaries have been the agrochemical industry, large petrochemical companies, and manufacturers of agricultural machinery, dam builders and large landowners (Greenpeace, 2003). Moreover, the loss of biodiversity in rice has also reported according to promote of expert on this issue. Death and illness to farmers caused by pesticides is a serious problem in Thailand. This caused farmers' lack of knowledge with regards to agro-chemical application and safety procedures. Therefore, this way started of environmental concern and as the same time of the Fifth National Economic and Social Development Plan has been used to promote alternative agriculture, with the objective of using chemical fertilizers and agricultural chemicals more efficiently through application with organic and biological fertilizers, in order to improve soils and to increase yields. Natural methods of controlling crop pests will be employed in an effort to reduce imports of fertilizers and agricultural chemicals. Efforts will be made to improve soils and community environment over the long-term.

Today the farmers in Thailand face a number of problems as the Thai government promoted high input, export orientated agricultural systems to increase the country's growth rate. This growth policy has resulted in retardation of the country's agricultural sector. Poor farm management techniques and inappropriate use of agrochemicals has resulted in soil erosion and soil exhaustion, further damaging the agriculture sector (Alternative Agriculture Forum, 1992).

An ecosystem is a natural system that is formed by dynamic interactions between biotic and non-biotic elements in a defined area. Biotic elements include plants, insects (pests, natural enemies, decomposers), microbes and other living organisms, and non-biotic elements comprise weather components such as temperature, relative humidity, wind, sunshine, rain and soil. Each element has its

special characteristics and role in the system that, as a function of time and place, will influence the distribution and population of living organisms. The term ecosystem also involves nutrient and energy flows within the system.

Therefore, an alternative agriculture and agro ecological methods could apply which can function in an eco-system friendly while sustaining and increasing the crop productivity and also concern about health promotion in community. However, it had also observed small holders farmers maintain their farming and have more adaptive strategy toward sustainable the farming.

Various organizations such as Thai Health collaborate with communities throughout the country to develop sustainable models that can be replicated elsewhere that is the aims to enhance the capacity of villages at sub district, districts and previous to carry out health promotion. Cooperation has been sought from businesses, non-governmental organizations, and civil society and networks have been established. In 2002-2004, activities were carried out 10-15 provinces. Moreover, concentrate on replicating these efforts, enhancing sharing and cooperation, and influencing policy. The goals for the period 2005-2007 will be the same as those for 2002-2004 (Thai Health Promotion Foundation, 2012). These are the entire policy lead country to support knowledge management in community health programs, to popularize ideas about health conscious communities, and to shape health promotion policies trough food safety project.

Critical to the definition of organic agricultural is recognition of the inter-linkages between the socio-cultural, economic and ecological aspects of farm production. An organic agricultural system provides socio-economic and ecological benefits in terms of: increased self-reliance (both in terms of food production and by enabling the farmer to break away from the cycle of debt created by the high cost of on-farm inputs), a balanced diet for farming households, sufficient income and an improvement in the farm environment. Equally important, the system must be environmentally sustainable and at the same time provide the farmer with a satisfying lifestyle.

The knowledge of organic agriculture is various applied. However, the farmers facing with various challenges in organic production such as labor cost, nutrient management etc. With the rising of production cost therefore, some of farmers turned

to organic farming. But at the same time organic farmers also turn to chemical based farming according to the intensive management of organic farming.

1.2 Rationale

Organic farming systems are a key to sustainable agriculture and have captured the interest of many countries throughout the world in response to the need to sustain the health of soils, ecosystems and people. Because of its commercial viability, it may provide solutions to the current problems unconventional agriculture (John, 2011).

The Thai agricultural sector has become concerned about how to manage a "sustainable agriculture" from the eighth plan. Eighth National Economic and Social Development Plan (1997-2001) stated that it was desirable to change the system from conventional agriculture to "sustainable agriculture" in at least 20 percent of the total national agricultural area by the end of the plan period and the eleventh plan that issue of sustainable agriculture is still important especially the self-sufficiency concern. Sustainable agriculture was stated to include natural agriculture, organic farming, agro-forestry and aggregate agriculture. Chemical free vegetable production is one of promoted by national Thai policies. However, as chemical-free farming was adopted in Thailand less than 15 years ago, only a few studies on this form of organic farming have been carried out (Thawatchai and Peter, 2002). Moreover, the Thai Government has reiterated its policy of support for organic farming, announcing in a Cabinet resolution on 4 January 2005, and its goal to transform Thailand's agriculture and to increase the importance of organic production systems (Jacobsen, 2006).

The Thai government has promoted high input, export orientated agricultural systems in a bid to increase the country's growth rate, however the environmental and socio-economic effects of this agricultural strategy has resulted in the retardation of the country's agricultural sector. More specifically poor farm management techniques and inappropriate use of agro-chemicals has resulted in soil erosion and soil exhaustion (Tantemsapya, 1995).

Farmers are adapted into pesticide free vegetable farming by reduce in the use of chemical both pesticide and fertilizer, the commonly practices such as safe use

farming, chemical pesticide free farming and organic farming. They strongly believe that organic farming can provide economic feasibility due to the high prices of their products, while reducing the burden on the environment (Jintana and Akimi, 2009).

From the 1980s there emerged a new type of farming systems in Chiang Mai, as many of the small farmers transformed their conventional farms to organic farms (Reunglertrpanyakul, 2002 cited from Kawasaki and Fujimoto, 2009). However, these were some of the hidden costs of converting to organic farming such as labor cost, soil nutrient management practice. Moreover, farmers are still lack of knowledge in production and market arrangement. Therefore, it is necessary to address these issues.

Total cultivated area of vegetable production in Chiang Mai was approximately 182,788 rai (1,142,425 ha) or nearly 9.96% of total cultivated area in 2012 (Chiang Mai Department of Agriculture, 2012). There are various vegetable production systems in Chiang Mai, including chemical, safe use of synthetic chemicals, chemical pesticide free, and organic production systems without use of any synthetic chemicals or fertilizers. Some groups of smallholder farmers are transforming their practices from chemical farming to organic farming.

However, some groups successes in converting to organic vegetable farming, but some remain in chemically based farming systems. This might be true for every group as well, and therefore leads to low levels of perception and adaptation in organic vegetable farming, which would indicate that there is not enough information on the farmers' side about organic vegetable farming. So it must to be exploring how much perception of organic vegetable farming farmers already have, and how they would like to be more adapted. Therefore, this research attempts to explore farmers' practice and constraints in organic vegetable farming. Under vulnerability conditions assess farmers' perception and adaptation under The North Organic Standard Association (NOSA).

1.3 Objectives

Given the above background and previews, this study aims to:

(1) To explore farmers' practice and constraints in organic vegetable farming in the study areas.

(2) To identify farmers' perception in organic vegetable farming in the study areas.

(3) To assess farmers' adaptability in organic vegetable farming in the study areas.

(4) To determine factors influencing farmers' perception and adaptation in organic vegetable farming in the study areas.

(5) To investigate sustainable development in farmers' livelihood.

1.4 Hypothesis

The research hypotheses are as follows:

Some variables such as age of household head, gender, household head, educational level, number of labor, experience, farm income, debt, land size, extension visit, farmers' networks or membership in organic vegetable production, farmers training in organic activities and sources of knowledge are related with the farmers' levels of perception of organic vegetables production.

Some variables such as age of household head, gender, household head, educational level, number of labor, experience, farm income, debt, land size, extension visit, farmers' networks or membership in organic vegetable production, farmers training in organic activities and sources of knowledge are related with the farmers' adaptability in organic vegetables production.

1.5 Limitation of the study

This research focus on organic vegetable farming in the study areas based on The North Organic Standard Association (NOSA) where selected farmers are the member of the organic vegetable farmers of Chiang Mai Organic Agriculture Cooperative and used NOSA as the certified in organic vegetable.

1.6 Usefulness of the study

The result of this study can help;

1. Help to understand farmers' perception practice in alternative vegetable farming and constraint factors with related to physical, economic, social factors. Such as based and built on local knowledge, similar to traditional or low-input practices, makes use of on-farm and local resources, depend on family labor, incurring low labor cost and also reduces expenditure.

2. The coping strategies and adaptation could help extensions and organization development understand successful in maintaining farm biodiversity and market security.

3. Innovation in production and marketing would help to understand how it can improve income security and livelihood security where to reduce health risk from harmful pesticide use.

4. Local development agency and extension staff in planning, monitoring and evaluation for sustainable agriculture practice for small holder farmers in Northern Thailand. In addition to the formal education system, organic training program are also necessary to the adoption of the organic system by farmers. Participatory training courses, organic farm visits, and on-farm trials should be provided by government agencies and NGOs to enhance the awareness of farmers and encourage them to adopt organic farming. Farm planning and management should also be included in the training courses for commercial organic farmers, particularly to equip them with the skills and know-how to produce appropriate seasonal vegetables fit with the market demands.

5. Develop recommendations for future action on the basis of the assessment a) existing strategies of communities to cope with alternative agriculture and b) limits of adaptation driven and financed by the communities themselves), future needs of communities. The results shall thereby 1) assist the communities to become aware of future challenges and options to adapt to alternative agriculture. 2) providing recommendations which external support is needed for future adaptation in the

communities. 3) the results could spread through farmer groups or networks and thereby aid the community to adapt to alternative agriculture.

1.7 Term of definition

Adaptation is the change in vegetable farming from conventional to organic farming. In this research indicates that farmers will adapt their vegetable production systems to organic practice based on condition of the North Organic Standard Association (NOSA).

Farmers' perception in this study focus on organic vegetable farming for the adoption decision and how perceptions themselves are influenced by the decision to adopt organic vegetable farming under the North Organic Standard Association (NOSA).

Organic farming is a form of agriculture that relies on techniques such as crop rotation, green manure, compost and biological pest control.

The North Organic Standard Association (NOSA) certifies all of the product markets through the Institute of Sustainable Agricultural Cooperatives (ISAC) and its affiliates. NOSA regulations were established by a coalition of farmers, consumer advocates, and NGOs (Wyatt 2009). "NOSA" is a locally registered body, and the products it certifies are sold mainly in Chiang Mai province and other provinces in the northern region of Thailand.

Livelihood asset comprises the capabilities, assets and activities needed for a means of living and is sustainable when it can cope with and recover from shocks and stresses, maintain or enhance its capabilities and assets and provide sustainable opportunities for the next generation. The sustainable livelihoods approach considers vulnerabilities as the main factor that shapes how people make their living. These assets can conveniently be divided into 5 main groups for ease of analysis; natural asset, physical asset, human asset, social asset and financial asset.

Natural asset represents soil fertility and source of water.

Physical asset represents mainly land size and transportation.

Human asset encompasses age of household head, gender, labor, experience and education.

Financial asset refers to issues such as farm income and debt.

Social asset is created by farmers' networks or membership in organic vegetable production, extension officer field visits, farmers training in organic activities and sources of knowledge.

1.8 Conceptual framework

The study is focused on farmers' perception and adaptation of organic vegetable farming. The details are shown in figure 1 below



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Independent variables

Dependent variables

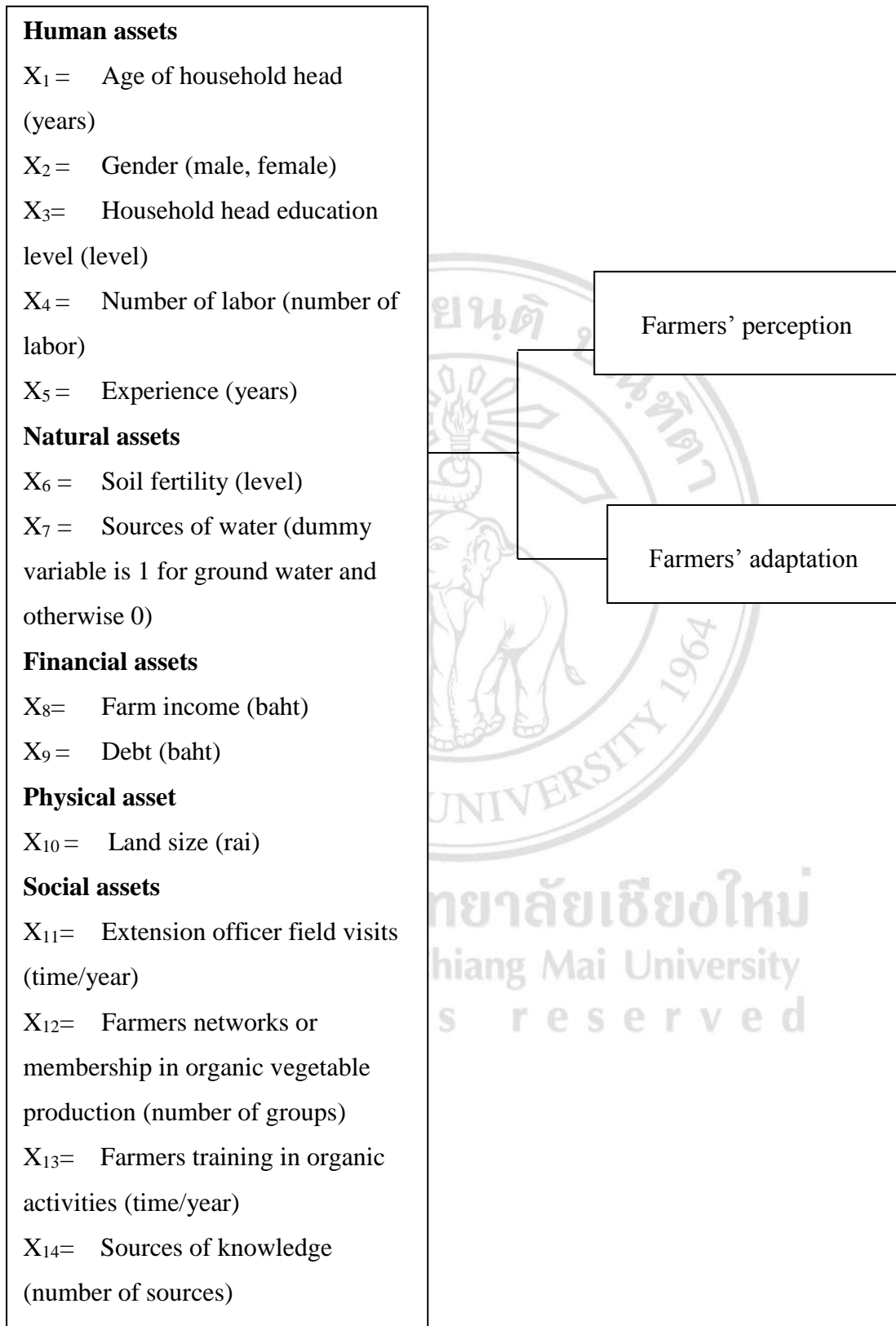


Figure 1 Conceptual framework