Chapter 1 Introduction

1.1 Background of the research

Designing and implementing effective policies, strategies and tools for poverty reduction and alleviation continues to be a challenge for governments throughout the world. In 2000, the United Nations initiated the Millennium Development Goals (MDGs) aimed at halving world poverty by 2015 (IFAD 2001a; Sachs 2005). The MDGs are framed within a context that advocates that extreme poverty should be ended in this generation and should not be passed on to the next generation to deal with. There is no shortage of different approaches intended to redress poverty, but the efficacy of the approaches is still much debated (Sachs 2005; UNDP 2008a; Ricasio 2006). One tool gaining increasing support for stimulating rural development and poverty reduction, especially in developing countries, is community-based enterprises (CBEs) (IFAD 2003; Vandenberg 2006; ILO 2008; Jonjoubsong 2008; SBP 2009; Gebre-Egziabher and Ayenew 2010).

Thailand is a populous country of 66.7 million people. It is located in Southeast Asia, bordering the Andaman Sea and the Gulf of Thailand, and southeast of Burma. Approximately 71 per cent of the population is between the ages of 15 to 64 years. Just over two-fifths of the labour force is in agriculture, just under two-fifths in the services sector and the remainder in the industry sector (CIA 2011).

Poverty has been officially recognised as a problem in Thai society for four decades. About nine-and-a-half per cent of the population is classified as living below the national poverty line (1,443 baht (or 46 AUD[1]) per month)) (CIA 2011). The majority of the poor are located in rural areas, particularly in the North and Northeast: of the 9.5 per cent 28 per cent live in the North and 52 per cent live in the Northeast (NESDB 2008a).

In Thailand, poverty alleviation and employment generation were set as development priorities in the Ninth National Economic and Social Development Plan 2002-2006 (Ninth Plan). To achieve these priorities, a set of priority policies was implemented. These policies involved: a three-year debt suspension for small farmers; the establishment of a one-million-baht revolving fund for each village in order to develop communities; the

[1] The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

establishment of a people's bank; the promotion of universal health insurance; and the promotion of public participation in anti-corruption.

Women are among the poorest members of rural communities (FAO Regional Office for Asia and the Pacific 2003). They are primarily concentrated in economic activities not performed by men, such as cottage food processing and some handicrafts. However the government's priority policies did not address the specific situation of women or the issue of whether developing women's economic capacity could be achieved in the same way as developing those for men (FAO Regional Office for Asia and the Pacific 2003).

In response to the 1997 Asian Financial Crisis and since 2001, CBEs have been promoted through the One Tambon One Product (OTOP) project — an initiative of the former Prime Minister, Thaksin Shinawatra. The OTOP project has been promoted throughout Thailand as an important grass-roots economic development tool to increase the potential for poverty reduction in rural communities. Around 37,000 villages have benefitted from CBEs under the umbrella of the OTOP project (Kittisataporn 2006). In 2005, OTOP exports were valued at approximately 39,440 million baht (1,256 million AUD), an increase of 11 per cent when compared to the same period in 2004 (Purnariksha 2006). In spite of the promising figures, it is unclear whether the poorest members in the communities, in particular women, are benefiting from the CBEs: that is, are CBEs in fact a genuine tool for poverty reduction?

1.2 Rationale and statement of the research questions

It is well documented that the Thai Government has been successful in policy implementation for national socioeconomic development and poverty reduction (NESDB 2004a; UNDP 2004a). Thailand has already reached the international MDG poverty target of halving the proportion of people living in poverty (NESDB 2004a). Thailand's MDGs target is to have less than 13.6 per cent of its population living in poverty (measured against the national poverty line) by 2015 (NESDB 2004a). In the Ninth Plan, the proportion of the poor was recorded as 9.6 per cent, which is lower than the poverty reduction target (originally set at 12 per cent to be achieved by 2006) (NESDB 2007b). This reduction was achieved in the same five-year period in which the CBEs were being vigorously promoted through the OTOP project. But correlation does not mean causation

and detailed investigations of the impact of CBEs (as well as other factors) on poverty reduction remain to be conducted.

Empirical studies have highlighted that small/micro/community-based enterprises can have both positive and negative impacts. Some studies, such as those by Rosenzweig (1988), Brown et al. (1990), and Liedholm and Mead (1987) (all three studies cited in Gebremariam et al. 2004) have shown that the operation of small businesses has negative impacts on job creation and economic growth. Conversely, other studies, such as those by Gebremariam et al. (2004), Daniels (1999) and O'Neill (1998) have shown that the creation of small businesses has positive impacts on job creation and economic growth. It should be noted that all the studies have focused on the roles and contributions of the enterprises to economic development and poverty reduction *at the macro-level*.

Most of studies involved with CBEs at the micro-level, such as those of O'Neill (1998), Harter et al. (1999), Wiboonpongse et al. (2005a), and Wiboonpongse et al. (2005b), have investigated the business management and the performance of the enterprises. The conclusions from these studies indicate that community enterprises can be a tool for rural development because they are an important source of employment and income in the community.

It is also noteworthy that most of impact assessment studies at the micro-level focus on microfinance or micro-credit programs, and in particular the impact of agricultural extension programs, agricultural research projects, and other intervention projects. However, there are few applications of impact assessment approaches in studies of CBEs.

Therefore, the main research question in this thesis is

What are the impacts of CBEs on poverty reduction?

This question is addressed from a multidimensional rather than from a standard monetary approach. Furthermore, this thesis addresses the implications of this research for poverty reduction policies in Thailand, specifically, and also for poverty measurement more generally.

1.3 Research objectives and approach

In investigating the question of the actual impacts of community-based enterprises on poverty reduction in Thailand, this study develops both a conceptual and a methodological framework for examining poverty at the household and CBE level.

This study provides both theoretical and practical contributions. The first contribution is the application of impact assessment methodologies in CBEs. This study uses a quasi-experimental with statistical control method which also takes into account the different documented strengths and weaknesses of impact assessment methods as well as cost and time considerations. There were no baseline data available for the study. Therefore, this study employs a one-time survey and applied a quasi-experimental design used in Coleman (1999, 2002), Khan (2004), and Kondo et al. (2008). Cross-sectional data are used to compare the control group to the treatment group.

The second contribution is the extension of the household outcome model applied in Coleman (1999, 2002), and in Kondo et al. (2008) through the inclusion of variables for village characteristics, CBE characteristics and CBE performance.

The third contribution is the formulation of a modified procedure for assessing impacts of CBEs on household poverty based on a multidimensional concept of poverty. This multi-disciplinary approach is divided into two main steps: (1) identification of poverty groups and poverty components, and (2) impact assessment of CBEs and other factors on household poverty. In this approach, different methodologies are combined in order to achieve the impact assessment objectives of the study.

Fourth, the profiling of the nature of villages and household poverty conditions in rural northern Thailand provides a clearer understanding of rural poverty.

The following strategy was developed to address the study's research objectives.

1. Provision of a profile of rural poverty in Thailand, based on the published literature. The profile covers definitions of poverty, poverty measurement at the global level, economic transformation in Thailand, Thailand's national poverty line, income distribution and poverty in Thailand, socioeconomic characteristics of the poor in Thailand and the Thai Government roles and policies in poverty alleviation.
2. A review of the professional literature regarding the development of CBEs in Thailand. This includes researching definition of CBEs, the evolution of CBEs in

Thailand, the current situation and challenges of the CBEs in Thailand, the roles of CBEs in socioeconomic development and the roles of key government agencies in CBE development.

3. Detailed profiles of selected CBEs, villages, and households were constructed based on extensive interviews with CBE heads and households in the designated survey area.
4. Development of a conceptual and methodological framework based on a review of the pertinent literature regarding poverty and its measures and alleviation.
5. The principal component analysis (PCA) approach was used to develop poverty indicators and related components. Based on the estimated poverty scores (poverty index), the poverty status of households was determined.
6. The propensity score matching (PSM) method and regression-based method with statistical controls approach were applied to assess impacts of CBEs and other factors on household poverty status. In addition, the weighted least square (WLS) regression method was used to determine factors of household poverty.

1.4 Outline of the research

The thesis is organised into nine chapters.

This first, introductory chapter provided the overview of the thesis. Chapter 2 focuses on the definitions, dimensions and measures of poverty. It reviews global responses to alleviating poverty – such as the promulgation of the UN Millennium Development Goals. This is followed in Chapter 3 by a specific focus on the poverty condition in Thailand and the Government's efforts to redress poverty, especially through the establishment of CBEs.

Chapter 4 provides important definitional and contextual information about CBEs and their development in Thailand. This information was instrumental in the selection of research sites and CBE samples (see Chapter 6).

The purpose of Chapter 5 is to overview relevant concepts and methods pertaining to the impact of CBEs on household poverty. This overview provides the foundations for the framework of this study. The chapter begins with a brief discussion of the concept of community, with particular reference to developing economies. It then considers the

methodology provided by Jantradech (2003) in one of the few studies to examine CBEs and their role in poverty reduction in northern Thailand.

Chapter 6 provides a detailed profile of selected villages, CBEs and households in rural northern Thailand. It also provides the criteria established to determine: the research area; the sampling procedure developed; the interview schedules designed; and the data collection procedures. Some of the challenges experienced during the conduct of the survey research are also discussed.

The construction of an index using the PCA method and taking into account multidimensional measures of poverty is presented in Chapter 7. Based on the constructed poverty index, the poverty status of those households is investigated.

In Chapter 8 an analysis of impacts of CBEs on household poverty in rural northern Thailand is provided. Chapter 8 details the relevant methodology of impact assessment including the propensity score matching (PSM) method and regression-based method with statistical controls. Empirical results are presented.

This thesis concludes with a summary, conclusions and implications of results, and the identification of potential areas for further research (Chapter 9).

Chapter 2 An overview of poverty indicators

2.1 Introduction

This chapter focuses on definitions, dimensions and measures of poverty. It overviews global responses to the alleviation of poverty such as the UN Millennium Development Goals. The discussion in this chapter provides important contextual information in relation to the development of the poverty index (provided in Chapter 7) to assess the impact of CBEs on household poverty in northern Thailand (discussed in Chapter 8).

In Section 2.2, a number of definitions of poverty are examined. Section 2.3 addresses poverty from a global perspective and discusses various measurement approaches at the global level. Concluding comments are provided in Section 2.4.

2.2 Definitions of poverty

Conventional methods of measuring poverty use a monetary approach, which means a shortfall in a monetary indicator is used to indicate poverty (Fusco 2003). Income (or expenditure) is typically used as a proxy of wellbeing (Atkinson 1987, 1989; Ravallion 1992). The conventional approach is to classify poverty in terms of 'absolute poverty' and 'relative poverty'. The 'absolute poverty' approach addresses lack of income for satisfying the essential needs for physiological survival, whereas the 'relative poverty' approach focuses on a lack of income for reaching the average standard of living in the society (Fusco 2003).

The main limitation of the conventional approach is that it fails to capture the complex reality of poverty at the level of each individual. According to Fusco (2003) this approach does not cover the diversity of humans in terms of the variation of personal features of individuals and the differences in the socioeconomic environment of each individual. This limitation leads to difficulties in making inter-personal comparisons. Fusco also comments that the conventional approach does not account for choices people make about the way they want to live their lives. The freedom of the individual to choose is a basic component of wellbeing. Therefore, the deprivation of rights to choose represents the decreasing in wellbeing. Cohen (2009) also believes that economic growth (or income growth) does not reliably provide a good proxy measure of poverty. An added difficulty

with the conventional measure is that it is actually quite costly to even attempt to measure rural incomes (Cohen 2009).

Fusco (2003) advocates that the study of poverty can be approached from two main directions: taking an axiomatic approach to poverty measurement; and taking a more comprehensive view of poverty. The first is the application of an axiomatic approach to poverty measurement, reflected in the seminal work of Sen (1976). In this approach, a range of mathematically sophisticated indicators are derived on the basis of incomes or expenditures.

The second direction endeavours to take a more comprehensive view of poverty. Poverty is recognised as a multidimensional condition and includes deprivations not readily captured by income measures on their own (cf. Falkingham and Namazie 2002; Fusco 2003; Bourguignon and Chakravarty 2003; Lever 2005; Perkins et al. 2006: 207; Maltzahn and Durrheim 2008; Asselin 2009; Alkire and Sarwar 2009; Battiston et al. 2009; Batana and Duclos 2010). For example, measuring poverty by focusing on household/individual income (or expenditure) does not cover human capabilities, which is a significant aspect of individual wellbeing. To address this limitation, researchers such as Sen (1980, 1985, 1987), McKinley (1997), Micklewright and Stewart (2001) have developed a set of poverty indicators which they believe better reflect human capabilities (see also Falkingham and Namazie, 2002; 14; Cerioli and Zani 1990; Cheli and Lemmi 1995). They include the capacity to access health, education and other public services (Falkingham and Namazie 2002: 15). Other poverty factors identified by Baratz and Grigsby (1971) include a severe lack of physical comfort, health, safety and security, welfare values, and deference values (see also Spicker 1993: 11-12).

In Khan's research, poverty comprises at least four dimensions: income poverty, social deprivation (poor health and education), vulnerability (capacity to absorb shocks) and powerlessness (Khan 2004: 3-4). Income poverty is measured on the basis of an absolute poverty concept that focuses on a minimum level of consumption necessary for human living. Indicators of social deprivation include: life expectancy, infant mortality, and the accessibility to sanitation and safe drinking water; as well as net enrolment rates at primary and secondary school levels, and the rate of adult literacy.

The third dimension, vulnerability, highlights that poverty is not only a household's or individual's risk in facing income poverty or health poverty across the time but can also relate to other types of risks, such as violence, crime, natural disaster, school withdrawal, unemployment and the loss of fundamental rights. Vulnerability can be assessed by using panel data gathered from a household survey. Vulnerability is the difference between permanent and temporary poverty distinctions.

In the fourth dimension the poor's perceptions of their powerlessness is investigated in terms of for example gender empowerment.

Falkingham and Namazie (2002: 14) suggest that using vulnerability and livelihood strategy approaches to measure poverty provides a more dynamic concept of poverty. These approaches may be useful for examining the links between poverty and health, providing answers to question such as whether financial cost is an obstacle for the poor to access to health services.

The measurement of poverty can also be understood by focusing on the assets of individuals, earnings from or productivity of the assets, and rapid changes in earnings. Assets consist of human (skills, talents and health), natural (land and other national resources), physical (access to infrastructure), financial (saving or access to credit) and social (networks of contacts and joint obligations) (Khan 2004: 4).

In the view of the Asian Development Bank (ADB), an understanding of the concept of poverty is improved by combining measures of material deprivation derived from low income or insufficient income to satisfy basic needs with other dimensions (ADB 2006: 6) including lack of access to assets — physical capital, financial capital, natural capital, human capital and social capital — which all identify the income-generating capacity of household.

According to the ADB definition, poverty is an unacceptable human condition. It is a deprivation of the minimum necessary assets and opportunities to which every human being is entitled. Apart from income, employment and wages, poverty should be measured in terms of basic education, health care, nutrition, water and sanitation. Powerlessness and lack of freedom to participate should also be considered in measures of poverty (ADB 2007).

Krongkaew (2002) recommends that poverty measurement should be further clarified by including other non-economic factors. Asselin (2002: 2) also suggests that a multidimensional poverty concept is more useful than the conventional income approach. Poverty appears in any pattern of inequity in living conditions that are necessary to maintain human dignity. Such living conditions are related to the capabilities of individuals, households and communities to meet their basic needs in many dimensions, namely nutrition, primary education, primary health care, sanitation, safe water, housing, income and community participation. The specific dimensions take into account particular patterns related to gender and age group.

Poverty encompasses economic, social and governance perspectives. The poor lack income, resources and opportunities. Low capabilities, and geographical and social exclusion leads to difficulties of accessing markets and jobs. The poor's job opportunities and accessibility to information are affected by limited education. Poor health conditions also affect their work opportunities (MDBs and IMF 2000).

Based on the various approaches to poverty outlined above, 'poverty' can be summarised as severe deprivation of human capabilities and, as such, needs to be considered as a multidimensional concept. That is, in addition to material deprivation caused by low income or insufficient income to satisfy basic needs, 'poverty' is composed of social deprivation, vulnerability, powerlessness and the inability access potential assets. Figure 2.1, below, summarises key research regarding this multidimensional definition of poverty that directly informs the approach taken in this study.

2.3 The inter-governmental organisations' approach to poverty measurement

This thesis section provides an overview of the incidence of poverty at a global level. It also discusses poverty measurement as developed and advocated by a number of major inter-governmental organisations. Particular attention is directed to the work of the United Nations and the World Bank.

Poverty alleviation has become one of the most important challenges for world development. Since September 2000, poverty alleviation has been a primary focus of public policy in all 191 United Nations member countries in line with the MDGs. Policies, strategies and tools for poverty eradication have been designed and implemented

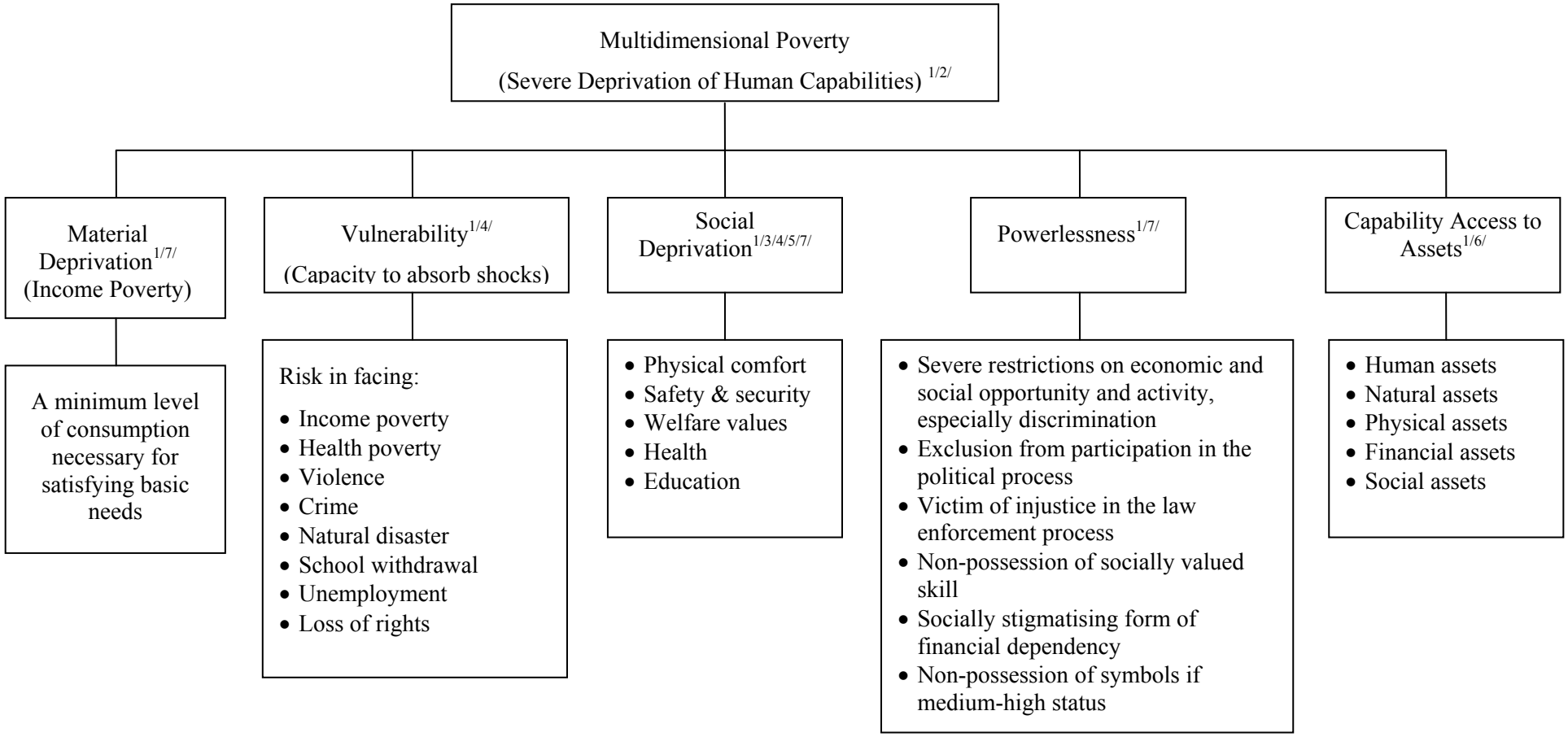

Figure 2.1: Summary of multidimensional poverty defined in previous studies

(Source: Adapted from: 1/ Khan, 2004;
2/ Sen, 1980; 1985; 1987; McKinley, 1997; Micklewright and Stewart, 2001; Cerioli and Zani, 1990; Cheli and Lemmi, 1995;
3/ Baratz and Grigsby, 1971;
4/ Falkingham and Namazie, 2002;
5/ Spicker, 1993;
6/ ADB, 2006;
7/ ADB, 2007)

by governments across the world. The latest estimate by the World Bank, based on 2005 cost of living data, shows that across the world there were 1.4 billion extremely poor living on US $1.25 a day or less (Chen and Ravallion 2008; World Bank 2008; UN 2010). This number fell from 1.8 billion in 1990 (UN 2010; OneWorld.net 2011).

The vast majority (95 per cent) of the world's extreme poor live in developing countries in three regions: East Asia and the Pacific, South Asia, and Sub-Saharan Africa (Table 2.1). The highest density of the poor is in Sub-Saharan Africa. About one-half of the population in this region is considered to live in extreme poverty. This proportion decreased slightly from 58 per cent in 1990 to 51 per cent in 2005 (UN 2010; OneWorld.net 2011).

Table 2.1: Proportion of the extreme poor classified by regions, 2005

Region	Total population (millions)	Population in US$ 1.25 a day poverty (millions)	Proportion of extreme poor (%)
East Asia and Pacific	1884	316	16.80
Latin America and the Caribbean	550	45	8.20
South Asia	1476	596	40.40
Sub-Saharan Africa	763	388	50.90
Total developing countries	4673	1345	28.80
Europe and Central Asia	473	17	0.04
Middle East and North Africa	305	11	0.04
Total	5451	1372	25.20

(Source: World Bank, 2010b)

Almost two-fifths of the poor in the world is located in South Asia, especially in India (UN 2010; OneWorld.net 2011). However, the proportion of the extreme poor in this region also fell between 1990 and 2005 (from 49 to 39 per cent) (UN 2010).

Since 1990, the depth of poverty, reflected by the 'poverty gap' ratio, has fallen in all regions except Western Asia. The poverty gap ratio measures the shortfall in incomes of people living below the poverty line (counting the non-poor as having zero shortfall), expressed as a percentage of the poverty line. In 2005, the average income of people living below the poverty line was at US $0.88 a day. In Sub-Saharan Africa, the depth of

poverty has decreased from 26 per cent of the poverty line in 1990 to 21 per cent in 2005. However, this region still has the greatest depth of poverty compared to other regions (UN 2010).

Every year, six million children under five-years old die from malnutrition and more than six million die from completely preventable causes such as malaria, diarrhoea and pneumonia. On every single day, 6,000 people die because of HIV/AIDS. Many people are infected with this virus (8,200 people a day). More than 2.6 billion people have no access to basic sanitation. In addition, more than 1 billion people have used unsafe sources of drinking water. A total of 114 million children worldwide cannot access to a basic education and 584 million women are illiterate. Less than half of the children in some deeply impoverished nations are in primary school and fewer than 20 per cent go to secondary school (Millennium Project 2006).

In line with Millennium Development Goal 1 (eradicate extreme poverty and hunger), United Nations member countries are working towards their target of halving the proportion of extreme poor over the period 1990 to 2015. The world poverty rate is expected to decrease to 15 per cent by 2015. The total number of people living under the international poverty line is expected to fall to around 920 million, which is half the number in 1990 (UN 2010).

All developing regions, not including Sub-Saharan Africa, Western Asia and parts of Eastern Europe and Central Asia, are expected to achieve the MDG target. However, Eastern Asia is considered to be the most rapid growth region and has the sharpest decrease in poverty. Poverty rates in China and India are anticipated to decrease to five and twenty-four per cent by 2015, respectively (UN 2010).

2.3.1 Global poverty indicators and measurement

Poverty line and poverty indicators have been developed and implemented for poverty measurement at international and national levels. The details of poverty measurement at the macro-level are as follows.

Generally, poverty lines, estimated by both the World Bank and countries across the world, are based mainly on an absolute poverty concept. The poverty line is determined by considering the minimum income that a person needs in order to satisfy necessary food consumption for the healthy functioning of a human body and the purchase of other non-food necessities for the minimal livelihood of a person in a society (Krongkaew 1996).

The latest international poverty line (US $1.25 a day) was estimated on the basis of 2005 Purchasing Power Parity (PPP)[2] rates by the World Bank. The new international poverty line was based on a higher cost of living than previous estimates.

According to the 1994 estimate, in 1993 PPP terms, there were 985 million people living below the US$ 1 a day international poverty line. This was down from 1.5 billion in 1981 (Chen and Ravallion 2008; World Bank 2008). There are three degrees of poverty: extreme poverty, moderate poverty and relative poverty. 'Extreme poverty' means that households cannot meet their basic needs for survival. Their income is, at most, US $1 per day per person, based on 1993 cost of living data. The 'moderate poor' are living between US $1 and US $2 per day; this category generally refers to those with living conditions in which basic needs are accessible but only rarely. 'Relative poverty' is generally explained as household income level below a given proportion of average national income (Sachs 2005).

According to the latest estimate, based on 2005 cost of living data, there are 1.4 billion extreme poor who live below the new poverty line of US $1.25 a day. This is around 400 million more than estimated using 1993 cost of living data (Chen and Ravallion 2008; World Bank 2008). The new poverty line is the average of the national poverty lines for the 10 to 20 poorest countries; this ensures that it is a good standard for measuring extreme poverty (World Bank 2008).

[2] According to Antweiler, Purchasing Power Parity (PPP) is defined as: "a theory which states that exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. This means that the exchange rate between two countries should equal the ratio of the two countries' price level of a fixed basket of goods and services. When a country's domestic price level is increasing (i.e., a country experiences inflation), that country's exchange rate must depreciated in order to return to PPP" (2011: 1).

Global poverty is estimated with reference to survey data from 675 households in 116 developing countries. The data is compared to the US $1.25 benchmark via PPP rates which smooth out the different purchasing power of the dollar in each country (OneWorld.net 2011). The figure of US $1.25 per day was determined to be a bottom point of poverty. Nonetheless, both India and China, the most populous nations in the world, have lower national poverty lines. India has a national poverty rate of 28 per cent, which is much lower than the international rate (42 per cent). The gap in China is believed to be even wider than in India (OneWorld.net 2011).

However, the new international poverty line is not intended to be a substitute for national poverty lines. A national poverty line should naturally be used for measuring poverty and discussing appropriate policies in that country. Hence, a country specific poverty line does not need to correspond to the international poverty line (World Bank 2008).

Even though the developing world is poorer according to the new data, the overall rate of progress against poverty is the same as previous estimates. Therefore, the success in alleviating the incidence of absolute poverty has been no less successful in reducing the incidence of absolute poverty since the early 1980s (Chen and Ravallion 2008).

Based on the average of national poverty lines in all lower and middle-income countries, the World Bank calculated a second layer international poverty line of US$ 2 per day. Around 2.6 billion people live below this benchmark. In addition, over a half of the world's population live below a benchmark of US$ 2.5 per day (OneWorld.net 2011).

As already noted, the exclusion of other criteria, apart from income, in measuring poverty significantly handicaps the usefulness of the measure of poverty. Because poverty is a multidimensional and dynamic concept, other deprivations in a person's life need to be taken into account. In considering poverty in terms of relative deprivation (relative poverty concept), the poverty line should be linked to the standard of living measurement (Krongkaew 1996). Consequently, various poverty measurements have been developed following the multidimensional concept, such as the Human Development Index (HDI) and the MDGs (Perkins et al. 2006: 207).

Various indicators for measuring poverty at the international level have been developed over the last three decades. The most important indicators in relation to this study are discussed below and are also summarised in Figure 2.2.

The **Human Development Index (HDI)** was initiated by the United Nations Development Programme (UNDP) in 1990. The index is used for measuring the average achievements in a country based on three basic dimensions of human development, including life expectancy index, education index, and GDP index (UNDP 2004b). The life expectancy index is measured by life expectancy at birth, while the education index is measured by the adult literacy rate (with two-thirds weight) and the combined primary, secondary and tertiary gross enrolment ratio (with one-third weight). The GDP index is measured by GDP per capita.

Before the HDI is calculated, each of the dimension indices needs to be estimated. Actual, minimum and maximum values of these dimensions are selected for calculating the indicators. Performance in each dimension index is shown as a value between 0 and 1 by applying the following general formula;

$$\text{Dimension index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{mimimum value}}$$

Then, the HDI is calculated as a simple average of the dimension indices.

$$\text{HDI} = 1/3\ (\text{life expectancy index}) + 1/3\ (\text{education index}) + 1/3\ (\text{GDP index})$$

In 1980, the **World Bank Living Standards and Measurement Survey (LSMS)**, was coined by the World Bank for generating policy-relevant data to determine outcomes, such as unemployment, income poverty, and low levels of education and health (Alkire 2007a: 351). The LSMS's purpose is to enable countries to improve the quality of data, to invigorate statistical institute data collection and analysis, and make the data public.

The LSMS questionnaire at the household level consists of 15 parts: household composition, economic activities, food expenditures, other income, nonfood expenditures, savings and credit, housing, education, durable goods, health, nonfarm self-employment, migration, agropastoral activities, anthropometrics and fertility (Alkire 2007a: 351).

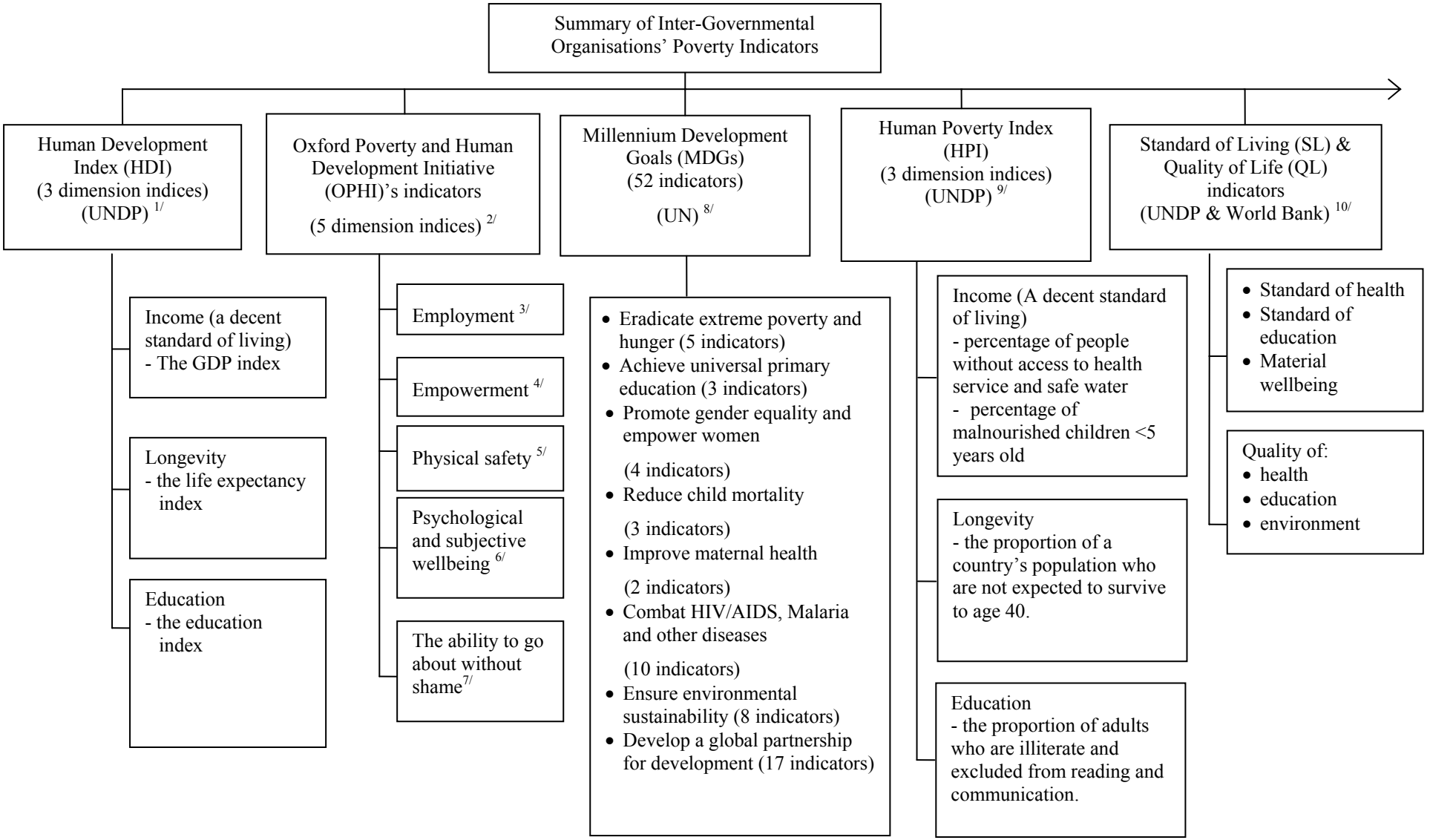

Figure 2.2: Poverty indicators at the macro-level

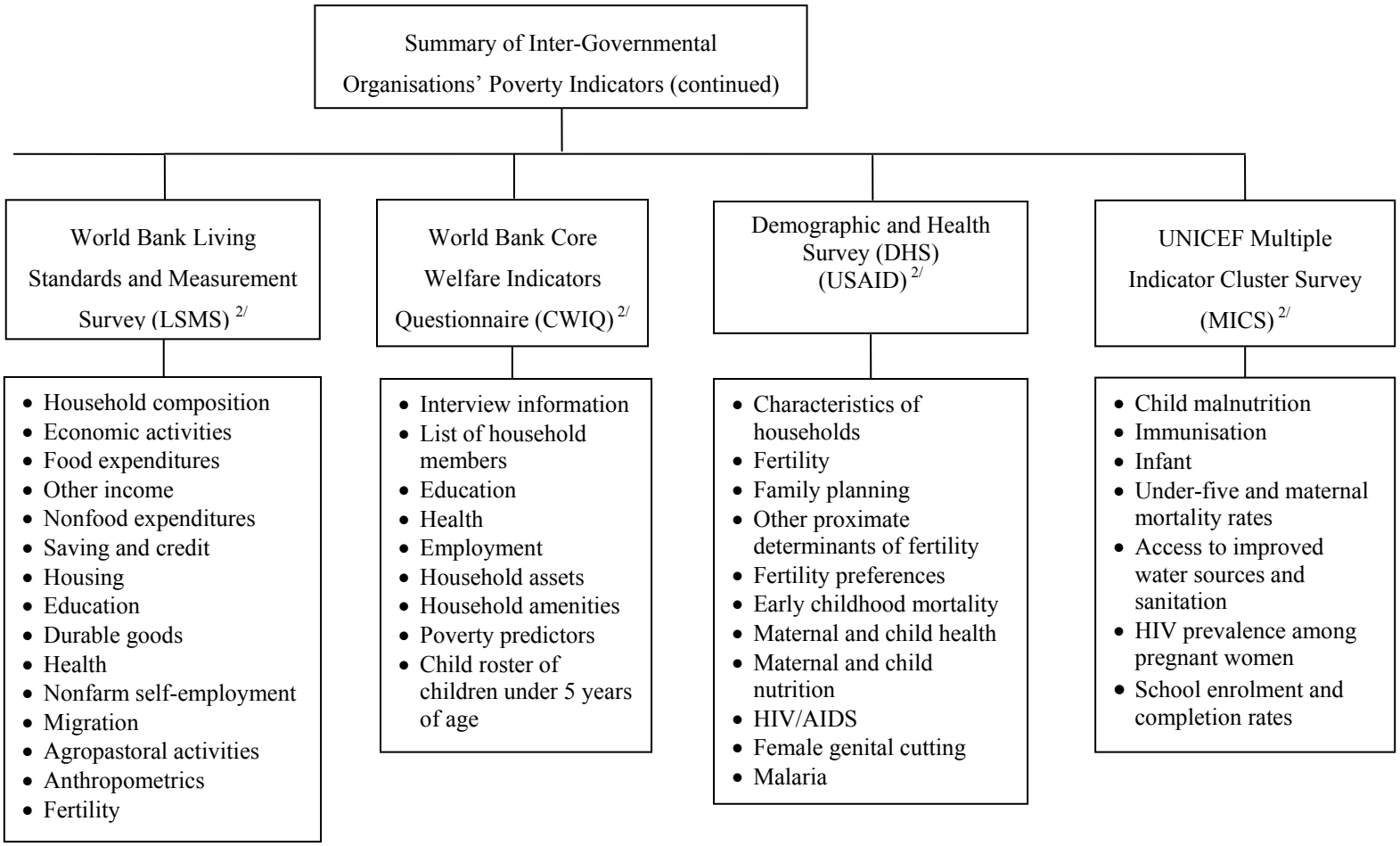

Figure 2.2 Poverty indicators at the macro-level (continued)

(Source: Adapted from : 1/ UNDP, 2004b; 2/ Alkire, 2007a; 3/ Lugo, 2007; 4/ Alkire, 2007b; 5/ Diprose, 2007; 6/ Samman, 2007; 7/ Zavaleta, 2007; 8/ UN, 2003; 9/ Norton, 1998; 10/ Bérenger and Verdier-Chouchane, 2007)

The **United States Agency for International Development Demographic and Health Survey (USAID-DHS) survey** is a large national representative population-based study that provides information on health, nutrition and demographic indicators on eleven variables covering characteristics of households, fertility, family planning, other proximate determinants of fertility, fertility preferences, early childhood mortality, maternal and child health, maternal and child nutrition, HIV/AIDS, female genital cutting, and malaria (Alkire 2007a: 351).

The **World Bank Core Welfare Indicators Questionnaire Survey (CWIQ)** is based on a questionnaire designed to produce standardised indicators of social welfare by taking a short time (20 minutes) for gathering all data (Alkire 2007a: 352). In its four double-sided pages, it covers interview information, list of household members, education, health, employment, household assets, household amenities, poverty predictors, and child roster of children less than five years old (Alkire 2007a: 352).

The **UNICEF Multiple Indicator Cluster Survey (MICS)** provides economic and social data for 195 countries and territories which addresses children's well-being. The MICS surveys allow UNICEF to monitor MDGs relevant to child malnutrition, immunisation, infant, under-five and maternal mortality rates, access to improved water sources and sanitation, HIV prevalence among pregnant women, school enrolment and completion rates, and other similar conditions (Alkire 2007a: 352).

The **Oxford Poverty and Human Development Initiative (OPHI**) organised a workshop aimed at addressing the 'Missing Dimensions of Poverty Data'. The research focused on formulating a new framework for multidimensional poverty reduction based on the capability approach and related ideas.

Alkire's (2007a) study represents a major attempt to integrate the indicators outlined above, including LSMS, DHS, CWIQ and MICS. The key dimensions addressed were: 1) employment); 2) empowerment; 3) physical safety; 4) the ability to go about without shame; and 5) psychological and subjective well-being. (See also Lugo 2007; Alkire 2007b; Diprose 2007; Zavaleta 2007; Samman 2007 for details of the proposed indicators and questionnaires representing these dimensions.)

The **Human Poverty Index (HPI)** is constructed according to a complex formula. The components are similar to the components of the HDI, which include three basic dimensions of wellbeing: longevity, knowledge and a decent living standard. However, the HPI differs from the HDI by using the derivational approach. The first dimension is measured by in terms of the proportion of a country's population who are not expected to survive to age 40. The second dimension is measured by counting the proportion of adults who are illiterate and excluded from the world of reading and communication. The third dimension is a composite of three variables including the percentage of people without access to health services, the percentage of people without access to safe water, and the percentage of malnourished children under the age of five (Norton 1998: 237).

In 2007, Bérenger and Verdier-Chouchane construct the composite of indices of **Standard of Living** and **Quality of Life** following Amartya Sen's (1985) capability approach. The Standard of Living composite index involves nine indicators in three domains: standard of health, standard of education and material well-being indicators. It reflects the quality of goods, services and inputs. The Quality of Life composite index is a combination of nine indicators covering three domains: quality of health, quality of education and quality of environment indicators.

In 2000 the United Nations published the **Millennium Development Goals (MDGs)** for its member countries. The MDGs establish eight goals and 18 targets which, if reached, would halve world poverty by 2015 (IFAD 2001b; Sachs 2005). For monitoring progress towards the eight goals and 18 targets, 52 quantitative indicators, have been established.

Eradicating extreme poverty and hunger is the first of the eight goals with two main targets: 1) Halve the proportion of people whose incomes are less than US$ 1 a day by 2015, and 2) Halve the proportion of people who suffer from hunger by 2015 (UN Millennium Project 2006). The second goal is to achieve universal primary education. This goal aims to ensure that children around the world, both boys and girls, will be able to complete a full course of primary schooling by 2015. Promoting gender equality and empowering women is the third goal. The aim is to eliminate gender disparity in all levels of educations by 2015. Reducing child mortality is the fourth goal. The objective is to reduce the under-five mortality rate by two-thirds between 1990 and 2015.

The fifth goal is to improve maternal health. In doing so, the intention is to reduce the maternal mortality ratio by three-quarters between 1990 and 2015. Combating HIV/AIDS, malaria and other diseases is the sixth goal. There are two targets for this goal: (1) to halt and begin to reverse the spread of HIV/AIDS by 2015; and (2) to halt and begin to reverse the spread of malaria and other major diseases by 2015.

The seventh goal is to ensure environmental sustainability. To achieve this goal, three targets were established: to integrate the principles of sustainable development into a country's policies and programs and to reverse the loss of environmental resources; to halve the proportion of people without sustainable access to safe drinking water and basic sanitation; and to achieve significant improvement in the lives of at least 100 million slum-dwellers by 2020.

The final goal is to develop a global partnership for development. In doing so, seven targets were coined. The targets provided consist of: (1) further development of an open, rule-based, predictable, non-discriminatory trading and financial system; (2) address the special needs of the least developed countries; (3) address the special needs of landlocked countries and small island developing states; (4) deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term; (5) in cooperation with developing countries, develop and implement strategies for decent and productive work for youth; (6) in cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries; and (7) in cooperation with the private sector, make available the benefits of new technologies, especially information and communications (UN 2003: 73).

To assist in achieving the MDGs, a practical plan was designed in 2005 by a panel of over 250 development experts headed by Jeffrey Sachs, the Director of UN Millennium Project (UN Millennium Project 2005). However, there are some concerns about the possibility of ending poverty in our generation and the appropriate strategies to do so. Most scholars in the development field argue that poverty cannot be solved through continuing to fund aid using already-established strategies. It is recognised that designing new effective strategies remains a key challenge (Ricasio 2006).

Sachs (2005), in addressing these concerns, stated the belief that extreme poverty can be ended in our generation and should not be a burden for the next generation. To facilitate

the end of poverty, an appropriate effort is needed from all sectors across the world, such as governments, in both rich and poor countries, NGOs and financial agencies. Ban Ki-moon, United Nations Secretary General, has also advocated that good governance, rising public investment, economic growth, enhanced productive capacity and the creation of appropriate work are requirements needed to achieve the MDGs (UNDP 2008a).

In summary, many governments, non-government and inter-government organisations developed different indicators of quality of life. All of these indicators cater for the multidimensional facets, which include different dimensions of poverty, covering income deprivation, life expectancy, access to basic needs, employment, women's empowerment and gender equality, physical safety, psychological and subjective well-being, standard of living, quality of life, consumption expenditure, and household assets. These dimensions are considered in developing a poverty index in the present study.

2.4 Concluding comments

This chapter provided a comprehensive review of definitions of poverty and poverty measurement at the global level. The information of the multifaceted nature of poverty (discussed in Section 2.2) and global poverty indicators and measurement (presented in Section 2.3) is used as the knowledge base for this research to develop a poverty index consisting of eight dimensions of poverty (see Chapter 7), which captures dimensions of poverty in addition to the more conventional income deprivation measure. The index will be used to compare the poor households determined by the official poverty line (monetary approach) of northern Thailand to those determined by the poverty index (multidimensional approach) (see Chapter 7).

Chapter 3 Profiling of poverty status in Thailand

3.1 Introduction

The discussion in this chapter provides important contextual information in relation to the development of the poverty index (Chapter 7) to assess the impact of CBEs on household poverty in northern Thailand (in Chapter 8).

The focus of this chapter is on the economic conditions that have been experienced in Thailand since the 1960s (Section 3.2). Thailand's national poverty line is described in Section 3.3. This is followed by a discussion on income distribution and poverty in Thailand in Section 3.4. Socioeconomic characteristics of the poor and the poverty situation of women in Thailand are detailed in Sections 3.5 and 3.6, respectively. In Section 3.7, the Thai Government's roles and policies in poverty alleviation are discussed. Brief concluding comments are provided in Section 3.8.

3.2 An overview of economic conditions in Thailand

The main purpose of this section is to provide a brief overview of the economic conditions in Thailand.

From 1961 to 1996 Thailand experienced rapid economic growth (Table 3.1). This has been attributed to a structural transformation from an agricultural-based economy to a manufacturing-based and export-oriented economy. At the policy level, this expansion fell within the First and Seventh Five-year National Economic and Social Development Plan (NESDP). The economy achieved the highest rate of economic growth (13.3%) in 1988 during the Sixth Plan (Vimolsiri 1999).

Since the 1980s, rural poverty reduction and household income growth in Thailand and other Asian countries was predominantly associated with agricultural development. This was aided by the rapid adoption, in the early 1980s, of fertiliser-responsive and high-yielding modern varieties of rice farming. It should be noted, however, that by the middle of 1980s the prominence of income from rice production had reduced, because rice yields had decreased with the over-application of fertilisers and other inputs, and a reduction in the sale-price of rice (Cherdchuchai and Otsuka 2006).

Table 3.1: Macroeconomic indicators of Thailand, 1961–2010

Indicator	National Economic and Social Development Plan/year												
	1st Plan (1961-1966)	2nd Plan (1967-1971)	3rd Plan (1972-1976)	4th Plan (1977-1981)	5th Plan (1982-1986)	6th Plan (1987-1991)	7th Plan (1992-1996)	8th Plan (1997-2001)	9th Plan (2002-2006)	2007	2008	2009	2010
Real GDP growth (% per annum)	8.1	7.8	6.5	7.3	5.4	11.0	7.9	-0.1	5.7	4.8	2.5	-2.3	7.8
Population (million persons)	33.1	35.2	42.6	46.1	52.5	56.6	60.0	61.5	62.5	63.0	63.4	63.5	63.9
Real per capita income (thousand baht/year)	10.7	14.2	16.1	20.0	23.9	37.3	51.6	75.9	97.2	124.4	131.7	129.9	143.7
Export growth (% per annum)	11.4	4.1	31.5	20.1	9.5	25.7	14.2	3.4	15.3	18.2	15.8	13.9	28.4
Current account (% of GDP)	-0.6	-2.7	-1.9	-6.5	-3.5	-5.3	-6.5	6.7	1.8	5.7	0.8	8.3	4.6
Fiscal balance (% of GDP)	-0.9	-3.0	-2.6	-3.0	-4.2	2.0	2.3	-2.32	-0.2	-1.1	-0.2	-4.7	-2.0
Inflation rate (%)	1.3	0.3	10.9	11.6	2.8	4.7	4.8	3.4	2.9	2.3	5.4	-0.9	3.3
Exchange rate (baht/US$)	20.8	20.8	20.4	20.7	26.3	25.5	25.3	39.0	40.6	34.6	33.4	34.3	31.7

Note: Figures in each plan are the average rate over the period, except for per capita income and population, which are end period figures. Export growth is calculated from value in local currency.

(Source: Compiled and calculated from National Economic and Social Development Board data bank, Bank of Thailand data bank, and Vimolsiri, 1999)

The development of rural non-farm sectors during this period has also had a marked impact on household income. Farm households have increased their participation in non-farm activities (Estudillo and Otsuka 1999; Baulch and Hoddinott 2000; Lanjouw and Lanjouw 2001; World Bank 2001).

Based on its high rate of economic growth, especially in the early 1990s, Thailand was able to extensively develop basic infrastructure and social services, which led to a noticeable improvement in the population's standard of living (Vimolsiri 1999).

Thai exports have accounted for much of the dramatic increase in economic growth. Between the Sixth and Seventh Plan, Thai exports achieved one per cent of total world exports. The composition of exports substantially shifted away from labour-intensive products and agricultural products such as rice, tapioca, rubber and corn, to manufacturing and high-tech products such as computers and computer parts, textiles and garments, processed foods and automobiles (Vimolsiri 1999; Krongkaew et al. 2006).

Although there was high and sustained rate of economic growth from 1961 to 1996, the income gap between rich and poor widened and regional income inequity also increased.

From 1985 to 1995, Thailand experienced the world's fastest-growing economy (ADB 2011). The rapid economic growth and prosperity of the population increased domestic purchasing power and brought about an enormous increase in economic activity in the stock market and real estate sector. Financial liberalisation opened access to foreign funds. In the late 1980s and early 1990s, the regional economies of Thailand experienced high growth rates (7.9 – 11% GDP).

Thailand's economic boom, known as a part of the 'Asian economic miracle' ended with the Asian financial economic crisis in 1997. The crisis initially began in Thailand with the financial collapse of the Thai baht. Thai economy was destroyed by its overoptimistic characteristics (Laplamwanit 1999). Rapid economic growth was fueled by exports, foreign investment and the expansion of the service sector (ADB 2011). In 1997, the Thai economy could not guard itself from foreign speculative attacks that triggered a regional economic downturn (Laplamwanit 1999; ADB 2011). In response to massive speculative forces, the Thai government decided to switch to a flexible exchange rate regime. The

Thai baht was depreciated by more than 50 per cent by the end of 1997, then the Thai economy collapsed. In response to the crisis, Thailand sought financial support from the International Monetary Fund (IMF) as well as other international institutions to stabilise the economy and adjust economic structures.

The seriousness of the crisis was reflected in a noticeable decrease in GDP and an increase in numbers of unemployed workers. GDP decreased by 1.4 per cent in 1997 and further fell by 10.3 per cent in 1998 (ADB 2011). There were one million unemployed workers at the end of 1997. This figure rose to 1.6 million by mid 1998 (ADB 1998; Chayasriwong 2001). The increase in poverty occurred during the period of the Eighth Plan (see more details in Section 3.4). From 2001 to 2006, the Thai government introduced the 'Dual Track Policy' to stimulate both demand and supply in the economy. On the demand side, the Government implemented the priority strategies that aimed to increase domestic consumption and decrease reliance on the export market: examples of strategies included Temporary Suspension of Farm Debts Payment project, People's Bank project, Village/Urban Community Fund and Asset Capitalisation project (converting tangible assets into pledgeable assets). On the supply side, the Government implemented projects to stimulate investment and employment generation such as the OTOP project and the Small and Medium-Sized Enterprise Promotion project. Apart from these projects, the Government implemented a range of policies to decrease expenses, increase income and extend opportunities to the population. Implementation of the Government's policies enabled Thailand to balance its budget and repay its debts to the IMF by 2003, four years before the due date.

The 10th NESDB Plan (2007–2011) aims to create a green and happy society by encouraging everyone's participation in following the 'Sufficiency Economy Philosophy'. For this plan, the 'individual' is positioned at the centre of development (NESDB 2007c). In 2009, GDP growth decreased by about 2.3 per cent from 2008 levels because of the economic crisis in the United States and developed countries as well as the political crisis in Thailand. CIA (2011) reported that antigovernment protests in Thailand during March-May 2009 and the polarised political situation affected business and consumer confidence in Thailand, particularly in the tourism sector. In response to the 2009 economic situation, the Government implemented an economic recovery plan that focused on stimulating domestic consumption, solving unemployment problems and supporting the economic

sectors that had been seriously affected by the political situation. The plan aimed to support and drive four dimensions of the economy, including domestic consumption, government investment, private investment, exports and tourism.

In 2010, GDP rose to 7.8 per cent because the export sector and the tourism sector recovered from their depressed level in 2009 (CIA 2011). However, GDP in 2010 was lower than NESDB expected (7.9%) (NESDB 2011a). This had been caused by a decrease in the GDP contribution of the agricultural sector (1,000 million baht) because of flooding (NESDB 2011b). The NESDB forecasts that the Thai economy would expand by around 3.5-4.0 per cent in 2011 because of the recovery of the Japanese economy, the continual expansion of Asian market and improved investor confidence after the general election (NESDB 2011c). However, the forecasts do not take into account the risks that the United States and European Union economies will not overcome their problems, high oil price possibly forcing increased inflation and tension in labour market (NESDB 2011c).

In this section, the economic background of Thailand during the First NESDB Plan to the Tenth NESDB Plan is described. It is noted that from the First Plan to the Seventh Plan (1961 – 1996), Thailand experienced rapid economic growth because of the development of both agricultural sector, rural non-farm sectors, and export sector. In 1997, Thailand's economic boom ended with the Asia financial economic crisis. The income gap between rich and poor widened and regional income inequality also increased. The increase in poverty occurred during the period of the Eight Plan, therefore the OTOP project has been implemented along with other projects to stimulate investment and employment generation in rural areas of Thailand. Against this background, it is important to examine the role of CBEs in economic development, specifically in the area of poverty reduction. In the next two sections, the status of poverty in Thailand is further discussed.

3.3 Thailand's national poverty line

Monetary approaches are commonly used in poverty measurement where income or expenditure data are compared to a calculated poverty line. In Thailand, the national poverty line is constructed on the basis of the cost of basic food and non-food consumption items, adjusted for differences in regional prices. The methodologies used in

constructing the poverty line in Thailand were revised following the 1997 Asian Financial Crisis to account for changes in relative prices and consumption patterns.[3]

The revisions comprised two main aspects. The first alterations involved updating the recommended daily nutritional requirement and an adjustment to the base year used in the spatial price index, from 1992 to 2002, to more appropriately reflect the post crisis changes in dietary and consumption practice. The second main revision was a change in the calculation of the non-food component of the poverty line. A utility approach was implemented in preference to the previously used fixed ratio approach.[4] Poverty incidence as measured by the revised poverty line takes into consideration both household income and household consumption expenditure. Individuals are classified as 'poor' if they have monetary and in-kind income of less than the minimum level of daily subsistence, or have an average per capita income below the national poverty line (1,443 baht/person/month in 2007) (NESDB 2004a, 2008a).

The measurement of poverty incidence using a poverty line and head count ratio based on household income and expenditures, as used in Thailand, is widely accepted. However, the collection and the quality of income and expenditure data can be problematic, especially for World Bank classified middle-and low-income countries such as Thailand.[5] For example, long recall periods can limit the capability of households to provide accurate information. There are also difficulties in calculating quantities and values of home-produced foods, and there is often underprovided and incomplete information of high-value items. Besides quality and collection issues, consideration needs to be given to the costs of data analysis of expenditure data. Such analyses not only requires professionals with advanced statistical skills but their complexity also often leads to protraction in their final reporting (Sahn and Stifel 2000; Zeller et al. 2003).

3.4 Income distribution and poverty in Thailand

As noted above, Thailand is classified as a middle-income country by the World Bank. The country has made significant progress in reducing poverty except in the economic

[3] Thailand was forced to abandon its pegged exchange rate regime in 1997 and float the baht.
[4] See NESDB (2008a) for a more detailed explanation
[5] The World Bank classified its member countries into three categories: low, middle and high income countries based on their Gross National Income (GNI) per capita. Low-income and middle-income countries are sometimes referred to as developing countries (World Bank 2010a).

crisis periods of 1996-1998 and 1998-2000. The significant alleviation of poverty is evident in a variety of poverty measures (Table 3.2).

The headcount ratio indicates that the poor were being lifted out of poverty every year, in spite of the 1996–2000 economic crisis. Between 2000–2010, the incidence of poverty decreased from 21.0 to 7.8 per cent of the population. The poverty gap ratio and the severity of the poverty index also signify a reduction in the incidence of poverty, though to a lesser degree.

As a consequence of the economic crisis in 1997, the proportion of the poor increased from 14.8 per cent in 1996 to 21 per cent in 2000 (Figure 3.1). However, by 2007 the incidence of poverty had fallen to 8.5 per cent (5.4 million). This was largely due to the implementation of policies by the Thai Government in the Eighth and Ninth Plans to cope with the 1997 economic crisis and alleviate poverty in order to achieve the first target of the MDG 1. The vast majority (88%) of the poor (or 4.8 million people) lives in rural areas (NESDB 2008a).

Table 3.2: Poverty indicators in Thailand, 1990–2010

Year	Poverty indicator		
	Headcount ratio (%)	Poverty gap ratio (%)	Severity of poverty index
1990	33.7	8.1	2.8
1992	28.4	6.6	2.2
1994	19.0	3.9	1.2
1996	14.8	2.9	0.9
1998	17.5	3.4	1.0
2000	21.0	4.2	1.3
2002	14.9	2.8	0.8
2004	11.2	2.0	0.6
2006	9.6	1.8	0.5
2008	9.0	1.5	0.4
2010	7.8	1.3	0.4

(Source: NESDB, 2011d calculated from data from the Household Socioeconomic Survey collected by the National Statistical Office)

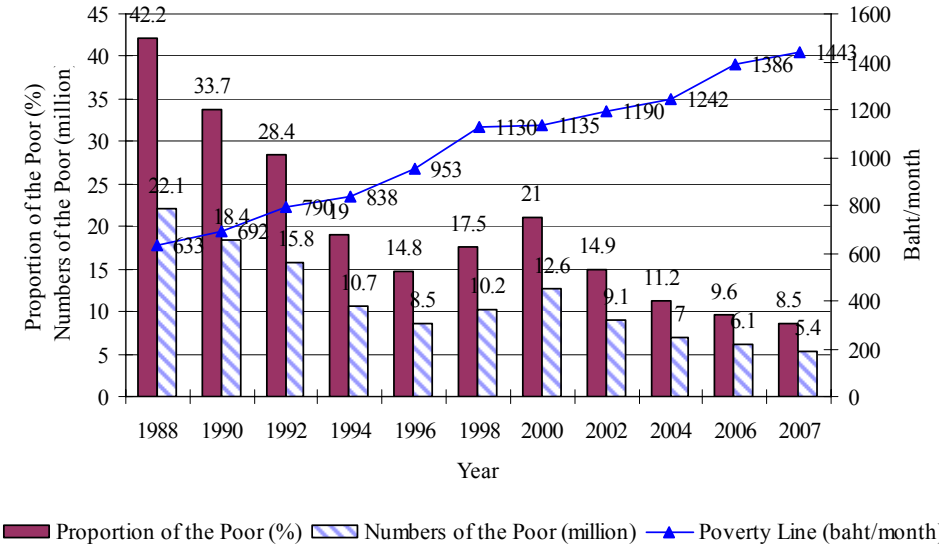

Figure 3.1: Poverty line, proportion of the poor and number of the poor (based on consumption expenditure) 1988–2007

(Source: NESDB, 2008a)

In most of regions, except Bangkok, poverty significantly decreased in the period between 2000 and 2002 (Table 3.3). Nonetheless, Bangkok had the lowest incidence of poverty in 2002 as measured by headcount ratios (2.2), while the Northeast had the highest headcount ratio (23.1). During 1992-1996, poverty decreased rapidly in every region. These decreases were possibly due to dramatically higher growth rates of per capita welfare in those periods compared with other periods (Krongkaew et al. 2006).

After the 1997 economic crisis, the incidence of poverty increased rapidly in all regions, in particular in the North and Northeast, respectively. After 2000, the incidence of poverty reduced continuously due to several policy measures implemented by the Government (see more details in Section 3.7).

In relation to the distribution of the poor in Thailand, categorised by region in 2007, 52.1 per cent (or 2.83 million people) were located in the Northeast, followed by the North and the South with 28 per cent and 9.5 per cent, respectively (Figure 3.2). The percentage of the poor in each region is expressed by the ratio of the poor in each region to the poor in whole country.

Table 3.3: Headcount ratios by region, 1990–2010

Year	Region				
	Central %	North %	Northeast %	South %	Bangkok %
1990	26.1	35.2	46.1	29.0	11.9
1992	18.3	32.7	41.1	25.2	4.4
1994	11.2	20.8	28.1	17.8	4.1
1996	6.1	17.8	24.5	10.3	1.2
1998	7.8	16.5	30.7	14.0	1.2
2000	9.0	23.1	35.3	16.6	1.7
2002	7.6	20.3	23.1	9.6	2.2
2004	4.5	15.7	18.6	6.0	0.8
2006	3.3	12.0	16.8	5.5	0.5
2008	3.1	13.3	14.6	4.4	0.8
2010	2.8	10.5	13.3	3.3	0.6

(Source: NESDB, 2011e calculated from data from the Household Socioeconomic Survey collected by the National Statistical Office)

Even though the Northeast of Thailand is the largest area occupied by the poor, poverty incidence in the region has been steadily declining, particularly during the Ninth Plan (2002–2006) (Figure 3.3). Poverty incidence is measured by the ratio of the poor to the population in each region. The reduction in the incidence of poverty in the Northeast parallels the experience of the central region. This contrasts with the slight increase of the incidence of poverty in the North, South and Bangkok during the same period (NESDB 2008a).

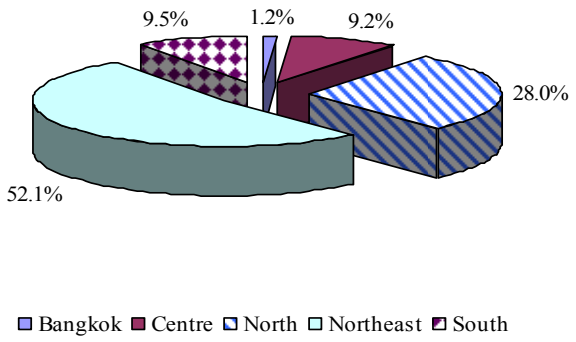

Figure 3.2: Distribution of the poor in Thailand categorised by region, 2007

Note: The percentage represents the ratio of the poor in each region to the poor in the whole country.

(Source: NESDB, 2008a)

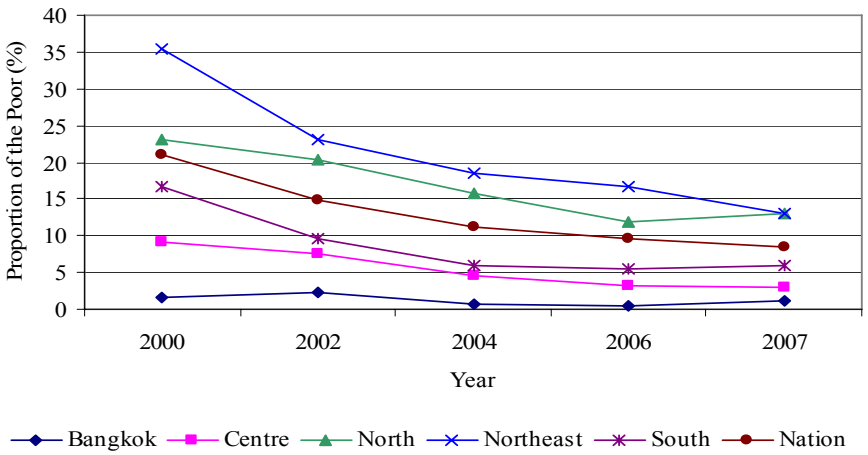

Figure 3.3: Poverty incidence in Thailand categorised by region, 2000-2007

Note: Poverty incidence is measured by the proportion of the poor to the population in each region.

(Source: Adapted from NESDB, 2008a)

Comparing average incomes per household of the poor between the regions, the poor living in the Bangkok have the highest average income (10,106 baht/household/month), while the poor in the North have the lowest average income (Figure 3.4). Surprisingly, the average income of the poor in the North is lower than of those in the Northeast where the greater proportion of the poor is located.

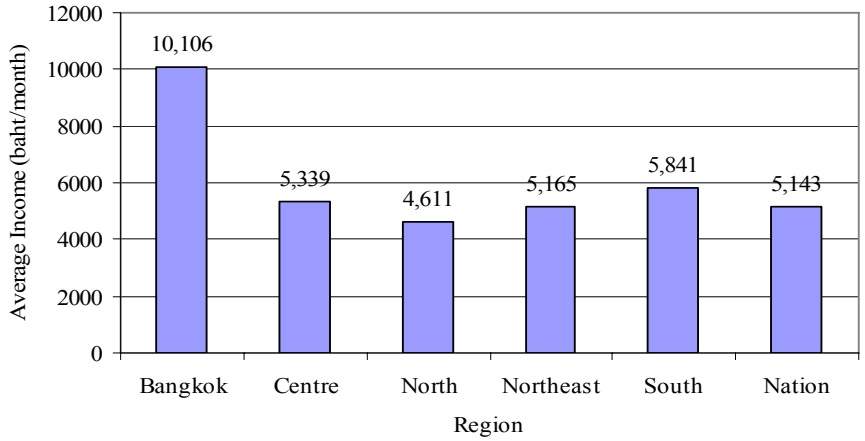

Figure 3.4: Average income of the poor in Thailand categorised by region, 2007

(Source: Adapted from NESDB, 2008a)

In terms of provincial distribution, the poor are concentrated in five provinces. Two of these provinces; Mae Hong Son and Nan, are located in the Upper-North with a respective distribution of 65.2 and 20.2 per cent (NESDB 2008a).

In summary, it is noted that the North had the second highest proportion of the poor and had a slightly increasing trend of poverty incidence in the country. The poor households in the North also have the lowest average income. Based on this information, the North region is chose as a good study area for the empirical analysis.

3.5 Socioeconomic characteristics of the poor in Thailand

Understanding the characteristics of the poor in terms of geographical area is useful for designing specific strategies and policies to target the particular poverty problems in these areas. The poor's characteristics not only reflect their nature, but can also indicate the causes of poverty (NESDB 2004b). For example, heads of poor households tend to have lower levels of education than those of better-off households. Limited chance of schooling is also an important cause of poverty. The following discussion lists the socio-economic and demographic characteristics of the poor in Thailand.

Household size is an important demographic factor positively correlated with poverty (NESDB 2004b; NESDB 2010). For example, in 2007, the percentage of poor among one-person households was only 6.7 per cent, but among households with 6 and with 7 or more people, the percentage of poverty was 12.7 and 10.8, respectively (Table 3.4). Some items of expenditure, such as accommodation expenses, which is the highest expense, can be shared within the household members. However, the larger, poor households frequently have responsibility for elderly relatives and young children who cannot contribute to the income generation capacity of the households (NESDB 2008a).

Table 3.4: Poverty incidence by household size, Thailand 2000–2007

Year	Household size (persons) / Poverty incidence (%)						
	1	2	3	4	5	6	7 or more
2000	11.3	13.2	15.2	20.2	23.7	28.7	28.8
2002	8.4	9.6	11.2	14.4	18.4	19.1	20.8
2004	7.4	9.0	8.9	10.5	12.8	15.6	13.9
2006	7.5	8.0	7.5	8.2	10.6	12.8	16.1
2007	6.7	7.3	6.3	7.6	10.1	12.7	10.8

(Source: Socio Economic Survey NSO, compiled by NESDB, 2008a)

Households headed by the elderly are more likely to face poverty problems compared to those with younger heads of households. The incidence of poverty has risen noticeably

with the heads of households aged 70 or higher. This trend is observable for both rural and urban households and highlights concerns about the welfare of households with the older people as household heads (NESDB 2004b). In 2004, 16.9 per cent of households headed by persons aged 70 or higher were poor, while the percentage of households with 20 to 69 year-old heads ranged from 5.3 to 12.4 per cent (Table 3.5). Among all regions, the poverty incidence of households with elderly heads was relatively higher in the North and South of Thailand (Vimolsiri 1999).

Table 3.5: Poverty incidence by age of household heads, Thailand 1996-2004

Year	Age of household heads (years) / Poverty incidence (%)						
	≤ 19	20-29	30-39	40-49	50-59	60-69	70 or more
1996	17.9	10.6	16.3	14.0	13.0	18.4	20.3
1998	23.0	9.8	16.9	15.8	14.8	19.3	22.6
2000	20.7	9.1	20.4	17.8	17.9	20.6	24.7
2002	15.7	9.3	13.9	12.3	12.9	16.5	20.0
2004	15.2	5.3	9.5	9.5	8.8	12.4	16.9

(Source: Socio Economic Survey NSO, compiled by NESDB, 2004b)

Education of household heads is closely correlated to poverty and has a strong impact on the incidence of poverty (NESDB 2004b). Heads of poor households tend to have lower levels of education than those of the non-poor households. In 1996, the heads of poor households received 3.6 years of education, whereas non-poor heads received 5.5 years (Vimolsiri 1999). In 2004, 24.2 per cent of households headed by persons who have had no chance of education were poor, while the percentage of households with the heads who finished primary school or lower ranged from 11.1 to 18.2 per cent (Table 3.6).

Poverty in Thailand is concentrated mainly in rural areas. Farmer households account for most of the poverty in the country. In 2007, 13.7 per cent of households were headed by farmers. Most of these owned their own land. The 15.1 per cent of those who rented land, were poor, and the 16.5 per cent of households with the heads who were farm labourers were poor (NESDB 2008a).

Table 3.6: Poverty incidence by level of education of household heads, Thailand 1996-2004

Level of education	Year / Poverty incidence (%)				
	1996	1998	2000	2002	2004
No chance of schooling	28.8	29.6	32.7	28.9	24.2
Kindergarten	-	-	-	-	18.2
Lower Primary Education	17.3	20.2	23.2	16.8	12.3
Higher Primary Education	12.6	16.0	18.2	14.0	11.1
Lower Secondary Education	6.3	6.1	7.9	4.6	4.8
Higher Secondary Education	6.8	3.3	4.6	4.7	3.0
University	2.6	1.2	7.3	1.3	0.5
Vocational or Teacher College	1.1	1.4	1.0	2.5	1.9
Others	-	-	3.5	-	-

(Source: Socio Economic Survey NSO, compiled by NESDB, 2004b)

Another type of household with a large percentage of poverty is the economically inactive households with the heads who are housekeepers, retired or disabled workers (Vimolsiri 1999). However, in 2007, around a tenth (12.8 %) of this type of household was poor (NESDB 2008a). This figure decreased from 16.9 per cent in 1996 because of the positive impacts of economic growth (NESDB 2004b).

Vimolsiri (1999) argued that the relationship between poverty and farm size as well as between poverty and ownership of land is unclear. Nonetheless, the NESDB (2008a) revealed that the percentage of the poor who are the farmers owning agriculture land of less than 5 rai[6] is higher than the percentage of those who own more than 5 rai of farm land (Table 3.7).

Table 3.7: Poverty incidence by farm land holdings, Thailand 2004-2007

Farm land holdings	Year / Poverty incidence (%)		
(Rai)	2004	2006	2007
Less than 5	25.2	23.8	19.2
5 -19	23.3	18.6	16.5
20 or more	12.6	10.7	9.2

(Source: Socio Economic Survey NSO, compiled by NESDB, 2008a)

Living conditions reflect poverty status of households. In Thailand, a variety of indicators derived from the country's 1994 Socio-Economic Survey are used to measure the living

[6] 1 rai is equal to 0.395 acres.

conditions of poor and non-poor (Kakwani and Son 2005). Living conditions of poor and non-poor, discussed in Kakwani and Son (2005), consist of access to drinking water, toilet facilities, cooking fuel, availability of electricity, and access to household consumer durables.

The poor in both urban and rural areas have much lower quality of drinking water than the non-poor. Between the poor and the non-poor, the difference in access to potable water is much larger in urban areas compared to in rural areas.

Another important factor related to people's capacity to live a healthy life is sanitary means of human waste disposal. Unhygienic toilet facilities can spread infectious diseases. Such toilet facilities are also unpleasant, implying a lower standard of living.

However, toilet facility access appears not to vary significantly between the poor and the non-poor, and between urban and rural areas across Thailand. This possibly is a reflection of the government's long-term commitment to provide sewer facilities in rural villages across the country.

Generally, gas and electricity are the cleanest and most convenient fuels for cooking, but they can be expensive and may not even be available in the areas where the poor live. There are many types of cooking fuel used in Thailand. The index of cooking fuel reflects its cleanliness and convenience. The index value is much higher for the non-poor than the poor, especially in urban areas. Therefore, non-poor households are able to utilise much cleaner cooking fuel than poor households.

Thailand has made enormous progress in providing electricity to almost the entire population, both poor and non-poor. Almost all (99%) of the non-poor population in urban areas has electricity. Even in rural areas, electricity is available to the vast majority (89%) of the poor population. However, the cost of using electricity does not allow the poor to use it for cooking purposes.

Considering the accessibility to consumer durables of households, there is a wide gap in access to various household consumer durables such as televisions, radios and videos between the poor and the non-poor. Use of telephones, air conditioning and washing machines are concentrated heavily in non-poor households located in urban areas. Not

surprisingly, poor households on average have more bicycles and black-and white televisions than non-poor households.

The structure of household expenditure on basic need items varies among different poverty status of households. The share of basic need expenditure of the poorest group is calculated from finding the ratio of the poorest population's basic need expenditure to total population's basic need expenditure. Other groups' shares are also calculated in the same way. In 2007, the poorest households have shares of basic need expenditure around 6.6 per cent, while the richer households have 47.3 per cent shares. Consequently, the inequality between the richest and the poorest households is at 7.1 times, which is lower than in previous years (Table 3.8). The inequity is calculated from the ratio of the richest group's share to the poorest group's share. Therefore, in Thailand 2007, the share of basic need expenditure of the richest group is approximately seven times greater than the poorest group's share.

Table 3.8: Quintile of population by expenditure, 1996-2007

Poverty status of households (Quintile)	Shares of basic need expenditure (per cent)						
	1996	1998	2000	2002	2004	2006	2007
Poorest (the first 20% of population)	6.1	6.5	6.2	6.3	6.2	6.2	6.6
Poor (the second 20%)	9.7	10.0	9.6	9.9	9.8	9.9	10.2
Middle (the third 20%)	13.6	14.2	13.7	14.1	13.9	14.2	14.4
Rich (the fourth 20%)	20.6	21.3	20.9	20.9	20.8	21.2	21.4
Richest (the fifth 20%)	50.1	48.1	49.7	48.8	49.4	48.5	47.3
Total	100	100	100	100	100	100	100
Ratio of the richest group's share to the poorest group's share (times)	8.2	7.4	8.1	7.7	8.0	7.9	7.1

(Source: NESDB, 2011f)

The pattern of household expenditure between the poor and non-poor are similar. Approximately, 52.6 per cent of the poor's expenses are on food and beverage, followed by shelter (14.9%), transportation and communication (6.3%), and fuel, light and water (6.1%). The non-poor spent 31.9 per cent of their total expenditures on foods and beverage, followed by transportation and communication (18.6%) and shelter (13.8%)

(NESDB 2008a). It can be seen that the richer the households, the lower the share of total expenditure on food and beverage, but the higher their share of expenditure on transportation and communication compared to the poorer households.

Based on the analysis of the socio-economic profile of the considered "poor" presented above, the considered "poor" households in Thailand are characterised by larger households, elder head of households, lower education level of household heads, a farming-based households, economically inactive households and with lower quality of household amenities. The magnitude of the effects of these variables is the central focus of the analysis presented in Chapter 8.

3.6 Characteristics of the poor in northern Thailand

In addition to the general characteristics presented in the previous section, it is important to provide a review of the characteristics of the poor in the northern Thailand, which will be the principal focus of the study.

Sricharoen and Buchenrieder (2005) describe a number of characteristics of the poor in northern Thailand. According to these authors, most of the poor live in rural highland areas. On average, the poor have a large family size with 5-6 members. A smaller family has a higher possibility of climbing out of poverty than does a larger family. Households with an illiterate head mostly tend to be poor. The members of households with older (more than 70 years old) head are likely to suffer from poverty more than those who live in households headed by a younger person.

Also national statistics show that people who work in primary production of food, whether working on their own or rented farmland, as fishermen, in agricultural services, forestry or as farm labours have poverty incidences higher than those employed in the non-agricultural sector (NESDB 2008a). In the North, a fisherman, forestry and agriculture workers have a poverty incidence (40.6%) higher than other occupations, followed by farm labour (22.6%) and general labour (18.7%).

The salient features of households considered poor in the northern Thailand is the same as those that characterise a typical poor household in the country. These households are those with large size and farming-dependent households.

3.7 Poverty situation of women in Thailand

In most developing countries, women are considered to be the worst affected members of households, as far as poverty is concerned. In this section, a detailed presentation of the poverty situation of women in Thailand is presented. Information and statistics in this section are from the *Report on Thailand Gender – Disaggregated Statistics 2008* (UNDP 2008b).

In terms of the gender of household heads, the proportion of poor households with female heads is slightly higher than those with male heads, except in Bangkok, the Centre and the South of Thailand (Table 3.9).

Table 3.9: Poverty incidences (expenditure-based) by gender of the head of household, administrative area, and region, 2006

Region	Proportion of poor households (%)			Number of poor households (in thousands)		
	Female-headed poor households	Male-headed poor households	Total poor households	Female-headed poor households	Male-headed poor households	Total poor households
Thailand	8.9	8.4	8.7	1,167	496	1,663
Bangkok	0.5	1.1	0.7	5	7	12
Centre	2.9	4.1	3.3	93	69	162
North	11.6	10.4	11.3	310	115	425
Northeast	15.6	15.4	15.6	678	272	951
South	4.6	4.6	4.6	80	33	114

(Source: UNDP, 2008b)

In all regions, the average income of female-headed households was lower than that of male-headed households, especially in the South (Table 3.10).

Table 3.10: Average income of female-headed households to average income of male-headed households in Thailand, 2006

Region	Average household income (Baht/month/household)			Proportion of Average income of female-headed households to male-headed households (%)
	Average household income	Average income of male-headed households	Average income of female-headed households	
Thailand	17,787	18,339	16,561	90.3
Bangkok	36,658	37,891	34,267	90.4
Centre	20,544	21,801	18,208	83.5
North	13,146	13,384	12,573	93.9
Northeast	11,815	12,254	10,735	87.6
South	18,667	19,765	15,997	80.9

(Source: UNDP, 2008b)

This is consistent with previous studies (Buvinic and Gupta 1997 and Haddad et al. 1996, both cited in Fuwa 2000) examining the relationship between female-headship and poverty in developing countries. The measure for poverty used by these studies was household consumption or income. However, Fuwa (2000) suggested non-consumption dimensions and non-income dimensions of poverty as well as other household characteristics need to be considered in order to better reflect the actual poverty status of female-headed households. By using such additional measures, his study found that, on average, female-headed households appear to be better-off than male-headed households.

The mean year of schooling is an overall indicator of the population's potential for human and social development. It also provides an indication of the capacity of the society to provide adequate and equal opportunities for education. The mean years of schooling of the population who are 15 years and older increased slightly from 8.2 years in 2005 to 8.3 years in 2006. Bangkok had the highest mean years of schooling (11 years in 2006), while the Northeast had lowest mean years of schooling (7.4 years), followed by the North (7.7 years). Women were slightly worse off than men in all regions, except in Bangkok.

Life expectancy at birth indicates healthcare achievement. In Thailand, life expectancies for the population (both men and women) have increased. Between 2005 and 2010, the life expectancy of men increased from 68.4 to 69.6 years, while those of women increased

from 75.4 to 76.1 years. In all regions, women live longer than men. In 2010, life expectancy at birth for women was 6.5 years longer than men (76.1 years for women and 69.6 for men) because of biological factors and life styles. The population living in the North had the shortest life span compared to other regions (74.5 years for women and 68.2 for men in 2010).

Considering women and waged employment, it is difficult to differentiate between men's and women's earnings from working in the agricultural sector. In contrast, workers in the non-agricultural sector are individually employed and compensated. Therefore, it is possible to differentiate between women's and men's income.

In 2006, the ratio of women's to men's income from waged employment in non-agricultural sectors was 0.94, an increase from 0.90 in 2005. This ratio increased in every region except the North. However, women's income levels were lower than those of men in all regions. The ratio of women to men in waged employment in non-agricultural sectors in 2006 was 0.82, a slight drop from 0.83 in 2005. This ratio also decreased in all regions except in Bangkok.

Clearly, the female headed households are considered poorer compared with the male-headed households. Given this occurrence, it is imperative to examine the role of gender empowerment in the analysis of multi-dimensional aspects of poverty, which forms part of a theme presented in the empirical chapters.

3.8 The Thai Government's roles and policies in poverty alleviation

Like in many developing countries, poverty reduction and eradication become the focal point of many government policies. In this section, a brief overview of the major government policies implemented in Thailand is presented.

In Thailand, poverty has been identified as a key social and economic issue for a number of decades. Since the early 1960s, National Economic and Social Development Plans have been developed and implemented to determine the direction of development aimed at improving the living standards of the Thai population.

Through the implementation of the First and Second National Economic and Social Development Plan (1961–1971), the Thai government included policies to redistribute

wealth in society but continued to focus investment on urban development. As a result, the poverty problem and the inequality between the urban and rural populations increased (Prayukvong 2005). In addition, natural resources and the environment deteriorated. From the Third to the Seventh National Economic and Social Development Plan (1972-1996), the government increasingly emphasised social development, but poverty alleviation and inequality reduction measures were still ineffective. Although the proportion of the poor decreased from 57 per cent of total population in 1962–1963 to only 11.4 per cent of the population in 1996, the income gap between the rich and the poor measured by the Gini coefficient remained at a high level (Kamolwatananisa 2002).

In Thailand, the Eighth National Economic and Social Development Plan (1997-2001) was the starting point of the adjustment to understanding the concept of development. Consequently, the new perspective of poverty understood the importance of infrastructure and land development, and the poor opportunities to gain access to public services and support from the government. However, at the beginning of the Eighth Plan, the poverty problem increased because of the economic crisis. The proportion of the poor increased from 17 per cent (9.8 million people) in 1996 to 21.3 per cent (12.8 million people) in 2000, an increase of approximately 3 million people from the Seventh Plan (NESDB 2007a).

In the Ninth National Economic and Social Development Plan (2002-2006), a 'people-centered' approach — a decentralised planning approach — was applied instead of a centralised one. Poverty alleviation and generating employment were set as Thailand's development priorities for 2002-2006. To achieve these priorities, a set of priority policies were formulated covering the Temporary Suspension of Farm Debts Payment, the establishment of a one-million-baht revolving fund for each village in order to develop communities (Village/Urban Community Fund), the establishment of the People's Bank, the promotion of universal health insurance (Universal Health Care), and the promotion of public participation in anti-corruption (FAO Regional Office for Asia and the Pacific 2003).

There were also some programs implemented by Thai government departments and ministries, focusing on women's development. But, most programs did not pay attention to rural women as a specific target group, and, the 'urgent policies' ignored the roles and

specific needs of women. Therefore, only those women's group activities not generally also undertaken by men, such as cottage food processing, benefitted from the programs w (FAO Regional Office for Asia and the Pacific 2003).

According to poverty alleviation targets, the aim of the Ninth Plan was to reduce the proportion of the poor to 12 per cent by 2006 (NESDB 2007b; Ma-in and Wannachat 2003). To achieve this target, the Government addressed six strategies for poverty alleviation: 1) creating opportunity for the poor to access public services; 2) creating opportunity for the poor to access and use natural resources; 3) developing a social safety net to provide the poor with security for life; 4) improving public administration to enable the creation of opportunities for the poor; 5) reforming laws and adjusting regulations in order to create opportunity for the poor to achieve rights and equality in many aspects, such as access to information, rights to manage natural resources and land possessory rights; and 6) strengthening grass-roots economics in order to create potential, and increase competence and self-reliance of the poor (Kamolwatananisa 2002).

Since the Ninth Plan, promoting community economic development has become a tool for increasing the potential and roles of the community in poverty reduction. To strengthen grass-roots economic development, both government and NGOs have supported community-based enterprises in terms of business administration development, including production skills, marketing and financial management in order to improve product quality, production efficiency and competitive advantage.

The OTOP project is one of the regional development policies, which was implemented in 2001. As discussed in Chapter 1, the OTOP project implementation contributed to expanding the production and marketing of the CBEs, and increased incomes for the villagers in each community. It is a collaboration between Government, the private sector and communities to upgrade the quality of community products (NESDB 2010). In the Tenth Plan (2007-2011), the OTOP project has continued to be promoted.

In the Ninth to the Tenth Plan, His Majesty the King's Sufficiency Economy Concept has been adopted by the Government as the national development and poverty alleviation approach (NESDB 2010). Key strategies included: reducing expenditures, increasing income, expanding opportunities, strengthening the capacity of the poor, and empowering

the community to achieve self-reliance. The measures have focused on supporting the poor with providing more access to occupational funds, education, housing, healthcare and social security. Examples of measures for poverty reduction in the Tenth Plan (2007-2011) include the Community Welfare Fund project; the Old-Aged Disability program, AIDS Allowance project; the Non-Institutional Debt project (converting non-institutional loans into institutional loans); and the 15-Year Free Schooling Project (to reduce education expenditures of households) (NESDB 2010).

Thailand has already achieved the international MDG poverty target of halving the proportion of people living in poverty; MDGs target for 2015 is 13.6 per cent based on the national poverty line. Since 2002, the first year of the Ninth Plan, the proportion of the poor in Thailand has declined continuously. The poverty incidence has been reduced from 27.2 per cent in 1990 to 9.8 per cent in 2002, based on Thailand's national poverty line[7] (922 baht/ month/person in 2002) (NESDB 2004a). In 2006, the last year of the Ninth Plan, the proportion of the poor was only 9.6 per cent (or 6.1 million people), lower than the Ninth Plan's poverty reduction target (12 % by 2006) (NESDB 2007b).

In the Tenth Plan (2007-2011), Thailand set an MDG Plus[8] target aiming to decrease the proportion of the poor to less than four per cent by 2009 (NESDB 2004a). Thailand did not achieve the MDG Plus target. Nevertheless, the poverty reduction effort has continued to strengthen and key poverty reduction strategies have been implemented, such as: promoting the concept of the 'sufficiency economy', 'sufficiency livelihood', self reliance, interdependence, and a community sharing and caring life style; supporting communities and local administration organisations to play a major role in poverty reduction; and increasing the effectiveness of poverty targeting (NESDB 2010).

The OTOP project is one of the policies that is aimed to strengthen grass roots economic development and alleviate poverty. There are evidences that the project contributed income generation and employment creation for the villages across the nation, but evidence of household-level impact needs further investigation. Evidence supporting the

[7] Thailand's national poverty line is formed according to food and non-food requirements for different regions, population groups, consumption patterns, and consumer price indices in urban and rural areas. People who have both monetary and in-kind income less than the minimum level of daily subsistence are considered to be "poor" (NESDB 2004a: 11).

[8] Thailand has achieved many of the Millennium Development Goals (MDGs) and has set new, ambitious targets, which are so-called "MDG Plus", that go beyond the original goals (NESDB 2004a).

actual impacts of CBEs on poverty reduction at the household level is presented at the later parts of this thesis.

3.9 Concluding comments

The trend of poverty in Thailand, and the roles and policies of the Thai Government in poverty alleviation were discussed in this chapter. Poverty has been identified as a key social and economic issue in Thailand for a number of decades. In the First and Second NESDP (1961-1971), the poverty problem and inequality between the urban and rural people increased. In response to this, social development had been emphasised during the Third to Seventh Plans (1972-1996), but measures for poverty alleviation and inequality reduction were ineffective. At the beginning of the Eight Plan (1997-2001), the poverty problem increased because of the economic crisis. In response to the crisis, during 2001-2006, the Government implemented a range of priority policies including the OTOP. These policies allowed Thailand to successfully reduce poverty in every region. During the Ninth to the Tenth Plan (2002-2011), the 'Sufficiency Economy' concept has been adapted by the Government as the national development and poverty alleviation approach. A set of measures for poverty reduction in line with the 'Sufficiency Economy' philosophy has been implemented. Since 2006, Thailand has already achieved MDG 1 — that is the proportion of the poor was only 9.6 per cent in 2006, lower than the poverty reduction target of 12 per cent by 2006. In the Tenth Plan, Thailand set an MDG Plus that aimed to decrease the proportion of the poor to less than four per cent by 2009, but the target could not be met. Nonetheless, this target remains as a challenge to every sector in the Thai economic system, particularly to the Government, encouraging them to make every effort to implement the best measures for poverty alleviation.

The poverty situation in the North region was also discussed in this chapter. This region had the second highest concentrations of the poor. It also had a slightly increasing trend of poverty incidence. Moreover, the poor households in the North have the lowest average income compared to those in other regions. Based on the poverty profiles of this region, this study selected the North as the research site. In addition to poverty profiles, CBE profiles need to be considered in the selection of research sites. Information on CBEs in Thailand will be provided in Chapter 4.

Information on socioeconomic characteristics of the poor in Thailand and the North region, and the poverty situation of women in Thailand, discussed in Sections 3.5, 3.6 and 3.7, is used for determining the possible factors affecting the poverty status of households (Chapter 8). It is also used as the support information to discuss the poor household's characteristics in the research sites and the results of impact assessment in Chapter 8.

According to Thai Government's poverty reduction policies discussed in Section 3.8, it can be seen that most programs/strategies did not focus on rural women as a specific target groups, even though the nation's statistical data indicate that the poverty circumstances of women are vastly different from those of men. The nation's statistical data also reveal that the OTOP project implementation contributed income generation and employment creation for the villages in the communities across the nation. However, the actual impact of CBEs on poverty reduction at the household level, both in terms of income deprivation and social deprivation, warrants investigation and is assessed in Chapter 8.

Chapter 4 The nature of CBE development in Thailand

4.1 Introduction

This chapter provides key definitional and contextual information about CBEs and their development in Thailand. The contextual information plays a key part in the selection of research sites and CBE samples (see Chapter 6).

In Section 4.2, definitions of CBEs are reviewed. This is followed in Section 4.3 by a description of their evolution in Thailand. The focus of Section 4.4 is on the current situation and the particular challenges faced by these enterprises within Thailand. In Section 4.5, the roles of CBEs in socioeconomic development, as discussed in the literature, are reviewed. This is followed in Section 4.6 by a discussion of the roles of key government agencies, such as the Department of Industrial Promotion and the Community Development Department, in CBE development. Brief concluding comments are provided in Section 4.7.

4.2 Definitions of CBEs

Community based enterprises (CBEs) have received much attention in both developed and developing economies as economic stimulation tools. This term has been used to describe the relationship between 'enterprise' and 'community' as a part of poverty reduction and capacity building initiatives. The section below provides a range of examples of CBEs in order to identify their key operational features. The examples are grouped under the categories of 'developed economies' and 'developing economies.' This is followed by a discussion of definitions of CBEs in the context of Thailand.

Community based economic activities (or projects) have been defined and described by many organisations and academics. The following definitions are examples of initiatives within developed economies.

The Manchester Progressive Enterprise Network (MPEN) in the UK is a network of workers' cooperatives, community enterprises and not-for-profit businesses in the northern English city of Manchester. The Network aims to create sustainable living in the community and defines a 'community enterprise' as:

> "the generic term that describes all community based economic development aiming to improve the community economy. Wealth creation for community members centres around investment into the community economy, community owned assets, and savings and reserve funds controlled by the community. The activities to support these outcomes will always involve the setting up of trading activities, savings schemes and employment creation projects" (Together Works 2011: 1).

Also based in Manchester, The Together Works Organisation aims to develop a strong, independent and cohesive social economy. Its principles of a community enterprise are as follows:

> "The first principle is democracy. The community enterprise movement has been linked closely and naturally with the cooperative movement. The community enterprise is founded on common ownership and a 'one person one vote' principle. The second principle is independent. A community enterprise is essentially owned, controlled and managed by its members. It has to be independence of public and private sector bodies. The final principle is accountability. The community enterprise should have clear and transparent social objectives. The objectives should be set and measured through a participative process that involves both internal and external stakeholders. Its sustainability should be assessed by its ability to set objectives that deliver benefits to its members in the long term" (Together Works 2011: 1).

In a study published by the Calouste Gulbenkian Foundation, UK Branch, Pearce (2003) identifies characteristics of the community enterprise as follows. The community enterprise responds to one or more identifiable community needs. It achieves its social purposes by engaging in trade. Moreover, it creates opportunities for the community to participate in the development, delivery and/or governance of the enterprise. In addition, it seeks to achieve financial sustainability. Finally, it reinvests profits back into the enterprise or the community.

The Brotherhood of St Laurence in Australia is a non-government organisation working for the eradication of poverty. The Community Enterprise Development Initiative conducted under the auspices of the Brotherhood defines 'a community enterprise' as:

> "a type of business developed to meet a need in a community. While mainstream businesses seek to maximise profit for owners and shareholders, community enterprises aim to deliver social outcomes through their activities in a way that is financially sustainable" (Brotherhood of St Laurence 2007: 5).

A further elaboration of this concept by this NGO (O'Neill 1998: 2-3) sees 'community enterprises' as trading institutes/businesses, which propose to create eventually-self-supporting jobs for people in the community and to be a centre of local development. Community enterprises are owned and dominated by a local community or community of interest. Generally, the 'community' involved with the enterprise is from a geographical location where people have joined together to respond to the social and economic needs of a particular community or solve problems in the community. Community enterprises can also be established by a particular 'community of interest', such as women groups or ethnic groups. In some cases, community enterprises offer special services or infrastructure aid to other enterprises. Income earnt from business activities is spent on creating jobs or providing services in the local community or for supporting other projects/plans in the community.

Characteristics of community enterprises are summarised by O'Neill (1998: 2) as follows: the community enterprise is an ownership structure providing for public accountability and community control. Moreover, the community enterprise is established and managed by partnerships (or networks) of stakeholders, public and private organisations, and the community. Furthermore, the community enterprise has social economic and environmental objectives based on local needs. In addition, benefits from the enterprise's ownership are used for promoting the enterprise's objectives and developing the community, not for individual benefit. Moreover, the community enterprise is a 'good' employer, creating structures for participation in management and paying award conditions. Finally, the community enterprise is profitable, enabling it to promote sustainability and further develop its objectives.

Also within Australia, Barraket (2006) explores the nature of community and social enterprises in the state of Victoria. This study contends that 'community and social enterprise' may take on a specific organisational form such as a cooperative, mutual, association, company limited by guarantee or an investor owned firm. It may also manage under the support and approval of an existing third sector organisation. Moreover, it may be the specific product of a partnership initiated between third sector organisations, or between the third sector and government and/or corporate organisations.

Within the United States, The Center for Community-Based Enterprise located in Michigan defined a 'community-based enterprise' as

> "a locally owned for-profit or non-profit business enterprise with a sustainable revenue model. The enterprise is purposely formed to create community benefits and increase household asset equity. It also aims to be embedded in a particular community through its ownership structure, business model, or by-laws" (Center for Community-Based Enterprise 2008: 1).

In the developing world, there are also various definitions of community based economic activities (or projects).

In Namibia, Halstead (2003), supported by the Ministry of Environment and Tourism, examines factors contributing to a successful community-owned tourism development in Caprivi. Halstead (2003) defined 'community-owned enterprise' as

> "the enterprise that is owned by a group of people within a defined area. Community ownership can be considered in place when the community has the legal rights to occupy the site. It is a decision-making body for the enterprise in terms of management. Moreover, it has a structure for this in place, for example, a Conservancy Committee and Traditional Authority working together. Furthermore, it benefits financially from profits made by the enterprise. In addition, it receives other benefits, both tangible and intangible from the enterprise" (Halstead 2003: 20).

In Zimbabwe, Odero (2004) examines the emergence and development of community-based enterprises (CBEs). 'Community-based enterprise' is conceptualised as: 'a commercial venture, which seeks to provide value-added natural products to the niche markets in order to bring greater benefits to a community that manages and uses valuable common-pool natural products'.

In Kenya, Manyara and Jones (2007) evaluate the potential of community-based tourism enterprises as a tool of poverty amelioration and the challenges facing them. Their study defines 'community-based enterprise' as 'community-owned initiative'. Communities must be entirely engaged in the development and management of the enterprise. Moreover, the communities ought to be the major beneficiaries of the enterprise.

In India, the International Resources for Fairer Trade (IRFT) has provided community-based enterprises with the knowledge and training to provide the best possible aid to their members (IRFT 2010). The IRFT defines 'community-based enterprise' as a group of

small farmers and artisans often working within a larger organisation called the community-based enterprise in order to access support services' (IRFT 2010).

In Thailand, community based economic activities have been defined and described by the Thai Government and academics. The Thai Government has used the term 'small and micro community enterprise: SMCE', which started with the implementation of the *Small and Micro Community Enterprise (SMCE) Extension Act* in 2005 (Phongphit 2009a). The SMCE is an enterprise belonging to the community. It is managed by the community and contributes benefits to people in the community. Moreover, the enterprise normally uses local wisdom and social capital in the community to operate its business (Wiboonpongse et al. 2006).

The Secretariat Office of Community Enterprise Promotion Board (2005) and Phongphit (2009b) identify the core characteristics of the SMCE as follows. First, the enterprise is owned and operated by the community. Second, the enterprise's products are produced in the community. Third, the enterprise's products are the innovation of the community. Fourth, the enterprise's products have identity based on the integration of local wisdom and international knowledge. Fifth, the enterprise has a multidisciplinary operating system. Sixth, a learning process is at the heart of the enterprise. Finally, self-reliance is a goal of the enterprise.

Charnnarongkul (2009) focuses on lessons learned of the community enterprise's roles in terms of people empowerment in Thailand. His study defines 'community enterprise' as an activity related to production services and other businesses undertaken by the local community. A local community shares common ways of life and comes together to run its businesses for income generation and self-reliance in the family, within and across the communities.

The community-based enterprises (CBEs) in Thailand are classified into three types based on their nature: a community-based group, a semi-community-based group and a cooperative group (Wiboonpongse et al. 2005a; Wiboonpongse et al. 2006). The main characteristics of these types of CBEs are summarised in Table 4.1.

From the above discussion it is clear that various terms and definitions have been used to describe community-based economic activities (or projects) in both developed and

Table 4.1: Categories of CBEs in Thailand

Categories of CBEs	Main characteristics of CBEs
Community-based group	• Is an enterprise operated by and for villagers in a community. • Aims to contribute supplementary income to its members and nurture collective actions in production and marketing activities and organisational management. • Has a formal and practical organisational structure. The CBE head, committees and members have rights and are encouraged to participate in decision making and setting rules and regulations of the group. The activities are operated following the rules and regulations agreed and implemented by everyone in the group. The CBE head and committees are formally elected. • Benefits are commonly allocated to the head, committees and members in the form of wages, dividends, rewards and welfare. The group also allocates a part of its profits for working capital.
Semi-community-based group	• Is a private enterprise, which is established in the form of a group, but runs the business as an entrepreneur. Normally, a private enterprise in a community is encouraged by local government offices to form its organisation as a group in order to gain government support. • The group and most of (or all of) the financial capital and assets invested in the group practically belong to the CBE head. Therefore, the head has complete authority to make a final decision in all activities, while the members do not contribute to decision-making and earn only wages and welfare from the group.
Cooperative group 4.2.1	• Is an enterprise, which is supported by the agricultural cooperatives in order to establish the group. • Follows the principles of cooperatives and normally uses the phrase 'cooperative group' in its name. The activities of the group are involved with agricultural productions and processing. • Typically, members of a cooperative group are private enterprises or farm owners in a community. Although cooperative groups are encouraged to run the business in a cooperative form, many of them can be only a pseudo-cooperative. • Groups are formed for specific objectives such as to gain supports from the government in terms of laws and regulations to facilitate the members' businesses. The members operate all business activities by themselves, so collective actions do not exist within the group.

(Source: Compiled from Wiboonpongse et al., 2005a and Wiboonpongse et al., 2006)

developing countries. The terms include community-based enterprise, community enterprise, community and social enterprise, community-owned enterprise and small and micro community enterprise. However, these terms and definitions have similar core principles. Firstly, the enterprise belongs to the community. Secondly, the enterprise aims to meet the needs of the community. Thirdly, the enterprise is fully operated by the community. Finally, the enterprise contributes its benefits to the community.

Utilising the above review of definitions, the operational definition for CBEs as used by this study is provided in Chapter 5.

4.3 Evolution of CBEs in Thailand

In the 1940s, there were few women working in the business sector. Upper-class women were confined to managing domestic affairs, including household expenditures. In poor households, both the wife and husband worked outside the home. Husbands normally looked after financial matters.

Since 1961, when the First National Economic and social Development Plan (NESDP) started, private enterprises with modern business management practice were encouraged in addition to public (or state) enterprises. Employees with literacy skills and high education were required in these enterprises to work in the modernised and systematic management system. Women, who normally had a low level of education compared to men, were engaged in self-employment or small-scale enterprises. Therefore, women were regarded as secondary earners of the households (Siengthai and Leelakulthanit 1993).

In addition to low levels of education, government regulations were a barrier for occupational choices of women. Based on a concern for women's safety, women were blocked from taking up important positions in the government sector, such as district officers and judges — other than in juvenile courts (Meesook 1980).

Thailand's First NESDP, covering the period 1961 to 1966, aimed to achieve a high rate of economic growth by focusing on the development of import-substitution industries. As a result, the non-agricultural sector grew rapidly, leading to increased living standards in urban areas. At this time, the unemployed in rural areas migrated to the urban areas. In order to address the inequality in standards of living between rural and urban areas, particularly to eliminate poverty in rural areas, the Bank for Agriculture and Agricultural Cooperatives (BAAC) and the Ministry of Agriculture and Cooperatives (MOAC) provided credit and encouraged the production of diversified agricultural products. Occupational groups were established in the rural areas. Education and training in the principles and methods of the cooperative movement were provided for the occupational

groups. In 1968, the Home Activity Unit (HAU) under the MOAC began to promote food preservation for home consumption by the occupational groups (Nonthakhot 2009).

Since 1975, the concerns and issues of women have been increasingly recognised as an important national development issue. A Thai delegation was sent to the *UN First World Conference on women* in Mexico City (Tonguthai 1995). This conference is regarded as the starting point of Thailand's first long-term *Women Development Plan* (1982-2001) (Tonguthai et al. 1998). The 1975 *Women's Conference* was also immediately influential in establishing the first housewives group in the Chiang Mai province in northern Thailand with the support of the MOAC. With the support of the Department of Agriculture Extension (DOAE), housewives groups were set up in all villages across the country by 1995 (MOAC 1998).

In its first formulation, the housewives groups' main activities were social, such as cooking at traditional festivals, at religious festivals and other celebrations. Only some of women's group set up groups for production activity and training (Nonthakhot 2009).

From 1975 to 1990, the DOAE was the only one organisation supporting housewives' groups. Several kinds of support, including training, financial support and equipment, were provided to the housewives' groups for free in order to improve their production skills and techniques, and maintain their social activities (Nonthakhot 2009).

Between 1990 and 2000, the total number of housewives groups whose main focus was social activities decreased from 53,000 to 14,000. Many groups changed their group's objectives to earning income from business activities (DOAE 2008). Consequently, production activities of the housewives groups started to develop from household-based production to commercial production.

From 2000 to 2006, the number of housewives groups which were in the form of a 'cottage industry' increased from 14,000 to 27,000. The groups' members covered 534,000 women across the nation (DOAE 2008). The cottage industry is basically a household manufacturing industry engaged in secondary or supplementary activities, such as processed foods and handicrafts (DOAE 2008). In 2007, the MOAC reported that approximately 52 per cent of CBEs were housewives groups (Nonthakhot 2009).

4.4 Current context of CBEs in Thailand

In the previous section, a historical account of the development of CBEs was presented. The current situation of the CBEs in Thailand and the North region, and the challenges they face are presented in this section.

4.4.1 CBEs in Thailand

Many CBEs have multiple names reflecting the main organisations supporting them, in particular in terms of establishment, marketing and financial supports. For example, "housewives group" is the name of the CBEs registering with the DOAE. "Cooperative women group" is the name of the CBEs registering with the Cooperative Promotion Department (CPD). Both government departments are under the MOAC. "Small and micro community enterprise" is the name of the CBEs registering with the DOAE under the *Small and Micro Community Enterprise (SMCE) Extension Act 2005*. More details of the *SMCE Extension Act* are provided in Section 4.6.

In 2010, there were 69,552 CBEs registered with the DOAE under the *SMCE Extension Act 2005* across Thailand. Almost half of these were located in the Northeast (44%), followed by the North, Centre and East regions, respectively. Together, these CBEs had approximately 1.17 million members; the largest number of members being in the Northeast (48%), followed by the North, Centre and East, respectively (Table 4.2).

Table 4.2: Distribution of CBEs and CBE members in Thailand categorised by region in 2010

Region	Number of CBEs	Percentage of CBEs (%)	Number of CBE members (persons)	Percentage of CBE members (%)
North	20,621	29.65	320,052	27.25
Centre and East	10,880	15.64	155,404	13.23
Northeast	30,790	44.27	566,685	48.25
South	7,261	10.44	132,288	11.26
Total	69,552	100.00	1,174,429	100.00

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

Approximately, 80,000 different products are produced by the CBEs across the nation. Although almost a half of CBEs are located in the Northeast, the proportion of products from this region is only around 18 per cent which is lower than those in the Centre and

North (Figure 4.1). It can be seen that the North is an important source of CBEs, not only in terms of the number of CBEs and CBE members but also the diversity of product.

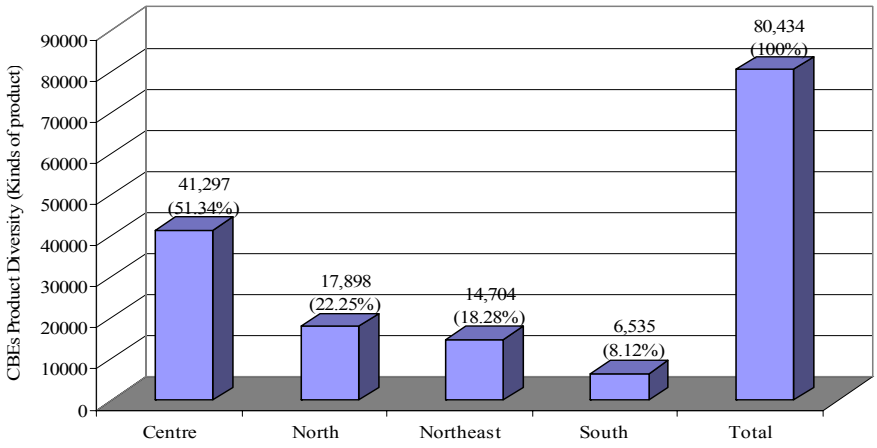

Figure 4.1: CBE product diversity in Thailand categorised by region
(Source: Adapted from Thaitambon, 2008)

Activities of the CBEs consist of the production of goods and services. Many CBEs produce more than one category of each. Products of the CBEs are divided into four main categories: agricultural products, food processing products, handicraft products and other products. In 2010, almost half of the CBEs produced agricultural products including crops, livestock, and fisheries. Approximately 22 per cent and 18 per cent of the CBEs produced handicraft products and food processing products, respectively (Figure 4.2).

Handicraft products consist of fabric, weaving, artificial flowers, gifts and souvenirs, jewellery, furniture, leather and pottery. Food processing products include cottage foods, herb products and beverages. In addition to these main product types, there are other products such as machine and agricultural inputs (Secretariat Office of Community Enterprise Promotion Board 2010).

Services provided by the CBEs are classified into six categories covering community grocery, community saving group, tourism, health service, mechanic and others. Just over a third of the CBEs provided community saving, followed by community grocery and health services, respectively (Figure 4.3). Community saving group is the group established by community members to provide financial support; members benefit from saving and loans, particularly for investment in their farm and non-farm businesses, as well as to increase household welfare.

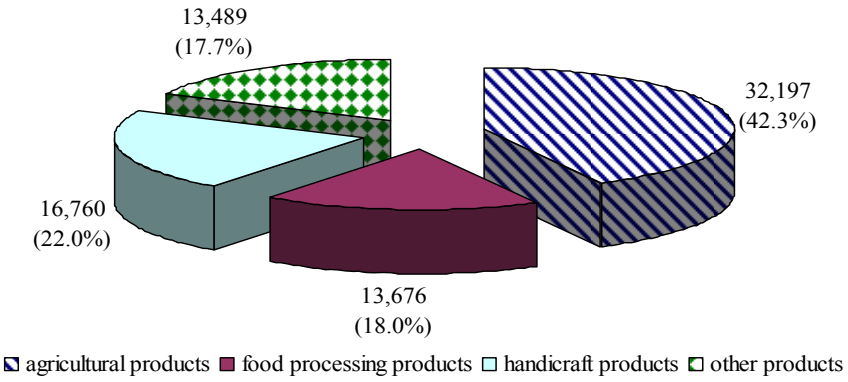

Figure 4.2: Number and proportion of CBEs in Thailand classified by category of products in 2010

Note: Each CBE can produce more than one category of product.

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

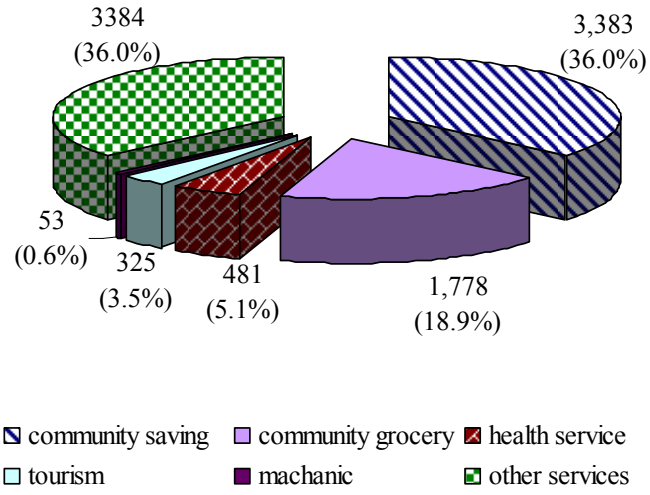

Figure 4.3: Number and proportion of CBEs in Thailand classified by category of services in 2010

Note: Each CBE can produce more than one category of services.

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

4.4.2 CBEs in northern Thailand

Chiang Mai province was the largest source of the CBEs in the North of Thailand, followed by Chiang Rai and Phare, respectively (Table 4.3). These main sources of CBEs are located in the North of Thailand.

Table 4.3: Distribution of CBEs in northern Thailand categorised by provinces in 2010

Province	Number of CBEs	Percentage of CBEs (%)	Number of CBE members (persons)	Percentage of CBEs members (%)
Khamphangphet	634	3.07	12,140	3.79
Chiang Rai	2,727	13.22	42,381	13.24
Chiang Mai	2,949	14.30	45,408	14.19
Tak	1,258	6.10	21,870	6.83
Nakhonsawan	751	3.64	13,241	4.14
Nan	1,030	4.99	19,860	6.21
Phayao	1,293	6.27	21,619	6.75
Phichit	503	2.44	8,313	2.60
Phisanulok	1,262	6.12	20,758	6.49
Phetchabun	1,406	6.82	22,763	7.11
Phrae	1,825	8.85	21,638	6.76
Mae Hong Son	367	1.78	4,005	1.25
Lam Pang	956	4.64	12,723	3.98
Lam Phun	1,321	6.41	19,066	5.96
Sukhothai	631	3.06	10,341	3.23
Uttaradit	1,102	5.34	16,062	5.02
Uthai Thani	606	2.94	7,864	2.46
Total	20,621	100.00	320,052	100.00

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

Around two fifths of products produced by the CBEs in the North were agricultural products, followed by handicraft and food processing products, respectively (Figure 4.4). Considering the CBEs services, three fifths of the CBEs provided community saving service, while 26 per cent and 8 per cent of the CBEs provided community grocery and health service, respectively (Figure 4.5).

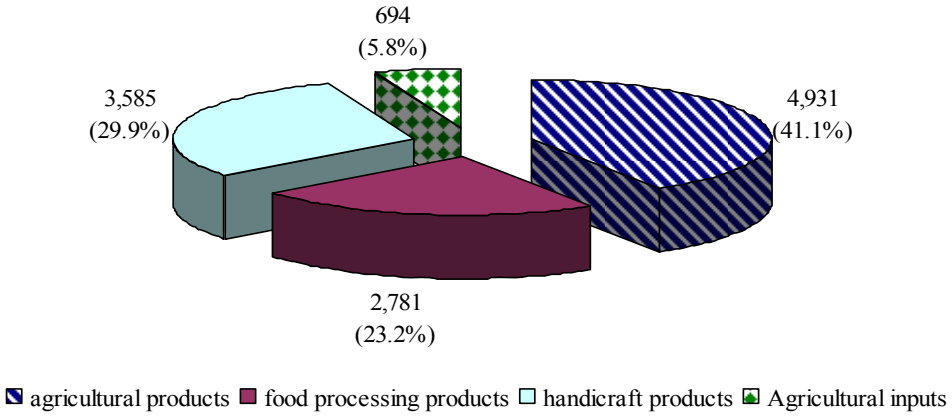

Figure 4.4: Number and proportion of CBEs in northern Thailand classified by category of products in 2010

Note: Each of the CBEs can produce more than one category of products.

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

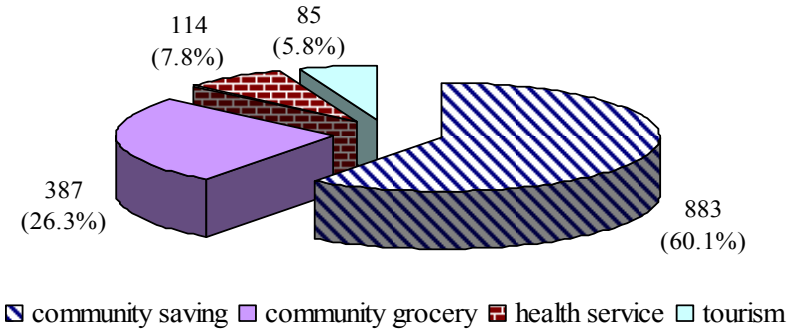

Figure 4.5: Number and proportion of CBEs in northern Thailand classified by category of services in 2010

Note: Each of the CBEs can produce more than one category of services.

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2010)

4.4.3 Problems, constraints and challenges of the CBEs in Thailand

According to Sriboonchitta et al. (2004), Wiboonpongse et al. (2000), and Wiboonpongse et al. (2004), many CBEs consider the use of local wisdom as an important tool to increase their profits. However, the impacts of promoting such knowledge and wisdom at

the wider community level are not yet certain. Moreover, in production processes, local wisdom needs to be topped up with new knowledge and technology.

There is a low level of self-reliance and creativity among the CBEs. Most of the CBEs wait for suggestions and assistance from the Government. (Puntasen et al. 2002; Sriboonchitta et al. 2004). Human resource development practice is entirely limited among these enterprises. Most of the training programs provided through the OTOP project have been sourced from academic institutions. Training materials and information are generally based on the perspectives of researchers and academics. Although field trips have also been provided, most of the enterprises still lack knowledge of business administration (Wiboonpongse et al. 2005a). It is seen as important that the enterprises adopt measures to increase their own capacity to learn how to run successful and sustainable businesses.

Phongphit (2004) noted that even though the OTOP project encouraged the CBEs to develop their production management and marketing, the economic system of the community was neglected; the enterprises' business operations were not in accordance with sustainable economic development. Wiboonpongse and Sriboonchitta (2005) also noted that there are a small number of self-reliant communities in Thailand, such as the Mai Riang community in the South and Kud Chum community in the Northeast. They have put the sufficient economic theme into practice and have managed the use of their resources and the environment effectively for more than 20 years. However, most communities nationwide still lack the survival traits of self-reliance and sustainable development.

The Ministry of Industry (2004) reported that medium-sized enterprises in northern Thailand had greater weaknesses and greater limitations when compared to large-sized enterprises. The medium-sized enterprises had the inefficiencies of small-scale production, lack of business scope, absence of collective efficiency due to the product mix and lack of access to information. Harter et al. (1999) revealed that many CBEs could not get sufficient income because of inefficient production methods and low quality products.

Sriboonchitta and Wiboonpongse (2006) measured overall technical scale and pure technical efficiencies in each of product items of CBEs in upper-northern Thailand. The results reveal that the overall technical inefficiency in food processing products, wickerwork products and woven fabric could be decreased. It could be decreased by operating at optimal scales and by reducing pure technical inefficiency through the use of the best practice. Moreover, the results of their study show that the production of almost all product items fell in the region of increasing returns to scale; therefore, by increasing production size, production of the items could benefit from increased technical efficiency. However, after taking the radial technical inefficiency, input slack problems (problem of non-radial technical inefficiency) remained a problem in the production, in particular for the manufacture of woven fabric products.

The results of the 2006 Sriboonchitta and Wiboonpongse study also showed that types of food processing products were significantly related with the technical efficiency of the enterprises in a positive way. This was because the cottage food enterprises could adjust the combination of inputs and outputs used in their production more easily than the wickerwork and woven fabric enterprises. In addition, more operating years reflected greater specialisation in production, which was associated with higher technical efficiency: the longer the operation, the better the organisational management.

Wiboonpongse et al. (2006) suggested strategies for developing rural enterprises as follows:

1. Support the community enterprises and link them to other local groups;
2. Expand into upper or niche markets in order to increase the price of products;
3. Focus on economies of scope, subject to the abilities of labour and the availability of funds for investment;
4. Increase management skills, by providing courses and training;
5. Create new products; and
6. Distribute stocks and benefits to group members in order to encourage them.

In 2001, 7,000 local products and 3,000 tourist spots were selected as the OTOP products. They were also advertised on the website (Sriboonchitta and Wiboonpongse 2006). In 2008, 69,217 items were produced by the OTOP enterprises (CDD 2011). The

nominal value of the products rose from 33 billion baht in 2003 to more than 77 billion baht in 2008 (Table 4.5).

Table 4.4: Total revenues from the OTOP products, 2003 to 2008

Year	Value (Million baht)
2003	33,276
2004	46,362
2005	55,104
2006	68,105
2007	71,460
2008	77,705
Total	352,012

(Source: CDD, 2007; Nonthakhot, 2009; Natsuda et al., 2011)

It can be seen that the OTOP policy had resulted in an increasing amount and value of OTOP products. However, the OTOP movement has emphasised the development of the market system with the individual entrepreneurs and SMEs as major actors. Janchitfah (2005) argues that the OTOP project might have helped small businesses, but it is questionable whether the policy has supported the poor. It can be seen that in 2004, the total number of OTOP products registered for the quality selection process was 29,385, but only 7,967 products achieved three to five stars. Only selected groups, which were not at the lowest end of the economic scale, have benefited from the policy (Janchitfah 2005).

Janchitfah (2005) also reported that community-based groups, such as farmer's groups and women's groups received less benefits compared to other types of OTOP producers. It can be seen that after joining the OTOP project, their income increased only 14.8 per cent. By contrast, income from SMEs and private businesses increased by 74.9 per cent which is substantially higher than those of community-based groups.

In summary, the existence of CBEs has been one of the key features in northern Thailand. The northern region has the most number of CBEs, CBE members, and the diversity of products produced by CBEs. In particular, Chiang Mai and Chiang Rai are the main setting of CBEs in this region, with handicraft and food processing as the main activities.

4.5 CBEs in socio-economic development

The relationship between micro and small businesses/microenterprises/community enterprises, and economic growth and poverty incidence has been the central theme of a number of studies. Scholars have endeavoured to derive relationships between poverty rates and macroeconomic performance by using aggregate time-series data and other statistical tools. Recent empirical studies include those by Gebremariam et al. (2004), Freeman (2002), Haveman and Schwabish (2000), Blank (2000), Cain (1998), Powers (1995), Blank and Card (1993), Cutler and Katz (1991), Blank and Blinder (1986), and Gottschalk and Danziger (1985).

The following is a summary of the impacts of micro and small businesses/ microenterprises/ community enterprises.

4.5.1 Contribution to economic growth

From the literature, it is apparent that micro and small business can have either negative or positive effects on economic growth. For example, Dean et al. (1996) and Karlsson et al. (1993) revealed that micro and small businesses play a significant role in nationwide economic development. Also more than two decades ago, Dana (1988) argued that in Western-style urbanised, industrialised economy countries such as the USA, Canada, Australia, Singapore and European nations, the establishment of micro and small businesses, and the support of entrepreneurship can be a tool for solving economic stagnation.

Positive impact of micro and small businesses on economic growth was also found in developing economies. Nasr (2010) comments that, in Egypt, a micro and small enterprise (MSE) sector is one potential source of the economic growth. The MSEs have made an important contribution to GDP growth, job creation and export earnings. The MSEs accounted for almost all (over 99%) of Egyptian enterprises. They made up the vast majority of employment (85%) in the non-agricultural private sector and almost two-fifths (40%) of total employment.

On the other hand, micro and small business can impact negatively on economic growth. For example, Audretsch et al. (2000) argue that economic growth is stagnated because small businesses seize rare resources from larger businesses. Dana (1988) also suggests

that the encouragement programs of small business, which have been successfully implemented in one country, are not essential to the success of businesses in another country. This is because of cultural and government policy differences in different countries.

In Thailand, CBEs are a new economic force. From 1994 to 2004, the cottage food processing industry grew, on average, at 10 per cent per year (Nonthakhot 2009) and in the six years from 2003 to 2008, the value of the OTOP products increased 1.34 times in current price terms (Table 4.4).

4.5.2 CBEs and employment generation/job creation

Numerous studies have highlighted the negative impacts of micro and small businesses on employment generation and economic growth (for example: Rosenzweig (1988), Brown et al.(1990), Liedholm and Mead (1987), Dana (1988)). The main issue is that micro and small businesses tend to provide employees with lower quality jobs (in terms of employment stability, wage rate and non-wage benefits) compared to large businesses (Rosenzweig 1988; Brown et al. 1990). In addition, as argued by Harvie (2003) and Liedholm and Mead (1995) most microenterprises have limited capacity to expand their workforces.

Dana (1988) noted that micro and small businesses have not always had a positive effect on the economic prosperity of a nation. In reference to Peru, Dana observed that this country suffered from an inadequate number of large businesses and associated economies of scale. While small business could create numerous jobs, as in developed countries such as the USA, in Peru there was limited opportunity for workers or entrepreneurs. Furthermore, the Peruvian Government faced a main revenue collection problem because most urban people were self-employed and the owner/managers of many small firms in Peru avoided declaring all taxable revenues. Therefore, applying small business programs needs strategies that are tailored to the specific culture and government in each country.

Nonetheless, many studies have identified that micro and small businesses can have positive impacts on employment generation. For example, Gebremariam et al. (2004) note

that small firms are an important component and driving force in job creation and economic development promotion.

O'Neill (1998) suggests that community enterprises can contribute to employment creation in many ways. Firstly, community enterprises can be the centre of an integrated range of strategies developed in regional areas to promote employment. Secondly, the community enterprises can provide new services and products where the demand is not yet adequate. They can also develop innovative products and services in new niche areas. Thirdly, community enterprises can be formed in any industry sector where there is sufficient need for goods and services to sustain the enterprises. Fourthly, community enterprises can explore new enterprise arrangements that focus on democratic control of enterprises and integration of training and employment to improve the quality of created jobs. Finally, some community enterprises can provide a pathway to employment by combining training and work experience for unemployed people.

4.5.3 CBEs and rural development

Private small businesses and microenterprises generate employment and create new chances to encourage community-building and social activities in the rural communities by their capital investments (Gebremariam et al. 2004).

In Thailand, after the economic crisis in 1997, the rural sector was reconsidered as a sector to absorb urban unemployed labour. Production of the CBEs was targeted to generate employment in rural communities (Sriboonchitta and Wiboonpongse 2006). In addition to the absorption of urban unemployed labour, participation in the housewives groups also prevented out-migration from the rural areas to the big cities (Pongsapich 1991). Nonthakhot (2009) supports the view that CBEs provided employment opportunities to unemployed labour. From 1994 to 2004, the employment rate in home-based jobs in the rural areas increased by 90 per cent.

Jantradech (2003) also comments that community businesses generate additional income and employment in rural areas of Thailand. They also provide access to internal and external resources for local communities. Moreover, due to community business development, the quality of life of the communities has been substantially improved and the capabilities of the communities have also been strengthened.

Phadungkiati and Pongquan (2009) examines the effect of two CBEs on rural people in Chainat province in the Central region of Thailand. Their study revealed positive economic effects in terms of employment creation and income generation. The CBEs also contributed social and institutional benefits to members in terms of knowledge and skills, and participation in training programs. The committee members and the members who participated in the production and marketing activities were the main beneficiaries of the CBEs.

In North Thailand, the CBE is the main community economic development mechanism that absorbs the labour force, and uses resources and agriculture products. Moreover, the development of the community enterprise sector gives rise to competition among the enterprises within the grass-root economy and the private sector (Sriboonchitta and Wiboonpongse 2006). Sriboonchitta et al. (2004) also note that handicraft production is a source of supplementary income for many farming households in northern Thailand. It is also a major employment creating industry for rural communities.

4.5.4 CBEs and poverty alleviation

Harvie (2003) analyses the roles of micro-enterprises in regional economic recovery and poverty elimination in East Asia by using a documentary research approach. The results of his study provide evidence that properly designed microfinance programs have a positive impact on poverty. A poverty-oriented microfinance program is the most effective way of targeting the poor, in particular women, who self-select to participate in lending activity.

In the Asian and Pacific region, Huang (2008) found that the promotion of women's entrepreneurship in the area of green cooperatives is an important approach to reduce rural poverty and enhance sustainable rural development. Entrepreneurship enables women to play an important role in income generation, employment opportunities and improvement of quality of life for sustainable development.

In Kenya, a micro and small enterprise (MSE) sector is an essential part of the economy (Daniels 1999). One-third of workers are employed in the MSEs. Moreover, the sector contributes 13 per cent to the GDP. In several cases where the MSE is the only source of income, the majority (72%) of the MSEs in urban areas and all of the MSEs in rural areas earn returns below the poverty line. Nevertheless, the MSEs are the only likely way for

the poor to escape poverty and, some MSEs earn returns above the poverty line and above the minimum wage, creating a good source of income.

In the case of micro-credit programs, Zaman (1999) suggests that micro-credit programs can affect poverty and empowerment, especially increasing women's ownership of assets and knowledge of social issues. Vulnerability can also be reduced through the micro-credit programs by strengthening crisis-coping mechanisms, building assets and empowering women.

However, Kondo et al. (2008) in their study of poverty in the Philippines found that the benefits provided by the microfinance program to the poor, who were the main target of the program, are limited: new clients were not the poor defined by official definition. But, there was a slightly significant positive impact of loan availability on per capita income, per capita total expenditure and per capita food expenditure. The impact, however, is negative on the poorer households and positive on the richest households. Kondo et al. (2008) also point out that the microfinance program does not significantly affect assets and human capital investments.

In Thailand, promoting community-based enterprises has been introduced as a significant grass-roots economic development strategy to encourage the long-term development of the community. Wasi (2002) argues that a community-based enterprise can help a community escape from poverty. Watanasiritham (2002) also suggests that strong community institutions can help to prevent poverty problems.

Empirical studies of the CBE's roles in household poverty reduction in northern Thailand include those by Harter et al. (1999) and Jantradech (2003).

Harter et al. (1999) use a descriptive research approach to explore the roles of enterprises on material deprivation aspects of poverty. Their study examines the roles of housewives groups in Ban Thung Marn Nua village located in Lampang Province, in northern Thailand. The study explores the evolution of housewives' groups in the selected village and the roles of supporting institutions. Case study and observational research methodologies were applied. The study focused on absolute poverty. Household income and expenditures of the housewives groups' leaders and members were calculated and compared to the official poverty line. Results showed that, although the members felt that

their supplemental income from the groups could help improve their standard of living, they fell far short of meeting their families' needs; the members and their families were living below the poverty line. On average, the members supported 37 per cent of their household's income, whereas the group leaders supported 45 per cent of their household's income. The study did not investigate the extent of poverty of the selected households because they did not gather the in-depth information of access to basic needs.

Jantradech (2003) mainly uses qualitative data, specifically perception of the respondents and key informants, and applied descriptive statistical analysis to examine the roles of the enterprises on poverty reduction. Their study examined the roles of community businesses in poverty alleviation in rural households in northern Thailand. The study was conducted in two community business groups located in two villages. The field survey of 100 heads of household (both the groups' members and non-members) provided information on households and community businesses profiles, and especially their perception on the roles of community businesses in poverty alleviation.

In addition, key informants, such as the heads of the village, heads and committees of the community businesses, village committees and local government officers were interviewed about their perception on the roles of community businesses in poverty alleviation. A multidimensional concept of poverty was applied in this study. The data was analysed using descriptive statistical analysis. Results of the study revealed that community businesses positively affect poverty reduction in the selected communities. The businesses bring about supplementary income, employment generation, access to socioeconomic resources both inside and outside the communities, and improvement of the villagers' quality of life (Jantradech 2003).

4.5.5 CBEs and women's empowerment

Hashemi et al. (1996) examined the impacts of Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC) on women's empowerment in Bangladesh. The results show that participation in these microcredit programs does empower women. The programs increased participating women's mobility, engagement in major household decisions and purchasing decisions. Moreover, participation in the programs also affects

their ownership of productive assets, their legal and political awareness and participation in public campaigns and protests.

Harvie (2003: 10) also viewed Grameen Bank and BRAC in Bangladesh as excellent examples of microenterprises' contribution to women's empowerment. Participation in the microfinance programs and the development of microenterprises was positively correlated with the level of women's empowerment in terms of physical mobility, economic security, and freedom from domination and violence within families.

Through microfinance lending, women were able to diversify their incomes and protect their households from the risk of economic, natural disasters and land ill-health crisis (Garikipati 2006). However, the micro-credit needed to be supported by insurance against crises. When the demand for credit in a household was high, the availability of credit did not affect women's empowerment. A solution for this was to make the availability of credit conditional on asset-transfer to the woman, especially the land asset for agricultural production. Garikipati (2006) also revealed that women earnt the greatest advantage where credit was used for a self-managed enterprise, especially in cases where individual credit was linked into group projects. Consequently, the loans had to be advanced to those programs focused on promoting the group's economic capabilities.

In Thailand, the Thai Government's participation in the first United Nations conference on women in Mexico and the establishment of the first housewives groups in 1975 (as discussed above in Section 4.3) represented the increasing importance of social development issues, in particular women's empowerment. The change from home consumption to a commercial focus for the housewives groups in the 1990s has noticeably changed their economic and social impacts. Earnings from the housewives group's sales of goods became an important source of income for farmer households. This was because the earnings allowed for more secure, stable and higher household income. Moreover, business operations of the housewives groups introduced wealth-making opportunities for themselves. In addition, the housewives groups also contributed to the acceleration of market reforms in the immediate community economy.

Pongsapich (1991) supported the finding that the cottage food industry positively affected women in rural areas of Thailand in the form of income generation and livelihoods improvement.

The Bor Kul savings group is a good example of the role of CBEs on gender empowerment (Prayukvong 2005). This group is located in Songkla province, in the South of Thailand. The group began its business with saving activity and then expanded to set up a food processing activity (cottage foods made from palm sugar). In conducting a cottage foods business, the women experienced new challenges, such as contacting suppliers and buyers to develop market channels. The group not only shared profits among the members but also gave each other support to solve problems.

From the above discussion, it is clear that CBEs contributed to socioeconomic development in many aspects: economic growth, employment generation, rural development, poverty alleviation, and women's empowerment. But the questions on the real impact of CBE at the household level require further investigation.

4.6 Roles of key government agencies in CBE development

In relation to Thailand, government agencies have been particularly prominent in the development of CBEs and in the provision of publicly available reports.

During the late 1980's, the NSEDP had been broadened towards diversification of economic activities to include non-agricultural activities such as handicraft and food processing businesses (Sriboonchitta and Wiboonpongse 2006). The Ministry of Industry, Ministry of Agriculture and Agricultural Cooperatives and Ministry of Interior Affairs were involved in formulating the CBEs. However, the CBEs were not strongly encouraged during the late 1980's (Puntasen and Zuzuki 2003; NESDB 2005; Sriboonchitta and Wiboonpongse 2006). After the economic crisis in Thailand in 1997, growth in the number of rural enterprises (CBEs and individual entrepreneurs) began to accelerate.

During the economic crisis of 1997-1998, a large number of Thai people became unemployed. In 2002, approximately 1.42 million people were unemployed (NESDB 2002). Rural areas became the social safety net, able to reabsorb labourers from urban areas, thus reducing the seriousness of the impacts of the crisis.

To deal with the economic downturn, the Thai government implemented rural development strategies in the latter period of the Eighth NESDP (1997-2001). It underscored the importance of enhancing the local people's capability to engage in more productive activities to increase their incomes.

The Eighth Plan called for partnership and cooperation between the Government sector, private sector, NGOs and local communities to achieve the commitment to promote rural enterprises (Arghiros and Moller 2000). According to NESDB (1997), the Government was encouraged to urge NGOs to facilitate coordination between communities, local and centre government institutions and private organisations.

Contributions of the government institutions, NGOs, private sector and local communities are presented through various rural development programs and policies:

4.6.1 Industrial Village Project

The Industrial Village Project was operated by the Cottage Industries Division under the Department of Industrial Promotion (DIP), the Ministry of Industry. The project aimed to increase rural income, open up job opportunities and reduce rural-urban migration. An incubator approach was applied in the project (Arghiros and Moller 2000).

The Industrial Village Project facilitated three-year support for producers in the form of production technical support, marketing support and funding support. The industrial village groups were established under the project. Some of these groups were members of existing groups formed by the CDD and the Agriculture and Cooperatives Department (Arghiros and Moller 2000).

4.6.2 Village-Based Subcontracting Project

The Village-Based Subcontracting Project was implemented during 1996 to 2000. It aimed to enable farmers to find jobs in their villages during the agricultural slack season. It is granted by the UNDP and implemented by the United Nations Industrial Development Organisation through the Ministry of Industry's Provincial Industrial Offices. The Provincial Industrial Office looked for provincial entrepreneurs who needed more workers to expand their production. At least ten subcontractors were set up in each province (Arghiros and Moller 2000).

Similar to the Industrial Village Project, the production was expected to be operated by village-level groups. The groups subcontracted to produce a component in a manufacturing process. Either the Provincial Industrial Offices or NGOs acted as the intermediary to coordinate between entrepreneurs and subcontractors when problems arose (Ash 1996). The project was successful in terms of rural employment generation. As a result, the Village-Based Subcontracting Model was adopted and implemented by the MOAC and the CDD in order to restore rural economy (Arghiros and Moller 2000).

4.6.3 Rural Industrial Development Support Program

During the Eighth NESDP (1997-2001), the DIP under the Ministry of Industry had implemented the Rural Industrial Development Support Program (Pasaribu 2007). This program was aimed at improving community welfare in rural areas. Its objectives were (1) to encourage community-based rural industries and create local markets and (2) to encourage the private sector to move their businesses and production units to rural areas. In order to achieve these objectives, a three-way coordination scheme was applied (Figure 4.6). The tasks and responsibility of three coordinators are demonstrated in Table 4.5.

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Table 4.5: Task and responsibility of the organisations in three-way coordination scheme

Organisation	Task and responsibility
Government institutions	• Introducing and socialising the program • Encourage and mediate meeting between private sectors and community groups who have potential to relocate their respective productions (by government institutions or NGOs) • Provide training facilities for local community groups and at the same time reduce production costs (coordination with private sectors) • Prepare the availability of low interest financial credit to support the investment of local community industries • Control and measure the achievement of the program
Private enterprises/SMEs	• Initiate coordination with government institutions about the transfer of company's management and production to local community groups • Provide support in terms of raw material, technical production, other machinery, equipment and tools • Invest a part of the capital in community industries at the initial stage of its business activities • Allocate production activity to production units in rural areas • Help community groups in distribution and marketing channels of their products
Groups of community/NGOs	• Participate in industrial production of community groups • Make a firm commitment to support investment and management of community-based industries

(Source: Pasaribu, 2007: 68)

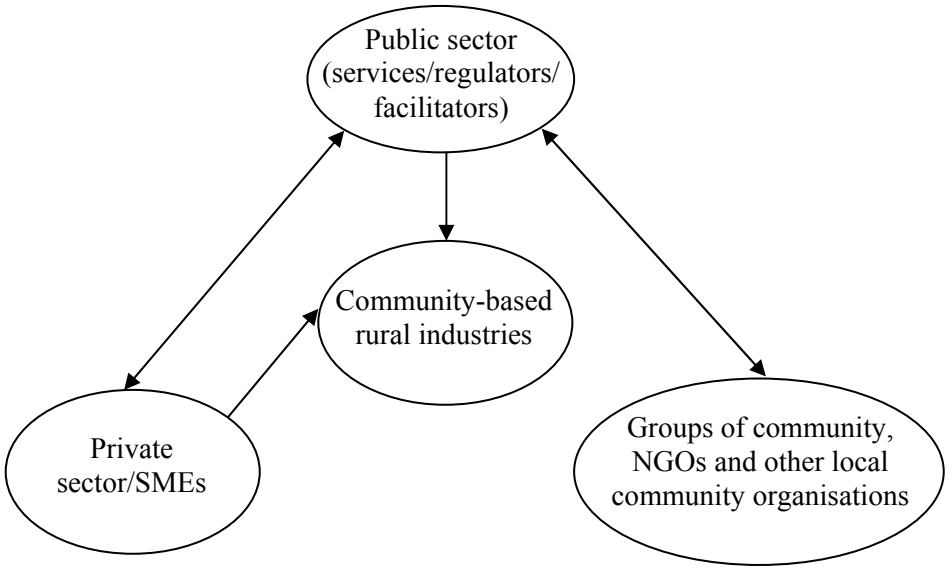

Figure 4.6: Three-way coordination in rural industry development
(Source: Pasaribu, 2007: 67)

4.6.4 OTOP Policy

The OTOP policy, which has been implemented by the Thai government since 2001, has been one of the three major schemes to enhance the grass-roots economy. The Government has carried out this project together with the Village Fund and the Temporary Suspension of Farm Debts Payment projects (Leopairot 2002). The OTOP was conceptualised in a similar way and philosophy as the One Village One Product (OVOP).

The OVOP is a strategic regional development movement which was initiated in 1979 by Dr. Morihiko Hiramatsu, the former Governor of Oita Prefecture of Japan (Kurokawa et al. 2010; Routray 2007). The OVOP process itself possesses typical endogenous development (Adachi 2003) that is based upon three basic philosophies: 1) local yet global; 2) self-reliance and creativity; 3) human resource development. The actual driving force for regional development is ‘human beings’ (Hiramatsu 2006; Adachi 2003; Hisao et al. 2005; Routray 2007). The OVOP has been extremely successful. It was the initial model for similar programs that countries, including Thailand, adopted for regional development (Hiramatsu 2006; Routray 2007).

The OTOP project aims to boost the grass-roots economy through the expansion of production utilising local wisdom and resources, and with community members' participation to serve domestic and, subsequently, overseas market (Kurokawa et al. 2010; Sriboonchitta and Wiboonpongse 2006).

Despite the fact that the OTOP policy is based upon the same basic philosophies as OVOP, the role played by the central government is notably different between the Thai and Japanese models. The Thai model is top-down (exogenous) development, while the Japanese model is bottom-up (endogenous) development (Kurokawa et al. 2010; Adachi 2003).

The evolution of the OTOP project in Thailand is presented in Table 4.6.

Table 4.6: Evolution of the OTOP Thailand

Year	Situation
2001	The OTOP project was initiated by the former Prime Minister Dr Thaksin Shinawatra.
2002	The OTOP project was fully implemented, and focused on planning and organising.
2003	The OTOP product champion (OPC) and the OTOP city were established. Then, the OTOP contest started.
2004	OTOP focused on developing the OTOP products by using the local standard before they were selected to attend a contest. In addition, education and training were provided for the local producers in a number of courses, including 'Smart OTOP'.
2005	The highlight of this year was marketing activities. There were numerous sale promotions, exhibitions and fairs. The largest fair was 'OTOP to the World', which was an international exhibition.
2006	Seeking the best OTOP products in every category was the main activity in this year. The provincial star products were selected as the best OTOP products.
2007	The meaning of OTOP was disseminated to communities and local producers which made local products. Products could vary, and one item may be made by different producers in many villages. Local items were made by individual producers, community producers and SME producers.
2008	The OTOP project focused on entrepreneur promotion.
2009	The OTOP tourism village was the highlight activity of this year.
2010	The OTOP policy focused on 'Sufficiency Economy' (using more locally available resources and knowledge) in order to create sustainability of CBEs and SMEs.

(Source: Ministry of Industry, 2004; Nonthakhot, 2009; Natsuda et al., 2011)

Contributions of government institutions to the OTOP project

Thailand's government institutions have supported the movement of the OTOP project in terms of support for establishment, training, funding and marketing. Routray (2007) discusses the four contributions by government institutions:

(1) Establishment support

The Agricultural Extension Office (AEO) under the supervision of the MOAC and the CDO under the Ministry of Interior (MOI) have cooperated in a process of group formulation. They supported the formation of occupation groups by motivating and advising the groups to develop a proposal and register at the district administration. In addition, they provided contact with other government offices for non-monetary support services.

The AEO also provided funds, production equipment, training programs and links with other government offices.

(2) Knowledge and training support

In addition to the AEO, there were many institutions providing training:

- The Non-formal Education Office facilitated a range of training programs covering production, marketing, accounting, financial management, organisational development and field visits.
- The Federation of Thai Industries (FTI) and the Provincial Industrial Office (PIO), under the Ministry of Industry, provided training on product and design development.
- The District Health Office, under the Ministry of Public Health, facilitated knowledge about the sanitary requirements of production processes and products.
- The Provincial Trade and Commerce Office, under the Ministry of Commerce, provided marketing promotion training.
- The Bank of Agriculture and Agriculture Cooperatives (BAAC) and the Cooperative Auditing Department provided training in accountancy.

(3) Funding support

Besides the AEO that facilitated limited funds, the CDO provided grants through OTOP product competitions organised annually at provincial and national levels. In addition, the Community Organisations Development Institute provided loans with a low-interest rate (one per cent per year). The TAO also provided no interest loans.

In response to the increasing demand for financial support and the problems faced by the OTOP producers, the Small and Medium Enterprise Development Bank of Thailand (SME Bank) has contributed 5,000 million baht for short- and long-term lending since 2005.

(4) Marketing support

OTOP exhibitions and fairs are organised on a regular basis, locally, nationally and internationally both by the CDD and private sectors to promote the OTOP products. The OTOP products have been promoted and advertised through exhibitions, fairs, newspapers, radio, television programs and websites.

The Government has cooperated with foreign donors, such as The Japan External Trade Organisation (JETRO) and the Japan Bank for International Cooperation (JBIC), on facilitating marketing support to the OTOP producers (Yamazaki 2010).

The JETRO sent experts and Japanese buyers to the villages in order to provide assistance in production line standardisation and product design improvement. The JETRO also arranged a seminar in Bangkok to provide knowledge about Japanese market trends and marketing for OTOP. The JETRO also assisted in the promotion of OTOP products in the international market by conducting exhibitions, such as 'One Village One Product in Thailand Sample Exhibition in Tokyo' and 'Bangkok International Gift & Houseware 2003' (Yamazaki 2010).

In addition to JETRO, JBIC supported the OTOP producers by providing a loan for establishing community centres in rural areas across the country, in 2002. The centre has been used as a place for exhibiting and selling OTOP products to buyers and tourists.

4.6.5 Small and Micro Community Enterprise Extension Act B.E. 2548

In 2005, the *Small and Micro Community Enterprise (SMCE) Extension Act* was promulgated. The Act aims to solve two significant problems faced by community enterprises: 1) lack of legal status, and 2) provision of supports does not correspond to local needs (Charnnarongkul 2009).

The Objectives of the Act are: 1) to promote knowledge and local wisdom, income generation and mutual assistance; 2) to develop management capacity; 3) to develop operational procedures of community enterprise which can enhance the community's self-reliance and strengthen the community's economy. By enabling community enterprises to register as legal entities, the Act allows enterprises to achieve greater recognition and access support from the Government (Secretariat Office of Community Enterprise Promotion Board 2009).

Ruengdet and Wongsurawat (2010) noted that an official SMCE under the 2005 Act is required to achieve the following criteria: at least seven families in the community are to participate in the enterprise; the main objective of the enterprise is to improve overall community living standards and self-dependency; and the enterprise must have good moral standards.

The DOAE under the MOAC is the main government organisation to support and promote community enterprises. The department is responsible for registering the SMCEs, and providing and coordinating technical and financial support for the enterprises. In addition to the DOAE, the Agricultural Land Reform Office under the MOAC and a range of vocational and agricultural colleges under the Ministry of Education also support and promote the enterprises (Ruengdet and Wongsurawat 2010).

Since 2005, the number of registered SMCEs increased by 7.7 per cent to 63,760 in 2009. The number of SMCE members was one million (DOAE 2009).

4.6.6 Application of Sufficiency Economy Philosophy in CBEs

In the Ninth and Tenth NESDP (2002-2006 and 2007-2011), the emphasis for Thailand was to encourage people to learn and recognise the 'Sufficiency Economy Philosophy'. The Sufficiency Economy Philosophy was initiated by His Majesty King Bhumibol

Adulyadej in 1974. It focuses on 'the middle path approach' (the Buddhism doctrine) as a guiding principle for people at all levels in pursuing their livelihood (Kantabutra 2007).

The Sufficiency Economy Philosophy framework comprises three components: moderation, reasonableness and the requirement for a self-immunity system, with two underlying conditions: knowledge and morality which are necessary for sufficiency achievement (Kantabutra 2007).

One of the Government's policies in the Tenth NESDP is 'the strengthening of grass root economic policy', which espouses the Sufficiency Economy Philosophy. This policy aims to build the capacity of the villagers to be self-reliant and to create sustainable communities. In the OTOP development policy, the Government has addressed 'the Establishment of Knowledge-Based Community Network Project', which aims to develop the OTOP producers to be the knowledge-based OTOP producers (Bureau of Community Enterprise Promotion 2006).

A strategy for creating a vigorous community and society to strengthen grass root economics is introduced in the Tenth NESDP. In this strategy, a range of measures aimed at developing the CBEs is implemented.

The first measure is: supporting community collective activities, such as cooperatives and occupation groups. Production and marketing networks are also targeted in order to create product diversity, food security and commodity exchange between communities.

The second measure is: promoting the investment transparency between community organisation networks and local government offices (or state enterprises). In this measure, links between investments in community, medium and large enterprises are also considered in order to create business collaborative networks throughout the supply chain.

The third measure is: supporting the application of local wisdom and local cultures in order to create new designs and increase the value-add of products, especially in products which have a high-marketing chance.

The final measure is: developing the community-based enterprise incubation system for the CBEs. This measure also aims to support new entrepreneurs through knowledge

development in business management, marketing, product development, brand creation, property right, and production skills (Bureau of Community Enterprise Promotion 2006).

The Sufficiency Economy Philosophy has been applied in all sectors, including in community-based enterprises. *Sa* Paper Product business is a good example of a CBE conducting its business based on the Sufficiency Economy Philosophy. *Sa* paper is made from the fibre of mulberry trees. The business has adopted the philosophy by inventing its own production technologies based on local wisdom and knowledge. The balance between the production capacity and its ability to manage production processes has been considered in its production plan. In addition, the business has focused on low-risk management and aimed at long-term gain rather than short-term gain (Kantanbutra 2007; Pruetipibultham 2010).

4.7 Concluding comments

This chapter has focused on the definitions, evolution of CBEs in Thailand and the roles of key government agencies in CBE development. The current situation and the roles of CBEs in socioeconomic development have also been addressed. The contextual information in this chapter directly influenced the selection of research sites and CBE samples (see Chapter 6).

The range of terms and definitions used to describe community-based enterprises has three common features: the CBEs belong to the community; the CBEs aim to respond to the community's needs; and the CBEs are operated by the community.

Considering the current situation of the CBEs in terms of the number of CBEs and CBE members, and the diversity and quality of products, the North region is an important source of CBEs in Thailand, with the Chiang Mai and Chiang Rai provinces being the main sources

Thai government agencies have been a main mechanism in the development of CBEs in Thailand and provide publicly available reports. Since the late 1980's, non-agricultural activities such as handicrafts and food processing have been promoted, especially in the rural areas.

Since the economic crisis in 1997, CBEs have become an important tool to overcome the economic downturn in Thailand. The Thai government implemented strategies to encourage CBEs, such as the rural industrial development support program, the OTOP policy and the *Small and Micro Community Enterprises Extension Act*.

In the current NESDP (the Tenth Plan), the Sufficiency Economy Philosophy has been strongly implemented in all economic sectors, including in the community-based enterprise sector. This implementation aims to build the capacity of the villagers to be self-reliant and to create sustainable communities.

The roles of the CBEs in socioeconomic development, in particular roles in poverty reduction and women's empowerment were reviewed in this chapter. Most studies have focused on the impacts of CBEs at the macro level (national and regional levels). Previous studies indicate that CBEs can have either positive or negative impacts on socioeconomic development.

Regarding the roles of CBEs in poverty reduction in Thailand, previous studies showed the positive impact of the CBEs in terms of providing supplementary income, employment generation, access to resources and quality of life. However, the previous studies used qualitative data and applied descriptive statistical analysis to examine the roles of the CBEs on household poverty. Without in-depth information of the selected households, the studies did not investigate the extent of poverty in the households. It is clear that an extensive study of the roles of community enterprises on poverty reduction at the household level is needed.

The intention of this research is to apply econometric techniques to analyse primary data collected at the household level based on multidimensional poverty. This research formulates a unique poverty index for the selected sites of study for determining the poverty status of the households (see Chapter 7). Actual impacts of community enterprises on household poverty are also assessed (see Chapter 8). The impacts of the CBEs on women's empowerment, in particular in terms of control over household assets and control over major finances, are also explored in Chapter 8. The theoretical and conceptual frameworks of the study are presented in the following chapter.

Chapter 5 Concepts and methods

5.1 Introduction

Chapter 4 discussed the concept of CBEs and presented a review of both qualitative and basic quantitative studies investigating the roles of CBEs in poverty reduction at the household level. It was clear from this review that quantitative evidence about the impact of CBEs on household poverty is still lacking. This research aims to help address this gap through the application of econometric methods to examine different impact indicators of CBEs.

The purpose of this chapter is to overview relevant concepts and methods pertaining to the impact of CBEs on household poverty. The overview establishes the foundations for the framework of this study. The chapter begins with a brief discussion of the concept of community, with particular reference to developing economies. It then considers the methodology provided by Jantradech (2003) in one of the few studies that examine CBEs and their role in poverty reduction in northern Thailand.

This is followed by an explanation of the rationale for employing a multidimensional measure of poverty. Detailed information regarding impact assessment is then provided. Methodological considerations are presented in Section 5.6. The framework for empirical analysis and its justifications are provided in Section 5.7.

5.2 Concepts of community and community economy

It is clear from the extensive, multi-disciplinary literature regarding 'communities', that the term itself is difficult to define and sometimes ambiguous. Common phrases used to describe community include: a sense of common identity; a set of relationships, associations or networks; and a particular way of life (Hillery 1995; Taylor et al. 2000; García et al. 1999).

More specifically, where people are connected to each other by a common characteristic other than place, such as religious belief, occupation and ethnic origin, the term *'interest community'* (elective community) is used (Smith 2001). In relation to a group of people who are linked together by a common geographical area, Smith also uses the term *'place community'* (territorial community).

MacQueen et al. (2001: 1936) define a community as

> "a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings" (cf. Molinari et al. 1998).

For the purpose of this research their definition is augmented as follows:

'Community' is defined as a group of people who live together in a common geographical location. These people are linked together by shared characteristics, such as collective culture, tradition, religious belief and ethnicity, and are engaged in joint action to respond to social and economic needs, and solve problems in the geographical area.

In developing countries, rural community is considered as a place where there are socio-economic safety nets (Sriboonchitta and Wiboonpongse 2006). Safety nets are formal and informal measures that safeguard people (both residents and migrants) from the negative effects of poverty and other risks during times of social and economic crises (Foster 2005). For example, in Thailand, the rural community was able to re-absorb migrants returning from cities and reduce the seriousness of impacts from the economic crisis that occurred in 1997-1998 (Sriboonchitta and Wiboonpongse 2006). Ways of strengthening communities to achieve self-reliance has significant advantages for the country. Community economy, and in particular community based enterprises, are considered to be important mechanisms for community development.

The term *'economy'* is defined as all activities related to producing, distributing and consuming goods and services in a particular geographical area (Sriwichailamphan 2011). Therefore 'community economy' is defined by Sriwichailamphan (2011: 7) as:

> "economic activities covering production, service, distribution, and consumption of agricultural and industrial goods and services. The community members are allowed to contribute to solving basic economic problems of the community on the basis of availability and accessibility of capital in the community. Capital includes economic and social capitals. Therefore, community members make decisions by themselves on what they should produce, how to produce, and how to allocate benefits".[9]

[9] Translated by the author from Thai to English

Jantradech (2003), following Wasi's (1997) work on the 'self-reliance' economy, provides a framework for studying CBEs and poverty reduction in rural areas of northern Thailand. The conceptual framework is depicted in Figure 5.1.

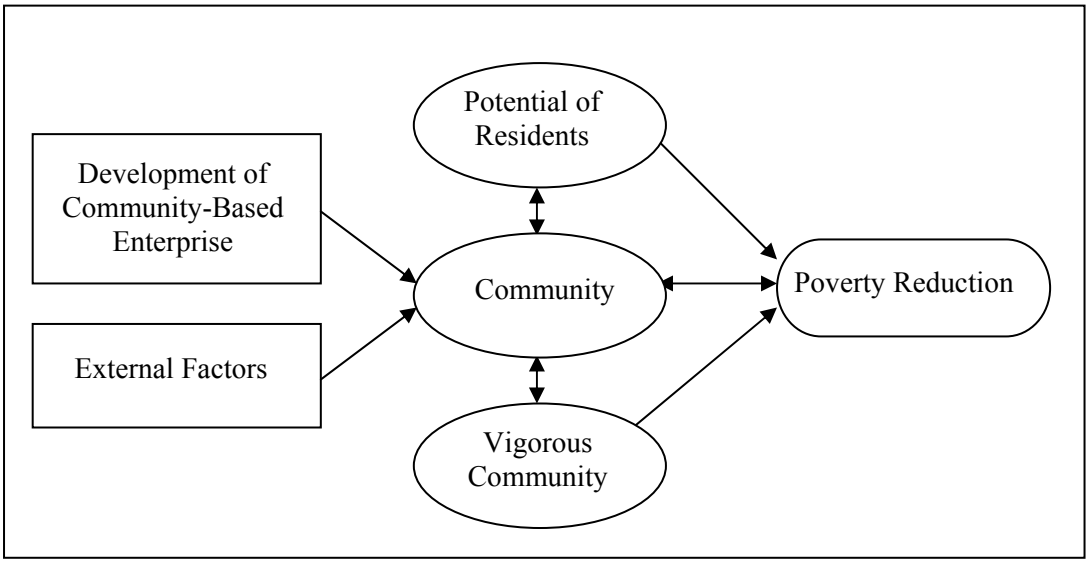

Figure 5.1: Community economy conceptual framework

(Source: Jantradech, 2003 adapted from Wasi, 1997)

According to Jantradech (2003), '*community economy*' is conceptualised as a development approach that aims to strengthen community institutions in order to encourage self-reliant community and communities capable of responding positively to changes in socioeconomic condition. Collective action in the form of community institutions encourages local people to learn about management and help each other to solve problems.

The development of community-based enterprises is one mechanism for capacity building, empowerment and strengthening the community (Jantradech 2003). Strong communities need to be self-reliant and able to solve social, economic and environmental problems effectively, as well as nurture local wisdom (Wasi 1997). Strengthening the community through the process of community-based enterprise development is considered to be able to enhance the community's capacity in overcome socioeconomic and environmental problems. Therefore, the community-based enterprise development process is viewed as leading to sustainable development of the community.

The concept of 'community-based enterprise (CBE)' is defined by Peredo and Chrisman (2004: 4) as:

> "a community acting corporately as both entrepreneur and enterprise that is operated in order to achieve the common good. Therefore, the CBE is the result of a process in which the community acts entrepreneurially, to create and operate a new enterprise embedded in its existing social structure. It is managed and administrated to achieve the social and economic goals of a community. Moreover, it is expected to provide sustainable individual and group benefits over the short and long term".

In their model of CBEs, Peredo and Chrisman (2004) describe both the entrepreneurial process of venture creation and the venture created through the process. In this model, a community acts as both entrepreneur and enterprise in pursuit of the common good. The community acts as an entrepreneur when its members collaboratively create or identify a market opportunity, and organise themselves in order to respond to it. The community also acts as an enterprise when its members work together to produce and exchange goods and/or services (Peredo and Chrisman 2004).

The CBEs are owned, managed and governed by the people rather than by a government or some small groups of individuals on behalf of the people. In general, the CBEs are intended to be more than temporary. At the same time, they may or may not be sustainable. CBE members normally carry out activities 'together', 'corporately' or 'collaboratively', but some members may be more active than others. Most or all members will make some contribution to developing and implementing the initiatives of CBEs (Peredo and Chrisman 2004).

In their work on community partnering for local development, Gibson and Hill (2010a) provide a summary of key CBE characteristics and also the relationship of CBEs to micro-enterprises (reproduced in Table 5.1).

As discussed in Chapter 4 'community-based enterprises' in northern Thailand can be seen as *the enterprise owned and dominated by a group of people, particularly women, in a community*. These CBEs are mainly engaged in food processing, handicraft production and agricultural production. An overall goal of the CBE is to improve a community by developing the community economy. It has specific socioeconomic and environmental objectives based on local needs. Therefore, there is a wide range of CBE aims, such as

increasing the income of people in the local community, creating self-supporting jobs for people in the local community, and being a centre of local development. To enable its outcomes, the enterprise's activities are normally associated with business activities, savings and employment creation projects. *The CBE contributes benefits to its members and people in the community, not to individuals*. The CBE needs to be profitable in order to expand its business and promote business sustainability.

Table 5.1: Key CBE characteristics

Community-based enterprises use business to improve the life of a community. They are different from private enterprise because their business activity is undertaken as a means of achieving community benefit, not private gain.

Key characteristics of community enterprises are that they aim to be

- **community owned**--assets belong to the community and cannot be sold off for private financial gain
- **community-led**--people who are local stakeholders in the area of benefit play a leading role in the enterprise
- **community controlled**--the local community is represented on the Board of Directors and makes sure that the enterprise is accountable to the community
- **able to generate profits or a surplus** that can be re-invested or distributed for community benefit
- **socially and environmentally responsible**--they tackle social and environmental problems in their area
- **financially self-sustaining**--or on the way to being so

Community-based enterprises are also called **social enterprises.**

The UK Department of Trade and Industry **definition of social enterprise** is:

"businesses with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners"

How are community-based enterprises different from micro-enterprise?

Micro-enterprises are often small-scale, vulnerable to competition, under-capitalised and unable to generate many jobs. They are usually owned by one proprietor or a single family. If they do make more than a basic living for the owner, the profits are privately accumulated.

Community-based enterprises have the potential to be larger scale, generate more jobs and return benefit to the community beyond those directly employed. They can be run as a worker-owned cooperative or as a member-based association.

In many parts of the majority world there is a role for community-based social enterprises to help strengthen local economies.

(Source: Gibson and Hill, 2010a)

According to Peredo and Chrisman (2004), there are necessary conditions for the emergence and establishment of CBE.

First, the emergence of CBEs is caused by the desire of communities to gain (or regain) control of their own local development. A CBE emerges as a result of the attempts of communities to solve their socio-economic problems which may include: economic crises and a lack of individual opportunity; the processes of social disintegration; social

alienation of a community or sub-group from mainstream society; environmental degradation; post-war reconstruction; and the volatility of large businesses. These problems are interconnected and are usually caused by conditions at the macro level, such as national economic crises and political violence. Many of these occur in a community simultaneously. In addition to these problems, a threat to the sustainability of a community's way of life is likely to be the cause of the emergence of a CBE.

A second condition for the emergence of CBEs is a result of collective experience (Helmsing 2002): previous and existing levels of entrepreneurial activity in the community may foster additional entrepreneurial activity and become channeled toward enterprise creation (Minniti and Bygrave 1999).

The third condition that is necessary for the emergence of CBEs is social capital. An important resource for CBEs is the social capital available in a community. CBEs are created on the basis of collectively owned cultural, social and ethnic endowments. These endowments create solidarity among community members and receptivity to collective action. The start-up and success of a CBE depends on the availability and accessibility of sufficient resources in the community to run the enterprise (Chrisman et al. 1998; Gartner 1985; Katz and Gartner 1988).

The final condition for the emergence of CBEs is community size. Larger communities are expected to have a greater advantage over small communities in the creation of CBEs. However, Peredo and Chrisman (2004) argue that the relationship of community size and the advantage is not necessarily linear. A very large community is likely to have extremely complex and fragmented social networks. Therefore, in theory, CBEs are considered likely to develop and maintain their business in moderately-size-communities rather than in very small or large communities.

As depicted in Figure 5.1 active and robust community participation is needed to ensure the viability of the CBE and to achieve poverty reduction. Also, the stock of a community's social resources affects the way a CBE is governed and managed. Moreover, grassroots participation is considered to play an important role in strengthening the sustainability of the enterprise in the long-run (Boyce 2002; World Bank 1996). Community participation also allows poor people in the local areas to

address a wide range of economic and social issues (Kapelus 2002; Lucas 2001) and enhances the residents' sense of ownership (Bendick and Egan 1995; Hadi 2001; Hodson 2002). Friedmann (1992) also argues that it is difficult to implement and maintain development projects successfully without the participation of the community.

In order to establish enterprise sustainability, Mikkelsen (1995) advocates a participatory approach, including all stakeholders. He suggests that the first step must be taken by, the people who know most about their own livelihood systems, and the knowledge and skills of these people have to be valued. It is, therefore important that the community members should be encouraged and given an opportunity to develop their skills and capacities (Nampila 2005).

Nampila (2005) believes that community participation is determined by two main factors. First is trust: community members will be unwilling to participate if they do not trust each other. Community participation can be enhanced by addressing this barrier to participation, while at the same time taking the necessary steps to promote the principles of the sustainable participation. In addition, there must be trust between community leaders and community members. If there is no mutual trust between the community members and the community leaders, the extent to which community members will participate in the development projects will be affected.

A second important factor underlying community participation is giving community members a voice and a choice in issues affecting their lives; however, not every citizen will be interested in the participating (Meyer et al. 2002). Nghikembua (1996) notes that different individuals in the same community may have different interests and may not necessarily want to participate in a development project set up for the purpose of collective socio-economic betterment.

Community participation is not only necessary for encouraging the sustainability of development projects, but is also a mechanism necessary for the process of *community development*. The mechanisms for community development include community participation, social learning, empowerment and sustainable endeavours (Theron 2005). These mechanisms are interlinked and should be operated side by side (Theron 2005; Meyer and Theron 2000).

Community development focuses on creating collective capacity by improving skills, confidence, and the knowledge of residents and the whole community. It also nurtures infrastructures in the community by supporting informal networks as well as formal organisations. Community development is a process using the active participation of a community to form economic conditions and social progress for a whole community (Gilchrist 2004). It is a dynamic process involving different social groups (Wilkinson 1991; Luloff and Bridger 2003). Each community has various groups of people, and people in each group have different interests and targets. Therefore, determining the common needs of each group and the linkages of these social groups should be considered in community development.

In the context of this study, 'community development' is defined as a dynamic process involving various socio-economic groups in the community, including community-based enterprises.

The cooperation of residents in the CBEs enables the community to create collective capacity by improving the skills, confidence and knowledge of community members and the community as a whole.

A CBE is used as a tool of economic stimulus and development in many small communities, particularly in the developing world (Peredo and Chrisman 2004; Helmsing 2001; Kerins and Jordan 2010; Murphy 2001). A CBE is a way of capitalising on natural resources, and cultural and social assets to improve the living conditions of the community. It also provides services and opportunities to the local people.

In summary, for the purpose of this study, we use the term 'community' to indicate a group of people in a common geographical location who share the same collective culture, tradition, religious belief and ethnicity, and are engaged in joint action to respond to social and economic needs, and solve problems in the geographical area in the pursuit of ensuring "community development".

5.3 Overview of multidimensional approaches to poverty

In Chapter 2, the various indicators of poverty were examined, drawing upon a number of authors from various disciplines. The present study defines 'poverty' as a state where the potential capacity of an individual or community is severely and negatively impacted

because of a lack of material and social needs. Material deprivation broadly refers to a lack of material goods, access to finance, and to a household's inability to live a decent life. Social deprivation includes lack of social participation, high vulnerability, lack of women's empowerment and subjective well-being.

There are a number of approaches to describing poverty. The multidimensional approaches of Sen (1980), Waglé (2002), Blank (2003), Alsop (2005), Rojas (2005), Zupi (2007), Alkire and Santos (2010a), and Alkire and Foster (2009) are outlined in the following paragraphs. The final approach, the Multidimensional Poverty Assessment Tool (MPAT), developed with funding from the UK Department for International Development, **forms the basis for the poverty measurement index developed in this thesis**.

The capability approach is attributed to the work of Amartya Sen and provides a framework to conceptualise and evaluate poverty, inequality and well-being (Robeyns 2006). The functionings and capabilities of a person are the core concepts in the capability approach. A person's functionings are his/her beings and doings, while his/her capabilities are the genuine opportunities or freedoms to realise these functionings.

The capability approach has been used in a number of areas including welfare economics, development studies, political philosophy, education, disability studies, public health and gender studies. The approach has also had political influence. Since 1990, the UNDP has annually published the Human Development Report, which is partially based on the capability approach. Moreover, at least 500 regional or country-level Human Development Reports discuss regional, national or local development strategies using the same theoretical tools and framework (Robeyns 2006).

Waglé (2002) developed ***a comprehensive multidimensional poverty framework***. The framework integrates 'economic well-being', 'capability', and 'social inclusion' as separate dimensions of poverty. Different elements of a three-dimensional space represent different degrees of poverty. Depending on how individuals are rated on these elements they may be classified as being 'economic well-being poor', 'capability poor', or 'social inclusion poor'. If they are classified in a combination of any two elements, they may be identified as 'very poor'. If they experience poverty on all three dimensions, then they are

likely to find it very difficult to escape from the poverty condition. Therefore, their status is indicated as 'object poor' (Waglé 2008).

Blank's (2003) poverty framework introduces six dimensions of causes of poverty in ***an economic perspective.*** The dimensions consist of issues related to economic underdevelopment, human capital, contradictions in capitalism, structural causes, characteristics of the poor and the incentive effect of welfare program (Jung and Smith 2007).

Alsop (2005) considered multidimensional poverty from ***an empowerment perspective***. According to Alsop, empowerment positively contributes to the achievement of poverty elimination. An empowered person (or group) has the capacity to effectively decide on translating their choices into desired actions and outcomes. The direct measurements of empowerment consist of (1) existence of choice; (2) use of choice and (3) achievement of choice (Alsop 2005).

Rojas' (2005) ***subjective well-being approach*** to poverty distinguishes between human poverty and economic poverty.

> According to Rojas (2005: 1), "a person is in human poverty if he or she has low life satisfaction or low happiness; a person is in economic poverty if he or she has low economic satisfaction".

Rojas (2005) argues that economic satisfaction is a relevant but not a critical determinant of life satisfaction or happiness. Nonetheless, he acknowledges that economic poverty is part of a broader poverty concept.

Zupi's (2007) approach to developing ***a deprivation poverty framework*** was inspired by the work of Amartya Sen (mentioned above). The framework links dynamic poverty to the concepts of common welfare and individual capabilities/qualifications. Rather than a static phenomenon, poverty is considered a dynamic process that captures a range of deprivation forms in well-being (Zupi 2007). According to this framework, 'deprivation' is defined as:

> "a lack of well-being, not only in terms of access to material goods but also in relation to emotional and psychological factors" (Zupi 2007: 31).

Deprivation dimensions include: destitution (chronic absence of resources), distress (the psychological condition of pain and insecurity), disadvantage (lack of command over resources, opportunities and access to distribution of power), disability (impairment as a medical phenomenon and social exclusion), and exaggerated dependency (the status of claimants in cases where individuals have no other choice than to rely on assistance) (Zupi 2007).

The Multidimensional Poverty Index (MPI) is a new international measure of poverty developed by the Oxford Poverty and Human Development Initiative (OPHI) for the 20th Anniversary edition of the UN Development Program's flagship Human Development Report (Alkire and Santos 2010a). An aggregate measure was constructed using a methodology proposed by Alkire and Foster (2009).

The MPI is the first international measure to reflect the intensity of poverty (or the number of deprivations that each household faces at the same time). The index consists of three dimensions; health, education and standard of living, which are measured using ten indicators (Figure 5.2). Most of the indicators are linked to the MDGs and based on participatory exercises with poor people, emerging international consensus and the availability of suitable data (Alkire and Santos 2010a). Each dimension is equally weighted. Each indicator within a dimension is also equally weighted. A person is multidimensionally poor if their weighted indicators sum to at least 30 per cent of the dimensions.

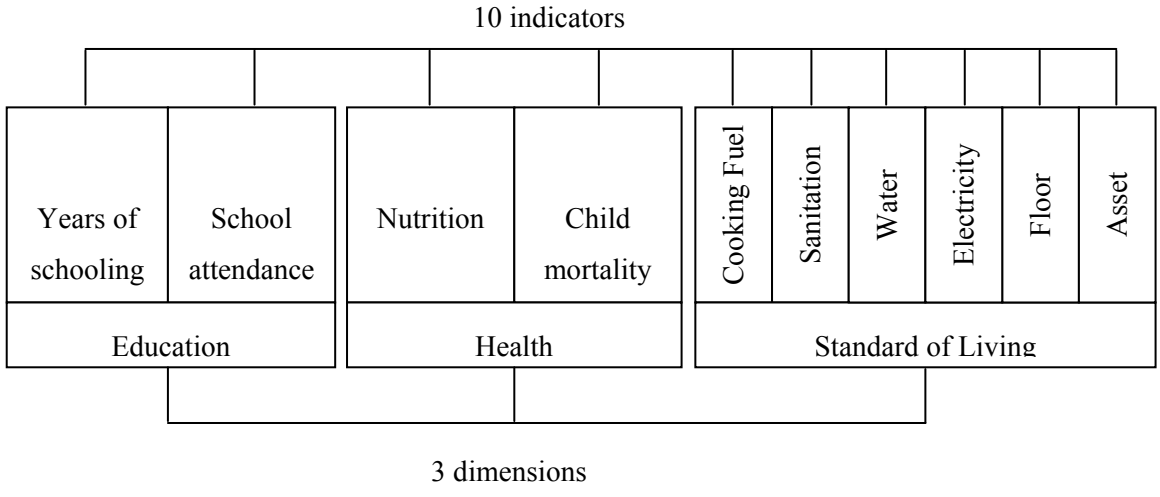

Figure 5.2: Diagram of dimensions and indicators of the MPI

(Source: Alkire and Santos, 2010a)

The Multidimensional Poverty Assessment Tool (MPAT) was developed by the MPA Project with funding from the International Fund for Agricultural Development (IFAD) through a grant from the 'Initiative for Mainstreaming Innovation'. Financial support was also provided by the UK's Department for International Development (DFID) (Cohen 2009).

The MPAT was a deliberate effort to move away from income-based assessment tools. A variety of MPAT's survey items seek to provide proxy measures of wealth and income-generating capacity at the household level, but do not attempt to measure rural incomes (Cohen 2009).

The MPAT does not take an ideological standpoint on what is the best means of reducing poverty or promoting development. The appropriate means will always depend on local geography, demography, history, cultural norms, socio-political and socioeconomic dimensions, as well as other factors.

The MPAT's framework provides a means of assessing fundamental dimensions of rural poverty that are fundamental to human well-being and to poverty reduction in the twenty-first century rural context (Figure 5.3).

The MPAT's primary purpose is to provide an assessment of the key dimensions relevant to human needs. The first six of MPAT's ten components are largely founded on Basic Needs Theory (Streeten and Burki 1978; Streeten et al. 1981; Maslow 1943). The fundamental needs consist of food and nutrition security; domestic water supply; health and healthcare; sanitation and hygiene; housing, clothing and energy; and education (Cohen 2009).

The latter four of MPAT's components go beyond immediate physical and cultural needs and address fundamental dimensions of rural livelihoods, life and well-being. Moreover, they are also the result of an exchange of ideas among practitioners, academics and other experts of the MPA Sounding Board. The components include farm assets, non-farm assets, exposure and resilience to shocks, gender and social equality (Figure 5.3).

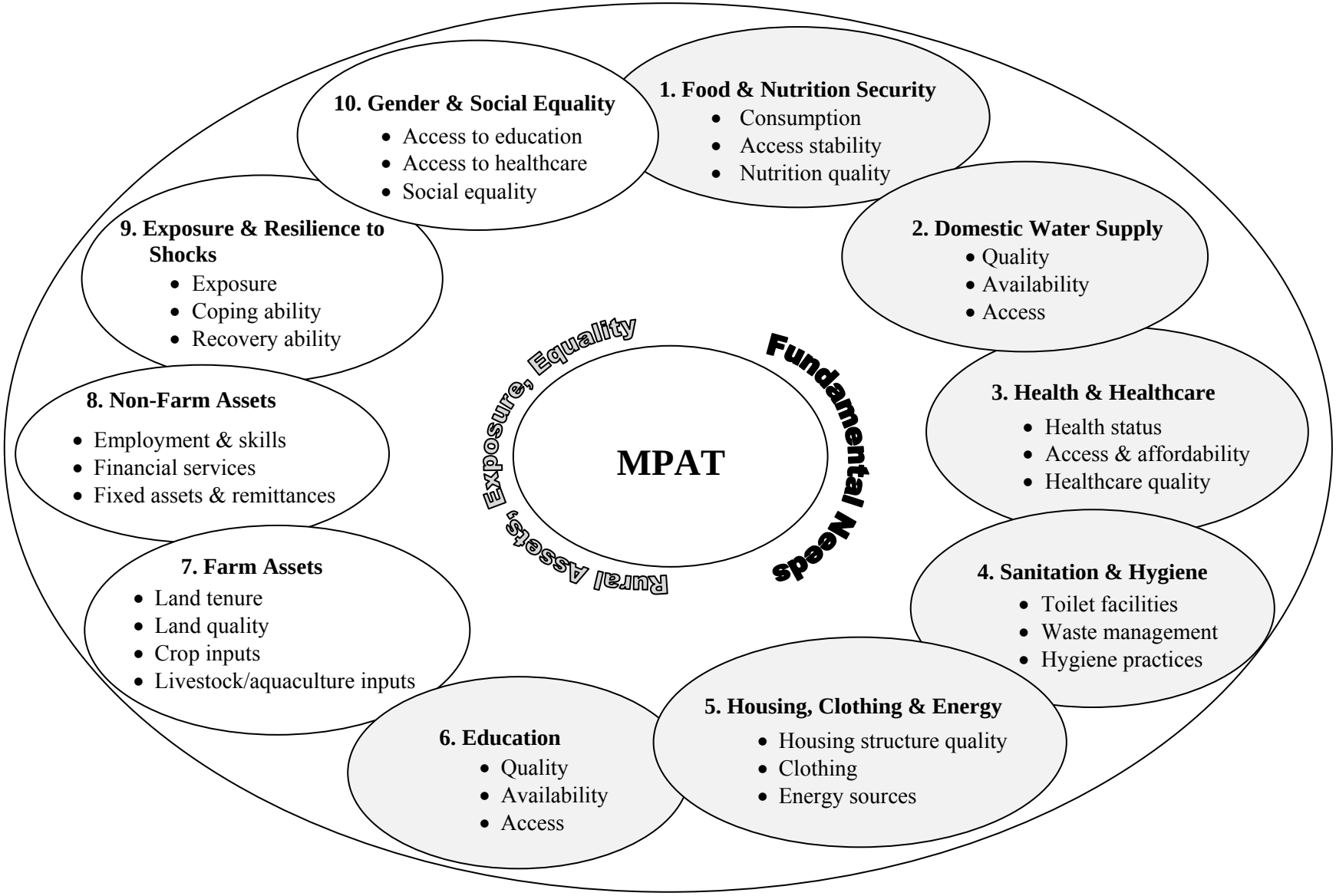

Figure 5.3: Organisational diagram of MPAT's components and subcomponent

(Source: Cohen, 2009)

5.3.1 An application of multidimensional measure of poverty in Thailand

The multidimensional poverty framework used in this study is adapted from the MPAT framework discussed above. Besides access to basic needs, household assets and vulnerability dimensions based on the MPAT framework, social participation, women's empowerment, subjective well-being, and economic well-being (in the forms of income and consumption expenses) dimensions are also considered in this framework.

In the framework used in this thesis, poverty is classified into material deprivation and social deprivation. Material deprivation comprises five key dimensions: access to basic needs, household assets, household production value, and the income and consumption expenditure dimensions that reflect economic well-being. Other key dimensions — founded on the concept of social deprivation — cover social participation, vulnerability, subjective well-being, and women's empowerment. The framework is illustrated in Figure 5.4.

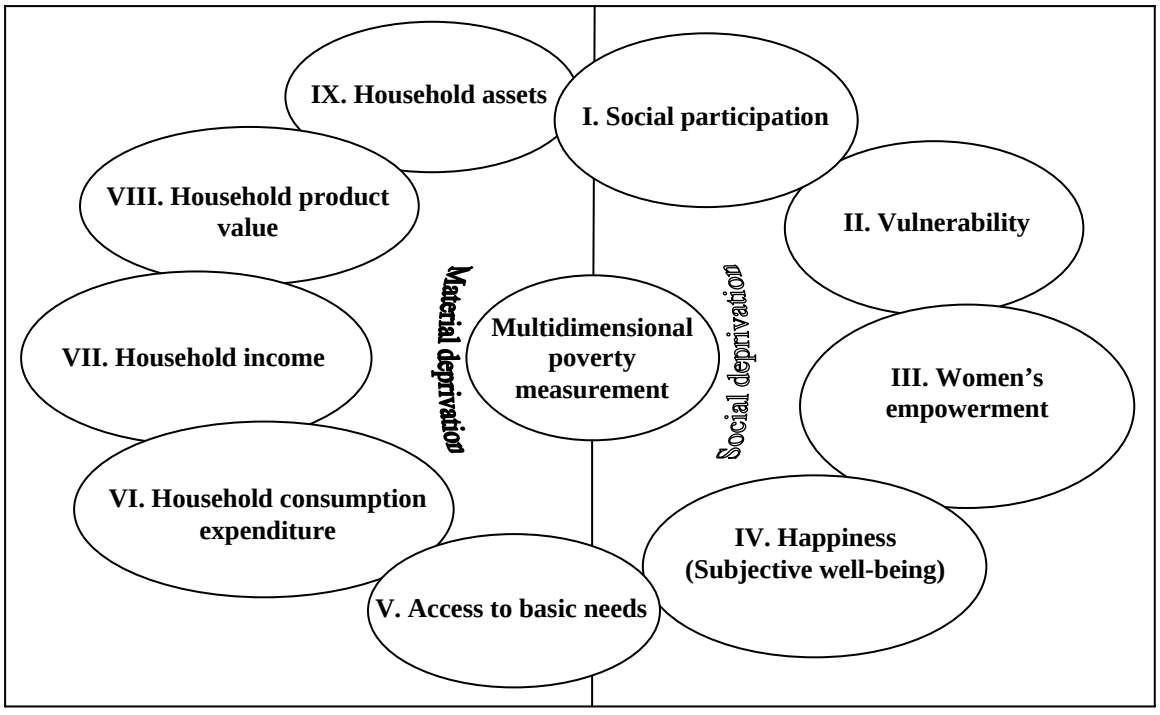

Figure 5.4: Multidimensional poverty conceptual framework for the present study

(Source: Adapted from Cohen, 2009)

From the above discussion, it is clear that there are a range of approaches to describing poverty following the multidimensional concept of poverty. Based on the Multidimensional Poverty Assessment Tool (MPAT), the multidimensional poverty framework is developed in this study. In the framework, besides the dimensions of access to basic needs, household assets and vulnerability following the MPAT, social participation, women's empowerment, subjective well-being, and economic well-being dimensions are included. This framework is used to form the poverty index in this thesis (see Chapter 7).

5.4 Concept of impact assessment of development programs

In order to examine the impact of CBEs on poverty reduction, it is imperative to provide a brief review of the concept of impact assessment and its methods. However, it should be noted that the literature on impact assessment is vast and diverse and therefore a comprehensive overview is not possible.

A conceptual framework of impact assessment addresses three key dimensions (Hulme 2000).

The first dimension is a model of the impact chain. A common assumption of development initiatives is that intervention will change human behaviours and practices in ways that lead to the achievement (or increase the probability of achievement) of desired outcomes. However such behavioural changes are influenced by the economic, physical, social and political environment. The complexity of these interactions makes outcomes difficult to predict (Sebstad et al. 1995). The impact chain is shown in Figure 5.5.

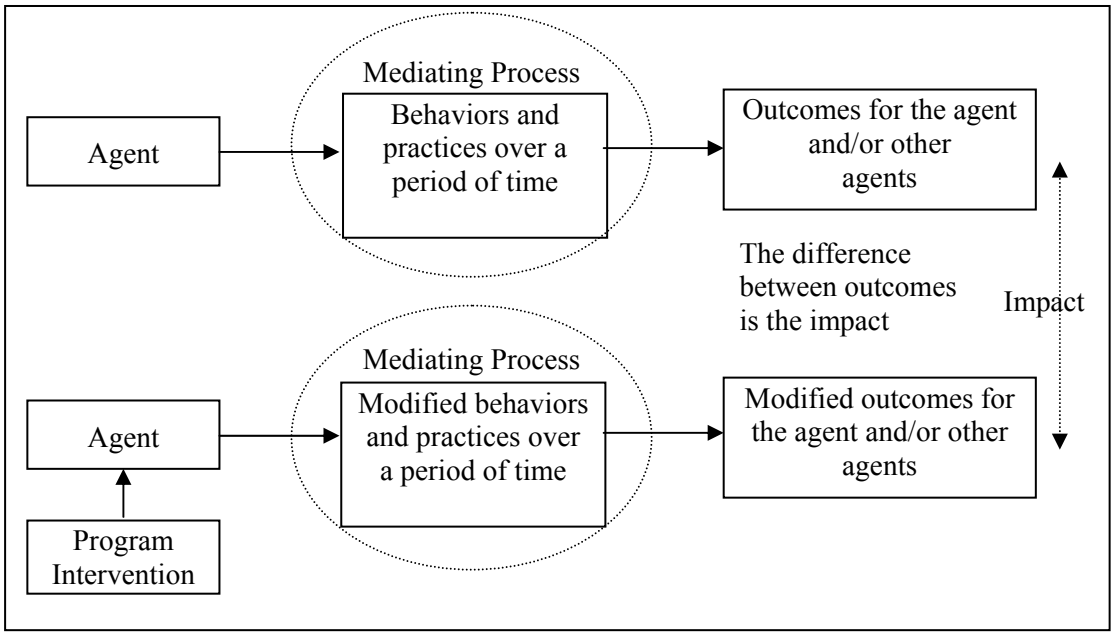

Figure 5.5: The conventional model of the impact chain

(Source: Hulme, 2000)

The second dimension is units of assessment. Common units of assessment include individual, enterprise, household, community, institutional impacts, and household economic portfolio. The household economic portfolio consists of a number of levels: household, enterprise, individual and community. Two specific advantages of the portfolio approach are its comprehensive coverage of impacts and recognition of linkages between different units. There are, nonetheless, disadvantages in terms of complexity, costs, skilled personnel and time to record the required information. The relative advantages and disadvantages of different units of assessment are summarised in Table 5.2.

Table 5.2: Advantages and disadvantages of units of assessment

Unit	Advantages	Disadvantages
Individual	• Easily defined and identified	• Most interventions have impacts beyond the individual • Difficulties of disaggregating group impacts and impacts on 'relations'
Enterprise	• Availability of analytical tools (such as profitability and return on investment)	• Definition and identification is difficult in microenterprises • Much microfinance is used for other enterprises and/or consumption • Links between enterprise performance and livelihoods need careful validation
Household	• Relatively easily defined and identified • Permits an appreciation of livelihood impacts • Permits an appreciation of interlink-ages of different enterprises and consumption	• Sometimes exact membership difficult to gauge • The assumption that what is good for a household in aggregate is good for all of its members individually is often invalid
Community	• Permits major externalities of interventions to be captured	• Quantitative data is difficult to gather • Definition of its boundary is arbitrary
Institutional impacts	• Availability of data • Availability of analytical tools (profitability, SDIs, transaction costs)	• How valid are inferences about the outcomes produced by institutional activity?
Household economic portfolio (i.e. household, enterprise, individual and community levels)	• Comprehensive coverage of impacts • Appreciation of linkages between different units	• Complexity • High costs • Demands sophisticated analytical skills • Time consuming

(Source: Hulme, 2000)

The third dimension relates to impact indicators. Traditionally, economic indicators have been used to assess impacts of microenterprises, in particular microfinance. The economic variables consist of income, levels and patterns of expenditure, consumption and assets.

Barnes (1996) contends that assets are a particularly useful indicator of impact because the level of assets is more consistent than other economic indicators. Moreover, it is not simply based on an annual estimate. Social indicators are also included as part of impact assessment. These relate to, for example, education status, access to health services, nutritional levels, and contraceptive use. The social indicators have extended into the socio-political arena in an attempt to assess impacts

on empowerment (Hulme 2000). The empowerment indicators include control over resources, involvement in the household and community decision-making, levels of participation in community activities and social networks, electoral participation and changes in gender relations (Hulme 2000).

The concept of impact assessment and its methods discussed above is used to form the framework for assessing impacts of CBEs on poverty reduction in this thesis (see Section 5.5).

5.5 Framework for assessing impacts of CBEs on poverty reduction

This section presents the conceptual framework used in the present study for assessing impacts of CBEs on household poverty reduction (Figure 5.6). In accordance with the concept of community economy described in Section 5.2, a strong CBE is able to encourage community development and promote the self-reliance of the community.

Among external factors, development of CBEs contributes to capacity building, women's empowerment and strengthens the community. Therefore, the collective action in the form of a CBE encourages a strong community. Moreover, CBEs increase residents' — particularly CBE members — knowledge of business management and production technology. Consequently, the potential of community members is increased through the CBEs role in fostering collective action, capacity building and women's empowerment (Figure 5.6).

A community's capacity to adopt and integrate new technology with local wisdom affects the creation and performance of a CBE. Moreover, community participation strengthens the sustainability of CBEs in the long-run. At the same time, community participation is also a mechanism in the process of community development. A strong

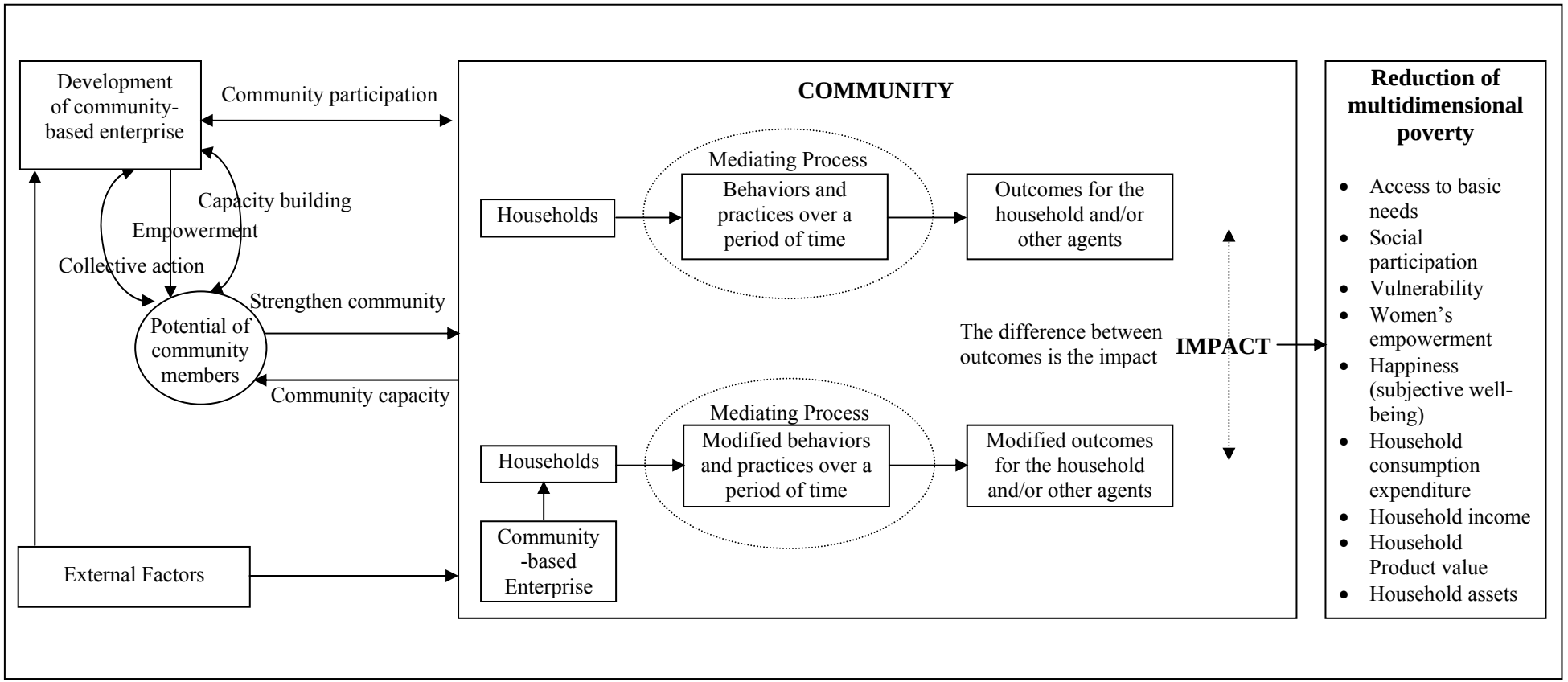

Figure 5.6: Conceptual framework of the CBE poverty impact assessment

(Source: Adapted from Jantradech, 2003; Cohen, 2009 and Holme, 2000)

community is likely to enable its members to solve their own problems effectively, particularly poverty problems.

Based on concepts of poverty reviewed in Section 5.3, this study classifies 'poverty' into nine dimensions: access to basic needs, social participation, vulnerability, women's empowerment, happiness (or subjective well-being), household consumption expenditure, household income, household product value and household assets (Figure 5.6).

As Makina and Malobola (2004: 805) suggested:

> "The impact assessment could be categorised as a one-off, cross-sectional study whose objective is to prove impact for advocacy purpose, possibly for political reasons by the government to prove to the wider community that its efforts to empower the poor and alleviate poverty are working".

This study focuses on investigating the impacts of CBEs on household poverty status. To do this, a one-off study (or cross-sectional study) for determining impact assessment was developed.

The conceptual framework for assessing impacts of the CBEs comprises three major dimensions.

1. The impact chain. This study assumes that being a member of the CBE will change human behaviours and practices of households in ways that will lead to the achievement of poverty reduction (see Hulme 2000). All changes are influenced by mediating processes. Mediating processes are specific characteristics of the agent (the household) and the economic, physical, social and political environment. Examples of variables used as possible factors of impact include household characteristics, type of membership, duration of membership and financial performance measures of the CBEs.
2. Units of assessment. The household samples are assigned to be the units of assessment of this study.
3. Type of impact. A set of socioeconomic variables is identified to assess impacts of the CBEs on the different households. The examples of poverty impacts used in this study include access to basic needs, social participation, women's empowerment and household income.

The impact assessment conceptual framework is centrally located in the conceptual framework for this study (Figure 5.6). The impact assessment framework assesses the difference in the values of determinant variables between the outcomes for agents (that is households) who have experienced joining CBEs and the outcomes on households without CBE members. This study uses the 'poverty index', which was constructed based on weighted poverty indicators by the PCA method, as the indicator of impacts of CBEs.

5.6 Methodological considerations and review of a range of empirical research

5.6.1 Poverty measurement methods

As mentioned above, poverty can be measured in two ways. Firstly, by using qualitative approaches such as rapid appraisal (RA) and participatory appraisal (PA) methods. Secondly, by using quantitative approaches including computation of a poverty line based on household expenditure and constructing a poverty index based on a range of indicators. According to Zeller et al. (2003), Zeller et al. (2006a) and Sahn and Stifel (2000), the advantages and disadvantages of these poverty measurement methods can be compared as follows.

As far as economic dimensions of poverty are concerned, a common measure and indicator of poverty is based on **the construction of a poverty line defined on the basis of household expenditure data**. However, there can be difficulties in collecting the required expenditure data. For example, the necessity for poor households to provide accurate information of food and, in particular non-food expenditures that occurred in the distant past ('long recall' period) is a major obstacle. Moreover, quantities and values of home-produced foods are difficult to calculate because of the lack of market prices, regular weights and measures information. In addition, information of high-value items tends to be under-provided or incomplete. Appropriate training to enable understanding of the enumerators and multiple household visits can help reduce these data collection problems.

Apart from considering the problems with data quality and collection, it is necessary to bear in mind the costs of data analysis. Such analyses require professionals with advanced statistical skills. In addition the complex nature of the data often leads to a drawn-out process before final reporting. Examples of studies employing a poverty line and the

computation of poverty measures in respect to household expenditures include Foster et al. (1984), Coondoo et al. (2008), Kakwani (2001), Sivakumar and Sarvalingam (2010).

Rapid appraisal (RA) and participatory appraisal (PA) methods are generally applied to determine who the vulnerable groups are in a community. These methods can be suitable for studies focused within a specific community. However, they are not practical methods for comparing the household poverty status in regional, national and international levels because the results derived from the subjective ratings of community members are hard to verify. Moreover, the method may derive consistent findings from a particular community, but these findings may not be consistent for other communities. In addition, PA requires skillful and experienced communicators. Therefore, the bias introduced by the way that PA is implemented needs to be seriously considered when making national and international comparisons. An example of the application of RA and PA methods in poverty measurement is provided in Bilsborrow's (1994) study.

The third method is to identify **a poverty index based on a number of indicators** following poverty dimensions. Using this method can save cost and time in the process of gathering credible information. Moreover, a composite index can be constructed through a selected set of indicators and corresponding weights.

The applications of poverty index construction (or indicator identification), based on the multidimensional poverty concept for measuring poverty of households is as follows:

The OPHI formulated the Multidimensional Poverty Index (MPI) using household datasets include the Demographic and Health Survey (DHS), the Multiple Indicators Cluster Survey (MICS) and the World Health Survey (WHS) (Alkire and Santos 2010b). The MPI was utilised to measure poverty at the household level in 104 countries. The results showed that 1.7 billion people in those countries live in multidimensional poverty. This number is larger than the total number of extreme poor, who live below the international poverty line (US$ 1.25 a day) (Alkire and Santos 2010a).

It is likely that the MPI captured different and broader aspects of poverty than did the income-based poverty measure. Approximately one half of the world's MPI poor people (844 million people) live in South Asia and a little over a quarter live in Africa (458 million people). The incidence of MPI poverty is greatest in Sub-Saharan Africa (64.5%)

and South Asia (55%). The MPI also exposes a range of poverty types within countries. Based on the MPI, different patterns of multidimensional poverty among the countries were found. Each pattern is identified following the poverty aspect in which the poor are deprived. Consequently, different policy implications are indicated for each of the patterns of poverty (Alkire and Santos 2010a).

Asselin (2005) assessed the impacts of poverty reduction projects and programs in Vietnam. The general dimensions of poverty based on a basic needs perspective, including income, education, health, nutrition (or food security), water (or sanitation), employment (or labor), housing, productive assets, access to markets and peace/social inclusion (or participation). Eight indicators based on a Vietnam Community-Based Monitoring System (CBMS) were used in the poverty impact assessment. The first to fourth indicators assess human assets household poverty using measures of underemployment, chronic sickness, adult illiteracy and under-schooling, The fifth to eighth indicators assess physical assets household poverty including: without radio and television, type of dwelling, drinking water, and sanitation. The study used a variant of factorial analysis, multiple correspondence analysis (MCA), as a methodology to construct a composite poverty index.

Hansen (2005) constructed a household poverty index based on the wellbeing concept. Multidimensional and participatory poverty indicators were determined by using ranking methodology developed and tested in Uganda (Ravnborg 1999; Boesen et al. 2004). The study used 13 indicators representing farmers' perceptions of well-being; including land holding, engagement in non-agricultural sources of income, being a casual labourer, animal asset, being a hired labourer, food shortage experiences, food consumption, housing, health, schooling, clothing, marital status and age. These variables were assigned with values 33, 67 and 100 scores. A household's poverty index was computed as the mean of its scores for each of the wellbeing indicators. The index values were further divided into three categories: non-poor household (an index less than 61.6); less poor household (index value from 61.6 to 71.99); and poorest household (index value from 72 and more).

Kabeer and Noponen (2005) examined possible indirect and direct impacts of the Professional Assistance for Development Action (PRADAN)'s Self Help Group (SHG)

Microfinance and Livelihoods Program on many dimensions of poverty. The dimensions considered in their study included capacity to meet basic needs, livelihood base, asset position, savings and debt position, and women's voice and agency. The study was designed to permit the comparison of impacts among PRADAN members who participated only in the SHG program with those who had also participated in the income generating projects (IGPs) of PRADAN in order to compare the impacts between these different forms of participation. The questionnaire was designed to collect both quantitative data covering all the objectives of SHG, and background questions about village and household characteristic.

In the study, variables were placed into four groups. The first group contained those variables which identified the impact on basic needs and standard of living: food security, shelter and living condition, consumption assets and education of children. The second group described impact on household livelihoods: changing livelihood portfolios, landed assets and agriculture practices, productive equipment assets, livestock assets and forest collection. The third group of variables described impacts of savings and debt: savings practices, money lender debt, total debts, source of the largest loan taken in the past year, the primary reason behind the largest loan taken last year, and use of loans from money lenders. The last group were the variables that describe impacts of women's knowledge, awareness and agency: participation in public institutional life, skills, knowledge and awareness and gender relations within the household.

Montgomery (2006) examined the poverty impact of Khushhali Bank's lending program on poor household welfare in Pakistan. A single equation for estimating the impact was formed. The possible factors influencing poverty status of households were household characteristics, village fixed effects, program membership status of households and participation in the program. The outcome variables that represent poverty status of the households consisted of consumption expenditure, education, health and income generating activities (that is, livestock, microenterprise and agriculture).

Garikipati (2006) analysed the impact of lending on household vulnerability and women's empowerment by using five vulnerability and seven empowerment logistic regression models (or logit estimation). The dependent variables in these models were measurements

of vulnerability and empowerment, which were based on the empowerment indicators used in 1996 study by Hashemi et al. (Garikipati 2006).

Each indicator consisted of many components. Equal weights were determined for all components in order to minimise subjectivity. A cut-off point was assigned for each variable. If the observation scores were equal to the cut-off point or over, the observations were identified as 'not vulnerable' or 'empowered' and coded as 'one', while the rest was coded as 'zero'. Therefore, the variables employed in the analysis were decreased to dichotomous variables with a score of 'one' or 'zero'. The study developed the vulnerability indicators based on the ability of a household to deal with drought in the short-run and on its ability to earn incomes from non-agricultural sources in the long-run. The vulnerability indicators used in the study are composed of five categories: drought related vulnerability, livelihood diversification, entrepreneurial behavior, investment in and access to social capital, and composite not-vulnerable.

The empowerment indicators were formulated based on seven components that were most directly involved with women's empowerment in a rural area. The indicators included control over household assets, role in household decisions, work-time allocation, control over minor finances, control over major finances, division of domestic chores and composite empowerment.

Hayati et al. (2006) developed a Poverty Measurement Index (PMI), which comprised fifteen poverty indicators under seven major components of quality of life. The indicators cover social participation, education level of the household head, education level of the other household members, access to credit, use of hired-labour on the farm, annual household per capita income, land ownership, livestock, agricultural machinery and equipment, living assets and equipments, car and other transportation equipments, calorie intake per day per person, clothing, housing, and use of health and medical assurance and other insurance services. These indicators were chosen from a review of the literature and validated by both experts and local people. Each of the indicators was assigned a value between 0 and 6. Therefore, the total score of a PMI would be between 0 (absolute poverty) and 90 (the highest level of wealth). Households with a PMI of ≤ 22.5 (≤ 25 per cent) of the maximum possible total score (90) were classified as 'very poor', whereas

households that have a score of 22.5 < PMI ≤ 45 (25 to 50 percent) were identified as 'poor'.

Setboonsarng and Parpiev (2008) used a combination of key parameters of household well-being and the MDGs for estimating the average impact of microfinance in Pakistan. Their groups of parameters consist of: household consumption (MDG 1 and well-being); agricultural production (MDG 1, 7, and 8); animal raising (MDG 1); income transfers from outside (MDG 1); household durable assets (MDG 1); non-agricultural enterprise (MDG 1); savings and credit (MDG 1); education (MDG 2 and well-being); healthcare (MDG 4, 5, 6, 8 and well-being); empowerment (MDG 3); and labor and child labour (well-being).

In constructing a poverty index, the mix and weights of indicators reflecting multi-dimensions of poverty need to be varied to take into account a range of socio-cultural, economic and agro-ecological contexts. In order to obtain these weights, principal component analysis (PCA) can be used to identify and weight the most significant indicators for computing a composite index of relative poverty for a particular sample household.

The PCA method has a number of advantages as a relative poverty measure (Filmer and Prichett 1998; Temple and Johnson 1998; Sahn and Stifel 2000; Zeller et al. 2003 and Vyas and Kumaranayake 2006):

1. The PCA method aims to measure relative poverty rather than absolute poverty.
2. The method allows adjustment of weights for each situation based on the specific poverty context existing therein.
3. Relative poverty comparisons can be made between households under the umbrella of development projects and households that do not receive any services from the development projects.
4. The poverty component can be easily identified by analysing the signs and size of the indicators relative to the new component variable.
5. The method identifies and/or constructs a small set of indicators that are powerful descriptors of poverty.
6. The method is applicable across relatively diverse socioeconomic setting.

7. The information on indicators can be collected quickly and inexpensively.
8. The method allows households to be ranked according to their relative poverty levels.
9. The PCA method does not have measurement problems of recall bias, seasonality and data collection time that conventional methods based on income and consumption expenditure have.

The determinants of poverty in different geographical areas vary depending on socioeconomic conditions such as population size, occupation, race, culture and household members' ability to access offshore works. For example, in Nicaragua, remittance is an important indicator of poverty status because a large proportion of households have members who work abroad and improve the living standards of their families through remittances (Zeller et al. 2003). In Khon Kaen province, Thailand, there are many factors affecting poverty, such as the number of family members, condition of housing and quantity of land owned (Arjchariyaartong and Sricharoen 2008). In the highlands and lowlands of northern Thailand, households who live in the highlands are relatively poorer than households living in the lowlands (Sricharoen and Buchenrieder 2005).

As noted above, the relative strengths of different indicators in measuring poverty vary across geographical areas. Therefore, the present study applies the PCA method that provides weighted indicator components which are unique to the area surveyed and can reflect the local conditions which directly explain poverty. The technical details and application of the PCA method in this study is discussed in Chapter 7.

5.6.2 Impact assessment methods

Impact assessment can be conducted by using quantitative methods and qualitative methods. Quantitative methods include experimental design, quasi-experimental design and non-experimental design. These methods are based on different types of control employed for isolating the program (or project) impact from other confounding factors (Table 5.3). Qualitative methods include structured case studies, participant judgment and expert opinion (Oldsman and Halberg 2002; Khan 2004).

Table 5.3: Methods of impact assessment

Research Design	Intervention Assignment	Type of Control	Data Collection Strategy
Quantitative Method			
1. Experimental Design	Random assignment controlled by researcher	Treatment and control groups randomly; selected	Before, after and during program outcome measures; minimum: after-intervention
2. Quasi-experimental Design			
a) Regression discontinuity controls	Non-random but fixed and known to researcher	Selection held constant	Before and after program outcome measures; minimum: after-intervention
b) Matched controls	Non-random and not known to researcher	Treatment group matched with control group	Before and after program outcome measures; minimum after-intervention
c) Statistical controls	Non-random and non-equivalent	Treatment and control groups compared by statistical controls and instrumental variables	Before and after program outcome measures; minimum: after-intervention
d) Generic controls	Non-random	Treatment group compared with outcome measures in general population	After-intervention outcome measures plus available norms of outcome levels in general population
3. Non-experimental Design	Non-random	No controls	Before and after-intervention or after-intervention outcome measures
Qualitative Method	Non-random	No controls	Case studies; textual data; direct observation; focus groups; semi-structured interviews; participatory methods

Note: The quantitative research designs are applicable to the partial-coverage programs. They can also be used for the full-coverage programs with (i) before and after measures for the treatment group only; (ii) cross-section (after-intervention) data for the non-uniform programs; (iii) panel and time-series data for pre-intervention, during and after-intervention for the treatment groups or large aggregates.

(Source: Khan, 2004)

Experimental design with random assignment to treatment and control groups is the ideal method of impact assessment (Oldsman and Halberg 2002). It provides strong evidences of causality. The salient feature of this method is randomisation. Random assignment helps to ensure that external factors that may affect outcomes exist in both

groups. In general, this method is widely used in the health, social welfare, and educational areas for examining the proficiency of new approaches. Nonetheless, it has not been widely applied in impact assessment of small enterprise initiative programs.

Although, this method offers strong causal inferences, there are some obstacles to using this method to evaluate impacts of initiative programs on small enterprises (Oldsman and Halberg 2002) because: dividing small enterprise into different groups can be difficult because of political considerations; maintaining experimental conditions is frequently difficult, small enterprises may be statistically equivalent at the beginning of the program but as time goes by some participants may drop out and in addition, the nature of services the program offers to small enterprises may vary from time to time; and using experimental design for evaluation tends to be an expensive and complicated exercise.

Quasi-experiments with constructed controls *method* is used when experimental design is not feasible. Within this model, individuals are assigned to non-random groups (non-participant group and participant group). The validity of a comparison group (a control group) is a core of this method. The non-participant group (control group) should be similar to the participant group (treatment group) in terms of key characteristics that reflect to outcome. In addition, the non-participant group should not have received support from the initiative/development program (Oldsman and Halberg 2002).

There are some difficulties in the practical implementation of impact evaluations based on control groups. These include: sample selection bias; misspecification of underlying relationships; and motivational problems (Mosley 2000). As mentioned above, quasi-experimental design is based on non-random assignment of subjects, non-equivalent treatment and control groups. Therefore, methods of control to reduce the errors for statistical inferences need to be applied (Khan 2004).

Oldsman and Halberg (2002) and Khan (2004) provided methods of controls for enhancing the validity of a comparison group, including regression discontinuity controls, statistical controls, matched controls and generic controls (Table 5.3).

Regression discontinuity controls are also called the ‘cutting point’ method. The cutting point is used to separate the control group into two groups over and under the point (Khan 2004). Based on eligibility tests and using a cutting point as the criterion, participants are

selected. The difference in performance between the non-participant group and the participant group after implementation is compared, while statistically controlling for the variables used in the selection process (Oldsman and Halberg 2002).

Statistical controls use multivariate regression to estimate the effect of the program after controlling for other variables that may influence outcomes (Oldsman and Halberg 2002). Two types of control variables are used in multivariate models. The first type of controls covers the characteristics related to the outcome variable, while the second type is involved with the selection bias (voluntary selection and program placement) (Khan 2004). Selection bias is addressed by using two-stage regression or other techniques involving instrumental variables (Oldsman and Halberg 2002).

Matched controls aim to formulate the control group that is similar to the treatment group based on key characteristics that explainin outcomes. However, it can be difficult to identify respondents who exactly match every criterion at the same time (Oldsman and Halberg 2002).

Generic controls use measures of performance for the population from which targets are defined as a control. Very few aggregate measures of social behavior and processes can be used as generic controls reflecting outcomes of the control group. Therefore, these controls are untrustworthy and the last choice for researchers (Khan 2004).

Clear illustrations of the application of quasi-experiments with constructed controls method include: Zaman (1999), Aroca (2000), Setboonsarng and Parpiev (2008), Coleman (2002), Ravallion and Chen (2005), Garikipati (2006) and Kondo et al. (2008). These are discussed below:

Zaman (1999) investigated impacts of micro-credit on the reduction of poverty and vulnerability by using BRAC, one of the largest Bangladeshi microfinance providers. This case study used cross-sectional data in year 1995 to compare household consumption between members (a treatment group) and non-members (a control group) in ten villages. In order to ensure that there was no self-selection bias (or selectivity bias) in creating a control group, the Heckman two-step equation was estimated. Sixteen ‘female empowerment’ indicators were formulated in the study. The indicators were created

ranging from knowledge and awareness of various social issues to ownership and control of assets and mobility.

Aroca (2000) used the quasi-experiments with constructed controls method to assess the impact of Brazilian and Chilean banks and NGOs micro-credit programs on micro-entrepreneurs' incomes. The data was collected in year 2002. To define control groups without self-selection bias, the Propensity Score Matching (PSM) method was used to match beneficiaries of micro-credit programs with non-beneficiaries with similar characteristics. The average incomes were compared. To create the control group, the propensity score was estimated as a function of a set of variables including location, age and employment status, and then analysed by using probit estimation. To measure the impact of the micro-credit program, the average income of the people who received micro-credit was compared with the average income of individuals who did not receive micro-credit.

The PSM method was also employed in Setboonsarng and Parpiev (2008) to address self-selection bias. This study used the same cross-sectional data set as Montgomery's study in 2005; which did not use PSM; to assess the impact of Khushhali Bank (KB), the microfinance bank in Pakistan, based on MDGs in order to enable the Bank's lending programs to effectively achieve poverty reduction. The outcomes of applying the PSM technique were different from that of running OLS or Logit regression without the PSM methods, particularly in terms of income generation, education and female empowerment. In addition, interestingly, when the selectivity bias was addressed by using the PSM method in OLS and Logit estimation, the degree of impact of the lending programs on poverty reduction was lower than the previous study. Therefore, it can be implied that using OLS and Logit estimation without correcting for selectivity bias causes overestimation of the impacts of KB's program on the households. However, Setboonsarng and Parpiev (2008) suggested that studies of impact assessment using cross-sectional data might lead to inaccurate conclusions. The impacts of lending programs expand over time. Therefore, time is the essential variable that needs to be included to express the actual impact.

Coleman (2002) examined the outreach of microfinance programs and the assessed impacts of such programs. The study used the same cross-sectional data set analysed in

Coleman (1999). The refined methodology was applied in Coleman (2002) because Coleman (1999) showed there was an overestimate of the average impact of microfinance programs. The Coleman (2002) study employed a quasi-experimental design using a one-time survey (no baseline data). The study used a unique survey design to obtain unbiased or consistent estimates of average impact: the data used in the study was gathered from 14 villages in Thailand between 1995 and 1996. Of the 14 villages surveyed, six villages were 'control' villages (the control villages were self-selected and had never benefitted from village bank support and did not receive any village bank loan during the survey period), eight were 'treatment' villages, randomly selected from a list provided by their village banks.

Besides contributing a unique survey design for controlling self-selection bias and placement bias, Coleman (2002) also highlighted that the difference in access to loans by normal members and committee members may lead to differences of impacts.

Results of the study showed that the programs were not effectively reaching the poor. The result of comparing the value of household-owned land using weighted-t-tests showed that before participation, participants were significantly wealthier than non-participants. Moreover, the evidence from this study showed that the richest members became committee members and bought themselves more opportunities to achieve more loans from the village bank compared with the non-committee members. Therefore, the estimated impact on non-committee members was significantly smaller than the impact on committee members.

Coleman (2002) suggested that the research methods and survey design undertaken in the study could be easily and widely applied to impact assessment of microfinance worldwide.

Ravallion and Chen (2005) examined the impacts on both income and consumption of a rural development project in China at regular intervals over its disbursement cycle. The difference-in-difference method was applied in order to control for biases inherent in creating a control group in a quasi-experimental design. The study showed that the Southwest China Poverty Reduction Project had little current impact on the proportion of people in beneficiary villages consuming less than US$ 1/day in spite of a public outlay

of US$400 million. The program had much larger impacts on incomes than consumption. Uncertainty about the future impact of the projects probably made it hard for participants to gain benefits in permanent income, so they saved a high proportion of the current income gains.

Garikipati (2006) studied the impact on household vulnerability and women's empowerment of lending to women participating in a Self Help Group (SHG). He conducted household surveys from 2001 to 2003. He also interviewed individuals and focus groups in two drought-prone villages (Vepur and Guddimalakapura) of the Mahabubuagar district in the southern state of Andhra Prades. In the study, the impacts on household vulnerability and women's empowerment of lending were analysed by using five vulnerability and seven empowerment logistic regression models or logit estimation.

There may have been self-selection bias because women who were already relatively more empowered might were more likely than others to join the program. To control self-selection bias, a set of control variables (household characteristics and women's personal characteristics) was included. The study also introduced two other variables (the length of SHG membership and ownership of the enterprise) to control for the bias.

Kondo et al. (2008) evaluated the impact of the Rural Microenterprise Finance Project: RMFP in the Philippines by using a quasi-experimental design with one-time survey (no baseline data) following Coleman (2002)'s study. The difference-in-difference estimation technique used in Ravallion and Chen (2005) was also applied in the study. The study's innovation was to include former clients in a treatment group.

The project was put into practice by the People's Credit and Finance Corporation (PCFC) and provided financial support by the Asian Development Bank. The objectives of the project were to alleviate poverty, create employment opportunities and increase the income of the poorest.

A quasi-experimental design was used for evaluating project impact. New clients of randomly selected participating microfinance institutions were defined as the comparison group (control group). Non-participants were employed as the control for area effects, while former clients were used as the treatment group. In this study, three biases: non-random program participation (sample selection), non-random program placement and

non-random drop-out were efficiently controlled by applying the difference-in-difference estimation technique. The household survey was conducted in 116 villages and 38 microfinance institutions covering banks, cooperatives and non-governmental organisations.

Kondo et al. (2008) claimed that the advantage of the specific equation introduced in the study was that it could be used to control three sources of bias. Control for non-random program participation or sample selection was addressed by using membership dummy variable. Non-random program placement was controlled by village dummy variables or a vector of village fixed effects. Including an appropriate number of randomly selected households who had dropped out of the program or former members could be the controlling method of dropout bias.

It is sometimes difficult to gather information from non-participants in the program. To overcome this difficulty, the impact can be assessed by a ***non-experiments with reflexive controls method***. This requires obtaining available before and after performance information about participants, then comparing the two sets of performance information. This method is adequate in cases where there is a clear and close relationship between the program and the outcomes but is difficult to implement when there is no clear separation between project and non-project influences (Oldsman and Halberg 2002).

Participant judgment and expert opinion method is another impact assessment method. The accuracy of results depends on people familiar with the intervention (either 'independent expert' or 'participant') to evaluate the intervention's impact. Although, this method is quite normal, it is full of problems and needs people who are able to define the net effect of the intervention based on their own knowledge.

Kristjanson et al. (2002) used the participant judgment and expert opinion method as one component of their study assessing the impact of agricultural research on farmers. Farmer-participatory impact assessment was used in the study because Kristjanson et al. (2002) recognised that farmers' perspectives on poverty processes and outcomes were significant in the early stages of evaluating social environment and economic impact. They used workshops to gain information about the following issues: 1) how technologies are used and managed by farmers; 2) the effects and impacts of new technologies at

various levels (plot, household, community, watershed, and region); 3) the conditioning factors affecting impacts; and 4) the attribution linkages between agricultural technology and poverty.

Kristjanson et al. (2002) noted that farmer-participatory impact assessments should only be one component in a comprehensive assessment of research impacts. While impacts at all levels can be evaluated using this approach, it does not qualitatively or quantitatively establish the relationship between the adoption of a certain technology and the particular impact in question. This requires more in-depth case studies (qualitative) or rigorous data collection and econometric analysis (quantitative). Moreover, measuring impact at the country, region, national or continental scale generally requires the use of more highly aggregated approaches and, increasingly, the use of Geographical Information System (GIS). The household econometric approach and other broader-scale approaches are essentially complementary.

Structured case studies method can be used to examine the impacts of the intervention project on participants. The case study method requires extensive narrative descriptions and relevant evidence to ensure that the actual impacts of the intervention on outcomes are described (Oldsman and Halberg 2002).

For the study conducted for this thesis, a quasi-experimental design with constructed controls method was chosen as most suitable because of: the limitations imposed by cost and time which preclude the use of an experimental design with a random assignment method; the difficulties of maintaining experimental conditions, particularly in CBEs which are micro-enterprises; the problem of using a non-experiment with reflexive controls method in terms of the difficulty of distinguishing between project and non-project effects; and the weaknesses of a participant judgment and expert opinion method in terms of causal inference and expertise requirement.

Despite the complexity of the quasi-experimental design, this method has been used widely in development assistance programs assessment (Oldsman and Halberg 2002; Mosley 2000). The quasi-experimental design has been the only reasonable method to measure impacts of program/projects with partial coverage. This design is not only used for before and after program (or project) outcome measures, but also used for cross-

section data in case the baseline (before participation) data are missing for both control and treatment groups (Khan 2004).

A one-time survey and a quasi-experimental design have been used in many studies, such as those of Coleman (1999; 2002), Garikipati (2006) and Kondo et al. (2008) to assess the impacts of microfinance. Due to unavailability of baseline data, the present study used a quasi-experimental design with cross-sectional data to compare between the control group and treatment group by using after-participation data.

The technical details and application of a quasi-experimental design, the PSM method and the regression-base with statistical controls for coping with the selectivity bias from using a quasi-experimental design are discussed in Chapter 8.

5.7 Framework for empirical analysis and justification[10]

This section provides a summary overview of the framework used for the empirical analysis presented in Chapters 7 and 8.

Impact assessment tools have been extensively developed and applied worldwide, especially in research and development (R&D) projects and microfinance programs. A well-developed approach for assessing impacts of R&D projects is benefit-cost analysis (Davis et al. 2008; Templeton 2009). To assess impacts of microfinance programs on their members' household, previous studies such as those by Coleman (2002) and Kondo et al. (2008) have focused on characteristics of the households, duration of membership and membership status, but they largely ignored the impacts of their business performance.

A large number of poverty measurement tools have been widely developed at the regional and national level, and several tools have been formulated and applied at the household level, such as the MPAT, as discussed above. MPAT uses poverty indicators based on a multidimensional poverty concept, rural livelihood and human well-being. However it was not designed to assess the contributions of community-based programs on the poverty status of the household.

[10] This section draws on the article Teerakul et al. (2011).

The modified 'CBEs-poverty impact assessment approach' introduced in this study is based on the linkages of existing methods of financial performance measurement, impact assessment of development projects and poverty measurement. The framework enables investigation of the actual impacts of CBE performance on the poverty status of households.

The standard practice with poverty measurement methods, impact assessment methods and financial performance measurement methods is to apply them separately in relation to the project aims. This study combines the three methods. The approach consists of two main steps: (1) identification of poverty groups and poverty components, and (2) impact assessment of CBEs and other factors on household poverty (Figure 5.7).

1st Step: Identification of poverty groups and poverty components

A range of factors influence household poverty. Therefore, the use of multiple variables is more likely to capture a complete description of poverty than the use of a single variables. However, the use of multiple variables complicates the task of identifying the poverty status of a household.

The determinants of poverty in different geographical areas vary depending on socioeconomic conditions such as the population size, occupation, race, and culture as already noted above.

Since the relative strengths of different factors in measuring poverty vary across geographical areas, the principal component analysis (PCA) method is applied in the first step of this framework. The PCA method provides the most appropriate weighted indicator components unique to the area surveyed and can reflect the local conditions explaining poverty. This method is selected because of its advantages over other poverty assessment methods such as the computation of a poverty line based on household expenditures, the rapid appraisal (RA) and participatory appraisal (PA) methods, and constructing a poverty index based on a range of indicators. Advantages and disadvantages of the PCA method are discussed in Section 5.6.1.

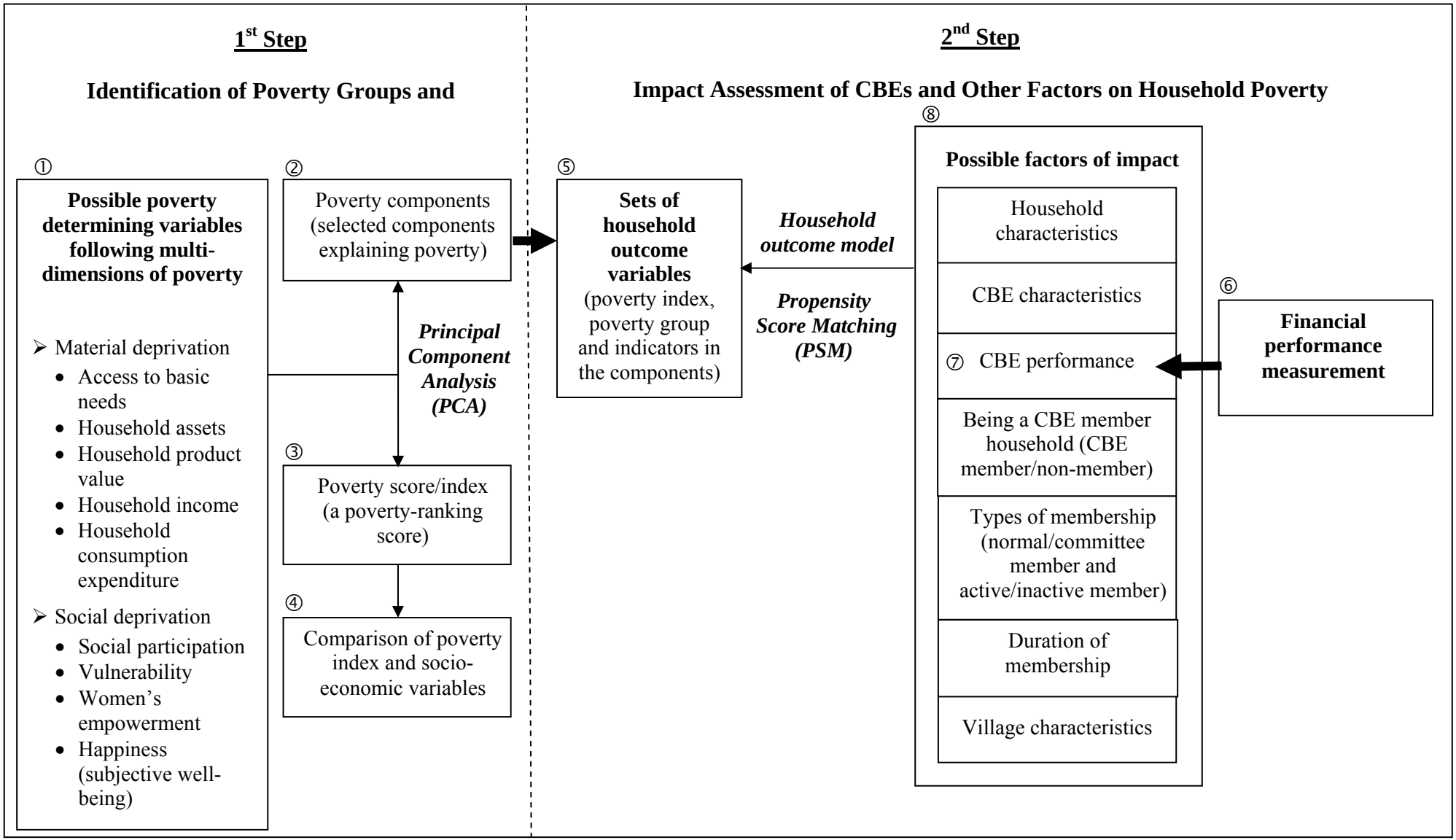

Figure 5.7: CBEs-Poverty Impact Assessment Analytical Framework

Possible determinants of poverty are compiled from various sources, including previous studies on poverty measurement and microfinance impact assessment. For example, household assets, production sales, production expenses, consumption expenses, health care expenses and medical expenses (Coleman 1999, 2002), basic needs, standard of living, household livelihoods, saving, debt and women's knowledge, awareness and agency (Kabeer and Noponen 2005) vulnerability and women's empowerment (Garikipati 2006), subjective well-being (Kingdon and Knight 2003) and the four main dimensions: fundamental needs, household assets, exposure and equality classified by Cohen (2009). These factors are classified into nine main dimensions, as presented in Figure 5.7.

Sets of indicators in each poverty component derived from the first step are used as dependent variables in the household outcome model in the second step (Figure 5.7). Besides poverty components, this study uses the PCA method to construct a poverty index for identifying household poverty status. Moreover, household poverty status is compared to socioeconomic variables in order to examine the household characteristics of the poor.

2nd Step: Impact assessment of CBEs and other factors on household poverty

In this step, the impact of CBEs and other factors on household poverty is assessed by using the propensity score matching (PSM) method and household outcome model (regression-based with statistical controls method). In the household outcome model, CBE performance is determined as one of possible factors affecting household poverty. Therefore, financial performance measurement is applied to examine CBE performance.

1. Methods of poverty impact assessment for CBEs

The existing methods of impact assessment as discussed in Section 5.6.2 are selected based on strengths and weaknesses of each method, the ability to achieve impact assessment objectives, the context of CBEs, and the constraints of costs, human resources and timing (Hulme 2000; Oldsman and Halberg 2002). As a result, a quasi-experimental design with constructed controls method becomes to the most suitable method for the present study.

The PSM method is used to cope with the selectivity bias arising from the use of a quasi-experimental design and to identify the impacts of CBE membership (members or non-members) on a number of household outcome variables. The PSM method can be extremely useful for cross-sectional survey data (Dehejia and Wahba 2002) and can significantly decrease bias in observational studies (Setboonsarng and Parpiev 2008).

The propensity score is a conditional probability that an individual household is allocated to the treatment group (Rosenbaum and Rubin 1983). In this study, the propensity score is a probability of being a CBE member. Probit (or logit) regression with the covariates collected from the participants as '*X*' and participant's status on the treatment variable as '*Y*' is used to estimate the propensity score.

In terms of this framework, the PSM method is focused on comparing CBE members (treatment group) to CBE non-members (control group) within the same study area under the key assumption that the characteristics of CBE member households are consistent over time. Moreover, the method should control for the fact that CBE members are not a random group of people (adapted from Setboonsarng and Parpiev (2008)).

The treatment group (CBE members) and control group (CBE non-members) can be balanced after using the estimated propensity scores to match a participant from the treatment group with a participant from the control group. A significant characteristic of this method is that after some parts of the participants are matched, the unmatched participants are abandoned and not directly employed in the treatment impact estimation. Using Ordinary Least Squares (OLS) and Logit estimation without correcting for selectivity bias causes an overestimation of the impacts, while using the PSM technique provides accurate results (Setboonsarng and Parpiev 2008).

The impacts of other proposed factors of household poverty on household outcome variables can be identified by using the household outcome model. The household outcome variables are the poverty index and poverty group derived from the PCA in the first step. The household outcomes equation developed from Coleman (1999, 2002) and Kondo et al. (2008) can be written as a general functional form:

$$Z = f\,(A_1, A_2, \ldots, A_9) \qquad (1)$$

where Z is a vector of household outcomes (poverty index and poverty group) and A_1 to A_9 are sets of variables that potentially affect household outcomes (Table 5.4).

Table 5.4: Variables used in the household outcomes equation

Variables[1/]	Meaning
Z	Poverty index and poverty group derived from the PCA in the first step
A_1	a vector of household's characteristics
A_2	a vector of CBE characteristics
A_3	a vector of CBE performance
A_4	a dummy variable equal to 1 if the household has an inactive member of a CBE and 0 otherwise
A_5	a dummy variable equal to 1 if the household has an active member of a CBE and 0 otherwise;
	$A_4 = A_5 = 0$ if nobody in the household is the member of a CBE (non-member household)
A_6	a dummy variable equal to 1 if the household has a normal member of a CBE and 0 otherwise
A_7	a dummy variable equal to 1 if the household has a committee member of a CBE and 0 otherwise;
	$A_6 = A_7 = 0$ if nobody in the household is the member of a CBE (non-member household)
A_8	duration of membership (years)
A_9	a vector of village's characteristics

Note: 1/ A_2, A_3, A_4, A_5 are the initiative variables of this study

These possible factors are expected to affect household outcome (or household status) in different ways. The guiding hypotheses can be drawn as the following.

1. Household outcome is affected by the household's characteristics.
2. CBE's characteristics have an impact on household outcome.
3. CBE performance has a positive impact on household outcome. Being the member of higher performance CBE provides higher household outcome (better household status) and vice-versa. A high-performance CBE is able to contribute better household status (or better quality of life) to its members at least in terms of supplementary income.

4. Household outcome is affected by being a member of a CBE. The household that has a CBE member is expected to have a higher household outcome compared with a non-member household.
5. Types of CBE membership have an impact on household outcome. Committee members of CBEs are expected to have higher household outcomes compared than non-committee members. The household that has an active member who participates in the CBE's production activities is expected to have higher household outcome compared with an inactive member's household.
6. Duration of CBE membership has a positive impact on household outcome.
7. Household outcome is affected by the village's characteristics.

The nature of the dependent variables (household outcome variables) leads to adequate identification of the form of function, which can be in linear or non-linear form. Each of the different types of dependent variables requires different estimation techniques.

In order to achieve the specific impact assessment objective of this study, this household outcome model is modified from Coleman (1999, 2002) and Kondo et al. (2008) by including variables that are related to CBEs and possibly affect household poverty. The independent variables: household characteristics, types of membership and duration of membership are applied from those previous studies, whereas CBEs characteristics, CBE performance and being a CBE member are initiative variables of this study to investigate the impacts of CBEs on household poverty. Moreover, a village characteristic variable is modified by defining this variable as a vector of a village's characteristics (not village dummy variables as determined in those studies) in order to examine the impacts of communities on household poverty.

2. CBE financial performance measurement

On the basis of official statistics and previous descriptive studies of income generation focused at the aggregate level of the CBEs using a monetary approach, CBEs are acclaimed as being an important source of supplementary income, jobs and employment for local people. Therefore, to examine whether CBEs are an actual tool for poverty reduction at the microeconomic level using a multidimensional approach, CBEs' financial

performance is added as a possible factor of impact (independent variable) in the household outcome model (Table 5.4 and Figure 5.7). Financial performance measures of the CBE are selected based on availability of data gathered from the CBE, nature of the CBE and a review of the literature. Proposed variables representative of financial performance of the CBE include current ratio, quick ratio, debt-equity ratio, debt ratio, sales revenue, gross profit, gross profit margin, asset turnover ratio and return on assets (ROA).

A compelling feature of this modified framework is its feasibility with regard to the CBEs and rural households in Thailand. Firstly, considering the capability of the households to provide accurate information over a long-recall period, this study will employ a one-time survey (no baseline data) and apply a quasi-experimental design. Cross-sectional data are used for comparison between control group (non-members' households) and treatment group (members' households).

Secondly, in order to investigate the impacts of CBEs on poverty reduction, which is the specific impact assessment objective of this study, the household outcome model includes several independent variables that are related to CBEs and possibly affect household poverty. These cover CBE performance, types of membership, duration of membership, CBEs characteristics and membership status variables.

Thirdly, supplementary income that the members earn from the CBEs, such as wages and dividends, is commonly a small amount compared to household income from other sources. Therefore, to examine possible related benefits of the members in CBEs, this framework considers both monetary and in-kind benefits.

Finally, women are generally the main economic players in the CBEs. The framework used in this study allows for the investigation of roles and contributions of women in the CBEs by including several variables/factors reflecting gender empowerment, collective actions, rights and participation of members.

In this approach, different methodologies are combined in order to achieve the impact assessment objectives of the study. Consideration has been given to the advantages and disadvantages of methodologies, CBE context, the nature of the respondents, particularly in terms of data availability and accuracy, the multidimensional poverty concept and the

limitations of cost and time. Therefore, this approach is specifically designed for assessing the impact of CBEs on household poverty based on a multidimensional poverty concept.

5.8 Discussion and concluding comments

This chapter has provided the rationale for the development of the framework and methodology to investigate the roles of CBEs in poverty alleviation at the micro level. In particular it has provided a comprehensive and detailed overview of relevant studies addressing poverty conceptually as well as empirically. Strengths and weaknesses associated with these methods have been identified and presented in tabular format.

A number of studies have provided the foundation for the development of this study's approach. In particular, the work of Peredo and Chrisman (2004), Cohen (2009), Hulme (2000) (regarding concepts CBEs, poverty and impact assessment) and Zeller et al. (2003), Sricharoen and Buchenrieder (2005), Khan (2004), Oldsman and Halberg (2002), Setboonsarng and Parpiev (2008), Coleman (1999, 2002), Kondo et al. (2008) for methods.

It is clearly evident that there is a large and diverse literature on both conceptual and methodological aspects of this subject. What this chapter has attempted to provide is a coherent and cohesive review of research that has immediate relevance to the study of poverty and the role of CBEs in northern Thailand.

The 'CBEs-poverty impact assessment approach' that has subsequently been developed is a modified procedure for assessing impacts of CBEs on household poverty, designed on the basis of selected existing approaches which are pragmatic for CBEs, including financial performance measurement, impact assessment of development projects and poverty measurement. This multi-disciplinary approach has been divided into two main steps: (1) identification of poverty groups and poverty components, and (2) impact assessment of CBEs and other factors on household poverty.

Chapter 6 presents a detailed profile of the selected CBEs in rural northern Thailand that forms the basis for empirical analyses in Chapters 7 and 8.

Chapter 6 An overview of the survey area and profiles of villages, CBEs and households in rural northern Thailand

6.1 Introduction

The main objectives of this chapter are to provide a brief description of the survey area, explain the survey design and the sampling procedures used, and present the key characteristics of the selected samples. Section 6.2 provides a general description of the northern Thailand survey area. It includes a discussion of the sampling procedures and the design of the interview schedules used in the research. Data collection procedures and the challenges encountered in the survey planning and process are described in section 6.3. In section 6.4 the profiles of the selected villages, CBEs and households are presented. A number of financial metrics are employed in section 6.5 to provide an overview of business performance of selected CBEs. The chapter concludes with a summary of the key points drawn from the detailed profiles assembled from the survey data.

6.2 Survey area, procedures and design

6.2.1 Survey area

The research area selected for this study focuses on the provinces of Chiang Mai, Chiang Rai and Lam Phun in northern Thailand (see Figure 6.1). Northern Thailand was selected based on the poverty situation in this region and the characteristics of its CBEs. The northern region has the second highest proportion of poor in Thailand (28%), and, in particular, has a slightly increasing incidence of poverty (NESDB 2008a). In 2005, the Community Development Department (CDD) ranked Chiang Mai as having the largest number of poor villages (545 villages), followed by Chiang Rai (475 villages) (Boonyarattanasoontorn 2006). The poor households located in this region have the lowest average income compared to those in other regions (Table 6.1).

According to Sricharoen and Buchenrieder (2005), household poverty in northern Thailand is associated with households who belong to a minority group. The poverty is aggravated by a lack of infrastructure, limited eligibility for the group to gain Thai citizenship, lack of a sense of national identity, and a lack of access to basic needs and employment opportunities. All these factors have combined to render the hill-tribes as the most severely deprived groups of Thailand (Fujioka 2002).

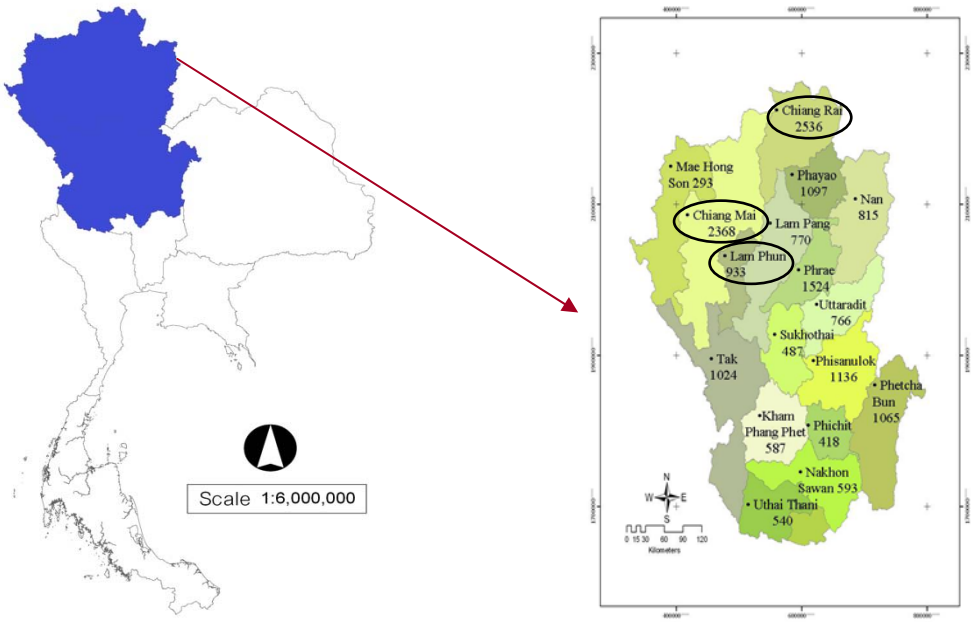

Figure 6.1: Selected research area and the distribution of CBEs in northern Thailand

(Source: Adapted from Secretariat Office of Community Enterprise Promotion Board, 2005 and GIS database of Multiple Cropping Centre)

Table 6.1: Poverty and CBE profiles in Thailand by region

Poverty and CBE profiles	Regions					
	Bangkok	Centre	North	Northeast	South	Nation
Distribution of the poor (%)[1/]	1.2	9.2	28.0	52.2	9.5	100.0
Poverty incidence (%)[1/]	1.1	3.1	12.9	13.1	5.9	8.5
Average income of the poor households (baht/month/households)[1/*]	10,106	5,339	4,611	5,165	5,841	5,143
Distribution of CBEs (%)[2/]	---------17.0-------		29.0	44.0	10.0	100.0
Proportion of CBE products (%)[3/]	---------51.3-------		22.3	18.3	8.1	100.0

Note: * The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: 1/ NESDB, 2008a; 2/ Secretariat Office of Community Enterprise Promotion Board, 2005; 3/ Thaitambon, 2008)

Because a large proportion of hill-tribe minorities live in the upland and highland areas of the northern provinces, the area lends itself to a good study site for making comparisons between the hill-tribe minorities and the northern native Thais. The region is also the second highest in terms of CBE numbers and product diversity (Table 6.1), and is a major source of agricultural products that can be used as raw materials, such as rice, longan and garlic, for CBEs engaged in food processing CBEs (OAE 2008). In addition, the region is

a significant source of handicraft products because of its rich cultural history, and the various minorities and cultures of the area.

Chiang Rai and Chiang Mai have the largest and second largest numbers of CBEs, respectively. Chiang Mai has been the main promoter of the OTOP project in northern Thailand. In 2008, Chiang Mai's OTOP sales value was approximately 3,082 million baht (or 98.2 million AUD)[11], an increase of 165 per cent over a five year period (Chiang Mai Provincial Operation Center 2009). Lam Phun is the smallest province in relation to the others and, although it has a smaller number of CBEs than many provinces in northern Thailand, the density of CBEs is quite high because of its smaller size.

6.2.2 Sampling procedures

One-time field surveys were conducted in 12 villages located in the three provinces of northern Thailand. The data were collected from 343 households and 14 CBEs. Villages and CBEs were selected using random sampling, which was undertaken based on the criteria discussed below.

The main criterion used to select the village sample was personal income of the villagers (Table 6.2). The information of average personal income of the villagers was gathered from the 2008 database of the village basic needs information report, introduced by the CDD. The CDD's (2008) database was available and facilitated by the Community Development Office (CDO) at the province level and by the Tambon Administration Organisation (TAO) at the Tambon (sub-province) level. Twelve villages, which had at least one CBE, were selected for this study.

Another selection criterion was whether the village was made up predominantly of members of a minority group. The villagers in nine selected villages (ten selected CBEs) are northern native Thais, while others in three villages (four CBEs) are the minority hill-tribes, called '*Kariang*'.

In Thailand, the vast majority of hill-tribes live in the highland. In total, 133,070 hill-tribe households (or 751,886 persons) live in 3,527 hill-tribe villages in 20 provinces across the

[11] At currency exchange rate 31.4 baht per 1 AUD at 11 August, 2011 (Siam Commercial Bank 2011).

country (Fujioka 2002). The main type of employment is in agriculture, but producing handicraft products is an important source of *supplementary* income. '*Kariang*' (*Karen/Yang*) is the largest tribal group, followed by *Hmong* (*Meo*) and *Lahu* (*Mussur*), respectively. Chiang Mai is home to the majority of hill tribes with one quarter of hill-tribe households living in this province.

Table 6.2: Criteria for selecting villages on the basis of personal income and minority group

Criteria	No. of villages (N=12)	Criteria	No. of villages (N=12)
Personal income (baht/person/month)[1/]		minority group/native Thai	
≤ 2,500	4	Northern native Thai	9
2,501-5,000	7	Minority hill-tribe	3
5,001-7,500	1		
(min=2,083; max=5,862; mean=3,246)			

Note: 1/ The exchange rate was at 31.4 baht per 1 AUD as of 11 August 2011 (Siam Commercial Bank 2011).
(Source: Compiled from CDD, 2008)

An important factor that was considered in the selection of CBEs is the nature of activities. Approximately 53 per cent of CBEs in northern Thailand are engaged in food processing and handicraft production activities, which are mainly undertaken by women. Other main production activities of the CBEs are agricultural production (41%) and agricultural input production (6%) (Secretariat Office of Community Enterprise Promotion Board 2010). Therefore, food processing and handicraft production are the dominant activities of the CBEs in northern Thailand. Hence, this was considered in the selection of CBE for this study.

Other criteria include sales revenues, experience in business and size of the business. The sales revenue and size of business (as represented by the number of CBE members) are key indicators of performance and/or factors affecting performance of the group. Based on these criteria, eight handicraft women's groups and six food-processing women's groups were selected as case studies. Background characteristics of the CBEs used as the criteria for sample selection are shown in Table 6.3.

Households within the selected villages were classified into two common strata, CBE member and non-member households. With this, the *proportionate stratified random*

sampling method was used to select the samples of CBE member households. The definitions of the types of sampled households are listed in Table 6.4.

Table 6.3: Number of CBEs selected according to different classifications

Criteria	No. of CBEs (N=14)	Criteria	No. of CBEs (N=14)
Main activity		Sales revenues (baht/year)[1/]	
Food processing	6	≤ 100,000	2
Handicraft production	8	100,001-500,000	7
		500,001-1,000,000	2
		> 1,000,000	3
		(min=14,263; max=6,627,000; mean=891,697.9)	
No. of members (persons)		Experience in business (years)	
≤ 20	4	≤ 5	2
21-50	6	6-10	5
51-100	3	11-15	3
> 100	1	> 15	4
(min=13; max=163; mean=48.6)		(min=2; max=29; mean=12.6)	

Note: 1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

Table 6.4: Characteristics of different classifications of Households

Types of Household Samples	Definition
1. Non-member household	No CBE member in a household.
2. Member household	At least one CBE member within the household.
3. Committee member household	At least one committee member in a household.
4. Normal member household	A household has at least one CBE normal member but does not have any CBE committee members. Normal members cover active normal members and inactive normal members.
5. Active normal member household	A household has at least one CBE active normal member but does not have any CBE committee members. Active normal member is the normal member who produces and sells products to a CBE.
6. Inactive normal member household (or inactive member household)	A household has at least one CBE inactive normal member but does not have any CBE active normal members and CBE committee members. Inactive normal member is the normal member who have never produced and sold products to a CBE.
7. Active member household	(3) and (5)

CBE members were further classified into three strata (or sub-groups): committee members, inactive normal members and active normal members. The sample size of each stratum was proportionate to the population size; that is, each stratum had the same proportion, determined as a sampling proportion of 30 per cent, which was a limitation set by funding and time availability for the research. However, the sample size of CBE total members (204 samples) is not significantly different from the sample size determined by the simple random sampling method at the significance level 95 per cent (252 samples). Sample sizes of committee member, inactive normal member and active normal member households were calculated, respectively (Figure 6.2). Random sampling, based on a list of the members in each CBE, was used to obtain the CBE member samples.

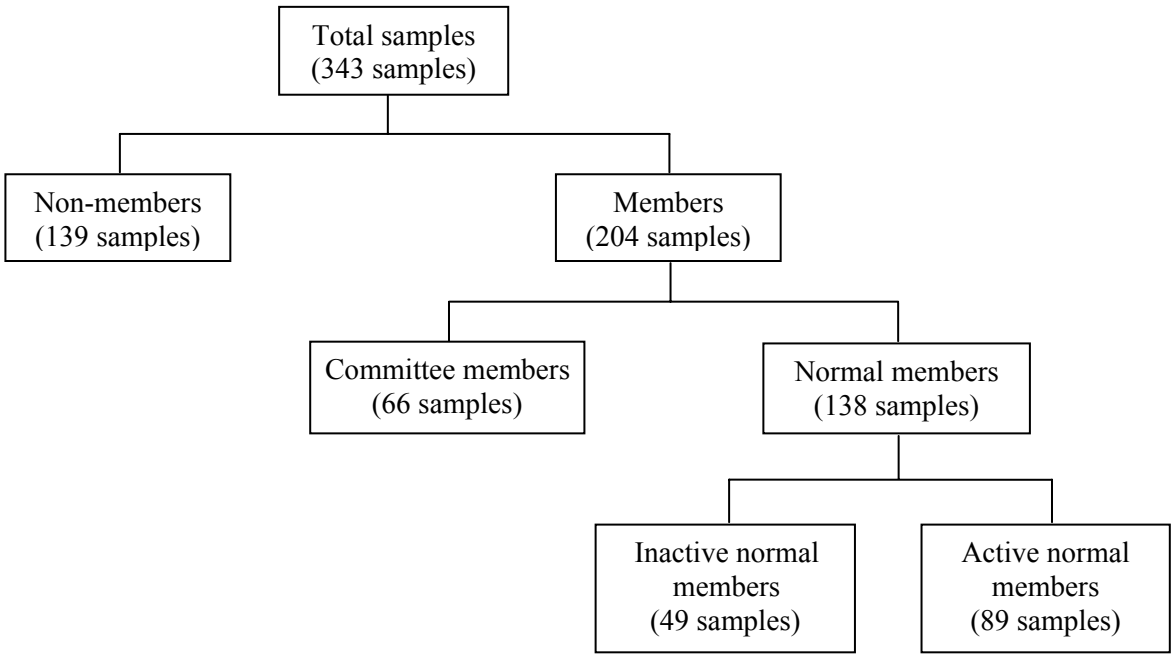

Figure 6.2: Structure of the sampled households

(Source: Survey data)

The samples of non-member households were selected from the same villages as the CBE member household samples. They were chosen using *the snowball sampling method*. The first step in this sampling procedure was to identify a number of households that meet the criteria for inclusion in the study — that is, those who do not have a CBE member. The second step is to ask the identified households to nominate other households known to them which not have a CBE member.

The snowball sampling method was applied because of the difficulty in conducting data collection from non-member households. The availability of non-member households for interview was difficult. The sample size for non-CBE members was relatively lower compared to member households. However, this size has satisfied the requirements for conducting a decent statistical analysis.

A summary and distribution of sampled households is shown in Figure 6.2. The distributions of the sampled households, CBEs and villages in the survey area are shown in Table 6.5.

Table 6.5: Distribution of the samples of households, CBEs and villages in survey area

Province	District	Number of villages (villages)	Number of CBEs (CBEs)	Number of households (households)				
				Committee members	Normal members		Non - members	Total
					Inactive	Active		
Lam Phun	Mae Tha	2	2	6	0	19	16	41
	Muang Lam Phun	1	1	12	4	7	14	37
	Li	1	1	1	1	5	7	14
Chiang Mai	Mae On	1	1	5	1	6	10	22
	Mae Taeng	2	3	4	16	18	27	65
	Chiang Dao	1	1	7	2	3	12	24
	Om Koi	1	2	9	6	18	23	56
Chiang Rai	Mae Chan	1	1	13	16	5	8	42
	Phan	2	2	9	3	8	22	42
	Total	12	14	66	49	89	139	343

(Source: Survey data)

6.2.3 Design of interview schedules

Two survey forms were designed and used to collect the desired data: one is containing questions on characteristics of the CBEs and their business management; and the other on characteristics relating to the poverty status of households. The interview schedules are presented in Appendix 1.

In-depth interviews were undertaken with the CBEs to gather detailed information relating to business management including organisational, production, marketing, and in particular, financial management. This information is essential for measuring the performance of a CBE and for assessing its impact. The interviews used two separate

forms: one to collect CBE information from the CBE head; and another to collect household information. In the absence of a CBE head, other committee members who normally participate and manage the CBE's activities provided the CBE information.

The household survey forms were used for collecting data on the characteristics and poverty status of households. With the exception of a few male CBE members, almost all of the respondents were women. Most of the women are housewives, with the remainder being household heads or members who mainly support their family. The household data collected covers characteristics such as material deprivation, access to basic needs, food security, women's empowerment, duration of membership, and perception of community participation.

6.3 Data collection and research survey challenges

6.3.1 Data collection

The data collection process was conducted from April to September 2009. Before commencing the field survey, four enumerators were recruited and trained. In recruiting the enumerators, particular attention was paid to their understanding of the research project objectives and methodology, level of experience in conducting field surveys at both farm and household level, and their relevant experience in the area of sufficiency economy.

Background information and the specific set of objectives of the study were conveyed to the enumerators before the onset of survey. The interview schedule for households was explained to them in detail, after which they were required to conduct pre-surveys as a learning exercise and to familiarise them with the interview schedule. Issues with the survey instruments and delivery were discussed and addressed prior to the commencement of the formal survey. Examples of the interview environment are shown in Figure 6.3.

Figure 6.3: Interview environment
(Source: Survey data)

6.3.2 Research survey challenges

A number of issues were encountered in undertaking the survey. These can be broadly categorised into survey planning challenges and survey process challenges. In the planning stage, there were various factors that were considered in the design of the survey, such as the geographical location of the villages, weather conditions, cost, time, finance and personal risks. Modifications to the initial plan were required because of several factors, such as study site selection as discussed below.

Initially, this study planned to conduct field surveys in the villages located in Mae Hong Son and Nan provinces which are among the top five provinces in terms of proportion of poor (NESDB 2008a). However, those villages are located in remote areas which are extremely difficult to access, particularly in the rainy season. Because of poor road and weather conditions, cost and time limitations, and personal risks in terms of driving and working safely, villages in Chiang Mai, Chiang Rai, and Lam Phun were chosen as the preferred study sites. Although these provinces, in general, are more developed in comparison with other provinces in northern Thailand, some areas within them are not. Moreover, as mentioned earlier, Chiang Mai has been the main promoter of the OTOP project in northern Thailand, and Chiang Rai is home to the largest number of CBEs. The changed province selections did not alter sample specifications, objectives of the study, or methods of analysis.

The survey process was beset by a number of challenges ranging from finding and recruiting appropriately qualified enumerators to dealing with the many logistics of conducting the actual field surveys. The following section highlights some of the

challenges concerning enumerators that were confronted in this research and discusses the strategies employed to overcome them.

The quality and quantity of enumerators can affect time and cost involved in field surveys and, in particular, can impact on the quality of the data collected. Based on the experience gained in the research for this thesis, the significant points to be considered are providing enumerators with sufficient training in questioning and communication, especially in sensitive techniques for in-depth interviews about living conditions.

The ability to gather quality data depends on several factors including interview methods, communication skills, collection methods, linguistic capabilities and respondents' trust in the interviewer. At times, some respondents in this study found it difficult to provide the information requested as they were not able to clearly understand some of the questions. This was primarily attributable to illiteracy, especially in the households of minority groups (minority groups), and where the heads of households were elderly. In addition, many respondents in minority groups were only comfortable communicating in their own language; communication difficulties arose because of language differences between interviewers and respondents, particularly in the interview situations with minority groups. Enumerators employed in this study mostly overcame such communication problems with the assistance of local translators. However, in a few instances this was not completely successful as the villages had multiple minority groups and their languages were not always the same.

6.4 Village, CBE and household profiles

The extensive nature of the data collected enabled detailed profiles to be constructed of the selected villages, CBEs and households.

6.4.1 Profile of the villages in the survey sample

Of the 12 selected villages, five were located in Chiang Mai, three in Chiang Rai and four in Lam Phun Province. Approximately three fifths (58.3%) were located close to the centre of the provinces (5-50 kilometers) while one-third are 51-90 kilometers away. One village is located 199 kilometers from the centre of the Province (Table 6.6). The environment of the villages is illustrated in Figure 6.4. The distances of these villages illustrate the accessibility problems influencing the effective delivery of basic amenities

and programs intended for community development. Generally, the people who live in the villages located near the centre of the province had more opportunities and easier access to markets, employment and infrastructure (Bureekam 2005) that could potentially positively influence their poverty status.

Table 6.6: Key features of the surveyed villages in northern Thailand

Features	Distribution of Village (N=12)
Distance from the centre (km)	
≤ 30	1
31-50	6
51-70	3
71-90	1
> 90	1
(min=5; max=199; mean=58.4)	
Households (households/village)	
≤ 100	1
101-200	5
201-300	4
301-400	1
> 400	1
(min=78; max=800; mean=243.6)	
Population (persons/village)	
≤ 500	4
501-1,000	7
> 1,000	1
(min=286; max=2,300; mean=731.8)	
Ethnic groups	
Northern native Thai	9
Minority hill-tribe	3
Educational level	
Illiterate (0 year)	3
Elementary school (1-6 years)	8
Bachelor's degree (13-16 years)	1
Average household income (baht/person/year)	
≤ 25,000	1
25,001-35,000	4
35,001-45,000	4
45,001-55,000	2
> 55,000	1
(min=25,000; max=70,339; mean=38,951)	
Proportion of agricultural income (%)	
1-10	4
20-40	6
70-80	2
(min=1.6; max=75.9; mean=28.6)	
Numbers of social-economic groups (groups)	
≤ 5	2
6-10	6
11-15	4
(min=4; max=15; mean=9.3)	

(Source: Compiled from CDD, 2008)

On average, there were 244 households (732 persons) per village. The largest village was occupied by 800 households (2,300 people), while the smallest village has 78 households (286 people). The average size of households in all villages was about three to four people per household. This compares well with the *average Thai household size*, which is

3.6 people (NSO 2000). In all villages, the majority of the population was between 26 and 49 years old.

Figure 6.4: Environment of the villages

(Source: Survey data)

Nine of the villages were occupied by northern native Thais, while hill-tribe members were predominantly the majority group in the other three villages. Typically hill-tribe villagers had limited education opportunities while native Thais had a better chance of educational attainment. The majority of villagers in eight of the nine native Thai villages had finished elementary school, while in one native Thai village most had completed a Bachelor's degree. Based from the National Statistics Record the average educational level in the rural areas of Thailand is 8.5 years (Ministry of Education 2006).

In two-fifths of the villages, income ranged from 25,000 to 35,000 baht/person/year. With the exception of two villages, all native Thai villages had an average annual personal income of more than 35,000 baht. The three hill-tribe villages had annual average incomes between 27,000–30,000 baht/person/year. The results obtained in the research were consistent with the findings of the CDD (2008), which indicates that 95.9 per cent of households in the north earn approximately 23,000 baht/person/year.

In Thailand, especially in rural areas, the agricultural sector remains the main source of income for households. In those periods when farming activity is not intense (such as during planting and harvesting seasons), household income is supplemented by

employment in off-farm activities. In the surveyed sampled households, approximately 29 per cent of total household income derives from the agricultural sector.

In order to support community activities and provide an intervention point for community development programs, socio-economic groups are established with the support of local government offices such as the Provincial Community Development Office, the Provincial Agricultural Office and the Tambon Administration Organisation. The groups are organised on the basis of: social and environmental aspect (such as women's groups, elders groups, juvenile groups, funeral groups and forest conservation groups); economic-driven groups including farmers groups, saving groups; and occupational groups (handicraft production groups and food processing groups). On average, there are nine socioeconomic groups per village.

6.4.2 Profile of CBEs in the survey sample

Of the 14 selected CBEs, eight were handicraft women's groups that consisted of four weaving (fabrics) groups, two basketwork groups and two embroidery works groups. Six of the selected CBEs process cottage foods: longan and herbs processing (1 group), fermented soybean (2 groups), banana chip (1 group), fermented pork (1 group) and rice processing (1 group) (Table 6.7). Three weaving groups and the rice-processing group were operated by minority hill-tribes. This is consistent with the dominant types of products produced by the hill-tribes in northern Thailand, which include fabrics, basketwork, embroidery, silverware, herb products and upland rice. The products they generally produce are based on their local wisdom, tradition and culture. Some of the main production activities of the CBEs are shown in Figure 6.5.

Table 6.7: Main activities of the CBEs

Main activity	Number of CBEs (N=14)
Food processing	*6*
Longan and herbs processing	1
Fermented soybean	2
Banana chip	1
Fermented pork	1
Rice processing	1
Handicraft production	*8*
Weaving (fabrics)	4
Basketwork	2
Embroidery	2

(Source: Survey data)

To support CBEs' products, the Thai Government has implemented the OTOP Product Champion (OPC) contest to showcase novel products. In order to enter the OPC contest, the CBEs, SMEs and individual producers are required to register as the producers of OTOP products. Only one product can to be submitted by each producer (Kurokawa et al. 2010).

The OPC certification is awarded to the producers based on quality of the products submitted to the contest. In general, award recipients received additional support from government organisations in terms of production knowledge and technology, product and packaging design, marketing and financing. Hence, OPC certification is extremely important as access to additional resources further consolidate business viability. OPC certification encourages CBEs to develop new products and improve the quality of their existing products. It also supports the use of resources and capital, in particular raw materials and local wisdom, within the community.

Figure 6.5: Examples of CBE production activities

(Source: Survey data)

The general criteria for the selection of 'OTOP product champion' (OPC) are: the product must have a brand quality and is able to be exported; the product can be sustainably produced (or it can be continuously produced over a long period of time) and its quality is consistent; the product can provide customer satisfaction; the product can be displayed

with an impressive background story (CDD 2007; Kurokawa et al. 2010). The total score for selecting the product is 100 points. The products are classified into five grades (or five stars). Five-star is the highest rating. Only the product obtaining 90 points and above can achieve the five-star certificate (Table 6.8).

Table 6.8: Criteria for OPC certification

Star	Point	Criteria
5	90 and above	Good quality, exportable
4	80-89	Fairly good quality, nationally recognised, exportable, upon improvement
3	70-79	Average quality, able to attain 4 stars upon improvement
2	50-69	Able to attain 3 stars, periodically assessed
1	Below 50	Product is unable to attain 2 stars due to its many weaknesses and difficulty for development.

(Source: Kurokawa et al., 2010: 12)

The OTOP logo with stars is a tool for building a brand. The OPC certification is closely related to financial and other benefits for the CBEs. The CBEs who won four-or five-star have a better chance of receiving further support, such as financial support, marketing support and production technology training, from the local government office and other government business-support organisations (Kurokawa et al. 2010; Soriano 2010). Higher certification also enhances access to bank credits. Since 2001, the BAAC has implemented a lending scheme for OTOP members. In 2004, the total amount of credit for OTOP members was 6,316.85 million baht. The vast proportion (88%) of the beneficiaries was women (Kurokawa et al. 2010).

Of the 14 CBEs in this study, the longan and herbs processing group was the only CBE to win a five-star award (Table 6.9). The dried longan product was judged to have a consistent quality suitable for export and could be produced continuously over a long period of time. Five other CBEs gained four-star certification for their products, two managed three-star, three were awarded two-star and two gained one-star certification. Of the eight handicraft product CBEs, two weaving groups and one embroidery group achieved four-star status. From the record provided by Thaitambon (2010), approximately 7 and 25 per cent of the total products obtained five-star and four-star status, respectively.

As noted above, the formation of CBEs are assisted by government and non-government organisations. Among the surveyed villages, with the exception of two CBEs, most of the CBEs were established with the support of governmental organisations (Table 6.10). All were registered with the government offices that provide CBEs with knowledge,

technology, marketing and financial support. The main purpose for the establishment of the groups is to generate employment and to provide a supplementary source of income for the villagers, particularly the active members. The CBE groups also aim to provide an avenue for social and community activities in the village such as creating unity and nurturing local wisdom.

Table 6.9: The OPC Stars and sales revenues of the CBEs

CBEs	OPC Stars	Sales Revenues (million baht)[2/]
Food processing groups		
Longan and herbs processing group	5	0.38
Fermented soybean group	4	0.34
Fermented soybean group	3	0.09
Banana chip group	1	0.32
Fermented pork group	4	1.13
Rice processing group[1/]	-	0.01
Handicraft production groups		
Weaving (fabrics) group	4	0.65
Weaving (fabrics) group	4	0.64
Weaving (fabrics) group	2	0.20
Weaving (fabrics) group	2	0.14
Embroidery group	4	6.63
Embroidery group	2	1.74
Basketwork group	3	0.11
Basketwork group	1	0.11

Note: 1/ The group was unable to attain any stars due to many weaknesses of the product and difficulty for product development.
2/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

Table 6.10: CBE supporters and main reasons of establishment

Supporter and main reason of establishment	Number of CBEs (N=14)
Establishment supporter	
Governmental organisations	12
Non-governmental organisations	1
Village head	1
Main reason of establishment[1/]	
Employment generation support	11
Marketing support	3
Knowledge and technology support	1
Community activity support	7

Note: 1/ Multi-responses (Some CBEs have more than one reason.)

(Source: Survey data)

Other key characteristics of CBEs included in this study are presented in Table 6.11. The majority of the CBEs were formed when the OTOP policy was implemented by the former Prime Minister Thaksin Shinawatra. New entrants in the enterprise are rice processing groups that are formed within the last years prior to the survey process.

The CBEs are formed mainly to provide permanent and causal employment for its members and other village inhabitants. In a study conducted by Sriboonchitta et al. (2004), approximately 64 percent of the CBEs in northern Thailand are mainly formed to provide supplementary source of income for the villagers. Jonjoubsong (2008) indicated that community enterprises have around 30-50 self-employed members in production activity. Using the survey data, on average there are 49 members and 18 permanent workers in each CBE. The smallest CBE is the banana chip processing group with only 13 members, while the biggest CBE is one of the weaving groups (163 members).

More than half of the CBEs have less than 11 permanent workers. Many members are employed in other occupations and participate on an irregular basis. However, in one group (the basketwork production group) all members (63 persons) participate as permanent workers. There are two main reasons for this. Firstly, basketwork production has been the main source of income for this group, and other villagers, since before the CBE was initiated and secondly, the group framework delivers higher prices in comparison to selling products directly to local buyers.

A comparison between handicraft CBEs and food processing CBEs shows that handicraft CBEs employ 4.5 times more permanent workers than food processing CBEs. *This suggests that handicraft CBEs have a greater capacity to create employment in the villages than do food processing CBEs.*

Around a half of the CBEs produce between one and five different products one of the basketwork production groups had the highest diversity of products (24 kinds), while the rice processing group produced only one product (milled rice). Annual sales revenue of CBEs ranged between 100,001 and 500,000 baht/year.

While the dominant purpose of CBEs was to produce handicrafts and food-based products, other activities were also performed by each member. Fifty per cent of the CBEs operate as a savings activity along with their production activity (Table 6.11). The savings activity provides financial support for CBE members and is also a source of working capital for the CBEs. The provision of a dividend is set as a rule for eight CBEs, but only six are able to provide their members with a dividend. Around 65 per cent of

Table 6.11: Key features of the sampled CBEs in northern Thailand

Features	Number of CBEs (N=14)
Experience (years)	
≤ 5	2
6-10	5
11-15	3
16-20	2
> 20	2
(min=2; max=29; mean=12.6)	
Numbers of members and permanent workers (persons)	
≤ 25	5
26-50	5
51-75	2
76-100	1
> 100	1
(min=13; max=163; mean=48.6)	
Permanent worker	
≤ 10	7
11-20	3
21-30	1
31-40	2
> 40	1
(min=3; max=63; mean=17.9)	
Diversity of product (kinds/CBE)	
1-5	8
6-10	1
11-15	3
> 15	2
(min=1; max=24; mean=7.4)	
Provision of welfare to members	
No	5
Yes	9
Types of welfare[1/]	
Life insurance	1
Funeral ceremony support (money/in-kind)	2
Bonus (at the end of the year)	1
Medical/health expenditure support	1
Loan providing	8
Visiting when the members get sick	1
Saving activity	
No	7
Yes	7
Dividend rule	
No	6
Yes	8
Sale revenues (100 thousands baht/year)[2/]	
≤ 1	2
1.01 - 5	7
5.01 - 10	2
> 10	3
(min = 0.14; max = 66.3; mean=8.9)	

Note: 1/ Multi-responses (Some CBEs have more than one type of welfares.)
2/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey Data)

CBEs provide some type of welfare to their members. The main type of welfare is through the provision of loans.

Marketing channels for CBE products were diverse and are shown in Figure 6.6. The materials used for processing were sourced from different supplier within and outside the Province. Raw materials were processed by different stakeholders, including the handicraft and food processing groups. Finished products were then sold to domestic and

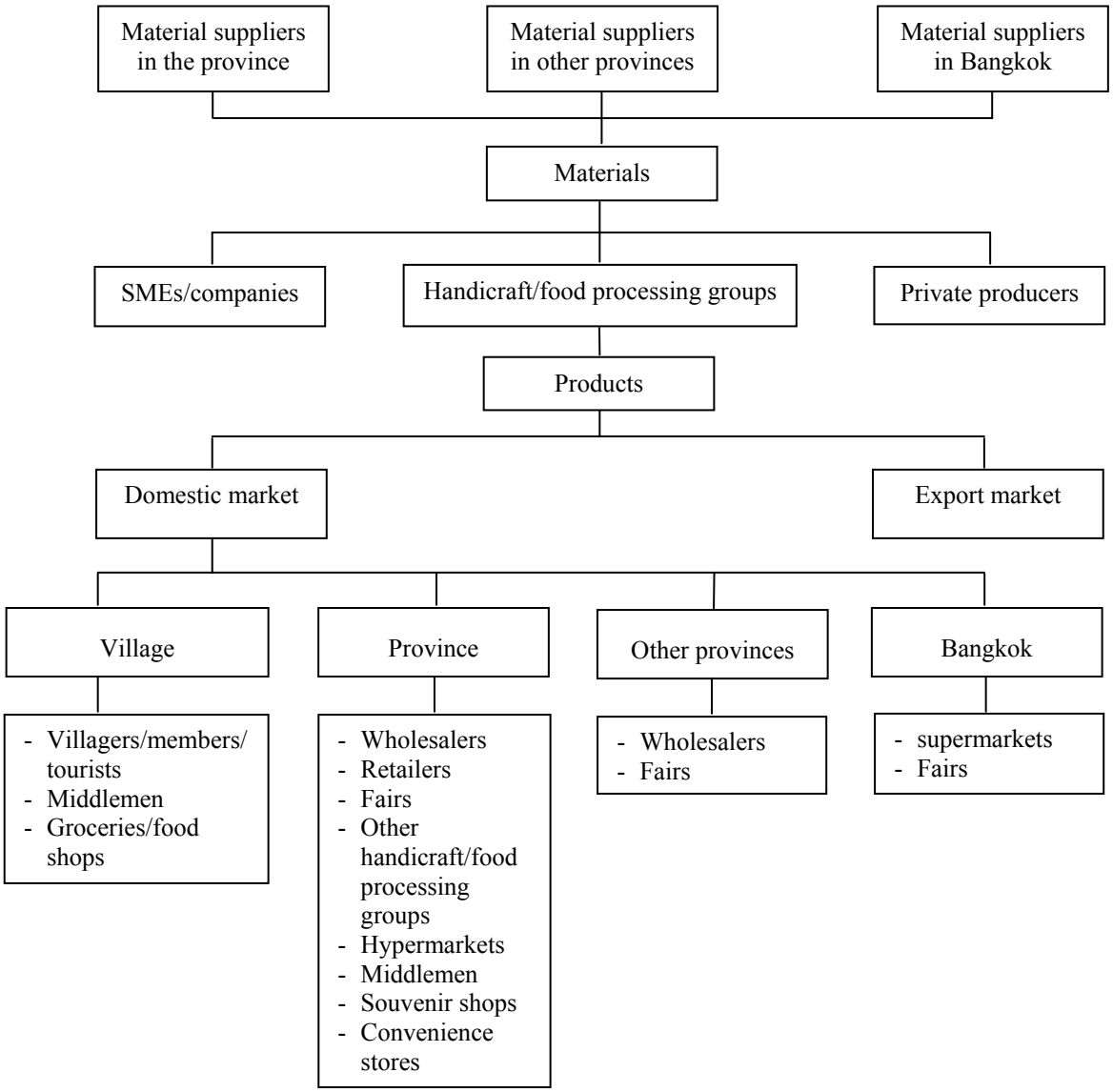

Figure 6.6: Marketing channels of the sampled CBEs

(Source: Survey data)

export markets. Those that were sold domestically were channelled through wholesalers, retailers and food fairs. The marketing channels of CBE products are influenced by numerous factors, such as distance from the city, the nature and quality of products, and

marketing ability. For example, the rice-processing group is forced to sell its product (milled rice) for village consumption because of their distant location from the city and the product's short shelf life due to inadequate packaging. Another group uses organic soybean as the raw material to make fermented soybean products and sell its products into niche markets in the Province and in Bangkok. Another fermented soybean group uses chemically treated soybeans but the quality of its products and brand cannot compete with factory-produced products; the group has to sell its products in the local market.

Governance of CBEs is an important factor that can influence the functioning of individual groups. The basic organisational structure of CBEs is depicted in Figure 6.7. Positions in the basic organisation structure of the CBEs consist of head, vice-head, secretary and treasurer.

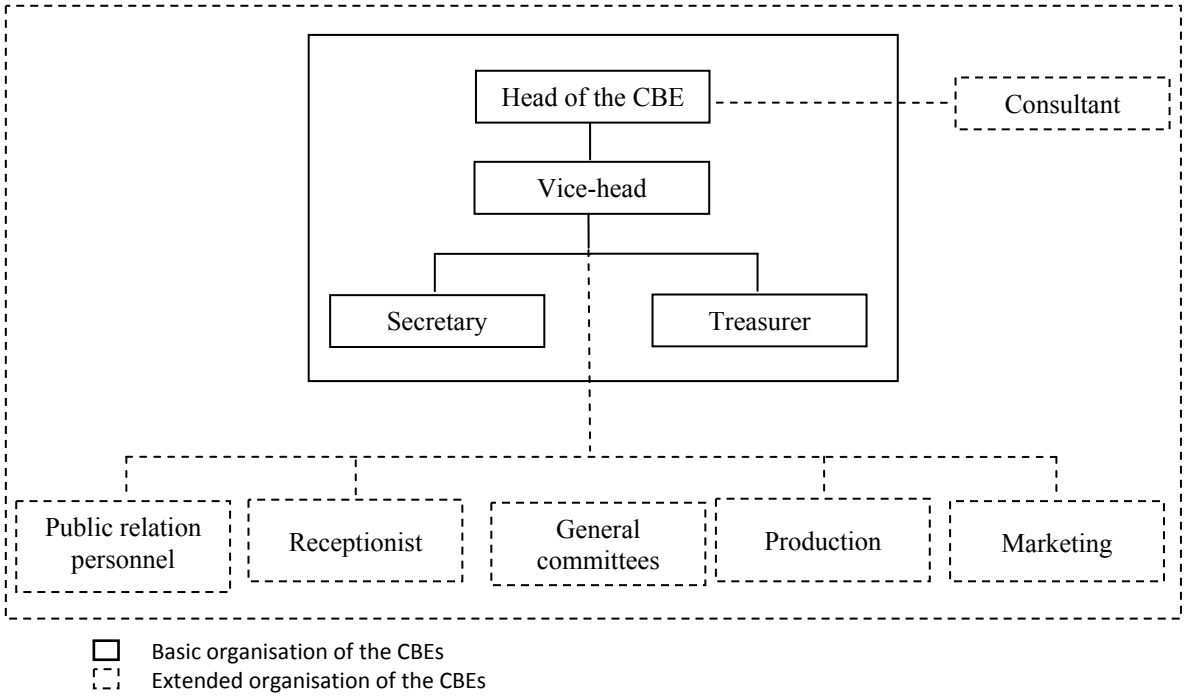

Figure 6.7: Organisational structure of the CBEs

(Source: Survey data)

Other positions such as production, marketing, quality control, purchasing, auditor, vary among the CBEs. The committee members of CBE are responsible for the overall operations of the groups following the guidelines provided by the CDD and members. The organisational structure of CBEs is influenced by the size of CBEs. The smallest structure of CBEs comprises just five positions (4 basic positions and public relation

personnel), whereas the largest structure consists of 29 positions including four basic positions, public relation personnel, receptionist, 19 general committee members (without determining an actual function of each committee member) and four consultants.

6.4.3 Profile of households in the survey sample

Being a minority group is considered one of the household characteristics potentially affecting household poverty; the profiles of households presented in this section are classified by CBE membership status and ethnic group of the household.

> In this study, a 'household' is defined as: "A domestic unit consisting of the members of a family who live together in one house collectively" (Royal Institute of Thailand 2003: 1)[12]. A 'household head' is defined as: 'A family member who is respected by other members and accepted to be the leader of the family, although he (she) may not take responsibility for financial matters of the household (NSO 2004: 1)[2].

Profiles of household respondents are summarised in Table 6.12. The household respondents consist of inactive members of the CBE (14%), active members (45%) and non-members (41%). Active members of the CBEs include committee members and active normal members. Nearly three-quarters of all CBE members (74.4%) have been members for 10 years or less. Interestingly one quarter of inactive members (24.5%) have been in the CBEs for 16-30 years while only one tenth of active members (12.3%) are in this range. The vast majority of the respondents are female (97.7%) and over half of them are 41-60 years of age. The marital status of the respondents was separated into; married and live together in the same household, married but do not live together in the same household, widowed, divorced (or separated) and single. Of the respondents, the majority of them are spouses (69.4%) and live together in the same household (79%). Three fifths of household respondents finished elementary school (60.4%), while those who finished a Bachelor's degree were a mere 2.0 per cent. Noticeably, over one fifth of the respondents are classified as illiterate (22.4%).

The agricultural sector is a main source of income for the respondents, for both those who their own farms (34.3%) and those who are employed as farm labourers (11.7%). Trading is also a significant source of income especially for inactive member households. It is

[12] Translated by the author from Thai to English

Table 6.12: Key characteristics of household respondents by CBE membership classification

Features	Inactive member's households (N=49) (%)	Active members households (N=155) (%)	Non- members households (N=139) (%)	Total households (N=343)(%)
Duration of CBE membership years)				
≤ 5	36.7	34.3	-	35.0
6-10	32.7	41.5	-	39.4
11-15	4.1	11.9	-	9.9
16-20	20.4	8.4	-	11.3
21-25	-	1.3	-	0.9
26-30	4.1	2.6	-	3.0
No response	2.0	-	-	0.5
Gender				
Male	-	3.2	2.1	2.3
Female	100	96.8	97.9	97.7
Age (years)				
≤ 20	-	2.6	-	1.2
21-30	10.2	6.5	5.7	6.7
31-40	10.2	15.6	15.0	14.6
41-50	34.7	28.6	32.1	30.9
51-60	32.7	25.3	27.1	27.1
> 60	12.2	21.4	20.0	19.5
(min=18; max=81; mean=49.31)				
Marital status				
Single	2.0	5.2	2.1	3.5
Married and live together in the household	83.7	78.6	77.9	79.0
Married but do not live together in the household	4.1	-	2.1	1.5
Widowed	6.1	12.3	12.1	11.4
Divorced/separated	4.1	3.9	5.7	4.7
Household membership status				
Household head	24.5	18.8	21.4	20.7
Spouse	63.4	69.5	69.3	69.4
Son	-	1.3	0.7	0.9
Daughter	6.1	5.8	7.9	6.7
Grandchild	-	0.7	-	0.3
Other relatives	6.0	3.9	0.7	2.0
Education level				
Illiterate (0 year)	10.2	25.3	23.6	22.4
Elementary school (1-6 years)	73.5	54.6	62.1	60.4
Junior high school (7-9 years)	6.1	15.6	5.7	10.2
Senior high school (10-12 years)	8.2	3.9	5.0	5.0
Bachelor's degree (13-16 years)	2.0	0.6	3.6	2.0
Main occupation				
Employed	*97.9*	*99.4*	*95.0*	*97.4*
Self-employed in farm production	27.1	35.3	36.1	34.3
Self-employed in non-farm production	6.3	3.3	5.2	4.5
Farm labour	12.5	9.2	14.2	11.7
Non-farm labour	4.1	5.9	10.6	7.5
Family-business owner	29.2	7.2	9.1	11.1
Work for service sector	4.1	2.6	3.8	3.3
Housekeeper of their own house	10.4	1.3	11.2	6.6
Labour in handicraft production	6.3	27.4	9.8	17.4
Labour in food processing	-	7.8	-	3.6
No occupation	*2.1*	*0.6*	*5.0*	*2.6*

(Source: Survey data)

worth noting that handicraft production and food processing (working in CBEs, private enterprises and their own enterprises) are also main sources of income, particularly for active member households.

The head of a household plays an important role in decision-making processes and has influence in other aspects. Klasen et al. (2011) note that female-headed households in Thailand and Vietnam are worse off compared to households headed by men in terms of consumption, the likelihood to experience a shock, vulnerability to poverty and perceived downside risk. In the survey area, over three quarters of the household heads were men (77.8%). Generally, in Thai society, household heads are the oldest male in the family. Where household heads are female, they are usually widows who live with their children or single females who live alone. In the study sample, nearly 80 per cent of household heads were married and live with their family. Approximately one-fifth of the household heads of active members and one-fifth of household heads of non-members were either widowed or divorced. Only a tenth of inactive member's household heads were either widowed or divorced (Table 6.13).

There are statistically significant differences in gender ($\chi^2 = 9.175$) and marriage status ($\chi^2=11.358$) between hill-tribe and northern native Thai household heads. Approximately, one quarter (26.4%) of native household heads were female, while only one tenth of hill-tribe household heads (11.3%) were female (Table 6.14). The majority of both native and hill-tribe household heads were married and live with their families (74.4% and 88.7%, respectively). However, nearly one-fifth (17.5%) of native household heads were widows (or widowers) and almost 5 per cent were divorced. Conversely, only one-tenth of hill-tribe household heads were widows (or widowers) and none are divorced.

On average, the household heads were 55 old. The youngest household head was 19 years while the oldest was 88. Based on *t*-statistic test, the average ages of hill-tribe and native household heads were found to be statistically different at 0.05 level of significance. Hill-tribe household heads were, on average, 48 years old, whereas native household heads were 57 years old (Table 6.15).

Table 6.13: Key characteristics of household heads by classification of membership in CBEs

Gender and marriage status	Inactive members households (N=49) (%)	Active members households (N=155) (%)	Non-members households (N=139) (%)	Total households (N=343) (%)
Gender				
Male	81.6	78.6	75.7	77.8
female	18.4	21.4	24.3	22.2
Marriage status				
Single	-	3.2	0.7	1.5
Married and live together in the household	85.7	76.0	77.9	78.4
Married but do not live together in the household	4.1	-	2.1	1.5
Widowed	6.1	18.8	15.7	15.7
Divorced/separated	4.1	2.0	3.6	2.9
Age (years)				
≤ 20	-	0.6	-	0.3
21-30	4.1	2.0	5.7	3.8
31-40	12.2	9.7	5.0	8.1
41-50	20.4	23.4	27.9	24.8
51-60	40.8	32.5	27.9	31.8
> 60	22.5	31.8	33.5	31.2
(min=19; max=88; mean=54.65)				
Educational level				
Illiterate (0 year)	12.2	33.8	23.6	26.5
Elementary school (1-6 years)	65.3	50.0	62.1	57.1
Junior high school (7-9 years)	6.1	11.0	5.0	7.9
Senior high school (10-12 years)	12.2	4.6	6.4	6.4
Bachelor's degree (13-16 years)	4.1	0.6	2.9	2.0
Occupation				
Employed	*89.8*	*89.0*	*88.6*	*88.9*
Self-employed in farm production	52.2	46.7	42.8	45.9
Self-employed in non-farm production	2.3	3.7	3.2	3.3
Farm labour	13.6	10.2	14.5	12.4
Non-farm labour	2.3	10.2	16.2	11.5
Family-business owner	15.9	7.3	5.6	7.9
Work for service sector	11.4	5.8	7.3	7.2
Housekeeper of their own house	2.3	0.7	4.8	2.6
Labour in handicraft production	-	10.9	5.6	7.2
Labour in food processing	-	4.4	-	2.0
No occupation	*10.2*	*11.0*	*11.4*	*11.1*

(Source: Survey data)

Table 6.14: Key characteristics of household heads by ethnic groups

Features	Ethnic groups (Number of households)		
	Native	Hill-tribe	Total
Gender			
Male	181	86	267
	(73.6)	(88.7)	(77.8)
Female	65	11	76
	(26.4)	(11.3)	(22.2)
Marital status			
Single	5	0	5
	(2.0)	(0)	(1.5)
Married and live together	183	86	269
	(74.4)	(88.7)	(78.4)
Married but do not live together	5	0	5
	(2.0)	(0)	(1.5)
Widow/widower (wife/husband died)	43	11	54
	(17.5)	(11.3)	(15.7)
Divorce/separate	10	0	10
Educational Status			
Illiterate (0 years)	18	73	91
	(7.3)	(75.3)	(26.5)
Elementary school (1-6 years)	177	19	196
	(72.0)	(19.6)	(57.1)
Junior high school (7-9 years)	23	4	27
	(9.3)	(4.1)	(7.9)
Senior high school (10-12 years)	21	1	22
	(8.5)	(1.0)	(6.4)
Bachelor's degree (13-16 years)	7	0	7
	(2.8)	(0)	(2.0)

Note: The figures in parentheses are percentages of the total.

(Source: Survey data)

Table 6.15: Mean of household heads' age classified by ethnic groups

Ethnic groups	No. of samples (N)	Mean (years)	S.D.	t-test	Sig. (2-tailed)
Native Thai	246	57.12	10.807	6.193	.000*
Hill-tribe	97	48.38	13.935		

Note: * at.05 significance level

(Source: Survey data)

Over half of the surveyed household heads (57.1%) finished elementary school. However, only two per cent completed a Bachelor's degree. One-quarter had received no education

and a significant proportion of these household heads were active member households heads. Inactive member household heads had a higher proportion of senior high school and Bachelor's degree education relative to the other groups. Based on chi-square test, a higher proportion of native household heads gain higher levels of education than do hill-tribe heads (Table 6.14). Three quarters of hill-tribe household heads (75.3%) have no formal education, while the majority of native heads (72%) have at least finished elementary school.

Of the household heads that are employed, almost half (46%) mainly work in their own farm business. Around one-tenth are classified as unemployed because they are retired, unwilling or unable to work (handicapped or ill). Around 15 per cent of household heads in the active member group earn their main income from working in handicraft production and food processing CBEs.

In order to gain a clearer picture of the profiles of the selected households, background characteristics of household size, access to basic needs (in terms of education, health, sanitation, source of water, source of energy, and household structures), land assets, existence of CBE members in the households, consumption expenditures and income of selected households were gathered. This information presents a clear profile of the selected households.

Literacy and schooling are important indicators of the quality of life in their own right, as well as being key determinants of poor people's ability to take advantage of income-earning opportunities (Haughton and Khandker 2009).

There was a significant difference between ethnic groups at the 5 per cent level of significance (Table 6.16): just under a third of hill-tribe households (30%) did not have any 15 to 60 year-old members who were literate while, in the vast majority of native households (86.5%), all members in the age range were literate (Table 6.16). The literacy level of household members was a significant factor in difficulty of obtaining information during the survey process. Further effects of this variable on the poverty status of households are provided in the empirical analysis in Chapter 8.

Table 6.16: Access to basic needs of household members by ethnic groups

Features	Ethnic groups (No. of households)		
	Native	Hill-tribe	Total
Literacy[1/]			
No literate members aged 15 - 60 years	3	29	32
	(1.2)[4/]	(30.2)	(9.4)
Some literate members aged 15-60 years	30	39	69
	(12.2)	(40.6)	(20.2)
All members aged 15-60 years are literate.	212	28	240
	(86.5)	(29.2)	(70.4)
Access to health check up[2/]			
No ≥ 35 years old members have had an annual health check.	48	47	95
	(19.5)	(52.2)	(28.3)
Some ≥ 35 years old members have had an annual health check.	83	20	103
	(33.7)	(22.2)	(30.7)
All ≥ 35 years old members have had an annual health check.	115	23	138
	(46.7)	(25.6)	(41.1)
Type of toilet[3/]			
Pit toilet	0	1	1
	(0)	(1.2)	(.3)
Sewer toilet	202	83	285
	(82.4)	(98.8)	(86.6)
Flush toilet	26	0	26
	(10.6)	(0)	(7.9)
Sewer toilet and flush toilet	17	0	17
	(6.9)	(0)	(5.2)
Sources of lighting			
Candles	0	6	6
	(0)	(6.2)	(1.7)
Kerosene/gas	0	1	1
	(0)	(1.0)	(.3)
Kerosene/gas and firewood	0	1	1
	(0)	(1.0)	(0.3)
Electricity	246	83	329
	(100)	(85.6)	(95.9)
Firewood	0	6	6
	(0)	(6.2)	(1.7)
Main sources of cooking fuel			
Dung	1	0	1
	(0.4)	(0)	(0.3)
Collected firewood	116	94	210
	(47.2)	(96.9)	(61.2)
Purchased firewood	35	2	37
	(14.2)	(2.1)	(10.8)
Charcoal	41	0	41
	(16.7)	(0)	(12.0)
Gas	53	1	54
	(21.5)	(1.0)	(15.7)
Main construction material			
Bamboo/plywood/Tong Tung leaves	3	21	24
	(1.2)	(21.6)	(7.0)
Brick	61	8	69
	(24.7)	(8.3)	(20.1)
Wood	112	64	176
	(45.6)	(65.9)	(51.3)
Concrete	70	4	74
	(28.5)	(4.1)	(21.6)

Note: 1/ 2 missing cases; 2/ 7 missing cases ; 3/ 14 missing cases; 4/ The figures in parentheses are percentages of the total.

(Source: Survey data)

Access to better health services, sanitation, energy and housing conditions are indicators of well-being of households and individuals. The health status of household members can be assessed by noting the regularity of health checks. As shown in Table 6.16 over half the hill-tribe household members over 35 five years old had not had an annual health check. In contrast, nearly half of the native household members over 35 years old had had an annual health check. There was also a significant difference in availability of sanitation facilities between hill-tribe and native households. Native households had greater access to modern sanitation facilities. Energy can be separated into energy sources used for lighting and energy sources used for cooking. All native households had access to electricity, while 14 per cent of hill-tribe households still used candles, kerosene and firewood. Nearly all hill-tribe households (96.9%) used firewood collected from surrounding areas as fuel for cooking. By contrast, in addition to firewood, native households had access to other sources of cooking fuel, including purchased firewood (14.2%), charcoal (16.7%) and gas (21.5%) (Table 6.16).

Based on a study by Prakongsai (2005), asset portfolios are important indicators of the living standards of households. Houses in the rural Thailand are mainly made of wood, concrete, and bamboo. Housing construction materials differ between hill-tribe and native households (Table 6.16). Roughly two thirds of hill-tribe households (65.9%) use wood as the main material for constructing house exterior walls compared to just fewer than half of the native households (45.6%). Approximately one-fifth of hill-tribe households (21.6%) use bamboo/plywood/Tong Tung leaves as the main material, while just over one per cent of native households using these same materials.

Poverty is associated with land ownership. The smaller the farm sizes, the higher the proportion of poor. In 2007, according to NESDB data, 19.22 per cent of households are those with land ownership of less than 5 rais, while 9.18 per cent are those with land ownership above 20 rais. There was a statistically significant difference in the size of farmland belonging to the two ethnic groups participating in the current research. The average farm sizes were 4.65 rai (1.84 acres)[13] per native household and 2.57 rai (1.02 acres) per hill-tribe household (Table 6.17).

[13] 1 acre is equal to 2.529 rai.

Table 6.17: Mean of area of household-owned farm land classified by ethnic groups

Ethnic groups	No. of samples (N)	Mean (rai)[1/]	S.D.	t-test	Sig. (2-tailed)
Native Thai	246	4.65	6.81	2.816	.005*
Hill-tribe	97	2.57	4.19		

Note: * at.05 significance level
1/ 1 acre is equal to 2.529 rai.

(Source: Survey data)

Household income and expenditures are often used as indicators of the wellbeing of individuals. Household income may be obtained from different sources, including on-farm and off-farm activities. For the purpose of this study, household income is defined as the gross income from all activities because it was difficult to delineate all income sources (Prakongsai 2005; Sahn and Stifel 2000; Zeller et al. 2003). Household production expenses are not included as a part of household consumption expenses.

A comparison between monthly per capita income and the poverty line of the northern region, (1,326 baht (or 42.23 AUD[14])/person/month) (NESDB 2008a), suggests that 23 per cent of households are poor (Table 6.18). The proportion of poor households in the active member and non-member groups are the same but are higher compared to the inactive group.

Approximately 30 per cent of inactive member households have per capita income higher than 10,001 baht/person/month, which is a markedly higher proportion than the other groups (Table 6.18). This is because inactive members earn income from three main sources in a higher proportion compared to the other member types. These income sources consist of other non-agribusiness, borrowing from other sources, and transfers of money from other sources (see Figure 6.8).

[14] The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011)

Table 6.18: Per capita income and per capita consumption expenses of the households

Per Capita Income and Per Capita Consumption Expenses[1/]	Inactive member's households (N=49) (%)	Active member's households (N=155) (%)	Non- member's households (N=139) (%)	Total households (N=343) (%)
Per capita income (baht/person/month)				
< 1,326	14.3	24.0	24.3	22.7
1,326-5000	36.7	53.2	45.7	47.8
5,001-10,000	20.4	16.2	17.1	17.2
10,001-20,000	16.3	4.6	6.4	7.0
20,001-30,000	4.1	-	5.0	2.6
30,001-40,000	6.1	-	0.7	1.2
>40,000	2.0	2.0	0.7	1.5
(min=154.67; max=230,944.44; mean=6,376.86)				
Per capita consumption expenses (baht/person/month)				
< 1,326	26.5	44.8	36.4	38.8
1,326-5000	61.2	51.3	59.3	56.0
5,001-10,000	12.2	3.2	3.6	4.6
> 10,000	-	0.7	0.7	0.6
(min=230; max=33,409.72; mean=2,090.87)				

Note: 1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

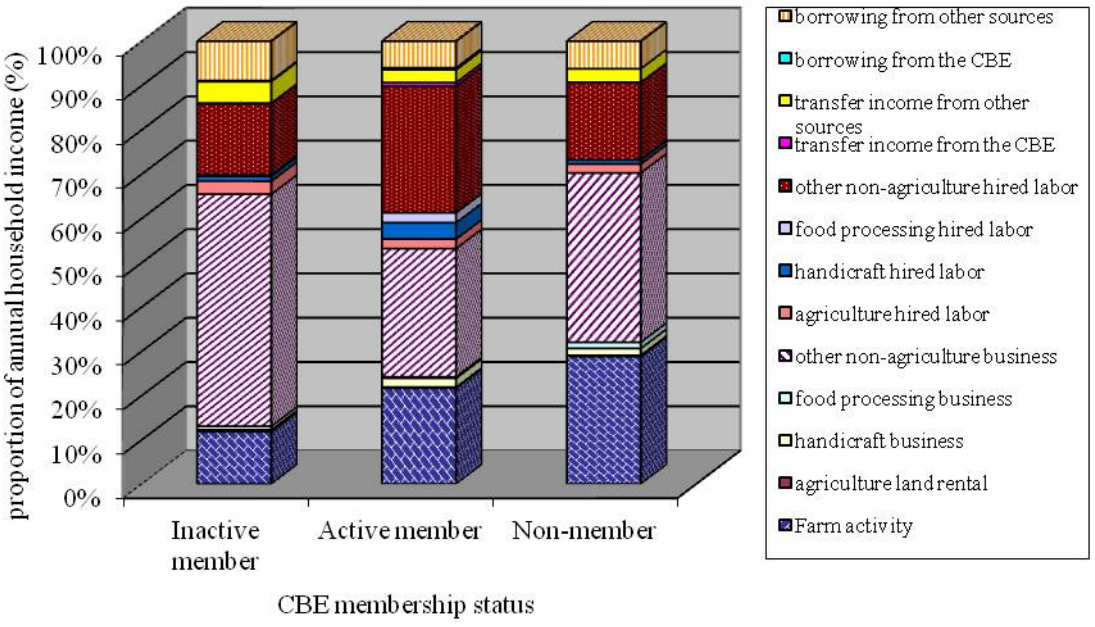

Figure 6.8: Proportion of household income categorised by sources of income

(Source: Survey data)

Monthly household income of the respondents, categorised by duration of CBE membership is presented in Table 6.19.

Table 6.19: Monthly household income categorised by CBE membership duration

CBE membership duration (years)	Average household income (baht/household/month)[1/]
≤ 5	18,693.9
6 – 10	19,217.9
11 – 15	15,438.7
16 – 20	26,828.3
> 20	23,241.7
Total	19,680.6

Note: 1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

Tests for differences in mean household incomes (*t*-statistic test) indicate there were no differences based on the duration of membership. This result is not surprising as income from food processing and handicraft businesses, and the monetary benefits conferred by the CBEs are small in comparison with other income sources (Figure 6.8). There is, however, a statistically significant difference in the average per capita income of native households and hill-tribe households as indicated in Table 6.20.

Table 6.20: Mean of per capita income of households classified by ethnic groups

Ethnic groups	No. of samples (N)	Mean (baht/person/month)[1/]	S.D.	t-test	Sig. (2-tailed)
Native Thai	246	8,160.68	18,273.10	3.389	.001*
Hill-tribe	97	1,852.96	1,952.66		

Note: * at significant level .05

1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

Household consumption comprises food and non-food expenses. Table 6.18 shows that two-fifths (38.8%) of households had food and non-food expenditures below the poverty line for the North (1,326 baht (or 42.23 AUD)/person/month). The proportion of poor households was higher in the active member household group (44.8%) than in the other types of CBE membership. Roughly half of all households (56%) had monthly consumption expenses between 1,326-5,000 baht/person (Table 6.18).

Household food and non-food consumption expenditures averaged around 7,030 baht/month. Approximately 64 per cent of monthly household consumption was on non-food expenses. Active member household expenditure was the smallest of the different CBE membership groups (Figure 6.9). Household expenditure on food can be broadly categorised as expenses for rice, vegetable and fruits, fresh foods, dry foods and beverages. The highest expenditures were on rice and fresh foods, such as red meats (Figure 6.10).

In 2007, approximately 52.6 per cent of household consumption of the poor household was on foods and beverages (NESDB 2008a).

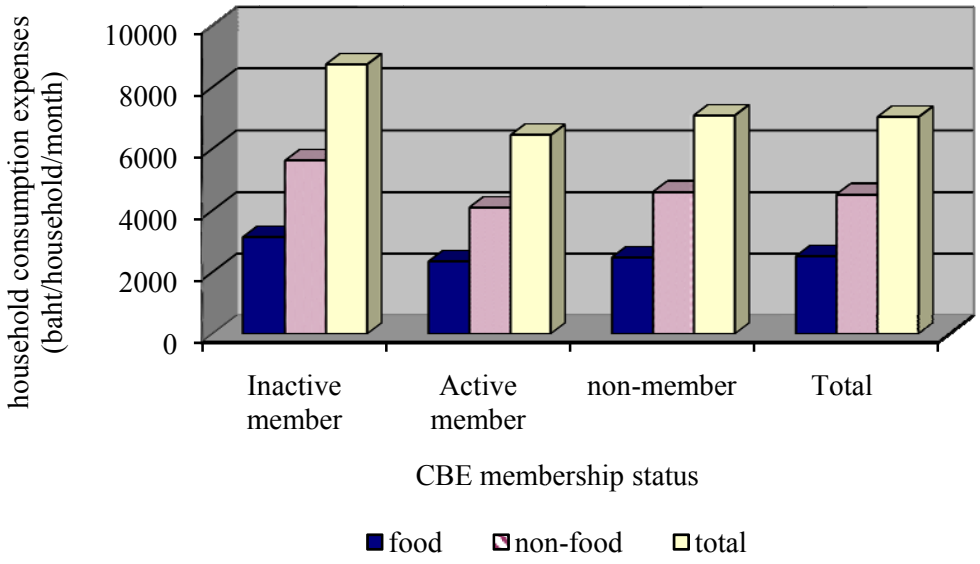

Figure 6.9: Food and non-food consumption expenses of households categorised by CBE membership status

(Source: Survey data)

The highest non-food consumption expenditures were education, ceremony, recreation and health care (29%, 15%, 11% and 9% of non-food expenses, respectively). Noticeably, CBE member households spent more on education than non-member households but less on medical expenses (Figure 6.11). Around 75 per cent of recreational expenses were on alcohol, cigarettes and lotteries. CBE member households spent more on alcohol than non-member households, but less on lotteries. Active member households spent the smallest amount of money (413.16 baht/month) on recreation (Table 6.21).

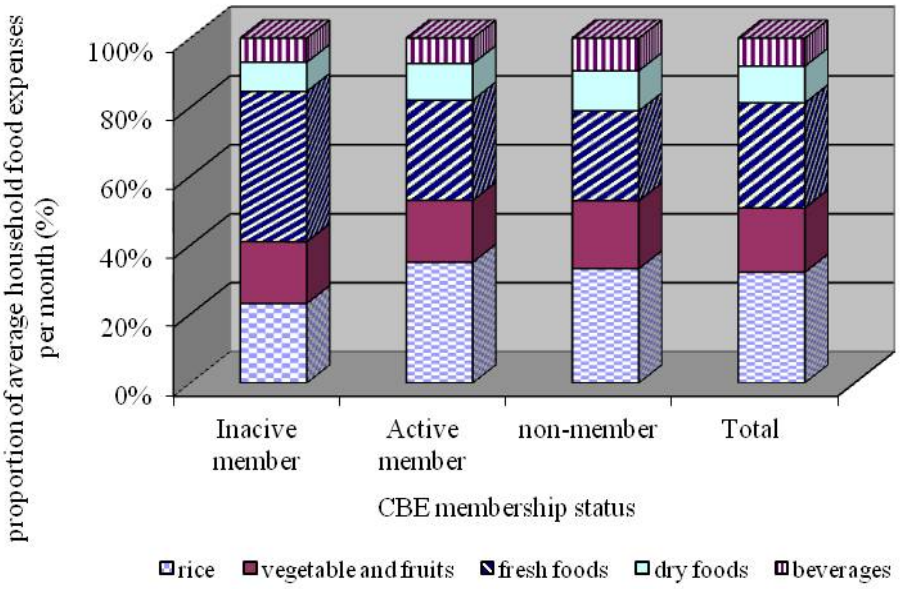

Figure 6.10: Proportion of food consumption expenses of households categorised by CBE membership status

(Source: Survey data)

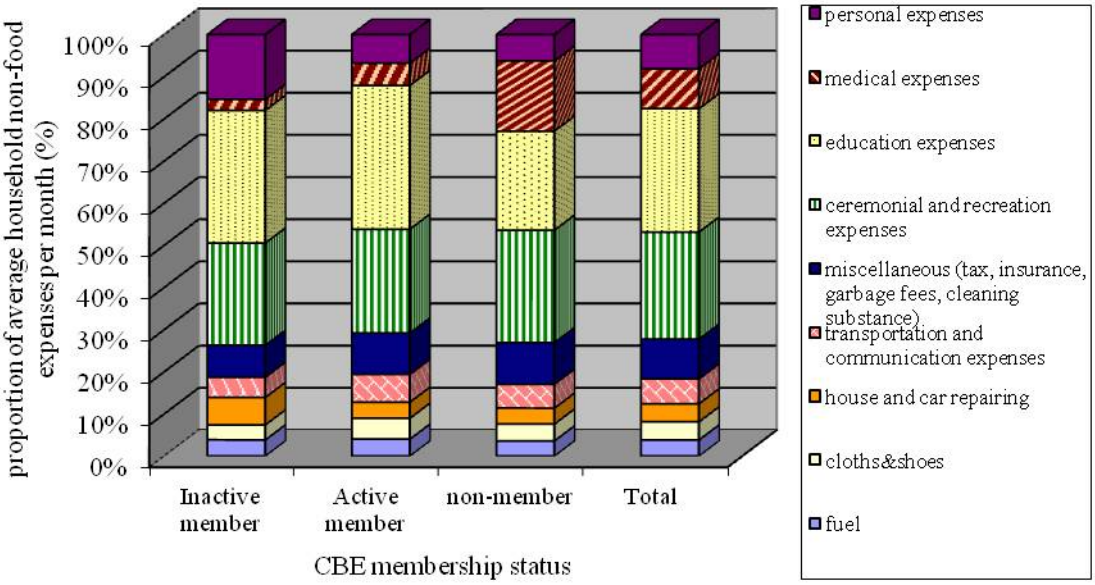

Figure 6.11: Proportion of non-food consumption expenses of households categorised by CBE membership status

(Source: Survey data)

Table 6.21: Household recreation expenditures

Recreation activities	Recreation expenses (baht/household/month)[1/]			
	Inactive member (N=49)	Active member (N=155)	non-member (N=139)	Total (N=343)
Alcohol/cigarette	319.9	180.3	196.2	206.7
	(57.5)	(43.6)	(36.8)	(42.8)
lottery	137.9	116.9	201.8	154.6
	(24.8)	(28.3)	(37.8)	(32.0)
entertainment	98.2	116.0	135.3	121.3
	(17.7)	(28.1)	(25.4)	(25.1)
total	556.0	413.2	533.3	482.6

Note: ( ) is percentage of total recreation expenses of each household type

1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

The results of a *t*-statistic test, presented in Table 6.22, shows that the average per capita consumption expenditures of native households is considerably higher than that of hill-tribe households.

Table 6.22: Mean of per capita consumption expenditures of the households classified by ethnic groups

Ethnic groups	No. of samples (N)	Mean (baht/person/month)[1/]	S.D.	t-test	Sig. (2-tailed)
Native Thai	246	2,520.03	2,616.20	5.588	.000*
Hill-tribe	97	1,002.48	870.46		

Note: * at significant level .05

1/ The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

6.5 Business performance of the selected CBEs

This section presents the financial performance of the CBEs, which is used in the poverty impact assessment in Chapter 8. Financial ratios are helpful in determining business performance. Through their use, a business is able to compare its performance and condition with the average performance of a similar type of business in the same industry (Liraz n.d.).

The financial ratios employed in this study are: liquidity ratios, activity ratios, leverage ratios and profitability ratios. The calculated ratios are presented in Table 6.23.[15]

[15] The formulas for these ratios are given in Appendix 2.

Table 6.23: Average financial ratios categorised by type of the CBE

Financial ratios	Type of CBEs		
	Handicraft *(N=8)*	food processing *(N=6)*	Total *(N=14)*
Liquidity ratios			
Current ratio (times)[1/]	10.01	7.73	9.25
Quick ratio (times)[1/]	8.76	7.45	8.32
Activity ratios			
Asset turnover ratio (times)	6.20	1.88	4.35
Leverage ratios			
Debt-equity ratio (times)	0.30	0.06	0.20
Debt ratio (times)	0.19	0.05	0.13
Profitability ratios			
Sales revenues (thousand baht/year)	1,276.25	378.96	891.70
Gross profit (thousand baht/year)	459.67	82.66	298.09
Gross profit margin (percent)	26.28	6.50	17.80
Return on assets (ROA) (percent)	26.95	22.85	25.19

Note: 1/ 4 missing cases of the handicraft CBEs and 4 missing cases of the food processing CBEs

(Source: Survey data)

Liquidity ratios provide a measure of the capability of a business to meet its short-term financial obligations on time. The commonly used ratios for measuring the liquidity of business assets relative to liabilities are the current ratio and the quick ratio. The current ratio is a ratio of total current assets to total current liabilities. Current assets consist of cash, marketable securities, accounts receivable and inventories, while current liabilities include accounts payable, current maturities of long-term debt, accrued income taxes and other accrued expenses that are due within one year. In general, a 1:1 ratio is acceptable. A current ratio that is greater than one indicates that a business has sufficient assets available to cover its short-term liabilities. A ratio that is significantly lower than the industry average could indicate a lack of liquidity.

In this study, eight CBEs did not have any current liabilities. Therefore, the ratios were calculated and compared among the remaining six CBEs. On average, the current ratio of the selected CBEs is 9.25 times (Table 6.23). The average current ratio of the food processing groups was found to be lower than the average current ratios of the handicraft groups. The current ratios of four CBEs were lower than the average current ratio.

Nonetheless, their current ratios were still much higher than one. The large amount of current assets relative to current liabilities provides assurance that the business is able to satisfy its current obligations. The embroidery group had the highest current ratio (24.68 times) compared to others because of a high value of cash inventories and accounts receivables, while there were small amounts of accounts payable. Two weaving groups in the hill-tribe villages had the lowest current ratio (2.58 and 2.31 times, respectively).

The quick ratio (or acid-test ratio) is considered to be a more stringent assessment of a business's liquidity compared to the current ratio because inventory (or stock) and prepaid expenses is subtracted from the calculation (Meunier 2010). Once again the ratios were only calculated for the six CBEs which had current liabilities. The average quick ratio of the selected CBEs was 8.32. Only one group (the embroidery group) had a quick ratio higher than the average value (24.48 times). As with the current ratios, all CBEs had quick ratios greater than one. Two of the weaving groups in the hill-tribe villages had the lowest quick ratios (2.21 and 1.39 times, respectively).

Activity ratios indicate how much an enterprise has invested in a particular type of asset (or group of assets) relative to the revenue the asset is producing.

The total asset turnover ratio (or asset turnover ratio) indicates the effectiveness with which an enterprise's management uses its assets to generate sales (or revenues). The ratio is calculated by the enterprise's annual sales divided by its total assets. A high ratio indicates that the enterprise is using its assets efficiently to increase sales. The relevant calculations show that, on average, total assets turnover of the selected CBEs is 4.35 times. This indicates that, on average, the CBEs generate sales of 4.35 times total assets. In other words, every one baht worth of assets generates 4.35 baht in sales.

The average asset turnover of the food processing groups is 1.88 times, which is much lower than the average ratio of handicraft groups (6.20 times). Most of the production equipment used in the handicraft groups belongs to members, whereas food processing equipment tends to be owned by the groups. Moreover, the average sales revenue of handicraft groups is much higher than that of food processing groups (Table 6.23).

The weaving group in the hill-tribe village located in Chiang Mai had the highest asset turnover ratio (40.35 times). The reasons for this are two-fold. First, as mentioned

previously, almost all of the weaving equipment belongs to the members. Second, the present values of their weaving equipment were very low because the equipment is quite cheap (about 500 baht/each) and lasts a long time. The rice-processing group, located in the same village as the weaving group, had the lowest ratio (0.06 times). This is because the rice mill machine belonging to the group is quite expensive, while the amount of production (and sales) is quite low and discontinuous throughout the year.

A leverage ratio is the ratio between the size of debt and some metric for the value of the investment. This ratio measures the degree of protection for a supplier of long-term funds and can also aid in judging a business's ability to raise additional debt and its capacity to pay its liabilities on time. The more widely accepted financial leverage ratios are the debt-to-equity ratio and debt ratio.

A debt-equity ratio shows the proportion of equity and debt a business is using to finance its assets. The ratio measures the extent to which the owners are using debt rather than their own funds (equity) to finance the business. A debt-equity ratio greater than one means assets are mainly financed with debt, while a ratio less than one indicates that equity provides the majority of financing. A ratio of one or less is preferable, however debt can offer good leverage as long as the business can handle its principal and interest payments.

The average debt-equity ratio of the selected CBEs was calculated as 0.20. The average debt-equity ratio of the food processing groups was found to be lower than the average ratio of the handicraft groups. This is primarily because four of the six food processing groups use only their own funds to finance their business. All of the CBEs have debt-equity ratios less than one, which implies that the CBEs are well positioned to obtain additional funding if needed. A debt ratio indicates the proportion of debt a business has relative to its assets. A ratio of greater than one indicates that a business has more debt than assets, while a ratio of less than 1 indicates that a business has more assets than debt. On average, the debt ratio of the selected CBEs is at 0.13. The average debt ratio of the food-processing group is lower than the average ratio of handicraft groups. This is mainly because four of the six food processing groups use only their own funds to finance their business.

Profitability ratios measure the profit a business makes in relation to assets and sales revenues. The selected CBEs have average sales revenues of 891.7 thousand baht per year (Table 6.11 and 6.23). The handicraft groups have average sales revenues of 1,276.3 thousand baht per year, 3.3 times higher than the average sales revenue of the food processing groups. The rice-processing group earns the lowest sales revenue (14,263 baht/year), whereas the embroidery group earns the highest sales revenue (662.7 thousand baht/year).

The average annual gross profit earnt by the selected CBEs was 298.1 thousand baht per year (Table 6.23). The handicraft group's average gross profit was 459.7 thousand baht, which is 5.5 times higher than that of the food processing groups. The rice-processing group performed the worst making a gross loss of (-18,364 baht/year), while the embroidery group earnt the highest gross profit (209 thousand baht/year).

Gross profit margin indicates the relationship between net sales revenue and the cost of goods sold. The average gross profit margin of the selected CBEs was 17.8 per cent. The handicraft group's average gross profit margin was 26.3 per cent, which is four times higher than that of the food processing groups average. The rice processing group made the largest loss (-128.76%), while the embroidery group earnt the highest gross profit margin (62.9%).

The return on assets (ROA) of a business determines its ability to utilise the assets employed in the business efficiently and effectively to earn a return. Therefore, it is a measure of the efficiency of the business in generating profits on its assets. On average, the selected CBEs earn ROA of 25.19 per cent, which implies that every 100 baht's worth of assets generates 25.19 baht of profits. The handicraft groups ROA was 26.95 per cent which is higher than that of the food processing groups (Table 6.23). The rice-processing group earnt the lowest ROA (-13.44%), whereas the embroidery group earnt the highest ROA (74.01%).

6.6 Discussion and concluding comments

The purpose of this chapter is twofold. First, to provide a brief description of the study area and the survey research process, including the details of the survey instruments and methods of data collection. Second, the profiles of the selected villages, CBEs and

households are presented. The current study provides a sufficiently comprehensive investigation of the topic covering main CBEs which are managed by women's groups in three provinces of northern Thailand. It also includes four ethnic communities with wide range of socio-economic circumstances. The numbers of CBEs and the incidence of poverty were key criteria used in the selection of Chiang Mai, Chiang Rai and Lam Phun Provinces in northern Thailand research area. Fourteen CBEs and 12 villages were selected using random sampling. The proportionate stratified random sampling method was used to choose 204 CBE member households to be interviewed. Non-member households (139 samples) were selected using the snowball sampling method. The survey was conducted during April to September 2009.

The selected villages are characterised by poor accessibility because of long distances from the city centre. Most inhabitants are composed of northern native Thais and minority hill-tribes with poor literacy rates, poor access to sanitation and health services and low household income. Agriculture is the main sources of income in these villages, but a range of community-based enterprises provide alternatives source of earnings for the villages.

In view of the relatively low household income, and to address extreme poverty in the region, a campaign to supplement income sources was initiated with the formation of CBEs. Various government, non-government organisations and village heads made use of the established socio-economic groupings to form CBEs, which are deemed important in rural development. The main purpose of the CBEs is to generate employment for the villagers.

The CBEs are mostly comprised women, who are considered the poorest of the poor in the society. Nearly three-quarters of CBE members have been members for less than 10 years. Over half of the members in the CBE samples are 41-60 years old, with roughly only two-thirds finishing elementary school. Handicraft production and food processing, including working in CBEs, private enterprises and their own enterprises, are the main production activities, particularly for the households of CBE active members (both active normal members and committee members).

Performances of CBEs are measured using sales revenue and financial indicators. It was observed that handicraft-based CBEs are more profitable compared to food-processing-based CBEs. This is supported by all of the relevant liquidity, activity and profitability ratios which show that the financial performance of the handicraft CBEs is higher than that of the food processing CBEs. On the other hand, leverage ratios indicate that the food processing CBEs have lower debt-equity ratios and debt ratios than those of the handicraft CBEs. Four of the six food-processing groups have debt and debt-equity ratios equal to zero because they use only their own funds to finance their business (no borrowed money). This indicates the conservative financing, and low risk of the food processing groups.

Other factors also influence the overall performance of CBEs. These include experience of CBE members, size and structure of CBE, marketing channels and compliance with the OTOP guidelines. Most of the CBEs have been in operation for 13 years, and 93 per cent of them have achieved OTOP certification. However, only one of the 14 selected CBEs have been awarded five-star classification. The certification and product recognition are based on having a quality brand and exportable product, sustainability of product, consistency of product, customer satisfaction with product quality, and impressive background story of product. Strategies to address these criteria would improve and increase performance of CBEs in accordance with the OTOP policy.

Information on the conditions of households included in the study were also presented. There were 343 households included in the survey based on the proportionate stratified random sampling and the snowball sampling procedures. Of these households, 45 per cent are active CBE members and 41 per cent are non-members. Most of the households are poor with a per capita income of 76,522 bath/person/year. Twenty-three per cent lived below poverty line. The agriculture sector was the main source of income, but handicraft and food processing were also important sources of additional earnings.

Access to basic necessities, such as education, health services, sanitation are key indicators of the status of household members. Hill tribe members of the village have lower access to these basic services compared with the native Thai households. These findings are consistent with Sricharoen and Buchenrieder (2005) and Fujioka (2002).

The key characteristics of villages, CBEs and households are important factors in determining a multidimensional indicator of poverty. The interrelationships between these factors are the central focus of the empirical analysis provided in the succeeding Chapters. Although handicraft production and food processing are the main occupations of many household heads and household respondents, the proportion of income from these activities is small relative to total household income. This highlights the need for consideration of implicit as well as explicit factors in assessing the contributions of CBEs on household poverty. Examples of implicit factors include measurement of empowerment of women and other dimensions of well-being. Following the MPAT framework outlined in Chapter 5, these factors are sorted into different categories to form nine major categories: social participation, vulnerability, women's empowerment, happiness, access to basic needs, household consumption expenditure, household income, household product value, and household assets. These variables form part of the poverty index developed in Chapter 7. Moreover, analysis is extended to examine the impact of CBE membership on the poverty status of households. The results are presented in Chapter 8.

Chapter 7 Poverty status of households in rural northern Thailand: A principal component analysis approach

7.1 Introduction

A detailed discussion of Thailand's poverty profile and the Government's responses to eradicate poverty was presented in Chapter 3. Based on government records, there is evidence that government strategies are proving effective in meeting the challenges outlined in the UN MDGs. The purpose of this chapter is to detail the construction of a poverty index using a multidimensional concept of poverty and principal component analysis. This index is useful for classifying households and designing strategies to alleviate poverty in rural households, particularly in northern Thailand. The factors affecting variations in household indices are also explained.

This chapter is organised into five main sections. In Section 7.2 a brief overview of previous studies that have used principal component analysis (PCA) to measure poverty is provided. Section 7.3 then details how the PCA methodology was applied to the data collected on households for this doctoral research. Empirical results are then presented in Section 7.4. Discussion and concluding comments are presented in Section 7.5.

7.2 Overview of previous studies of poverty measurement using principal component analysis (PCA)

In Chapter 5, a comprehensive overview of different approaches to measuring poverty in developing economies was presented. One of the principal methods discussed was PCA.

A number of studies have applied PCA in the analyses of relative poverty or wealth measurement. Filmer and Pritchett (1998) examined the impact of household economic status on educational enrolment of children in India, Indonesia, Nepal and Pakistan. In the absence of information on household income and consumption expenditures, they used information on household assets ownership and household dwelling characteristics to construct asset index. The use of the PCA method allowed them to determine the appropriate weights of different indicators. Their result showed that the asset index is a better proxy for predicting enrolments compared to the estimations based on information on consumption expenditures, which is mostly difficult to collect and often not available as secondary data.

PCA has also been applied in the assessment of development projects. For example, during 1999-2001, the Consultative Group to Assist the Poor (CGAP) and the International Food Policy Research Institute (IFPRI) developed the Microfinance Poverty Assessment Tool, a standardised tool to assess the poverty level of microfinance institution (MFI) clients compared with the general population within the operational area of MFI's partners of CGAP in Nicaragua, Kenya, Madagascar, India, Bolivia, Mali, Mexico, Nepal and South Africa.

The Microfinance Poverty Assessment Tool was developed during 1999-2001 because low-cost and reliable methods for assessing the poverty outreach performance of development projects were lacking at that time (Zeller et al. 2003). By using this tool, a poverty index was constructed using the PCA method. The index was based on a numbers of indicators following the multidimensional poverty concept. The indicators used in this study are based on the Human Development Index (HDI) and the housing index applied by many MFIs for targeting financial services to poorer clients. A set of indicators includes five dimensions: human resources, dwelling, food security and vulnerability, assets, and self-assessment of poverty outreach of development projects. Aside from these indicators, additional local indicators deemed important for a particular geographical area could be included to formulate the index. In 1999-2001, case study evidence obtained from rapid or participatory assessments had been used to monitor and evaluate projects. The disadvantage of this method is that it uses non-representative samples and lacks standardisation of the measurement instruments, therefore statistical inferences were not possible (Zeller et al. 2003).

It is acknowledged that detailed household expenditure survey is "a widely accepted and fairly precise tool in measuring poverty, as far as the income dimension of poverty is concerned (Henry et al. 2003: 169) and this method can provide a reliable and valid assessment of poverty (Henry et al. 2003: 170)". However, consumption expenditure based approach is costly and time-consuming to implement and needs advanced skills in statistical data analysis (Henry et al. 2003: 4). On the other hand, MPAT is developed for a very specific purpose, that is, to be used for timely but sound decision making by donor agencies to fund microfinance institutions (Henry et al. 2003). The tool is based on the timelines and the relative modest skill requirements for data collection and analysis. Henry et al. (2003) also noted that the tool is useful, pragmatic, accurate, and relatively

simple to implement in a short time for donors and MFI evaluators for assessing the extent to which MFI programs reach the poor. Nonetheless, the use of MPAT provides a good framework for assessing the different dimensions of poverty indicators.

The Microfinance Poverty Assessment Tool's usefulness was verified for a wide range of institutions and programs and various national and local contexts. The initial application to verify the operational method was conducted in collaboration with microfinance institutions (MFIs) and national research institutions in rural and urban areas in Nicaragua, Kenya, Madagascar and India. The results indicated that the tool had promising potential for monitoring and evaluation purposes of development organisations (Zeller et al. 2003; Zeller et al. 2006a). Since 2001, this method has been applied to over 20 development project poverty assessments in urban and rural areas of the developing countries — such as Kenya, Bangladesh and India — mainly in the area of micro- and rural-finance, and also in the area of safety net provision, education, agriculture, health and nutrition (Zeller et al. 2003).

Cortijo (2005) used PCA for assessing the depth of poverty outreach of the clientele of the microfinance institution, *SafeSave,* in Bangladesh. To find out the ability of *SafeSave* to reach the relative poor, the poverty level of new clients of *SafeSave* was compared to non-clients in the same geographical area. By applying the PCA method, a poverty index was formed based on 17 indicators covering the dimensions of quality of the dwelling, assets, food security and vulnerability and human resources. Cortijo (2005) also showed, that based on the poverty index, sampled *SafeSave* new clients are wealthier than the average overall slum population in the study areas.

In Thailand, PCA was successfully applied by Sricharoen and Buchenrieder (2005) to determine the important factors explaining household poverty in the North and to formulate a poverty index. Primary data were gathered in two groups of farm households, hill-tribe and local people, in Chiang Mai province. The results showed that hill-tribe households were relatively poorer than local people households.

Prakongsai (2005) investigated the possibility of applying the household asset index to evaluate living standards of households in Thailand. The household asset index method was used rather than using conventional money metric measures because of difficulties in

using money metric measures to classify household socio-economic positions, specifically in developing and low-income countries. The PCA method was utilised as an approach of constructing the asset index and it was found that PCA was practicable for grouping the index. The estimated index could be used to measure socio-economic status of the households and identify the living standards among different household quintiles and deciles. Prakongsai also suggested that assets with high scoring factors, such as washing machine and refrigerator, had high power of socio-economic differentiation.

Zeller et al. (2006b) developed poverty assessment tools based on PCA in four countries: Bangladesh, Peru, Uganda, and Kazakhstan. The poverty index was estimated following the PCA procedures explained in Henry et al. (2003). The authors used PCA to identify the best set of variables that could be used to denote the poverty status of households using easily measurable socio-economic indicators. By using the same set of data, the results of PCA were compared with the results of four different single-step regressions methods, including Ordinary Least Squares (OLS), Linear Probability Models (LPM), Probit analysis, and Quantile regressions. The PCA method provided reasonably accurate predictions of relative poverty, while more complex regression models yielded robust predictions of absolute poverty.

Arjchariyaartong and Sricharoen (2008) used PCA to examine the characteristics of farm household poverty in Tambon Banfang located in Khon Kaen Province in northeastern Thailand to identify the factors affecting poverty. The results indicated that small households have more chance of escaping poverty compared to extended ones. In addition, those households who had smaller farm land sizes were likely to fall into the poverty trap. Other factors affecting poverty in the survey area include number of elders, children, inability persons and unemployment of working members.

In Cho et al.'s (2010) research, PCA was used to simplify the water poverty index (WPI). The water poverty index was designed to measure the degree of impacts of water scarcity affecting human populations. This index was originally conceptualised by Lawrence et al. (2002) using a data set for 147 countries, with a focus on the choice of principal sub-indexes and their corresponding weights. The simplified WPI consists of the dimensions of access capacity and environment. From a comparison with the original WPI, which assigned equal weights to the five sub-indexes and the simplified WPI, the simplified

index provided a more cost-effective formulation and retained important information. Cho et al. (2010) suggest that the PCA can be applied to choose a few variables specific to the objective of the study instead of using a wider set of relevant variables. Therefore, using the PCA can reduce the cost of data collection.

Based on the studies presented above, there is strong support and justification for the use of PCA method as a valid approach for identifying the poverty status of the households and constructing the poverty index. PCA can be used to obtain weighted indicators (Filmer and Pritchett 1998). It is useful, practical, accurate and relatively easy to implement to assess the impacts of development programs in developing countries (Henry et al. 2003). Cho et al. (2010) suggest that constructing the index by using the PCA method is more cost effective — particularly in terms of the cost of data collection — without the loss of much information. Sricharoen and Buchenrieder (2005) also support the argument that the PCA method can be used to construct the poverty index which would be unique and adequately reflect the socioeconomic conditions of rural households in Chiang Mai, Thailand.

While it is acknowledged that the monetary approach provides a good indicator of poverty, the use of MPAT is also justified on the basis of logistical and ease of implementation. As mentioned earlier, detailed household expenditure survey requires time which is not compatible with the time consideration in the author's candidature. We note that the approach taken in this thesis is an alternative and complimentary tool to the existing approaches. The use of MPAT has allowed the implementation of the survey research and thorough statistical analysis in a timely manner.

To take into account the fact that most CBEs participants are women, that CBEs are often operated by women and generate supplementary income and employment opportunity for their members, the present study includes a range of indicators reflecting gender empowerment, social participation, household income and other dimensions of poverty (see more details of variables used in Section 7.3.2) in addition to the dwelling and assets indicators recommended in the Tool, to construct the poverty index

7.3 Methodology

The PCA method can be used to determine and weight the most significant indicators unique to the area surveyed and which reflect the local conditions that directly explain poverty. The method has been efficiently applied in poverty measurement at institutional (or development program) and household levels in various developing countries including Thailand. This research uses PCA to formulate a poverty index for rural households in northern Thailand, particularly for those households with CBE members.

In this study, the PCA method is applied to identify the poverty index of selected households in rural northern Thailand. Following Sricharoen and Buchenrieder (2005) who focused on the comparison of poverty status between hill-tribe and local people (or '*Khon Muang*'), this study aims to examine the poverty status of the CBE member households and compare that status to the status of non-member households. The study also aims to compare the poverty status among different types of the CBE members. In addition to the poverty dimensions used in Sricharoen and Buchenrieder (2005), which are the dwelling conditions; physical assets; human resources; and food security, the current study also considered social participation, vulnerability, empowerment, happiness and consumption expenses. Details and components of these dimensions are presented in Figure 7.1 and Section 7.3.2. Estimation procedures are performed following the operational method developed by CGAP and IFPRI to compute the poverty index.[16]

7.3.1 Principal component analysis (PCA)

The PCA method is used to derive the poverty component based on a range of poverty indicators and to create a specific poverty score (or index) of each household. Each component is formed as a unique index (that is they are not correlated) founded on the values of all indicators (Zeller et al. 2003). The main idea is to construct new variables, $Y_1,\ldots,Y_p$, which are linear combinations of the original indicators ($X_1,\ldots, X_p$). Therefore, Y_1 accounts for the maximum of the total variance in the original indicators (Basilevsky 1994).

[16] See Henry et al. (2003) for more details of the operational method and analysis steps.

Assume the original variables measured on households are denoted by X_1, X_2,…, X_p. The purpose of the PCA method is to formulate new set of variables: Y_1, Y_2,…,Y_p (Cox, 2005). The new variables are:

linear combinations of the original variables;

$$Y_j = a_{1j}X_1+a_{2j}X_2+\ldots+a_{pj}X_p \qquad (j = 1,\ldots,p) \qquad (1)$$

where a_js are computed weights (component loadings) that indicate the relative contribution of each indicator to the overall poverty component.

uncorrelated with one another;

$$\text{corr}\ (Y_j, Y_k) = 0 \qquad (j \neq k) \qquad (2)$$

and not all of the new variables will explain most of the variation in the data; therefore this method can effectively reduce the number of dimensions. The Y_j′s are labelled, so that

$$\text{var}\ (Y_1) \geq \text{var}\ (Y_2) \geq \ldots \geq \text{var}\ (Y_p) \qquad (3)$$

Or, in general,

$$Y = aX \qquad (4)$$

The first large principal component is the only one that is considered because it accounts for the maximum of the total variance in the original indicators. Thus, the first component captures the multidimensional index of relative poverty.

The original indicators used in PCA are different in their measurement scale. Therefore, converting them into standardised variables is essential. Following the method outlined in Filmer and Pritchett (2001), the poverty index (or the first principal component: PC_1) can be computed for each household. The poverty index is specified as:

$$Y_j = f_1 \times [(X_{j1} - \overline{X}_1)/S_1] + \ldots + f_n \times [(X_{jn} - \overline{X}_n)/S_n] \qquad (5)$$

where Y_j is poverty index of the j^{th} household,

f_1 is the component score coefficient (weight) for the first indicator,

X_{j1} is the j[th] household's value for the first indicator,

$\overline{X}_1$ is the mean of the first indicator over all households, and

S_1 is the standard deviation of the first indicator over all households.

This index has a zero mean and a standard deviation equal to one (Basilevsky 1994; Sharma 1996). Using this poverty index, relative poverty is measured. A household that has a positive value of the poverty index is identified as being better off than the general population in the same geographical area, while negative values indicate a poorer status (Zeller et al. 2006b).

7.3.2 Data and variables

Using the household data described in Chapter 6, nine main dimensions of poverty are considered and these are illustrated in Table 7.1. The first four poverty dimensions are relevant to the *social deprivation* aspect of poverty: social participation, vulnerability, happiness and women's empowerment.

Other key dimensions founded on material deprivation comprise basic needs, assets, production, income, and consumption expenditure. In this study, household production expense variables, as used in Coleman (1999, 2002), are not included in the poverty variables because of the complexity of data sets, the capability of households to provide accurate information on cost of all income sources, and the limitation of time in field surveys. However, although household production expense is omitted from the poverty dimensions, this study addresses both material and social dimensions of poverty and also considers both quantitative and qualitative variables/factors. This method makes a substantial difference to how poverty is examined compared to previous studies that focus solely on material deprivation (for example, Coleman 1999; 2002), or that concentrate mainly on qualitative variables, (for example, Cohen 2009).

Table 7.1: Poverty dimensions classified in the study

Variable	Dimension/Sub-dimension	Variable	Dimension/Sub-dimension
$\boldsymbol{X_1}$	**Social participation**	$\boldsymbol{X_6}$	**Household consumption expenditure**
X_{11}	Community participation	X_{61}	Food expenses
X_{12}	CBE participation	X_{62}	Non-food expenses
$\boldsymbol{X_2}$	**Vulnerability**	X_{63}	Saving
X_{21}	Livelihood diversification	X_{64}	Loan payback
X_{22}	Entrepreneurial behaviour	$\boldsymbol{X_7}$	**Household income**
X_{23}	Investment in and access to social capital	X_{71}	Farm income
$\boldsymbol{X_3}$	**Women's empowerment**	X_{72}	Business income
X_{31}	Control over household assets	X_{73}	Hired labour income
X_{32}	Role in household decisions	X_{74}	Transfer money
X_{33}	Work-time allocation	X_{75}	Borrowing
X_{34}	Control over major finances	$\boldsymbol{X_8}$	**Household product value**
X_{35}	Control over minor finances	X_{81}	Plantation product value
X_{36}	Division of domestic chores	X_{82}	Livestock product value
$\boldsymbol{X_4}$	**Happiness (Subjective well-being)**	X_{83}	Handicraft product value
X_{41}	Life satisfaction	X_{84}	Food processing product value
X_{42}	Satisfaction with financial status	X_{85}	Other non-agriculture product value
$\boldsymbol{X_5}$	**Access to basic needs**	$\boldsymbol{X_9}$	**Household assets**
X_{51}	Health	X_{91}	Farm assets
X_{52}	Education	X_{92}	Non-farm assets
X_{53}	Shelter	X_{93}	Wealth
X_{54}	Food security	X_{94}	Debt

Note: Details of initial screened poverty indicators (variables) are shown in Appendix 3.

(Source: Adapted from Cohen, 2009)

7.4 Empirical results

In this section the results from the PCA are presented. Estimation of models was performed using SPSS software (PASW Statistics 18). Results are classified into five main categories: (1) determination of poverty indicators, (2) poverty component identification, (3) main indicators explaining poverty components, (4) poverty index construction and (5) poverty group classification.

7.4.1 Determination of poverty indicators

In formulating the poverty index, a bivariate correlation procedure is used for filtering possible indicators to select the indicators that can best capture differences in relative household poverty. Bivariate correlation is used to test the level and direction of correlation of the variables with the benchmark poverty indicator: 'per capita monthly consumption expenditure'. Following Henry et al. (2003) only variables found to correlate to the benchmark indicator at 0.01 level of significance have been selected.

Meyer et al. (2000: 7) defined 'benchmark poverty indicator' as:

> "The 'true or best' indicator of poverty against which proxy indicators are compared. In practice, there is disagreement about which is the best indicator. Benchmark indicators, developed through comprehensive income or consumption surveys and representative surveying, are expected to accurately reflect the degree of poverty found in a country at a particular point of time".

Policy makers, who are interested in anti-poverty measures and implementation, mostly use per capita income or expenditure levels as benchmark poverty indicators (Meyer et al. 2000). Zeller et al. (2006b), Sharma et al. (2000) and Cortijo (2005) used per capita expenditure other than food, such as clothing and footwear, as a benchmark poverty indicator. They argued that per capita expenditure on clothing and footwear obtains a stable and highly linear relationship with total consumption expenditure. Total consumption expenditure is a comprehensive measure of welfare at the household level (Sharma et al. 2000).

By using the linear correlation coefficient procedure, 77 initial screened poverty indicators are selected (see Appendix 3). In order to limit the number of indicators used in the PCA, closely related variables that effectively measure the same phenomenon can be screened out. Then, only the strongest variables were chosen to be added in the PCA model. By doing so, some indicators that are highly correlated with other indicators are excluded in the model. Variables with a large number of missing cases are dropped out. Then a range of balanced indicators that reflect different dimensions of poverty are chosen. After deriving the first PCA results, variables with commonality coefficients lower than 0.1, component loadings lower than 0.3 in accordance with the Burt-Banks formula (Henry et al. 2003) and obtained theoretically unexpected signs are removed

from the list, leading to the determination of the poverty indicators to be used in this study.

Along with the benchmark indicator, there are 22 indicators used in this analysis (Table 7.2): 21 indicators are correlated to the benchmark poverty indicator (*per capita monthly consumption expenses*) at 0.01 level of significance. The selected indicator set reflects eight of the nine dimensions of poverty.

The expected sign of the linear correlation coefficients, as shown in Table 7.2, determines the direction of relationship between the benchmark indicator (*per capita monthly consumption expenses*) and the selected indicators. For example, the expected sign of the coefficient for *woman participation in making decision major issues of family finance* is positive. The more empowered women are in the decision-making process at the household, level, the more likely they will have influence over the patterns of monthly consumption expenses. In contrast, the expected sign of coefficient of *using collected firewood as main type of cooking fuel* is negative. If the *main source of energy of household is firewood*, there is likely a lower *per capita monthly consumption expenses*, hence showing up as indicator of poverty.

The different dimensions of poverty considered are:

The first dimension **(social participation)** is excluded in the final model because there is no significant correlation between the variables reflecting this dimension and the benchmark indicator at the one per cent level. The variable included to denote **vulnerability** is *doing other household's enterprises (except handicraft and food processing) to earn a living*. It is expected that this variable will have a positive sign which reflects livelihood diversification. The better-off households tend to have their own businesses, while the poorer households work only on their own farms and work as hired labour in the non-agricultural sector.

Table 7.2: Descriptive statistics of poverty indicators

Dimensions/Indicators[1/]	Unit	Expected sign	Minimum	Maximum	Central tendency[8/]	Std. deviation
II. Vulnerability						
• Doing household's enterprises (excluded handicraft and food processing) to earn a living	No/yes	+			0	
III. Women's empowerment						
• Woman participation in making decision on major issues of family finance	No/yes	+			1	
IV. Happiness						
• Satisfaction with size of household's agricultural land	Likert scale[6/]	+	1	4	3	1.014
V. Access to basic needs						
Education						
• Literacy of 15 to 60 year-old members	Likert scale[3/]	+	1	3	3	0.653
Sanitary and hygiene						
• Water closet facility outside the house	No/yes	-			0	
• Type of water closet[2/]	No/yes	+			0	
• Neat and hygiene dwelling	Likert scale[4/]	+	1	3	3	0.513
Housing structure						
• Using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls	No/yes	-			0	
• Using tile used for floor as main construction material of floor	No/yes	+			0	
Water source						
• Using public wells as main source of water	No/yes	-			0	
Energy source						
• Using collected firewood as main type of cooking fuel	No/yes	-			1	
Food security						
• Always having enough food	Likert scale[5/]	+	1	4	3	0.514
VI. Household consumption expenses						
• Total household ceremonial expenses	Thousand baht/month[7/]	+	.00	10.48	0.67	0.86
• Total household non-food expenses	Thousand baht/month	+	0.05	95.76	4.52	6.55
• Average household saving per month	Thousand baht/month	+	.00	418.76	2.96	23.09
• Per capita monthly consumption expenses	Thousand baht/month	+	0.23	33.41	2.09	2.36
VII. Household income						
• Total household income	Thousand baht/year	+	3.60	8,314.00	251.74	548.24

Table 7.2 Descriptive Statistics of Poverty Indicators (Continued)

Dimensions/Indicators[1/]	Unit	Expected sign	Minimum	Maximum	Central tendency[8/]	Std. deviation
VIII. Household product value						
Value of non-agriculture products (excluded handicraft and food processing products)	Thousand baht/year	+	.00	8,209.00	95.25	504.17
IX. Household assets						
• Ownership of fridge	No/yes	+			1	
• Ownership of gas stove	No/yes	+			1	
• Ownership of car	No/yes	+			0	
• Ownership of washing machine	No/yes	+			1	

Note: 1/ Dimension I (social participation) is excluded because there is no significant correlation between the variables reflecting this dimension and the benchmark indicator at 0.01 level of significance;
2/ Dummy for flush toilet is used as a proxy for type of water closet;
3/ 1 = No, not at all; 2 = Yes, for some 15-60 year-old members; 3 = Yes, for all 15-60 year-old members;
4/ 1 = disagree; 2 = neutral; 3 = agree;
5/ 1 = always deficit; 2 = sometimes deficit; 3 = comfortable; 4 = surplus;
6/ 1 = totally unsatisfied; 2 = rarely satisfied; 3 = satisfied; 4 = very satisfied;
7/ at currency exchange rate 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011)
8/ Central tendency for nominal variables is indicated by mode; median for ordinal variables; and mean for continuous variables.

(Source: Survey data)

Women empowerment is represented by the variable *woman participation in making decision on major issues of family finance*, which is expected to be positively related to household poverty status because having a voice in decision-making in major financial issues of the households indicates that women have more power to control their household financial matters. On the other hand, **happiness** is denoted by *satisfaction with size of household's agricultural land*. A positive sign is expected for this indicator. Based on the profile of sampled households, 40 per cent of farmer households own farm lands less than five rai per household on average, while 54 per cent of farmer households have rental farm lands less than five rai per household on average. Households with larger agricultural land are likely to have sufficient agricultural products for home consumption, particularly for the hill-tribe households. The larger agricultural land holdings also allow the northern native households to earn more income from more agricultural products. Therefore, the larger farm sizes, the higher the satisfaction of the household leading to the better-off status of the household.

The dimension of **access to basic needs** is represented by variables pertaining to education, sanitation, health services, dwellings and other basic necessities. The *literacy of 15 to 60 year-old household members* is one of 38 indicators used by the CDD in Thailand for measuring the ability of household members to access to basic needs in

terms of education. Besides health care, education and training can help increase human capital[17] (World Bank 2000b). It is expected that this variable will have a positive relationship with poverty status.

Access to sanitation and hygiene are reflected in *availability of a water closet outside the house*, *type of a water closet*[18] and *neat and the presence of hygienic dwelling*. A negative sign is expected for availability of a water closet outside the house because, in the survey area, water closets of the poorer households are normally located outside the houses. The latter indicators are assumed to be positively related to poverty status because the wealthier households generally use flush toilets with sewerage and have tidier and cleaner houses compared to poorer households.

Housing materials and dwellings is represented by *using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls* and *using tile as main construction material of floor* indicator to explain access to basic housing needs. A negative sign is expected for this indicator. The poorer households usually use bamboo/plywood/Tong Tung leaves to build exterior walls of their houses which are much cheaper but do not last long compared to other materials used. Most households in the survey area used wood and concrete as the main materials for constructing exterior walls. The indicator is anticipated to be positively correlated to poverty status because most of the richer households have houses with tiled floors. By contrast, a majority of the poorer households use wood as the main material for flooring, with some using the earth/sand of the ground for their flooring.

Using public wells as main source of using water is an indicator of access to basic needs in the form of water source. Better-off households mainly use piped public water and borehole water in their residences. A negative sign is expected for this indicator. The ability of households to access energy sources is denoted by the variable *Using collected firewood as main type of cooking fuel*. The household using collected firewood is assumed to be poorer than the household using purchased fuels such as charcoal and gas. Therefore, a negative sign is anticipated for this indicator. A final indicator of access to

[17] Human capital is defined by UNESCO as "people and their ability to be economically productive" (World Bank 2000b). The UN (1997) defines human capital as "productive wealth embodied in labour, skills and knowledge".

[18] Dummy for flush toilet is used as a proxy for type of a water closet.

basic needs is the question whether households have *always enough food* which is a reflection of food security and is expected to be positively related to household poverty status.

Four indicators are used to reflect the relationship of **household consumption expenses** to poverty status. These are *total household ceremonial expenses*; *total household non-food expenses*; *average household saving per month*; and *per capita monthly consumption expenses*. These indicators are assumed to have positive relationship to household poverty status. The better-off households may able to afford larger amounts of consumption expenses compared to the poorer households.

The variable *total household income* explains the association between household income and poverty status, which is expected to be positively related. Also, the variable *value of household non-agricultural products (excluded handicraft and food processing products* is used to verify a positive relationship between poverty status and **household product value**. Finally, **asset holdings** are represented by the variables *ownership of fridge*; *ownership of gas stove*; *ownership of car*; and *ownership of washing machine*. These indicators represent the wealth of households. Therefore, they are anticipated to positively relate to household poverty status.

7.4.2 Poverty component identification

PCA results indicate that 61.6 per cent of the total variance in the 22 considered indicators can be compressed into five new variables (or five principal components). Approximately 30 per cent of the total variation is explained by the first principal component. The second component explains another 15.7 per cent following by the remaining components that contribute 15.6 per cent of the total variation (Table 7.3).

Table 7.3: Results from the principal component analysis for the first five principal components

Component	Eigenvalues	% of variance	Cumulative variance (%)
1	6.66	30.3	30.3
2	3.46	15.7	46.0
3	1.33	6.0	52.0
4	1.09	5.0	57.0
5	1.01	4.6	61.6

Note: Extraction method: principal component analysis

(Source: Survey data)

The Kaiser-Meyer-Olkin (KMO) measure value is obtained to verify the validity of the data used in the model. The higher the KMO value, the larger the fraction of variance replicated by the model (Zeller et al. 2006b). Based on the results of the PCA, the KMO value is at 0.87 that is a commendable range for a well-specified model (Henry et al. 2003). Bartlett's test of sphericity tests the assumption that the correlation matrix is an identity matrix (or variables are not correlated). Bartlett's test shows significant differences at the 0.01 level indicating that the variables are correlated (Table 7.4).

Table 7.4: KMO and Bartlet's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.87
Bartlett's Test of Sphericity	Approx. Chi-Square	3855.14
	df	231
	Sig.	.000

(Source: Survey data)

7.4.3 Main indicators explaining poverty components

Component loading values are used to determine the original indicators captured by each component. The meaning of each component is explained by the original indicators with high loadings. According to Henry et al. (2003), in a sample size of 300, similar to the sample size of this study, loading values above 0.3 is respectable for significance at the 0.01 level. Principal component loading values are showed in Table 7.5.

The first principal component (PC1) captures 17 indicators representing five dimensions of poverty: **access to basic needs**, **happiness**, **household consumption expenses**, **household income** and **household assets**. One indicator related to dimension IV (**happiness**) is (1) *satisfaction with size of household's agricultural land*.

Eight of the 17 indicators correlate to dimension V (**access to basic needs**): (2) *literacy of 15 to 60 year-old household members*, (3) *type of water closet*, (4) *using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls*, (5) *using tile as main construction material of floor*, (6) *using public wells as main source of wateruse*, (7) *neat and hygiene dwelling*, (8) *using collected firewood as main type of cooking fuel* and (9) *always having enough food*.

Table 7.5: Correlation between original indicators and principal components (principal component loadings)

Dimensions/Indicators[2/]	PC1	PC2	PC3	PC4	PC5
II. Vulnerability					
1. Doing household's enterprises (excluded handicraft and food processing) to earn a living	0.43	0.02	0.27	0.49	-0.22
III. Women's empowerment					
2. Woman participation in making decision on major issues of family finance	0.40	-0.30	-0.09	0.24	0.63
IV. Happiness					
3. Satisfaction with size of household's agricultural land	0.42	-0.31	-0.24	-0.34	-0.25
V. Access to basic needs					
4. Literacy of 15 to 60 year-old household members	0.54	-0.38	-0.04	0.30	0.29
5. Water closet facility outside the house	-0.40	0.17	-0.50	0.21	-0.01
6. Type of water closet[3/]	0.35	0.08	0.33	-0.54	0.22
7. Neat and hygiene dwelling	0.44	-0.39	-0.32	-0.17	0.25
8. Using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls	-0.41	0.35	0.36	0.05	0.13
9. Using tile used for floor as main construction material of floor	0.47	-0.13	0.39	-0.30	0.09
10. Using public wells as main source of using water	-0.40	0.36	0.34	0.15	0.08
11. Using collected firewood as main type of cooking fuel	-0.49	0.22	-0.24	-0.15	-0.08
12. Always having enough food	0.43	-0.37	0.06	0.07	-0.46
VI. Household consumption expenditure					
13. Total household ceremonial expenses	0.69	0.37	-0.07	-0.12	0.07
14. Total household non-food expenses	0.78	0.49	-0.05	-0.01	0.02
15. Average household saving per month	0.59	0.70	-0.16	-0.06	0.00
16. Per capita monthly consumption expenses	0.77	0.45	-0.09	-0.01	0.04
VII. Household income					
17. Total household income	0.73	0.57	-0.05	0.08	-0.06
VIII. Household product value					
18. Value of household non-agriculture products (excluded handicraft and food processing products)	0.64	0.66	-0.09	0.12	-0.07
IX. Household assets					
19. Ownership of fridge	0.58	-0.49	-0.26	-0.06	-0.13
20. Ownership of gas stove	0.66	-0.49	0.02	0.16	0.00
21. Ownership of car	0.52	-0.19	0.36	0.09	-0.15
22. Ownership of washing machine	0.64	-0.40	0.18	0.02	-0.07

Note: 1/ Extraction method: principal component analysis (5 components extracted)
2/ Dimension I (social participation) is excluded because there is no significant correlation between the variables reflecting this dimension and the benchmark indicator at 0.01 level of significance.
3/ Dummy for flush toilet is used as a proxy for type of water closet.

(Source: Survey data)

Three indicators reflecting dimension VI (household consumption expenses) show a high correlation to poverty. These are: (10) total household ceremonial expenses, (11) total

household non-food expenses, and (12) per capita monthly consumption expenses. (13) total household income explaining dimension VII (household income) is significantly related to poverty. Four indicators related to dimension IX (household assets) including (14) ownership of fridge, (15) ownership of gas stove, (16) ownership of car and (17) ownership of washing machine.

All of indicators in the PC1 have positive component loading values (correlation), except the indicators: *using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls*, *using public well as main source of using water*, and *using collected firewood as main type of cooking fuel*. Positive loading values indicate a positive relationship with relative wealth of the household and vice versa (Zeller et al. 2006b). These results are consistent with the expected signs of the indicators in section 7.4.1.

The second principal component (PC2) represents poverty through two indicators: (1) *average household saving per month* and (2) *value of household non-agriculture products (excluded handicraft and food processing products)*. Of the 22 indicators, *water closet facility outside the house*, which is one of nine indicators representing **access to basic needs** (dimension V) is high related to poverty in the third component (PC3).

In the fourth component (PC4), *doing household's business (excluded handicraft and food processing) to earn a living*, which explains **vulnerability** (dimension II), is the most important indicator reflecting poverty (the loading value of 0.49 and consistent with the expected sign) compared to other indicators in this component. Therefore, PC4 mainly represents the vulnerability dimension of poverty.

In this study, the CBEs are expected to contribute to the empowerment of women members. *Woman participation in making decisions on major issues of family finance* representing **women's empowerment** (dimension III) has the strongest relationship with poverty in relation to other indicators in the fifth component (PC5). This variable mainly explains PC5 with the highest loading value (0.63) compared to other original indicators in the component. Therefore, PC5 mainly represents the gender empowerment dimension of poverty.

Loading value of the indicator (*woman participation in making decisions on major issues of family finance*) in PC5 is higher than its loading value in PC1 (0.4). Nonetheless, the

formulation of the poverty index based on PC1 is able to capture the women's empowerment dimension. Moreover, although only one variable representing women's empowerment is selected for determining poverty components at a significance level 0.01, there is a set of variables reflecting women's empowerment, which is related to poverty status at a significance level 0.05. The contribution of CBEs to women's empowerment will be discussed further in Chapter 8.

7.4.4 Poverty index construction

To construct the poverty index, the estimated coefficients for PC1 is used because this component accounts for the largest proportion of the total variability in the set of indicators used. Hence, the component is able to capture diversification of poverty dimensions. The analysis results ensure that the first component derived in this study is appropriate for poverty assessment because it contains a diversity of poverty dimensions. The main dimensions of poverty reflected by the PC1 include happiness, access to basic needs, household consumption expenditure, household income and household assets. Moreover, all component loading values in the PC1 are above 0.3, which is respectable according to Henry et al. (2003) (Table 7.6). Henry et al. (2003) also noted that the higher the component loading values (or the coefficient size in the component matrix), the stronger the relationship with the generated poverty index.

Values of the poverty index for each household depend on the household's value of each indicator, which is normalised by its mean and standard deviation and component score coefficients. Component score coefficient is the weight assigned to each standardised indicator. The higher the component score coefficients (weight or magnitude), the stronger the relationship between poverty indicators and the poverty index. The poverty index can be expressed as a linear combination of the standardised indicators (Table 7.6).

The results of the poverty index construction show that to identify poverty of households in northern Thailand, not only material deprivation needs to be addressed, but also social deprivation.

Table 7.6: Poverty index and linear combination of the standardised indicators

Standardises indicators[1/]	Sign	Magnitude
II. Vulnerability		
1. Doing household's enterprises (excluded handicraft and food processing) to earn a living.	+	.065
III. Women's empowerment		
2. Woman participation in making decision on major issues of family finance	+	.060
IV. Happiness		
3. Satisfaction with size of household's agricultural land	+	.062
V. Access to basic needs		
4. Literacy of 15 to 60 year-old household members	+	.080
5. Water closet facility outside the house	-	.060
6. Type of water closet[2/]	+	.053
7. Neat and hygiene dwelling	+	.066
8. Using bamboo/plywood/Tong Tung leaves as main construction material of exterior walls	-	.061
9. Using tile used for floor as main construction material of floor	+	.071
10. Using public wells as main source of using water	-	.059
11. Using collected firewood as main type of cooking fuel	-	.074
12. Always having enough food	+	.064
VI. Household consumption expenditure		
13. Total household ceremonial expenses	+	.103
14. Total household non-food expenses	+	.118
15. Average household saving per month	+	.089
16. Per capita monthly consumption expenses	+	.115
VII. Household income		
17. Total household income	+	.109
VIII. Household product value		
18. Value of household non-agriculture products (excluded handicraft and food processing products)	+	.096
IX. Household assets		
19. Ownership of fridge	+	.088
20. Ownership of gas stove	+	.099
21. Ownership of car	+	.079
22. Ownership of washing machine	+	.095

Note: 1/ Dimension I (social participation) is excluded because there is no significant correlation between the variables reflecting this dimension and the benchmark indicator at 0.01 level of significance
2/ Dummy for flush toilet is used as a proxy for type of water closet

(Source: Survey data)

The component score coefficients (or weight) suggest a slightly stronger relationship between the material deprivation indicators and poverty than the social deprivation indicators (Table 7.6). Therefore, based on the results of this study, poverty in northern Thailand is expressed through low consumption expenses, low household income, lack of assets and lack of saving. However, social deprivation cannot be ignored. Poverty is also manifested by lack of opportunity for education, poor shelter conditions, lack of sanitation and hygiene, poor source of water, lack of food security, lack of job opportunity to create income, lack of female empowerment and lack of happiness.

These results are partly consistent with the results of Sricharoen and Buchenrieder's (2005) study that analyses poverty in northern Thailand. Sricharoen and Buchenrieder (2005) note that poverty in the north of Thailand is determined by inadequate food security, a lack of opportunities for higher education, lack of productive assets to create income, poor dwelling conditions and degraded environment.

Based on the poverty component, each household in the sample is assigned a poverty score (or poverty index). The distribution of the standardised poverty index across the households is illustrated in the following graph (Figure 7.1).

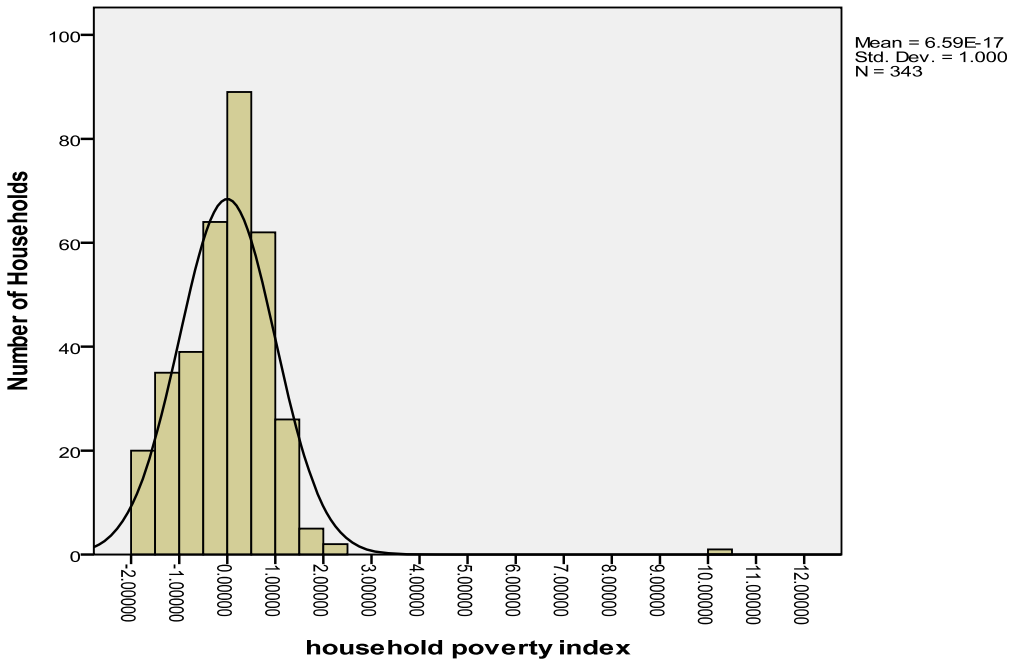

Figure 7.1: Distribution of household poverty index

(Source: Survey data)

The poverty index has a mean of zero and a standard deviation of one. The poverty index ranges from -1.99 to 10.06 with -1.99 as the poorest and 10.96 as the richest sampled households. The value of -1.99 is characterised by a household living in the hill-tribe village located in the highland. The members of this household work as non-farm labourers because they do not have their own farmland and have low employment opportunities outside their village. On the other hand, the value of 10.66 is for the richest household that is located in the northern native Thai village near the city centre. The location enables the household to easily access to infrastructures, markets and employment opportunities. Aside from working in its own farmland, the household also

runs a family business. These values represent the polar extremes of conditions of different households in the sampled villages.[19]

The poverty index shown in Figure 7.1 is used for making comparisons of poverty status between CBE members and non-members in the following section.

7.4.5 Poverty group classification

Classification of households into absolute poverty groups

In order to predict the status of a household in relation to absolute poverty, a cut-off poverty index is estimated. Considering 22.7 per cent of household samples have income below the poverty line of northern Thailand (1,326 baht/person/month (or approximately 1.47 AUD/person/day[20])) (NESDB 2008b), the poverty index (-0.71) at 78th household is a cut-off index (Figure 7.2). Therefore, all households having a lower rank than this household are shown to be the poor, while all above this rank are considered to be better-off households. However, the acceptance of this classification is based on the assumption that the distribution of relative poverty derived by the PCA method and those of absolute poverty measured by per-capita daily consumption expenditures reveals the same ranking of households (Zeller et al. 2006b).

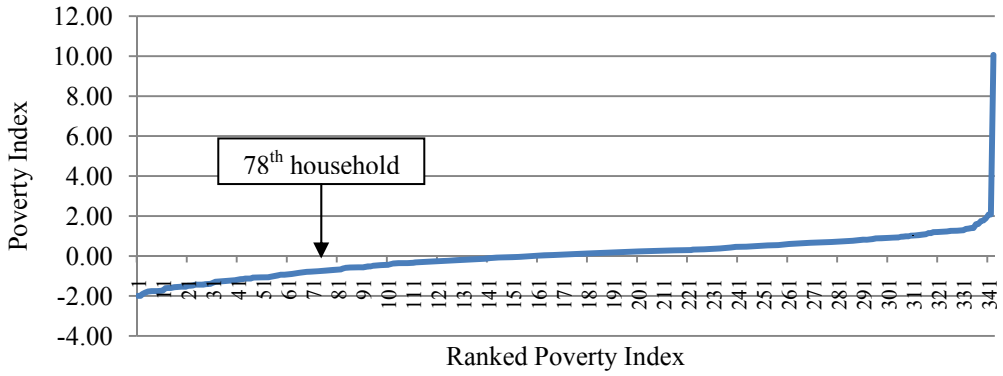

Figure 7.2: Ranked estimated poverty index

(Source: Survey data)

[19] The characteristics of households based on different categories of poverty index were discussed in Chapter 6.

[20] At currency exchange rate 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011)

Classification of households into relative poverty groups

The poverty index can be used for making comparisons between CBE members and non-members. In doing so, the non-member samples are sorted in an ascending order according to their poverty scores then non-member households were divided into terciles based on their scores (Figure 7.3).

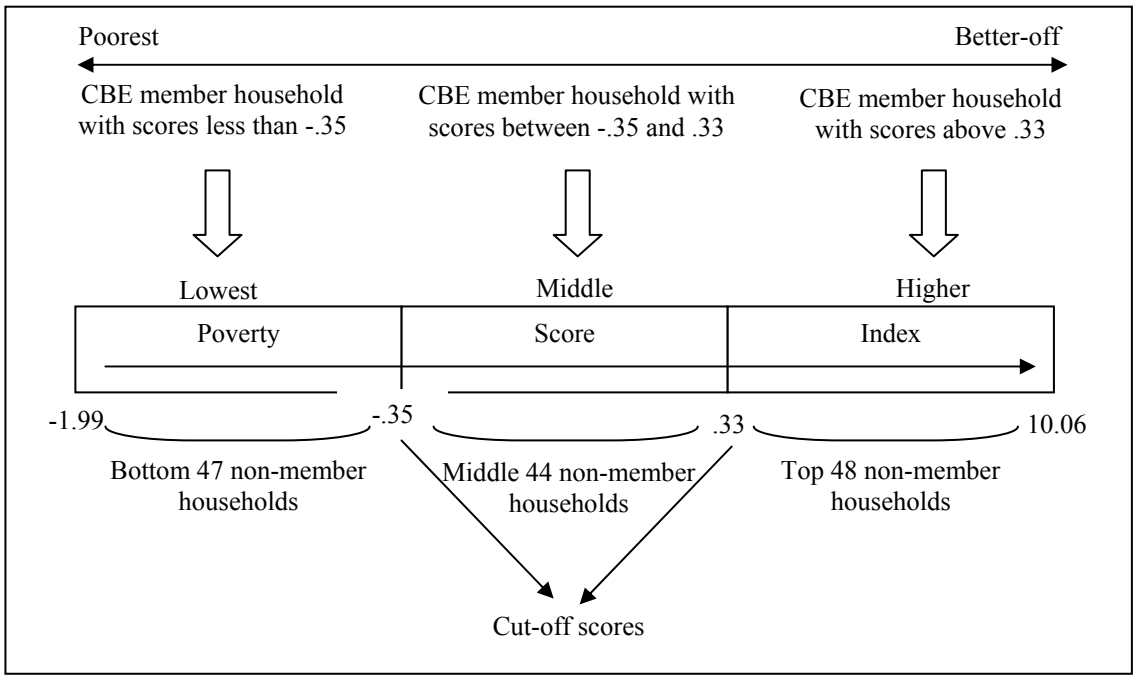

Figure 7.3: Classification of households into different poverty groups

(Source: Survey data and adapted from Henry et al., 2003)

Then, the cut-off scores for each tercile of -0.35 and 0.33, calculated from the ranking, determine the limits of each poverty group. Finally, CBE member households are categorised into the three groups based on their poverty scores (Henry et al. 2003).

The relative poverty of households can be disaggregated into three groups: (1) lowest-ranked group: the households with scores less than -0.35, (2) middle-ranked group: the households with scores between -0.35 and 0.33 and (3) higher-ranked group: the households with scores above 0.33. The results of the classification show that 32 per cent of households are in the lowest ranked group, while 35.3 per cent of the households fall in the higher ranked group. The households falling in the poorest group could therefore be specifically targeted in strategies for poverty alleviation.

Relative poverty groups and participation of the CBE members

The samples of household can be separated into three main types following CBE membership status. The first type is a household without CBE members. The second type is a household with CBE active members. CBE active members include both committees and active normal members who normally produce and sell their products to the CBE. The final type is a household with CBE inactive members. A CBE inactive member is a normal member who does not participate in production activities of the CBE.

Based on the main types of household, almost three-fifths of inactive member households are in the higher-ranked group (the better-off group), while only 12 per cent are in the lowest-ranked group (the worse off group). Conversely, approximately two-fifths (38%) of active member households are in the worse off group and over a third (35%) are in the middle group. Noticeably, the distribution of active member households is quite similar to non-member households, who represent the general population in the study areas (Figure 7.4).

The distribution of poverty groups by different classification of CBE memberships is illustrated in Figure 7.5. These groups are: (1) CBE member households and non-member households; (2) committee member households and normal member households; and (3) active normal member households and inactive normal member households.

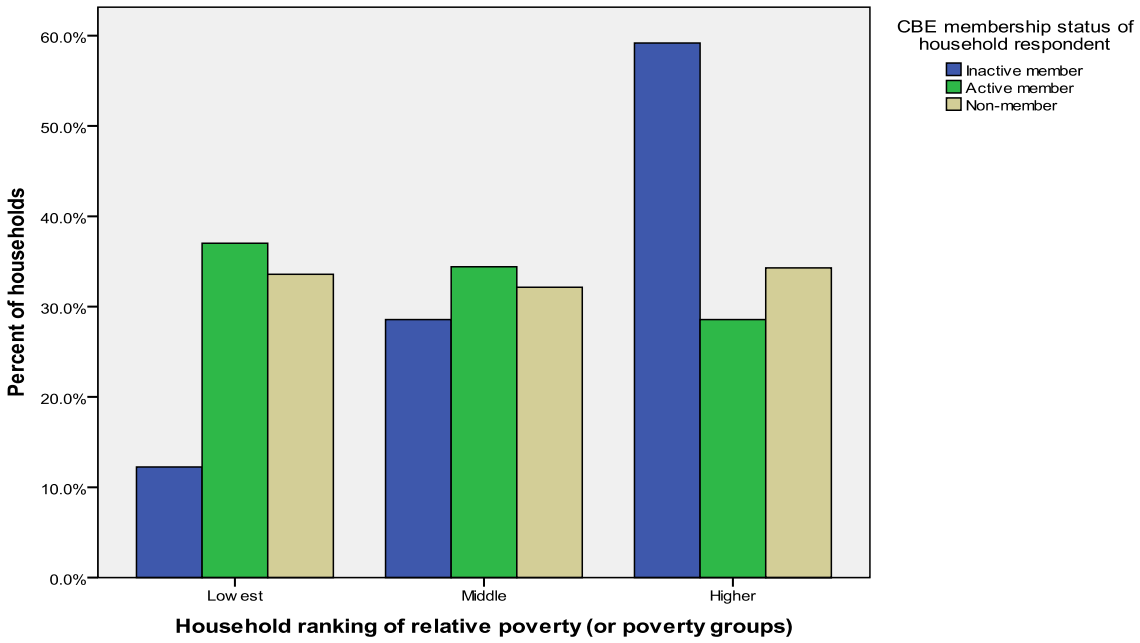

Figure 7.4: Relative poverty groups

(Source: Survey data)

There is no statistical difference in the distribution of poverty groups between CBE member households and non-member households. Around 31 per cent of the CBE member households fall in the lowest-ranked group, whereas the figure for non-member households is 34 per cent (Figure 7.5). Committee member households and normal member households are statistically different in poverty group distribution. Almost half of the committee member households fall in the higher-ranked group of poverty, whereas 36 and 30 per cent of normal member are in the lowest group and the higher group, respectively.

Poverty group distribution of the active normal member households and the inactive normal member households are statistically different. Almost half of active normal member households are in the worse-off group, while roughly three-fifths of inactive normal member households are in the better-off group.

It can seen that the proportion of the poorest group in the active normal member households is highest compared to other types of CBE membership. Therefore, the active normal member should be considered as the priority target group of the CBEs for poverty alleviation.

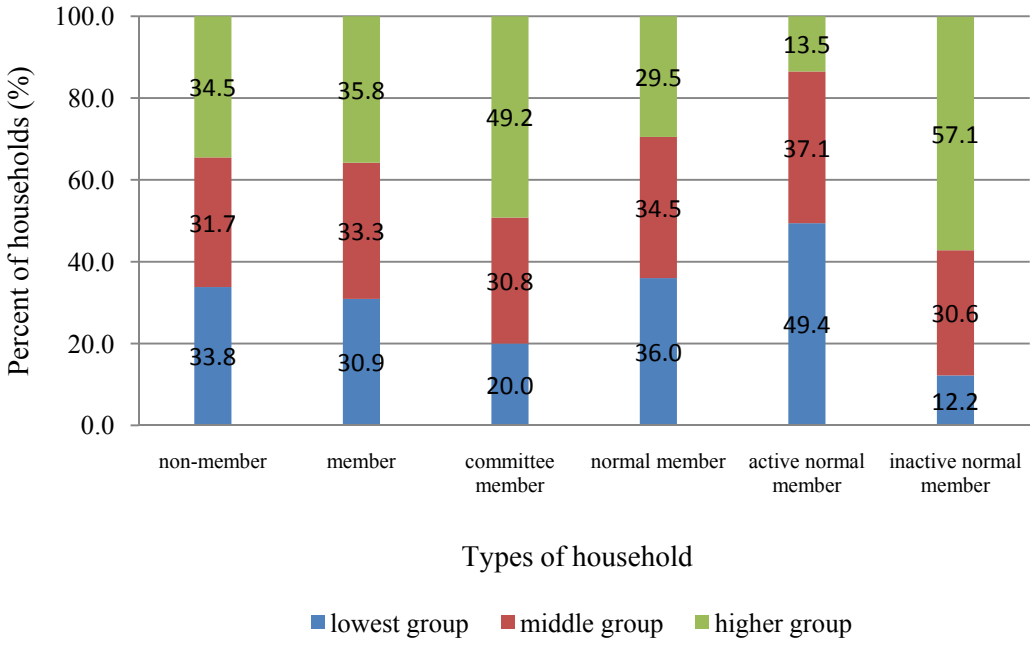

Figure 7.5: Distribution of poverty groups: comparison among types of household

Note: 1/ There is significantly different distribution of poverty groups between committee member and normal member at significance level 0.05 (Pearson Chi-Square = 8.666; ρ = .013).
2/ There is significantly different distribution of poverty groups between active normal member and inactive normal member at significance level 0.05 (Pearson Chi-Square = 33.227; ρ = .000).

(Source: Survey data)

7.5 Discussion and concluding comments

It is generally recognised that the nature and causes of poverty vary geographically. In the light of multiple dimensions of poverty, the different weights of the indicators reflecting poverty dimensions and socioeconomic conditions in different geographical area needs to be taken into account. Hence, in this chapter, the PCA method is used to formulate a poverty index based on the weighted indicators for measuring poverty status of the households in rural northern Thailand. Emphasis was placed on the context of the nature of membership of the CBE. The use of PCA method enabled the determination of the appropriate weights of the indicators by the statistical procedure of principal components.

The key features of villages, CBEs and households are important factors in determining a multidimensional indicator of poverty. *The application of the PCA method constructed the poverty index from 22 indicators (out of 77 possible poverty indicators). The poverty index consists of eight dimensions of poverty, including access to basic needs,*

vulnerability, female empowerment, happiness, household consumption expenses, income, physical assets and household products. Using the constructed poverty index, the relative poverty of households can be classified into three groups of approximately the same size. The lowest-ranked group (the poorest) comprised 32 per cent of household; the middle-ranked group comprised 32.7 per cent; and the higher-ranked group accounted for 35.3 per cent.

Based on the classification of household poverty status, developing policies and programs should give priority to those households falling in the poorest group as a main target of poverty reduction. To address the poverty situation in northern Thailand, the salient poverty features of poor households need to be considered. These features were determined by the component score coefficient of (or the weight assigned to) each standardised indicator in the construction of poverty index. Low income is the most important feature of the poor households that leads to a lack of money to spend on food, non-food products and consumer durable goods, and to invest in household non-agricultural products and a lack of saving. Besides these features, access to basic needs, including a lack of educational opportunity, a poor housing structure and a poor energy source, are also important features.

The finding of identification of poverty groups among CBE members' households showed that *almost a half (49%) of the CBE active normal member households fell in the worse-off (the poorest) group. There is clear evidence that CBE active normal member households were characterised by poverty more than the other categories of the CBE membership. Consequently, the active normal members should be the main target and the first priority group of the CBEs in reducing poverty.*

In order to get a clearer picture of the role of CBEs on overall poverty status of the households and poverty indicators in each component, an examination of the impact of being CBE member as well as other factors, such as household characteristics and CBE performances is presented in Chapter 8.

Chapter 8 Impact of CBEs on household poverty in rural northern Thailand: A propensity score matching approach

8.1 Introduction

As outlined in Chapter 3, one of the key components of the Ninth NESDP is the One Tambon One Product (OTOP) project. Studies show that CBEs make a positive contribution to grass-roots economic development in Thailand through the OTOP project, specifically in income and employment creation (Purnariksha 2006; Kittisataporn 2006; Sriboonchitta and Wiboonpongse 2006; Jantradech 2003). To provide a better understanding of the impacts of CBEs at the household level, analyses of data are extended to examine the impacts of CBEs membership on household poverty status.

The methods for analysing such impacts are explained in Section 8.2. Results are presented and discussed in Section 8.3. Some concluding comments and implications are presented in Section 8.4.

8.2 Methodology

As discussed in Chapter 5, there are several methods which can be used to examine the impacts of development projects/programs. Based on that discussion a quasi-experimental design with constructed controls method was used in this study to assess the impacts of CBEs on household poverty.

The present study adopts the approach proposed by Coleman (1999) and Kondo et al. (2008), where a quasi-experimental design is used to evaluate CBE impacts. At the beginning of the survey plan, the samples were separated into four groups: new members, current members, former members, and non-members. New members and non-members were defined as the comparison group (control group)[21], while former members and current members were used as the treatment group. In Coleman (1999) the control groups are defined to include those household who had selected to participate in the village banks, but had not received the loan. In like manner, in this study the control groups include those new members that are not actually engaged in any production activities. Accordingly, the samples were finally separated into three groups: inactive members, active members, and non-members. Inactive members were a villager who chooses to be

[21] A control group is a group of subjects (individuals) who do not receive treatment (Freedman et al. 1978).

a CBE member but have never produced and sold products to a CBE, while active members were a CBE member who is the committee member and the normal member who produces and sells products to a CBE. It can be seen that, there is similarity in the nature of data used in the present study and Coleman (1999) and Kondo et al. (2008)'s studies. Therefore, technically, the survey design used in the present study satisfies the property of a quasi-experimental design as indicated in Coleman (1999).

Analyses are conducted using three cases, (1) the impact being CBE member: a group of CBE members (treatment group) was compared to a group of non-members (control group), (2) impact being a CBE committee member: a group of CBE committee members was treatment group, while a group of CBE normal members was control group, and (3) the impact being a CBE active normal member: a group of CBE active normal members (treatment group) was compared with a group of CBE inactive normal members (control group).

A common problem with quasi-experimental design is selection bias (Guo and Fraser 2010).[22] Selection bias can result from using non-randomly selected samples to estimate behavioral relationships; it can be thought of as a form of omitted variable bias because the sample is not representative (Heckman 1979). Selection bias can be present for two reasons: first, because of self-selection by the individuals or data units being investigated; or analysts or data processors may operate in much the same way as self-selection (Heckman 1979). Failure to account for selection bias causes biased empirical estimations (Setboonsarng and Parpiev 2008).

In this study, individuals can choose to be a member of the CBEs. Therefore, selection bias arises from the fact that both CBE members (treatment group) and non-members (control group) self-select into one group or the other. As already noted, the effect of non-random sampling is that there may be unobserved differences between members and non-members. If these unobserved differences are not accounted for, an empirical analysis of the impacts of CBEs on the poverty status of members' households will reflect the bias of the unmeasured differences. In other words, not accounting for selection bias causes biased estimation of the impacts of CBEs on household poverty.

[22] Also known as selectivity bias (Maddala 1983), overt and (or) hidden bias (Rosenbaum 2002), self-selection bias or endogeneity (James 2004) and selection problem (Manski 2007).

A range of econometric techniques have been developed for correcting selection bias, beginning with the works of Heckman (1974, 1979) and Lee (1978). One method that has gained prominence is propensity score matching, first proposed by Rosenbaum and Rubin (1985) and used in numerous subsequent studies (Dehejia and Wahba 2002; Setboonsarng and Parpiev 2008; Rosenbaum and Rubin 1983, 1985).

8.2.1 Propensity score matching (PSM)

The PSM method, as noted by Dehejia and Wahba (2002), is extremely useful for cross-sectional survey data and has been found to decrease selection bias notably in observational studies (Rosenbaum 1987, 2004; Rosenbaum and Rubin 1985). Setboonsarng and Parpiev (2008) attest that PSM allows for accurate results in OLS and Logit estimation. Accordingly, PSM is used in this study to cope with the selectivity bias from using a quasi-experimental design and also to identify the impacts of CBEs on a number of household outcome variables that indicate household poverty.

The PSM method is used to construct a statistical comparison group by modeling the probability of being CBE members on the basis of observed characteristics which are unaffected by CBE membership. CBE members (treatment group) are then balanced and matched on the basis of this probability (or propensity score) to non-members (control group). The unmatched respondents are excluded and in the treatment impact estimation.

The propensity score is a conditional probability to indicate that an individual is in the treatment group (Rosenbaum and Rubin 1983). Probit (or logit) regression (with the covariates gathered from the respondents as independent variables and respondents' status on the treatment variable as the dependent variable) is generally applied for estimating propensity score (Rosenbaum 1987).

The PSM method formulates a statistical comparison group that is based on a model of the probability of participating in the treatment T (being the CBE members) conditional on observed characteristics X (covariates) or the propensity score: $P(X) = Pr(T = 1/X)$. The necessary assumptions for identification of the program effect are (a) conditional independence and (b) presence of a common support (Khandker et al. 2010).

Conditional independence: Given a set of observable covariates X that are not affected by treatment, potential outcomes Y are independent of treatment assignment T (Khandker et al. 2010). If Y_i^T represent outcomes for participants and Y_i^C outcomes for nonparticipants, conditional independence implies

$$(Y_i^T, Y_i^C) \perp T_i | X_i \quad (1)$$

This assumption is also called 'unconfoundedness' (Rosenbaum and Rubin 1983) and it implies that joining into the program is based entirely on observed characteristics. To estimate the treatment effect on the treated, as opposed to the average treatment effect, a weaker assumption is needed:

$$Y_i^C \perp T_i | X_i \quad (2)$$

A second assumption is the common support or overlap condition: $0 < P(T_i = 1 | X_i) < 1$. This condition ensures that treatment observations have comparison observations nearly in the propensity score distribution (Khandker et al. 2010; Heckman et al. 1999).

The procedure of the PSM method is composed of three steps (Setboonsarng and Parpiev 2008). Firstly, identify the covariates, which are non-treatment variables, such as the respondent's household characteristics.

Secondly, the selected covariates and their interaction are integrated into a one-equation probit (or logit) model of being a CBE member. The comparison of outcomes for CBE members ($T = 1$) with non-members ($T = 0$) can be estimated from the model. After the CBE member equation is estimated, the predicted values of T representing the estimated probability of being a CBE member or propensity score can be derived. Every sampled CBE member and non-member will have an estimated propensity score, $\hat{P}\langle X | T = 1\rangle = \hat{P}(X)$. Finally, the treatment group (CBE members) and control group (non-members) are matched into equivalent subclasses by using the estimated propensity scores.

After the estimation of propensity score, CBE members are matched to non-members on the basis of the propensity score. Matching partners can be identified by using different algorithms including the nearest-neighbor (NN) matching method, the stratification

matching method, the radius matching method, and the kernel matching method (Khandker et al. 2010).

The NN matching, which is the most straightforward matching techniques (EUROPA 2009; Setboonsarng and Parpiev 2008), matches each treated observation to a control observation with the closest propensity score. By using this matching method, all treated observations are matched with control observations. In some cases, some of these matches are poor because for some treated units the nearest-neighbour may have a very different propensity score. In order to address, the problem of poor matches, the kernel matching method is used (Setboonsarng and Parpiev 2008). Kernal matching matches all treated observations with a weighted average of all controls with weights that are inversely proportional to the distance between the propensity scores of treated and controls (Imai and Arun 2008; Becker and Ichino 2002).

After matching CBE members and non-members, the average effect of treatment on the treated (ATT) is calculated. The ATT is the mean difference in outcomes across the treatment group and control group (Khandker et al. 2010). The outcome variables include poverty index, poverty group, and dummy of absolute poor (see Section 8.3.1). The equation of average impact among CBE members can be written as follows.

$$\hat{\Delta}^{ATT} = E\left[Y^1 \middle| T=1\right] - E\left[Y^0 \middle| T=1\right] \qquad (3)$$

where $\hat{\Delta}^{ATT}$ is estimated average treatment-on-treated effect.

Y^1 CBE member.

Y^0 if individual is a CBE non-member.

T=1 is CBE member.

T=0 is CBE non-member.

$E\left[Y^1 \middle| T=1\right]$ is expected outcome after being a CBE member.

$E\left[Y^0 \middle| T=1\right]$ is the hypothetical outcome without being a CBE member for those who are a CBE member.

Aside from investigating the impacts of being a CBE member on the household poverty status, this study also considers whether different types of CBE membership has an impact on household poverty status. The first model examines the impacts of being a CBE committee member on household poverty. Committee members are set as the treatment group, while normal members are used as the control group. The hypothesis is that being a committee member will tend to have more impacts on household poverty than being a normal member. Based on the information compiled from the primary data, committee members gained higher benefits from the CBE compared to normal members. Committee members normally held more bonds compared to normal members, so they received greater dividends. Committee members also were paid salaries and bonuses, while normal members earnt only wages that depended on quantity and quality of products they sold to the CBEs. Coleman (2006) also established that the estimated impact of the village bank program on committee members is significantly larger than the impact on normal members.

It is believed that the impact of the CBE on active normal member's households is larger than the impact on inactive normal member's households. To examine this, active normal members are included in the treatment group, whereas inactive normal member are set as the control group. This is because the active normal members earnt wages, dividends and other welfare benefits from their production activities, while the inactive normal members received only dividends and other welfare benefits.

The estimation procedures of these models are the same as the model for assessing impacts of being a CBE member.

The statistical software program Stata/SE 10.1 for windows is utilised in this study.

This study uses the three PSM models for assessing impacts of the CBEs on household poverty: (1) model A: model of the probability of being a CBE member, (2) model B: model of the probability of being a CBE committee member and (3) model C: model of the probability of being a CBE active normal member.

Variables used in the analyses are discussed as follows and summarised in Table 8.1.

1. Variables used in the estimation of model A: The probability of being a CBE member

Being a CBE member is used as the dependent variable in this model. Covariate variables used to predict the probability of being a CBE member include household characteristics and village characteristics (Table 8.1). The covariate variables which are likely to positively affect the decision of an individual to join the CBE are: *producing handicraft and (or) cottage food is one of an individual's jobs; farmer is a main occupation of a household head; labour force ratio;* and *distance from the village to the nearest city*.

Producing handicraft and (or) cottage food products is one of an individual's jobs. Producing handicraft and cottage food products for the CBE is excluded from this variable because the observed characteristics (covariates) used to predict the probability of being a CBE member must not be related to the CBE. This variable is used as a proxy representing production experiences and skills in producing handicraft and (or) cottage food of the individual. Individuals who normally produce handicraft and (or) cottage foods for their own business and (or) local merchants are likely to join in the CBE because they have had experiences and skills in the production.

Table 8.1: Variables used in the estimation of propensity scores matching models

Variables	Models[1/]		
	Model A	Model B	Model C
Dependent variable	CBE membership	CBE committee membership	CBE normal active membership
Non-treatment variables (Covariates)			
Household characteristic			
Producing handicraft and (or) cottage food is one of an individual's jobs (0 no; 1 yes). (Note: Producing handicraft and food products for the CBE is excluded.)	√ (+)		
Farmer is a main occupation of a household head (0 no; 1 yes).	√ (+)		
Non-farm labour is a main occupation of a household head (0 no; 1 yes).	√		
Doing a family business is a main occupation of a household head (0 no; 1 yes).	√		
An individual is one of main workers of a household (0 no; 1 yes).	√ (-)		√ (-)
Job diversity of an Individual (jobs). (Note: Working with the CBE is excluded.)	√ (-)	√ (+)	
Total work hours of an individual (hours). (Note: Working with the CBE is excluded.)	√ (-)		
Labour force ratio (ratio of household members who are 15-60 year-old and able to work to the total)	√ (+)		
Total assets of a household (baht)		√ (+)	√ (-)
Age of an individual (years)			√ (+)
An individual plays political and (or) social roles in a community (0 no; 1 yes).		√ (+)	
Education of an individual (years)		√ (+)	
Non-farm labour is a main occupation of an individual (0 no; 1 yes).		√	√
Dependency ratio (ratio of household members under 15 or over 60 year-old to the total)		√ (-)	√ (-)
Doing family business is a main occupation of an individual (0 no; 1 yes).		√	
Ratio of household members who work for the CBE to total members			√ (+)
An individual has and works for her (his) own business (0 no; 1 yes).			√ (-)
Total number of income sources of a household (sources)			√ (-)
Gender of a household head (0 male; 1 female)			√ (-)
Total number of household members (persons)			√ (+)
Education of household head (years)			√ (-)
Village characteristic			
Distance from the village to the nearest city (kilometres)	√ (+)		

Note: 1/ Figures in parentheses indicate the expected sign on the marginal effects on the propensity scores.

Farmer is a main occupation of a household head. The main occupation of household heads is likely to affect the decision of an individual to join the CBE. Farmer households are likely to join the CBE, especially after the harvest season. Besides the farmer household head variable, non-farm household head and family business owner household head variables are also likely to affect the decision of an individual to join the CBE.

Labour force ratio: Labour force ratio of the household is one of the variables predicting the probability to be a CBE member. An individual living in the household with a high ratio of labour force is likely to join the CBE. On the other hand, low ratio of labour force tends to seek other jobs that provide higher income compared to working for the CBE.

Distance between the village and the nearest city: Distance between the village and the nearest city is considered a key determinant among the decision variables because of accessibility to employment, infrastructures and market factors. An individual living in a household located in a village far from the city is likely to join the CBE because of the limited opportunity to access jobs in the city.

The covariate variables which are likely to negatively affect the decision of an individual to join the CBE are: *an individual is one of main workers of a household; job diversity of an individual*; and *total work hours of an individual*.

An individual is one of main workers of a household. This variable is likely to negatively affect the decision of and individual to join the CBE because the main workers tend to seek jobs that provide a higher income compared to what can be earnt working for the CBE.

Job diversity of an individual: Working for the CBE is excluded from this variable because covariates must not be related to the CBE. Job diversity of an individual is used as a proxy for job opportunity. Individuals who normally work in many jobs are unlikely to join the CBE. Their decision to join the CBE depends on their available time and their income from their existing jobs.

Total working hours of an individual: This variable does not include working hours with the CBE because covariates must not be related to the CBE. Individuals who have less working hours (more leisure hours) are likely to have available time to join the CBE.

2. Variables used in the estimation of model B: The probability of being a committee member

Committee membership is modeled by using different explanatory variables. The covariate variables which are likely to positively affect an individual being a CBE committee member are: *job diversity of individual, total assets of a household*, *an individual plays political and (or) social roles in a community*, and *education of an individual* (Table 8.1).

Job diversity of an individual: This variable does not include working with the CBE because covariates must not be related to the CBE. This variable is used as a proxy for work experiences of the committee candidate. CBE committee members are normally elected. The candidate who has more work experience tends to have more chance to be selected. However, to be considered for committee membership is a choice; individuals have to accept a nomination before they can be considered for election as a committee member. In case they do not want to be in the position, they have rights to refuse the election results.

Total assets of a household: Committee members are usually wealthier than normal members before they decide to join the CBE (see more details in Table 8.2). Therefore, value of household total assets is used as one of covariates in this model to control selection bias. Total asset is used as a proxy for household economic stability. The candidate living in wealthier household tends to be voted for.

An individual plays political and (or) social roles in a community. This variable is used as a proxy for social status of an individual. Committee candidates who have played political and/or social roles in a community tend to be well-known and respected because of their work experience and social networks. Therefore, they have more chances to be selected.

Education of an individual: Besides skills and work experiences, education is an important factor for being selected to the CBE committee; committee candidates who have higher education tend to be selected. The main occupation of an individual is also likely to affect one's decision to be a committee member. Non-farm labour individual and family business

owner individual variables are used as proxies for an individual's main occupation in this model.

Table 8.2: Difference of wealth between treatment group and control group

Unit: 1000 baht

Variable/ treatment group vs. control group	Treatment group[1/] mean	Control group[1/] mean	Difference
Value of consumer durable assets owned			
Members vs. non-members	103.40	118.85	-15.45
Committee vs. normal members	120.94	95.13	25.81
Active vs. inactive normal members	53.60	163.05	-109.45**
Value of house owned			
Members vs. non-members	206.04	160.36	45.68
Committee vs. normal members	265.76	178.37	87.39
Active vs. inactive normal members	121.20	280.33	-159.13**
Value of land owned			
Members vs. non-members	328.61	335.90	-7.29
Committee vs. normal members	445.66	273.87	171.79*
Active vs. inactive normal members	199.10	412.22	-213.12**
Value of total assets			
Members vs. non-members	671.72	669.46	2.26
Committee vs. normal members	859.53	584.08	275.45*
Active vs. inactive normal members	392.32	914.72	-522.40**

Note: ** and * denote 1% and 5% significance levels, respectively.

1/ - Treatment group is CBE members, while control group is non-members for the model of probability of being a CBE member.
- Treatment group is committee members, while control group is normal members for the model of probability of being a committee member.
- Treatment group is active normal members, while control group is inactive normal members for the model of probability of being an active normal member.

(Source: Survey data)

Finally, *dependency ratio of the household* is expected to negatively affect the decision of an individual. If an individual living in the household with a high ratio of dependency, she (he) tends to work in other jobs that provide higher income compared to working as a CBE committee member.

3. Variables used in the estimation of model C: The probability of being an active normal member

Being an active normal member is used as a dependent variable in this model. Covariates which are positively predictive of being an individual being an active normal member are: age of the individual; ratio of household members who work for the CBE to total members; and total number of household members (Table 8.1).

Age of an individual: The older normal member is more likely to join in the production activity of the CBE than is a younger member, because the younger member tends to have more opportunity to find other jobs that provide higher income compared to working for the CBE.

Ratio of household members who work for the CBE to total members: An individual who lives in a household that has a high ratio of members working for the CBE is likely to be familiar with the production activity and is motivated to join in the CBE. *Total number of household members* is also one possible predictor of being an active normal member. The normal member living in a large household is expected to participate in the production activity of the CBE.

The covariate variables which are likely to negatively affect being an active normal member of the individual are as follows.

An individual is one of main workers of a household. This variable is likely to negatively affect the decision of a normal member to participate in the production activity of the CBE because main workers tend to seek jobs that provide a higher income compared to working for the CBE.

When comparing the wealth of inactive normal member households and active normal member households (Table 8.2), the results show that inactive normal members are wealthier than active normal members before they decide to join the CBE. Therefore, *value of total assets of a household* is used as one of the covariates in this model to avoid selection bias. Total asset owned by an individual is used as a proxy for household economic stability. The normal member living in a poorer household tends to decide to join in production activity, depending upon their job opportunities and earning from their existing sources of income.

Dependency ratio of the household is expected to negatively affect the decision of an individual to participate in the production activity in the CBE. If an individual living in the household with high ratio of dependency, she (he) is expected to work in other jobs providing higher income in relation to working for the CBE.

An individual has and works for her (his) own business. Individuals who have and work for their own business are expected not to participate in the production activity of the CBE because of time constraints.

Total number of income sources of a household is used as a proxy for job opportunity of the household. An individual who lives in the household that has more sources of income is expected not to participate in the production activity of the CBE because the individual tends to have limited available time and more chances to work in higher pay jobs.

Gender of a household head: As mentioned above, inactive normal members are usually wealthier than active normal members before they decide to join the CBE. The vast majority of poor households (86%) in this study were headed by a male. Moreover, the proportion of male household heads in the poor households was significantly larger than those in the wealthier households. Therefore, the normal member living in the household headed by male is expected to participate in production activity. Finally, the education of the household head is likely to negatively affect being an active normal member of the CBE. The normal member living in a household with a head low education is expected to join in the production activity of the CBE.

The main occupation of an individual is also likely to affect one's decision to be an active normal member. *Non-farm labour individual* is used as a proxy for individual's main occupation in this model.

The results of PSM analysis that capture impacts of being a CBE member, committee member, and active normal member on household poverty is presented in Section 8.3.1.

8.2.2 Regression-based method with statistical controls

As mentioned in section 8.2.1, the PSM approach is used to examine the impacts of CBE membership on household poverty. By using this approach, the selection biases attributed to observable characteristics are minimized. To implement the PSM, set of covariates are used to obtain the probabilities of being CBE members, being committee members, and being active members are determined. These probabilities are then used to match samples, so evidence of impact could be ascertained.

In order to explain the determinants of poverty, a regression-based approach with statistical controls is used. In this case, we need to address the selection biased due to unobserved variables. To control for selection problems due to unobservables would be straightforward if strong instrumental variables exists that only affects the CBE membership, but not the outcome of interest. Unfortunately, we do not have any strong instruments in the data and are unable to control for selection on unobservables in the estimation strategies. Hirano et al. (2003) used weighted least squares, where weights are used from the propensity scores obtained in PSM. However, to fully implement this framework, the covariates used to predict the probability must not be related to the CBE membership, hence, CBE characteristics and CBE performances are not allowed to be included in the model.

In this study, the weighted least square (WLS) regression method is used to further examine their impacts of CBEs where the weights included in the WLS regression model determine the contribution of each observation to the final parameter estimates. The size of the weight indicates the precision of the information contained in the associated observation (NIST 2012). The theory behind the WLS method is based on the assumption that the weights are known exactly. However, the exact weights are almost never known in real application. In this present study, 'no specific weighting variable' is used in the estimation of WLS, which means the weights used are based on the estimated default weighting or signal values (AZDHS 2012).

The household outcome equation, developed from Coleman (1999, 2002) and Garikipati (2006), is applied in this study. Equation for examining impacts of CBE characteristics and performance on household poverty can be written as follows.

$$POVINDEX_{ij} = \alpha X_{ij} + \beta PI_{ij} + \theta V_j + \lambda_C CBEC_{kj} + \lambda_P CBEP_{kj} + \varphi M_{ij} + \delta T_{ij} + \eta_{ij} \quad \ldots (4)$$

Where $POVINDEX_{ij}$ is poverty index of household i in village j. The poverty index is derived from the PCA method. The formulation of poverty index was explained in Chapter 7.

X_{ij} is a vector of household characteristics.

PI_{ij} is a vector of poverty indicators (other than identified by the PCA method)

V_j is a vector of village characteristics.

$CBEC_{kj}$ is a vector of CBE characteristics.

$CBEP_{kj}$ is a vector of CBE performance (derived from financial performance measures).

M_{ij} is a dummy variable equal to 1 if a household has a CBE member and 0 otherwise.

T_{ij} is a vector of duration of CBE members (years).

Software Stata/SE 10.1 for windows is used to analyse data and estimate this model.

The poverty index is used as a dependent variable in the regression model. A set of independent variables, which possibly affects household poverty status, are included in the model. Characteristics of the households are represented by: *education of a household head*; *farm labour as one of the income sources of a household*: *doing a family business as a main occupation of a household*; *gender of a household head*; *age of a household head*; *minority hill-tribe household*; and *labour force ratio*. The expected sign of the coefficient of the variables is shown in Table 8.3.

To avoid the problem of selection bias, variables representing poverty indicators, which are not included in poverty index computation, are included as the second set of independent variables. These variables are expected to positively affect the household poverty status. The variables representing household's assets: *present value of household consumer durables*, *household owned land assets,* and *housing assets* are used as control variables because they might affect the decision of household members to be CBE members. Household respondents who are already relatively wealthier may be more likely than others to join in the CBE. Self-selection bias might lead to bias estimation of the effects of CBEs on household poverty status. Doan et al. (2010) also controlled for initial (or pre-treatment) assets by using the asset variable as a proxy for unobservable characteristics that may affect the outcomes. Mosley (1997) suggests that controlling for the initial assets of households may reduce the bias related to the unobservable attributes.

Table 8.3: Variables used in the household outcome model

Variables	Expected sign of the coefficient	Control variable
Dependent variable		
Poverty index		
Independent variables		
1. Household characteristics		
Education of a household head (years)	+	
Farm labour is one of income sources of a household (0 no; 1 yes)	-	
Doing a family business is a main occupation of a household (0 no; 1 yes)	+	
Gender of a household head (0 male; 1 female)	+	
Age of a household head (years)	+	
Minority hill-tribe household (0 northern native Thai; 1 hill-tribe)	-	
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	+	
2. Poverty indicators (not included in poverty index computation)		
Women manage family business (0 no; 1 yes)	+	
Satisfaction with financial status of a household (0: not at all to 4: very satisfied)	+	
Having a voice in the village meetings (0 no; 1 yes)	+	
Satisfaction with jobs (0: not at all to 4: very satisfied)	+	
Present value of household's consumer durables (thousand baht)	+	√
Present value of household's owned land assets (thousand baht)	+	√
Present value of house (thousand baht)	+	√
3. Village characteristics		
Distance between the village and the nearest city (kilometres)	-	
4. CBE characteristics		
CBE's main activity is handicraft (0 no; 1 yes)	+	
Experiences of a CBE (years)	+	
Total number of a CBE's members (persons)	+	
5. CBE performances		
Gross profit margin (%)	+	
6. Being a CBE member (0 no; 1 yes)	+	√
7. Duration of CBE membership (years)	+	√

Distance between the village and the nearest city is also included in the model as a village characteristic variable. This variable is likely to negatively affect the household poverty status. The household located in the village far from the city is likely to be poor because of the limited opportunity to access infrastructure, markets and jobs in the city.

The CBE's main activity is handicraft, *experiences of a CBE* and *total numbers of the CBE's members* are included in the model to represent CBE characteristics. These variables are likely to positively affect to poverty status of the members' households. Performance of the CBEs is represented by *gross profit margin*, which is likely to positively impact on poverty status of the members' households. *CBE membership* is included as a control variable. CBE membership variable is a proxy for the unobservable characteristics that lead household respondents to self-select into the CBE and that might affect household poverty status. The membership variable was also used as a control variable in Coleman (2006).

Finally, *duration of CBE membership* is also used as one of the control variables in this model. Duration variable indicates the length of CBE membership and tests the effect of the CBE on household poverty status over time. Garikipati (2006) also used membership duration of women in the lending program to tests whether the effect of the program on vulnerability and empowerment increases over time.

There is evidence, in studies such as those by Morduch (1999), Pitt et al. (1999), and Setboonsarng and Parpiev's (2008) study of microcredit program, that the use of regression models without correcting selection bias leads to overestimation of the effects of participation in the program. This is because the participants who are already relatively better off may be more likely than others to join the program. Therefore, including a set of control variables in the regression model can partially adjust for the problem of selection bias (Garikipati 2006).

8.3 Empirical results

Discussion of the results of CBE impact assessment derived from the PSM method and regression-based method with statistical controls is as detailed below.

8.3.1 Results of propensity score matching

Impacts of the CBE on household poverty can be considered in three cases following the treatment variables (*types of CBE membership*): *being CBE member*, *CBE committee member* and *CBE active normal member*.

In CBE impact assessment, whether joining the CBE actually causes wealth of the households or the households were already relatively wealthy when they joined the CBE need to be investigated. If the wealthy households selected to join the CBE, self-selection occurs among CBE members. Therefore, a t-test is used to test the mean difference between three pairs: CBE members and non-members; CBE committee members and normal members; and CBE active normal members and inactive normal members, on household asset variables which reflect household initial wealth and are not easy varied because of joining the CBE (Table 8.2).

The results of the t-test show that CBE members and non-members are not statistically different in assets values, while committee members own statistically higher values of land that lead to higher values of total assets compared to normal members. Active normal members own statistically lower values of consumer durable asset, house and land, and total assets in relation to inactive normal members (Table 8.2). The finding proves that CBE members and non-members have similar initial wealth status, whereas committee members and inactive normal members have been wealthier than normal members and active normal members, respectively, when they selected to join the CBE. Therefore, to address the selection bias, the value of total assets is used as one of covariates in the model for estimating the propensity score of being a CBE committee members and being a CBE active normal members (Table 8.7 and 8.9).

Impact of being CBE member on household poverty

1. Propensity score estimations

The model of the probability of being a CBE member is formed by combining the variables that possibly influence villagers to join the CBE as covariates or non-treatment variables. The propensity score is derived from the model by using the probit regression

method. A relative good fit of the model is demonstrated through a high Likelihood Ratio Chi-squared and Pseudo R-squared statistics (Table 8.4).

The results show that an individual is likely to decide to join the CBE if *one of her (his) occupations is handicraft production and (or) food processing for other community groups and merchants* (Table 8.4). The probability of *being a CBE member* is at 0.62 if *an individual works on producing handicraft and (or) cottage foods for other community groups and merchants* (Table 8.5). The result is consistent with the hypothesis presented in Table 8.1. An individual who has experience and skills in handicraft and (or) cottage food production is likely to join the CBE.

An individual, who is one of main workers of a household and lives in a household of a farmer household head (and family business owner household head), is also likely to join the CBE (Table 8.4).

The probability of an individual joining the CBE is at 0.17 if *a household head mainly works as a farmer* (Table 8.5). The result is also consistent with the hypothesis mentioned earlier. The members of farmer households might spend their available time at night and after the harvest season for producing handicraft and/or cottage foods for the CBE to earn supplementary income.

The probability of an individual joining the CBE is at 0.28 if carrying out *a family business is the main occupation of a household head*. Moreover, if *an individual is one of main workers of a household*, the possibility of she (he) joining the CBE has a probability 0.15. This is inconsistent with the hypothesis mentioned in Table 8.1. Based on that expectation, the main worker is likely to work in higher pay jobs rather than working for the CBE, while the members who are not main workers, such as housekeepers, the unemployed and retired persons, are expected to join the CBE.

Table 8.4: Model of the probability of being a CBE member

Dependent variable – Being a CBE member

Covariates (non-treatment variables)	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Constant	-.758	.295	-2.57	0.010	-1.336	-.181
Producing handicraft and (or) cottage food is one of an individual's jobs (not include working for the CBE). (0 no; 1 yes)	1.826	.183	9.96	0.000	1.467	2.185
Farmer is a main occupation of a household head. (0 no; 1 yes)	.466	.200	2.32	0.020	.073	.859
Non-farm labour is a main occupation of a household head. (0 no; 1 yes)	-.307	.239	-1.29	0.198	-.775	.161
Doing a family business is a main occupation of a household head. (0 no; 1 yes)	.935	.310	3.02	0.003	.328	1.543
An individual is one of main workers of a household. (0 no; 1 yes)	.411	.182	2.26	0.024	.055	.767
Job diversity of an individual (not include working for the CBE) (jobs)	-.194	.097	-2.01	0.045	-.385	-.004
Total working hours of an individual (not include working for the CBE) (hours)	-.00024	.000092	-2.57	0.010	-.00042	-.000056
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	.450	.300	1.50	0.134	-.138	1.038
Distance from the village to the nearest city (kilometres)	.0000082	.001	0.01	0.995	-.0028	.0029
Probit regression					Number of obs = 340	
					LR chi2 (9) = 140.40	
					Prob > chi2 = 0.000	
Log likelihood = -159.411					Pseudo R2 = 0.306	

Note: The common support option has been selected. The region of common support is [.144, .992].

Table 8.5: Marginal effect after probit and changes in probabilities for being a CBE members
y = Pr (member) (predict) = .642[1/]

Variable	Marginal Effect after Probit							Changes in Probabilities			
	Marginal effect[2/]	Std. Err.	z	P>z	[95% C.I.	]	Mean	min -> max[3/]	0 -> 1[4/]	-+1/2[5/]	-+sd/2[6/]
Producing handicraft/cottage food is one of an individual's jobs (not include working for the CBE)*	.615	.047	13.03	0.000	.523	.708	.526	0.615	0.615	0.608	0.331
Farmer is a main occupation of a household head*	.170	.070	2.41	0.016	.032	.308	.403	0.170	0.170	0.173	0.085
Non-farm labour is a main occupation of a household head*	-.118	.093	-1.26	0.206	-.301	.065	.188	-0.118	-0.118	-0.114	-0.045
Doing a family business is a main occupation of a household head*	.280	.066	4.21	0.000	.149	.410	.100	0.280	0.280	0.339	0.105
An individual is one of main workers of a household*	.151	066	2.31	0.021	.023	.280	.447	0.151	0.151	0.153	0.076
Job diversity of an individual (not include working for the CBE)	-.073	.036	-2.01	0.045	-.144	-.0018	1.49	-0.293	-0.067	-0.073	-0.069
Total work hours of an individual (not include working for the CBE) (hours)	-.000088	.00003	-2.58	0.010	-.00016	-.000021	1052.48	-0.257	-0.0001	-0.0001	-0.090
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	.168	.112	1.50	0.133	-.051	.387	.649	0.170	0.170	0.167	0.047
Distance from the village to the nearest city (kilometres)	.0000031	.00054	0.01	0.995	-.0011	.0011	687	0.0006	0.0000	0.0000	0.0002

Note: (*) Marginal effect is for discrete change of dummy variable from 0 to 1.
1/ The predicted probability of being a CBE member is at 0.64, when all independent variables take their mean value.
2/ The marginal changes of the independent variable.
3/ The change in the probabilities when the independent variable varies from its minimum value to its maximum value.
4/ The change when the independent variable varies from 0 to 1.
5/ The change in probabilities when the independent variable varies one unit in real value.
6/ The change in probabilities when the independent variable varies one unit in standard deviations.

The result might show that the main worker joined the CBE as an inactive normal member who normally would not participate in production activities. In addition, the worker may work their existing job, and work in the CBE to provide an alternative source of income, which that they can carry out in their leisure time to earn supplementary income.

The results also show that *job diversity of an individual (not including working for the CBE)* is negatively related to the probability to join the CBE (Table 8.4). In case the individual has one job increased, the probability to decide to join the CBE decreases 0.07 (Table 8.5). This is consistent with the hypothesis mentioned earlier in Table 8.1. An individual who has many sources of income might does not have available time to join the CBE.

Total working hours of an individual (not including working for the CBE) also negatively affects the decision of an individual to join the CBE. The probability to join the CBE tends to decrease 0.26 if the individual works one more hour in another job. However, the decision to join the CBE might be based on their leisure time and opportunity cost of working for the CBE.

2. Matching and impact estimations

Based on the propensity score estimation processes, sufficient common support is confirmed. The final number of blocks is five. This number of blocks ensures that the mean propensity score is not different for treated and controls in each block. The balancing property is satisfied. After that, the matching for all pair-wise combinations can be processed. As mentioned earlier, this study used the kernel matching method to match each treated observation with a control group observation. The differences between the outcomes for the treated observations and those for the control observations are computed. Then the average effect of treatment on the treated (ATT) is derived by averaging these differences.

The results of the comparison of CBE members with non-members matched by the kernel matching method are shown in Table 8.6. In total, 202 households with CBE members were matched with 124 non-member households. The results show that

being CBE member does not statistically affect the overall poverty status of the households, which is represented through relative poverty (*poverty index* and *poverty group*) and *absolute poverty*.

In order to examine exactly where the impacts take place, overall relative poverty is broken down into more refined measures following poverty dimensions (Table 8.6 and appendix 4). The results show that households with CBE member appear to have no statistical difference in *total income* compared to those without the CBE member. Apparently *CBE membership* has the strongest positive impact on *income from CBE*. On average, the member households earn statistically higher income from the CBE than those without CBE members. The mean difference of income from the CBE among these groups is at 10,720 baht a year (Table 8.6).

Regarding female empowerment, a household with a CBE member is statistically more likely to have a chance of control over household assets than those without CBE membership in terms of livestock, while less than in terms of opportunity to control household business (Table 8.6).

The results show that *total assets* have a positive effect on *being a committee member*. CBE committees are generally voted for by all members of the CBE. The candidate who comes from a relatively wealthy household has more chance of being elected to the committee. The probability of *being a committee member* will increase around 0.0001 if *total assets* of the individual's household increases by a thousand baht (Table 8.8). This result is consistent with the hypothesis presented in Table 8.1. It can also be seen from Table 8.2 that committee members have been wealthier than normal members before they selected to join the CBE.

Another factor which positively influences an individual to be a CBE committee member is *job diversity of an individual* (Table 8.7). The probability of being selected to the committee increases 0.09 (Table 8.8) for each additional job held by individual. This is consistent with the hypothesis mentioned earlier. The candidate who has more work experience tends to have more chance to be selected.

The *education of an individual* also positively affects being a committee member (Table 8.7). The probability of being on the committee will increase 0.04 if an

individual with each additional year of education (Table 8.8). This is consistent with the hypothesis mentioned earlier. Higher education level is an important factor for a candidate to be selected.

Table 8.6: Average treatment effect on the treated (ATT) using kernel matching method (reps 50)

	No. of treated	No. of control	ATT	Standard errors	t-statistics
Model A (Propensity of Being a CBE member)					
Poverty index	202	124	-0.067	0.240	-0.280
Poverty group	202	124	-0.069	0.243	-0.285
Absolute poor (0=non-poor; 1=poor)	202	124	-0.011	0.106	-0.106
Income					
Total income (baht/year)	202	124	10190.89	52149.25	0.195
Income from CBE (baht/year)	202	124	10720.74	1377.18	7.785**
Women empowerment					
Women owns livestock (0 no; 1 yes)	202	124	0.156	0.067	2.349**
Women owns and manage a family business (0 no; 1 yes)	202	124	-0.247	0.095	-2.610**
Decision making in major financial issues of a household (0 no; 1 yes)	202	124	0.068	0.105	0.646
Model B (Propensity of Being a Committee Member)					
Poverty index	63	118	-0.064	0.141	-0.457
Poverty group	63	118	0.095	0.151	0.630
Absolute poor (0=non-poor; 1=poor)	63	118	-0.065	0.062	-1.051
Income					
Total income (baht/year)	63	118	-28500	89075.74	-0.320
Income from CBE (baht/year)	63	118	18183.32	3348.79	5.430**
Women empowerment					
Women owns livestock (0 no; 1 yes)	63	118	-0.048	0.082	-0.582
Decision making in major financial issues of a household (0 no; 1 yes)	63	118	0.098	0.051	1.921**
Model C (Propensity of Being an Active Normal Member)					
Poverty index	85	40	0.118	0.391	0.302
Poverty group	85	40	0.066	0.404	0.163
Absolute poor (0 non-poor; 1 poor)	85	40	-0.307	0.221	-1.390
Income					
Total income (baht/year)	85	40	-13900	67252.61	-0.207
Income from CBE (baht/year)	85	40	8203.21	1177.91	6.964**
Women empowerment					
Women owns livestock (0 no; 1 yes)	85	40	-0.199	0.239	-0.834
Decision making in major financial issues of a household (0 no; 1 yes)	85	40	0.257	0.227	1.129

Note: ** At significance level 0.05

Table 8.7: Model of the probability of being a committee member

Dependent variable – Being a Committee member

Covariates (non-treatment variables)	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Constant	-2.447	.463	-5.28	0.000	-3.35	-1.540
Total assets of a household (baht)	.00000029	.00000012	2.38	0.017	.00000005	.00000052
Job diversity of an individual (not include working in the CBE) (jobs)	.551	.152	3.63	0.000	.254	.849
An individual plays political and (or) social roles in a community (0 no; 1 yes)	.209	.269	0.77	0.439	-.319	.737
Education of an individual (years)	.127	.033	3.81	0.000	.062	.193
Main occupation of an individual is a non-farm labour (0 no; 1 yes)	.548	.228	2.40	0.016	.101	.995
Main occupation of an individual is doing family business (0 no; 1 yes)	.118	.290	0.41	0.685	-.451	.687
Dependency ratio (ratio of household members under 15 or over 60 year-old to the total)	-.452	.406	-1.11	0.265	-1.247	.343
Probit regression					Number of obs = 197	
					LR chi2 (9) = 37.79	
					Prob > chi2 = 0.000	
Log likelihood = -104.567					Pseudo R2 = 0.153	

Note: The common support option has been selected. The region of common support is [.075, .996].

Table 8.8: Marginal effect after probit and changes in probabilities for being committee member

y = Pr (committee member) (predict) = .293[1/]

Variable	Marginal Effect after Probit							Changes in Probabilities			
	Marginal Effect[2/]	Std. Err.	z	P>z	[95% C.I.]		Mean	min -> max[3/]	0 -> 1[4/]	-+1/2[5/]	-+sd/2[6/]
Total assets of a household (baht)	.000000099	.00000	2.38	0.017	.000000018	.00000018	671844	0.560	0.000	0.000	0.086
Job diversity of an individual (not include working in the CBE)	.190	.052	3.63	0.000	.087	.292	1.92	0.945	0.092	0.188	0.169
An individual plays political and/or social roles in a community*	.074	.099	0.75	0.452	-.120	.268	.152	0.074	0.074	0.072	0.026
Education of an individual (years)	.044	.011	3.83	0.000	.021	.066	4.60	0.689	0.029	0.044	0.144
Main occupation of an individual is a non-farm labour*	.195	.082	2.37	0.018	.034	.356	.340	0.195	0.195	0.187	0.089
Main occupation of an individual is doing family business*	.041	.104	0.40	0.691	-.162	.245	.168	0.041	0.041	0.041	0.015
Dependency ratio (ratio of household members under 15 or over 60 year-old to the total)	-.156	.139	-1.12	0.264	-.429	.118	.380	-0.150	-0.150	-0.155	-0.041

Note: (*) Marginal effect is for discrete change of dummy variable from 0 to 1.

1/ The predicted probability of being a CBE committee member is at 0.29, when all independent variables take their mean value.

2/ The marginal changes of the independent variable.

3/ The change in the probabilities when the independent variable varies from its minimum value to its maximum value.

4/ The change when the independent variable varies from 0 to 1.

5/ The change in probabilities when the independent variable varies one unit in real value.

6/ The change in probabilities when the independent variable varies one unit in standard deviations.

Finally, *working as non-farm labour* positively influences an individual to be a CBE committee member (Table 8.7). The probability of an individual to be a CBE committee member is at 0.2 if one mainly works as non-farm labourer (Table 8.8).

2. Matching and impact estimations

After the propensity score is derived from the model (Table 8.7), sufficient common support is selected. The final number of blocks is five, which confirms that the mean propensity score is indifferent for treated and controls in each block. The balancing property is satisfied. After that the combinations of CBE committee members and normal members are matched by the kernel matching method. In total, 63 households with committee members were matched with 118 normal member households (Table 8.6).

The results show that *types of CBE member* do not statistically impact on the overall poverty status of the households, which is represented through relative poverty (*poverty index* and *poverty group*) and *absolute poverty*. Although households with CBE committee members and households with normal members are not statistically different in overall poverty status, some poverty indicators are statistically different between both groups (Table 8.6 and Appendix 4).

Households with CBE committee member appear to have no statistical difference in *total income* compared to those with CBE normal member. However, types of CBE member has the strongest impact on *income from the CBE*. Households with committee member earn statistically higher income from the CBE than those with normal members. The mean difference of income from the CBE between these two groups is approximately 18,183 baht per year (Table 8.6).

The probability of *women in committee member households making decisions in major financial issues of a household* is statistically higher than that of normal member households. This might indirect effect of being a committee member of the CBE (Table 8.6).

In summary, the impact of being a committee member on household poverty can be directly observed in *income from CBE* and *decision-making in major financial issues of a household*. Statistical difference also appeared in *decision participation in CBEs*

(Appendix 4). Normally, being a committee member allows the member to have more chance compared to normal members to make decisions and take responsibility, particularly in the administration tasks in relation to functions in their positions. For other household outcomes, statistical differences appeared in some household outcomes, including *savings*, *access to health check ups*, and *receiving help from neighbours regarding job seeking*. However, it cannot be shown that the differences are directly affected by *being a committee member*.

Impacts of being CBE active normal member on household poverty:

1. Propensity score estimations

The model of the probability of *being a CBE active normal member* is formed at the first stage of propensity score matching. The covariates (or non-treatment variables) is included in the model as the variables influencing the villagers to join the CBE as active normal members. In this model the propensity score is estimated by using logistic regression method (Table 8.9).

The results show that *the ratio of household members who normally work for the CBE to total members* is positively influences an individual to join the CBE as an active normal member (Table 8.9). A unit increase in the household member's work in the CBE will increase the probability of being an active normal member by 0.68 (Table 8.10). This is consistent with the hypothesis mentioned in Table 8.1. Ratio of household members working for the CBE is a motivation for an individual to decide to join in production activities of the CBE.

Working as non-farm labour is another positively influencing factor (Table 8.9). The probability of being an active normal member will increase 0.23 if an individual works on non-farm labour (Table 8.10).

Age of an individual also positively affects being an active normal member of a CBE (Table 8.9). The probability of being an active normal member will increase by 0.01 with each additional year (Table 8.10). This is consistent with the hypothesis that older normal members are more likely to join in production activities than younger ones because older members tend to have limited opportunity to for higher pay jobs.

Table 8.9: Model of the probability of being an active normal member

Dependent variable –Being an active normal member

Covariates (or non-treatment variables)	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Constant	-2.262	1.783	-1.27	0.204	-5.757	1.232
Ratio of household members who normally work for the CBE to total members	4.107	1.009	4.07	0.000	2.130	6.084
An individual has and works for her/his own business	-1.640	.716	-2.29	0.022	-3.044	-.237
Total assets of a household (baht)	-.0000015	.00000053	-2.78	0.005	-.0000025	-.00000044
Non-farm labour is a main occupation of an individual	1.437	.632	2.27	0.023	.198	2.676
Age of an individual (years)	.051	.025	2.03	0.043	.002	.101
Total number of income sources of a household (sources)	.063	.193	0.33	0.742	-.315	.441
Dependency ratio (ratio of household members under 15 or over 60 year-old to the total)	.668	.970	0.69	0.491	-1.234	2.569
Gender of a household head (0 male; 1 female)	.128	.740	0.17	0.863	-1.322	1.578
Education of a household head (years)	-.176	.080	-2.20	0.028	-.333	-.0190
An individual is one of main workers of a household (0 no; 1 yes)	-1.247	.605	-2.06	0.039	-2.432	-.062
Total number of household members (persons)	.146	.220	0.66	0.508	-.286	.577
Logistic regression					Number of obs = 134	
					LR chi2 (11) = 74.63	
					Prob > chi2 = 0.000	
Log likelihood = -50.673					Pseudo R2 = 0.424	

Note: the common support option has been selected. The region of common support is [.058, .9997].

Table 8.10: Marginal effects after logit and changes in probabilities for being an active normal member

y = Pr (active normal member) (predict) = .751[1/]

Variable	Marginal Effects after Logit							Changes in Probabilities			
	Marginal Effect[2/]	Std. Err.	z	P>z	[95% C.I.	]	Mean	min -> max[3/]	0 -> 1[4/]	-+1/2[5/]	-+sd/2[6/]
Ratio of household members who normally work for the CBE to total members	.768	.164	4.68	0.000	.447	1.09	.427	0.615	0.627	0.680	0.326
An individual has and works for her/his own business*	-.354	.161	-2.19	0.028	-.671	-.038	.231	-0.354	-0.354	-0.302	-0.130
Total assets of a household (baht)	-.00000028	.00000	-2.72	0.007	-.00000048	-.000000077	583350	-0.874	-0.000	-0.000	-0.202
Non-farm labour is a main occupation of an individual*	.231	.088	2.63	0.009	.059	.403	.306	0.231	0.231	0.266	0.124
Age of an individual (years)	.0096	.005	2.12	0.034	.00071	.019	50.45	0.574	0.0078	0.0096	0.124
Total number of income sources of a household (sources)	.012	.036	0.33	0.744	-.059	.083	3.69	0.091	0.013	0.012	0.015
Dependency ratio (ratio of household members under 15 or over 60 year-old to the total)	.125	.182	0.69	0.492	-.231	.481	.399	0.120	0.120	0.125	0.034
A household head's gender*	.023	.133	0.18	0.860	-.237	.284	.209	0.023	0.023	0.024	0.0097
Education of a household head years)	-.033	.0150	-2.20	0.028	-.062	-.0036	3.78	-0.595	-0.023	-0.033	-0.123
An individual is one of main workers of a household*	-.237	.111	-2.14	0.032	-.454	-.020	.455	-0.237	-0.237	-0.231	-0.116
Total number of household members (persons)	.027	.041	0.66	0.509	-.054	.108	3.60	0.158	0.033	0.027	0.035

Note: (*) Marginal effect is for discrete change of dummy variable from 0 to 1.

1/ The predicted probability of being an active normal member is at 0.75, when all independent variables take their mean value.

2/ The marginal changes of the independent variable.

3/ The change in the probabilities when the independent variable varies from its minimum value to its maximum value.

4/ The change when the independent variable varies from 0 to 1.

5/ The change in probabilities when the independent variable varies one unit in real value.

6/ The change in probabilities when the independent variable varies one unit in standard deviations.

By contrast, factors negatively influencing an individual to join the CBE as an active normal member depends on: whether *an individual has and works for her/his own business*; *total assets of a household*; *number of years of education a household head*; and *an individual is a main worker of a household* (Table 8.9).

The probability of being an active normal member will decrease by 0.35 if *an individual works on her (his) own business* (Table 8.10). The result is consistent with the hypothesis that individuals working for their own businesses are expected not to participate in production activities because of limited available time.

The probability of being an active normal member will decrease by around 0.0003 if *total assets* of the individual's household increases by thousand baht (Table 8.10). The result is consistent with the hypothesis mentioned earlier. It also can be seen from Table 8.2 that active normal members have been poorer than inactive normal members before they selected join the CBE.

The probability of an individual joining the CBE as an active normal member will decrease by 0.03 if one's household head has one more educated year (Table 8.10). The result is consistent with the hypothesis that the normal member living in the household with a low educated head is expected to join in CBE's production activities.

The results also show that in cases where *an individual is one of the main workers of the household*, the probability of joining the CBE as an active normal member will decrease 0.24 (Table 8.10). This is consistent with the hypothesis because the main workers tend to seek jobs providing higher pay compared to working in the CBE.

2. Matching and impact estimations

Based on the propensity score estimation processes, sufficient common support is confirmed. The final number of blocks is five, and the balancing property is satisfied.

The results of the comparison of CBE active normal members with inactive normal members matched by the kernel matching method are shown in Table 8.6. In total, 85 households with active normal members were matched with 40 inactive normal member households.

The results show that types of CBE normal member do not statistically affect the overall poverty status of the households, which is represented through the *poverty index*, *poverty group* and *absolute poverty*. In order to examine exactly where the impacts take place, overall relative poverty is broken down into more refined measures following poverty dimension (Table 8.6 and Appendix 4).

Regarding household income, types of normal member have the strongest impact on *income from CBE*. Active normal members earn statistically higher annual income from the CBE — 8,203 baht higher than that of inactive normal members. However, *total income* of households with active normal member and inactive normal member households is not statistically difference (Table 8.6).

The impact of *being an active normal member* on household poverty can be directly observed from *income from CBE* only (Table 8.6). There are no statistical mean differences among active normal member households and those with inactive normal member for most other household outcome variables. Statistical differences appeared in some household outcomes, which consist of *cloth expenses*, *saving*, *access to health check ups*, *having a voice in village meetings*, *receiving help from neighbours regarding job seeking and child and animal care* (Appendix 4). However, it cannot be shown that the differences are directly affected by being a CBE active normal member.

8.3.2 Results of regression-based methods with statistical controls

Further examination of impacts of CBE characteristics and performance on household poverty is obtained by using the weighted least square (WLS) regression method, which can solve heteroscedasticity. Multicollinearity is also tested. The results of the regression analysis are demonstrated in Table 8.11.

Significant factors positively affecting the *poverty index* of the households are: *education of household heads*; *heads of household run a family business*; *women manage a family business*; *satisfaction with financial status of a household*; *having a voice in the village meetings*; *satisfaction with jobs*; *values of household assets (consumer durable assets*, *owned land assets* and *housing assets*); and *labour force ratio of the households*.

By contrast, factors which negatively and statistically affect the *poverty index* of the households are: *farm labour is one of the income sources of the household*; *distance from the village to the nearest city*; and *being a minority hill-tribe household*.

The coefficient of *being CBE member* has a positive sign, which is consistent with the expected sign (presented in Table 8.3). However, it does not statistically affect the *poverty index*. This result is consistent with the results of PSM (model A). It can be shown that being a CBE member does not statistically impact on the overall relative poverty of the households but might affect some poverty indicators, in particular *income from the CBE* (see the results of PSM (model A) in Table 8.6). Earning from CBEs can supplement income for the member's households but does not sufficiently affect the overall poverty status of the households.

According to the hypothesis mentioned earlier, *duration of membership the CBE member* is likely to have a positive effect on the *poverty index*. However, the results show that duration of membership does not statistically affect the poverty index. This might be because half of the CBEs in this study were established after the implementation of OTOP policy. Three quarters (74.4%) of the members have been a CBE member for less than 10 years (see Chapter 6). Therefore, duration of the membership would not statistically affect poverty status of the households.

Considering CBE characteristics (*experiences* and *total number of the members*) and performance (*gross profit margin*), coefficient values of these variables have a positive sign, which is consistent with the expected sign. However, they do not statistically affect the *poverty index*.

In line with the hypothesis, *a CBE's main production activity* is likely to have a positive effect on the *poverty index*. However, the results show a negative and no statistical impact of CBE handicraft activity on the poverty index. On average the members of handicraft CBEs earn income from the CBE of 8,296 baht a year that is higher than those of food processing CBEs (4,760 baht a year). However, the distribution of households among

Table 8.11: Impacts of CBEs on household poverty status

Poverty index	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Constant	-1.316	.193	-6.80	0.000	-1.697	-.936
Education of a household head (years)	.031	.006	4.86	0.000	.019	.044
Being a CBE member (0 no; 1 yes)	.015	.049	0.31	0.759	-.082	.112
Duration of CBE membership (years)	-.007	.0041	-1.63	0.104	-.015	.0014
Farm labour is one of income sources of a household (0 no; 1 yes)	-.165	.039	-4.27	0.000	-.242	-.089
Doing a family business is a main occupation of a household head (0 no; 1 yes)	.270	.064	4.21	0.000	.144	.396
Women manage family business (0 no; 1 yes)	.213	.037	5.76	0.000	.140	.285
Satisfaction with financial status of a household (0: not at all to 4: very satisfied)	.074	.021	3.49	0.001	.032	.116
Having a voice in the village meetings (0 no; 1 yes)	.132	.050	2.63	0.009	.033	.231
Satisfaction with jobs (0: not at all to 4: very satisfied)	.116	.034	3.42	0.001	.049	.182
Present value of household's consumer durables (1,000 baht)	.0016	.00026	6.12	0.000	.001	.0021
Present value of household's owned land assets (1,000 baht)	.00027	.00005	5.36	0.000	.00017	.00037
Present value of house (1,000 baht)	.00032	.00011	2.99	0.003	.00011	.00053
Gender of a household head (0 male; 1 female)	.012	.042	0.28	0.776	-.071	.095
Age of a household head (years)	.0023	.0018	1.27	0.204	-.0012	.0057
Minority hill-tribe household (0 northern native Thai; 1 hill-tribe)	-.568	.069	-8.19	0.000	-.705	-.432
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	.273	.066	4.12	0.000	.143	.403
Distance from the village to the city (kilometres)	-.002	.00045	-4.01	0.000	-.003	-.00093
CBE's main activity is handicraft (0 no; 1 yes)	-.065	.045	-1.46	0.145	-.153	.023
Experiences of a CBE (years)	.0058	.0031	1.90	0.059	-.00022	.012
Total number of a CBE's members (persons)	.00053	.00042	1.26	0.207	-.00029	.0013
Gross profit margin of a CBE (%)	.00015	.00061	0.24	0.813	-.0011	.0014

WLS regression – type: proportional to abs (e)

(sum of wgt is 6889.5)

Source	SS	df	MS
Model	176.60	21	8.410
Residual	29.08	317	.092
Total	205.68	338	.609

Number of obs	=	339
F (21, 317)	=	91.68
Prob > F	=	0.000
R-squared	=	0.859
Adj R-squared	=	0.849
Root MSE	=	.303

different categories of poverty status indicates that the proportion of the wealthier households living in the villages located by food processing group is larger than those living in the handicraft villages (Table 8.12).

Table 8.12: Poverty status of the households classified by main activity of the CBEs

	Proportion of households (%)		
Main activity	Poor	Middle	Wealthier
Food processing	25.34	32.19	42.47
Handicraft	37.06	32.99	29.95

(Source: Survey data)

8.3.3 Determinants of household poverty

In the sections above, the determinants of an individual's decision to join the CBE and impacts of joining the CBE on household poverty are examined. In this section, determinants of household poverty are explored.

The equation for examining determinants of household poverty can be written as follows.

$$POVINDEX_{ij} = \int (X_1, X_2, ..., X_n) \qquad (5)$$

Where $POVINDEX_{ij}$ is poverty index of household i in village j. The poverty index is derived from the PCA method (as presented in Chapter 7).

X_{ij} is a vector of household characteristics.

Software Stata/SE 10.1 for windows is used to analyse the regression model mentioned above. Details of the variables used in the model will now be discussed.

Variables used in the regression model

Poverty index is used as the dependent variable representing household poverty status in this regression model. The higher the value of the poverty index the wealthier the household and vice versa.

Independent variables, which may predict household poverty status, are included in the model (Table 8.13). *Education of household head* is likely having a positive effect on the poverty index. Based on the descriptive analysis carried out for this research, there is a

statistically different distribution of education levels of household heads among household poverty groups at a significance level 0.05. Roughly two-thirds (67%) of the heads of poor households are illiterate, whereas four-fifths (80%) of the middle-ranked household heads and three-fifths (61%) of the wealthier-ranked household heads finished elementary school. About one-fourth (21%) of the wealthier group finished senior high school and have a Bachelor's degree.

Sricharoen and Buchenrieder (2005) also show that households with an illiterate head mostly tend to be poor. NESDB (2004b) also suggests that education of the household heads is closely related to poverty and has a strong impact on poverty.

Table 8.13: Variables used in the regression model

Variables	Expected sign of the coefficient
Dependent variable	
Poverty index	
Independent variables	
Household characteristics	
Education of a household head (years)	+
Gender of a household head (0 male; 1 female)	+/-
Age of a household head (years)	+/-
Farm labour is one of income sources of a household (0 no; 1 yes)	-
Doing a family business is a main occupation of a household (0 no; 1 yes)	+
Minority hill-tribe household (0 native Thai; 1 hill-tribe)	-
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	+
Present value of household's consumer durables (1000 baht)	+
Present value of household's owned land assets (1000 baht)	+
Present value of house (1000 baht)	+
Village characteristics	
Distance between the village and the nearest city (kilometres)	-

Gender of household head is likely to affect household poverty. In this study, the vast majority of the poor households (86.4%) are headed by a male. The proportion of male household heads in the poor households is statistically larger than those in the wealthier households. In contrast, UNDP (2008b) notes that, in Thailand, the proportion of poor households among households with female heads is slightly higher than those headed by a male, except in Bangkok and the central region of Thailand (see more details in Chapter 3). However, in Cambodia, households headed by women are poorer than those headed by men, while in Vietnam female-headed households are no more likely to be poor than households with a male head (World Bank 2005).

Age of household head is also a possible factor in explaining household poverty. It is likely to have an effect on the poverty index. Based on the descriptive analysis of this research, heads of the poor households are 51 years old on average. This is statistically younger than those of the middle-ranked households and also younger than those of the wealthier households. However, previous studies, such as NESDB (2004b), Vimolsiri (1999) and Sricharoen and Buchenrieder (2005) confirm that households headed by the elderly people have a higher possibility of facing poverty problems compared to those with younger heads (as discussed in Chapter 3).

Occupation of the household is also a possible variable determining household poverty. In this model, farm labour is one of the income sources of the household and carrying out a family business is a main occupation of the household are the variables used to represent occupation of the household. Households working as farm labourers tend to be poor, while households with family business owner heads are likely to be better-off. Based on the descriptive analysis of this research, one of the main occupations of the poor household heads is farm labourers (23%), whereas only a very small percentage of the wealthier household heads (1.7%) work as farm labourers. Moreover, about a fourth of the wealthier household heads run their family business (22%), while only a negligible proportion of poor household heads do this job (0.9%). NESDB (2008) also showed that farm households account for most of the poverty in Thailand (as presented in Chapter 3).

Race of households is one of the possible variables associated with household poverty. Minority hill-tribe households are likely to be poorer than northern native Thai households. Based on the descriptive analysis presented in this research, most of the poor households are minority hill-tribes (83%), while almost all of the middle-ranked households (96%) and the wealthier households (99%) are northern native Thais. Sricharoen and Buchenrieder (2005) also show that, in Thailand, most of the poor live in rural highland areas. Moreover, Fujioka (2002) noted that hill-tribe people face a higher degree of poverty than other groups in Thailand.

Labour force ratio is likely to positively affect household poverty. Households having a high labour force ratio tend to have more sources of income.

Household asset is likely to positively affect household poverty. Households with higher values of assets (consumer durables, owned land assets, and housing assets) are likely to be wealthier than those with lower asset values. Based on the descriptive analysis of this study, on average, total assets of the poor household (165,678 baht) are statistically much lower than those of the middle-ranked and the wealthier households. Ahmed et al. (2007) also show that the poorest often have fewer assets.

Finally, *distance between the village and the nearest city* is another possible factor explaining household poverty. The poorest often live in remote rural areas and have less access to markets (Ahmed et al. 2007). Therefore, distance between the village and the nearest city is likely to negatively relate to poverty index.

Determinants of household poverty

Determinants of household poverty are derived by using the WLS regression method, which can solve heteroscedasticity. Multicollinearity is also tested. The results of the regression analysis are shown in Table 8.14.

Factors which are positively related to household poverty (or factors which lead to the households being better off) are: *education of household heads*; *heads of household run family business*; *values of household assets (consumer durable assets*, *owned land assets* and *housing assets*); and *labour force ratio of the households*.

By contrast, negative factors (or factors which lead to the households being worse-off) consist of: *farm labour is one of income sources of the household*; *distance from the village to the nearest city*; and *being minority hill-tribe household*.

All factors mentioned above are statistically related to household poverty (*poverty index*) and consistent with all hypotheses mentioned earlier in Table 8.13. However, *gender* and *age of household heads* are not statistically related to poverty index (Table 8.14).

Based on the results, characteristics of the poor households in the study sites can be identified as: the households are headed by low educated heads; work as farm labour; located far from the nearest city; have small value of assets; are hill-tribe; and have low labour force ratio.

Table 8.14: Determinants of household poverty

Poverty index	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Constant	-.501	.163	-3.07	0.002	-.823	-.180
Education of a household head (years)	.038	.0074	5.13	0.000	.023	.052
Farm labour is one of income sources of a household (0 no; 1 yes)	-.124	.043	-2.88	0.004	-.209	-.040
Doing a family business is a main occupation of a household head (0 no; 1 yes)	.384	.071	5.38	0.000	.244	.524
Distance from the village to the nearest city (kilometres)	-.0021	.00040	-5.29	0.000	-.0029	-.0013
Present value of household's consumer durables (1000 baht)	.0016	.00029	5.42	0.000	.0010	.0022
Present value of household's owned land assets (1000 baht)	.00037	.000057	6.52	0.000	.00026	.00048
Present value of house (1000 baht)	.00043	.00013	3.39	0.001	.00018	.00069
Gender of a household head (0 male; 1 female)	.0038	.050	0.08	0.939	-.095	.103
Age of a household head (years)	.0023	.0021	1.11	0.266	-.0018	.0063
Minority hill-tribe household (0 native Thai; 1 hill-tribe)	-.688	.065	-10.57	0.000	-.816	-.560
Labour force ratio (ratio of household members who are 15-60 year-old to the total)	.304	.076	3.99	0.000	.154	.453

WLS regression – type: proportional to abs (e)

(sum of wgt is 5156.3)

Source	SS	df	MS
Model	189.74	11	17.249
Residual	43.21	331	.131
Total	232.94	342	.681

Number of obs	=	343
F (11, 331)	=	132.14
Prob > F	=	0.000
R-squared	=	0.815
Adj R-squared	=	0.808
Root MSE	=	.361

8.4 Discussion and concluding comments

This chapter aimed to provide information of the role of CBEs on the overall poverty status of households and the poverty indicators in each component. In doing so, the information on poverty status of the households, as well as the constructed poverty index and poverty group derived in Chapter 7 were employed to assess impacts of the CBEs on household poverty.

In this chapter, the PSM was applied to investigate impacts of CBEs on household poverty in northern Thailand and also used to deal with the selectivity bias from using a quasi-experimental design with constructed controls method. The further analysis was obtained to examine impacts of CBE characteristics and performance on household poverty by applying the WLS method. Determinants of an individual's decision to be a CBE member, a committee member and active normal member were also examined. In addition, determinants of household poverty were investigated.

By using the PSM, the results showed that *there was a statistical difference between incomes from CBE earnings for active normal members versus inactive normal members. Active normal member households earn an annual income from the CBE of 8,203 baht, which is statistically higher than inactive normal member households.* Therefore, it can be seen that, in the investigation, particularly among CBE members, there is a difference between active and inactive normal members. Consistent with expectations, *further examination of household total income indicated that there is no statistical difference between CBE members and non-members.*

In terms of explanations for being CBE members or non-members, the results showed that CBE members: tend to have skills and experience in handicraft production/food processing (not include working for the CBE); be one of main workers of a household; and live in farmer-headed or family business owner-headed households. By contrast, non-members are likely to have multiple sources of income and fewer leisure hours.

Factors positively influencing an individual to be a CBE committee member are: total assets; income sources of an individual; educational level of an individual; and an individual working as non-farm labour.

Factors positively influencing an individual to join the CBE as an active normal member are: higher ratio of household members who normally work for the CBE to total members; non-farm labourer is a main occupation of an individual; older age of an individual and lower educational years of a household head. By contrast, factors negatively influencing an individual to join the CBE as active normal member consist of: an individual has and works for her (his) own business; having a comparatively higher value of household; and an individual is a main worker of a household.

The results show that, handicraft production and food processing are the main occupations of many household heads and household respondents, especially in committee member and active normal member households. Although, the proportion of income from these activities is small (approximately 9%) relative to total household income and being CBE member did not statistically affect overall poverty status of the households, the CBEs contribute opportunities for social capital development, social participation, capacity building, in particular women's empowerment.

As shown in the results of this study; being a CBE member allowed the members' household to earn income directly from the CBE. Being a CBE member also positively affects women's ownership of livestock. In rural Thailand, livestock is an asset for households. Households can sell livestock when they have financial problems. The implication is that being a CBE member allows women to create a buffer against unexpected economic circumstances. By contrast, being a CBE member negatively affects women ownership and managing a family business. The implication is that possibility of owning and managing the business of the women in CBE member households is statistically less than those of women in non-member households.

Considering the contribution of CBEs on women's empowerment among types of membership, being a committee member allowed the members to have a voice in decision-making in major financial issues of their households. This implies that being a CBE committee member allows women to have rights to participate in decision-making concerning major financial issues of their households. Being a CBE committee member also allows them to participate in decision-making about CBE maters. By contrast, being active normal members did not contribute any statistical effect on women's empowerment.

Aside from a small effect on household total income and poor distribution of CBE contributions on women's empowerment among members, other dimensions of poverty were not affected by CBE membership. Therefore, CBEs should give more consideration on providing and distributing implicit benefits, such as social participation, gender empowerment, reduced vulnerability and increased happiness to members. CBEs also should encourage members to participate more in CBE activities and increase recogntion of the implicit benefits they provide. For example, the CBEs that have never provided dividends to their members should start to set up rules of dividend distribution and distribute shares among the members. Everybody in the CBEs should have rights to have shares in the CBEs. The maximum amounts of shares per person should be determined in order to balance the distribution of benefits among the members. This is the way to encourage members' sense of belonging and motivate members to participate in decision making and in CBE activities. Aside from providing dividends, CBEs should, in addition to recognising explicit benefits, also recognise the implicit benefits of participation in the CBE, as well as the contribution of CBEs to the community.

The analysis of impacts of CBE characteristics and performance on household poverty by using the WLS regression method showed that CBE characteristics and performance did not statistically affect the poverty status of the households. CBE membership and membership duration were also not statistically related to household poverty status.

Although the members of handicraft-based CBEs earn higher incomes from their CBE when compared to incomes earnt by food processing members, the proportion of the richer households living in the villages located in the food processing group is larger than those living in the handicraft villages. Therefore, being a members of the handicraft CBE did not statistically affect household poverty status and this result indicates that there may be other influencing factors which are more relevant to poverty status than types of CBE. However, the difference in income from the CBE between the handicraft-based and food-processing-based CBEs ensure that the handicraft-based CBEs can contribute higher implicit benefits to members compared to the food processing CBEs, and are likely to more focused upon in rural development policy. However, in extension and promotion of CBEs, the background characteristics of the villagers, such as their skills, local wisdom, and culture, need to be considered. In order to achieve sustainability of development,

CBEs should be developed from inside out based on social capital and resources within the community.

The finding of determinants of household poverty examined by using the WLS regression method showed that factors leading households to be better-off consist of higher education of household heads, family business owner-headed households, higher values of household assets, and higher labour force ratio of the households. On the contrary, factors leading to the households being worse off include: farm labour is one of income sources of the household; longer distance from the village to the nearest city; and being minority hill-tribe household. The results of poverty factors were highly consistent with those of previous studies, such as Sricharoen and Buchenrieder (2005), NESDB (2004b, 2008), Fujioka (2002), and Ahmed et al. (2007), in particular when considering the factor, being minority hill-tribe household. Hill-tribe households' lack access to basic needs include health service, education, energy source, sanitary and housing structure. Based on the results of the analyses, hill-tribe households who normally live in the upland and highland areas in northern Thailand should be considered as a priority target group of rural poverty alleviation.

Based on the results of CBE impacts on household poverty and determinants of household poverty presented in this chapter, implications of how to improve the distribution of benefits from CBEs to their members and how to reduce poverty at the household level in northern Thailand will be suggested in Chapter 9.

Chapter 9 Summary, implications and conclusions

9.1 Introduction

This chapter summarises the major results and conclusions of the study. It also addresses the implications of these findings for policies on poverty reduction in Thailand and suggests further areas for research regarding CBEs, in particular CBEs as a tool for economic stimulation.

9.2 Overview of the research

The study was initially motivated by the fact that poverty has officially been recognised as a challenge for Thailand's socio-economic development for four decades. Poverty alleviation in line with the UN Millennium Development Goals (MDGs) has been a primary focus of public policy in all UN member countries, including Thailand. In response to this, the Thai Government has implemented a range of rural development and poverty reduction policies. As a result, poverty incidence decreased to 9.6 per cent in 2006, which achieved the first goal of the MDGs. Nonetheless, challenges still remain for Thailand in addressing poverty alleviation, particularly in rural areas where the vast majority (88%) of the poor reside.

A key tool in the Thai Government's policy reduction approach is the One Tambon One Product (OTOP) project. The OTOP uses community-based enterprises (CBEs) as a principal strategy to promote economic and community development at the 'grass-root' level. And in this regard, national statistics and descriptive studies have shown that CBEs have led to both income generation and employment creation. This thesis argues that the condition of poverty is more accurately addressed from a multidimensional approach — that is in addition to measuring poverty in monetary terms, which is the conventional approach, measures should take into account the many factors of poverty. The central question of this thesis is whether poverty reduction is indeed uniform across CBE members and in particular whether the poorest members in the communities, especially women, are benefiting from their involvement in CBEs. To answer this question, a comprehensive field study was undertaken analysing the impact of CBEs on household poverty using a multidimensional concept of poverty. Data for the analysis were collected in Chiang Mai, Chiang Rai and Lam Phun provinces in northern Thailand during April

and September 2009. The samples included 343 households and 14 CBEs from 12 villages selected using a random sampling method. In-depth interviews were undertaken with the CBEs to gather detailed information in relation to business management, in particular financial management, for measuring performance of the CBEs and the corresponding impact assessment. Household surveys were conducted to gather information on the characteristics and poverty status of the households.

The framework developed combined three existing, but traditionally separately applied methods of impact assessment of development projects, poverty measurement and financial performance measurement. This approach consists of two main steps including identification of poverty groups within the target geographical area and related poverty components; and investigation of the role of CBEs and other factors on household poverty. As such the study contributes insights which will benefit further studies concerned with poverty measurement, microenterprises and impact assessment in developing countries.

The principal component analysis (PCA) method was used to formulate a poverty index and to discriminate between poverty groups. By applying PCA, the study established significant poverty indicators which were then used to identify the most vulnerable households within the survey area. By analysing the signs and size of the indicators relative to the new component variable, the poverty component can be readily identified. These components were used to construct the poverty index, which reflect the socioeconomic conditions of the rural households. In regard to CBEs, the poverty index derived by the PCA method can be used to identify the poorest among the members. A clear advantage of this index is therefore that specific strategies can be designed to address the needs of these poorest members.

The propensity score matching (PSM) method was used to assess impacts of the CBEs on household poverty in the second step of the framework. The PSM was also used to cope with the selectivity bias from using a quasi-experimental design with constructed controls method. The analysis was extended to examine impacts of the CBE characteristics and performance on household poverty by applying the weighted least square (WLS) regression method. This method was also used to address heteroscedasticity and applied to examine the determinants of household poverty. In the

regression model, CBE performance is determined as one of the possible factors affecting household poverty. Consequently, financial performance measurement was applied to examine CBE performance.

The application of the modified framework was conducted in the northern region of Thailand which has the second highest incidence of CBEs, particularly in Chiang Mai and Chiang Rai. National statistical data shows that poverty is a prominent feature of households in this region. Indeed the North has the second highest concentration of the poor in Thailand. Also of concern is that this region has a slightly increasing trend of poverty incidence. Most of the poor in this region (92%) live in rural areas. Secondary data analysis has indicated that the poor households also have the lowest average income compared to those in other regions. Household poverty status tends to be reflected by the following features: large household size; household heads with low literacy levels; and female heads of households. The results for the age of household heads are inconclusive. The current study found that the poorer households have younger heads, contrary to the findings of previous studies. In addition, qualitative data and descriptive statistics have indicated that CBEs have positive impacts on socioeconomic development, in terms of supplementary income, employment creation, access to resources, quality of life, and social participation.

The fieldwork target villages in Chiang Mai, Chiang Rai and Lam Phun are characterised by poor accessibility due to isolation from cities. Most inhabitants are northern native Thais and minority hill-tribes. The inhabitants generally have poor literacy rates, poor access to sanitation and health services and have low household income. Agriculture is the main source of income in these villages but a range of community-based enterprises provide alternative sources of earnings for the villages.

The main aim of the selected CBEs is to generate employment for the villagers. Half were established before the Government's implementation of the OTOP project. The CBEs are mostly comprised of women and nearly three-quarters of CBE members had been members for less than 10 years. Over half of the CBE members were middle-aged and roughly two-thirds of them had a low educational level. Consequently, they had limited job opportunities to work in the non-agricultural sector, such as in manufacturing and service sectors. Therefore, apart from self-employment in farm production and farm

labour, the most important employment opportunities for CBE members (irrespective of their status) come from handicraft production and food processing labours.

In regard to CBEs business performance, handicraft-based CBEs have been shown to be more profitable compared to food processing-based CBEs. Significantly, 93 per cent of CBEs have achieved OPC certification; however, only one of the 13 CBEs awarded OPC certification had achieved the highest rating of five-stars. This finding is consistent with the national statistics data in 2009 that around seven per cent of total OPC products achieved five-star certification, and questions what strategies are needed to improve the performance of the lesser performing CBEs.

Of the selected households in the survey area, 45 per cent are active CBE members and 41 per cent are non-members. Most of the households are poor with a per capita income of 76,522 baht (or 2,437 AUD[23]) per year. Just under a quarter (23%) of households are living below the poverty line. Access to basic necessities, such as education, health services, and sanitation were used as key indicators of the poverty status of household members. Hill-tribe members of the villages had lower access to these basic services compared to northern native Thai households. These findings are consistent with findings by Sricharoen and Buchenrieder (2005), Bureekam (2005), and Fujioka (2002).

The PCA method developed for this research constructed a poverty index from 22 indicators (out of 77 possible poverty indicators). This index consists of eight dimensions of poverty, including access to basic needs, vulnerability, female empowerment, happiness, household consumption expenses, income, physical assets and household products. Using the results of the PCA from eight dimensions of poverty indicators, the relative poverty of households was divided into three groups of approximately the same size. However, from the analysis of poverty groups among CBE members' households almost half of the CBE's active normal member households were in the poorest group.

Using PSM analysis, a clearer picture of the role of CBEs on overall poverty status of the households and poverty indicators in each component was ascertained. The PSM results showed that there was a statistical difference between incomes derived from CBE earnings for active versus inactive members. That is, active normal member households

[23] The currency exchange rate was at 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

earn annual income from the CBE 8,203 baht higher than inactive normal member households. This can be primarily attributed to the fact that active members are able to derive additional income from wages for their CBE labour. Whereas inactive members are only able to derive benefit from dividends and these are highly variable between CBEs. Consistent with expectations, further examination of household total income indicates that there is no statistical difference between CBE members and non-CBE members. But, if CBE members only are observed, there is a difference between active and inactive normal members. This result addresses the central question of this thesis regarding whether the impact of CBEs on poverty reduction is uniform or differentiated among households. Specifically, that if the active normal members are in fact not engaged in a CBE then they would have been worse off financially.

In terms of explaining the different benefits between being a member or non-member of a CBE, the analysis identified the following: CBE members were likely to be one of the main workers of a household, have skills and experience in handicraft production and (or) food processing, and live in farmer-headed or family business owner-headed households. By contrast, non-CBE members tend to be those individuals who have multiple sources of income and fewer leisure hours.

Factors positively influencing an individual to become a CBE committee member include: total assets of an individual's household; income sources of an individual; educational years of an individual; and an individual working as non-farm labour.

Factors positively influencing an individual's decision to join the CBE as an active normal member include: higher ratio of household members who normally work for the CBE to total household members; an individual working as a non-farm labourer; older age of an individual (in particular more than 55 years old); and lower educational years of a household head, whereas, it is less likely for an individual to be an active normal member if he/she: works in their own business; is the main worker of a household; or is living in a household that has a comparatively higher value of total assets. It can be seen that CBEs are more beneficial for villagers who do not have much employment opportunity and are low in literacy and education levels.

9.3 Implications

The profile of households clearly shows that poverty is a salient feature of life in northern Thailand, thus warranting its position on the government policy agenda — in particular, those policies targeted at enhancing quality of life and building sustainable economic opportunities. However, it is important to note that, while national statistics showed that the poverty circumstances of women are vastly different from men, most of the government programs (or strategies) did not specifically address the situation of rural women. Given that CBEs are mostly comprised of women, the Thai government might consider fine-tuning its poverty policies to include specific programs targeted at rural women, through, for example, the provision of financial support and business education in order to extend the range of opportunities for women's employment.

Based on the finding of determinants of poverty, there are clearly particular poverty challenges for the minority hill tribes. These challenges are exacerbated by remoteness from major centres and also lack of access to basic needs such as health services, education, energy sources, sanitation and good housing.

Therefore, it might warrant governments and NGOs to revisit the efficacy of existing initiatives relating to hill-tribe households. In particular, questions might be asked about the types of employment opportunities that could be designed to stimulate economic development and sustainability in these regions with strong ethnic diversity as well as remoteness.

The results show that handicraft production and cottage food processing are a significant source of employment for the household — in particular for the active normal member and committee member households. Although the contribution of income from the CBE to total household income is small, the CBE also plays an important role in community development because it contributes opportunities for social capital development, social participation, capacity building and, potentially, gender empowerment.

As CBEs are an important source of employment within communities the appropriateness of labour regulations needs to be questioned, particularly to ensure that workers are not vulnerable and unprotected. In this regard, a government inquiry on employment relationships noted that CBE enterprises remain unregulated by government (Meesit

2000). Other regulations that sustain traditional occupations in Thai communities and protect local wisdom and resources also need to be considered. In this regard it should be noted that since 2005 the Government has implemented the Small and Micro Community Enterprise (SMCE) Extension Act to address the problem of the lack of legal status for CBEs (Charnnarongkul 2009). The Act aims to: promote knowledge and local wisdom, income generation and mutual assistance; develop management capacity of the enterprises; and develop operational procedures of the enterprises which can enhance the community's self-reliance and strengthen community economy (Secretariat Office of Community Enterprise Promotion Board 2009).

The results also show that handicraft-based CBEs are more profitable than food processing-based CBEs. Moreover, the handicraft-based CBEs contributed higher benefits to the members compared to the food-processing CBEs. These results raise the question of whether CBEs should concentrate primarily on handicrafts. However, in this regard it needs to be noted that current government programs stress the importance of CBEs producing the products in which they have comparative advantage.

An important strategy to increase income for CBEs would be to improve the quality of products in accordance with the OPC certification. In relation to the finding of OPC certification achievement of the CBEs and the national statistics evidences, only a small proportion of the CBEs can achieve five-star certification. Hence, it is imperative that the Government facilitate ways to ensure that a greater proportion of CBEs achieves at least three-star OPC certification. Possible strategies for how the OPC quality criteria could be addressed are outlined below:

In relation to product quality and product design, the lower-performing CBEs could benefit from insights from the experience of successful CBEs. One option could be via trade fairs facilitated by the relevant government agencies. These agencies could actively assist the lower performing CBEs identify appropriate business and marketing strategies used by the successful models and also help identify ways to incorporate them — taking into account local constraints such as labour and finance. In relation to improving production efficiency, effective ways of provisioning continuous skills training for CBE members need to be considered. In addition, remuneration for active normal members could be directly linked to the quality of products they produce.

Government agencies and NGOs can play an active role in assisting CBEs differentiate their products through effective brand label strategies that reflect local wisdom and cultures of their communities. For example, this differentiation is visible in the patterns of weaving (fabric) and basketwork products — and this distinctiveness can be better promoted through labelling strategies, and socially and environmentally responsible use of natural resources. In relation to the hill-tribe CBEs which have unique traditions and cultures, home-stay strategies to promote their identity and products are an option to enhance the promotion of their wares — differentiated in the same way as the numerous Home Stay Thai Cooking Schools.

OPC certification also needs to be considered in terms of whether it can be advantageous for CBEs in terms of opening up different marketing channels or alternative supply chains. Strategic alliances could also play an important role in reducing market information asymmetries and improving distribution services.

Increased revenues for CBEs could be achieved through potential price premiums and/or increased sales attached to the OPC quality certification. However, it needs to be noted that CBEs can only increase their price premiums through their bargaining power and this is directly linked to the OPC rating. Increased sales revenues also imply higher dividends to be shared amongst CBE members.

Savings are an additional means of improving the financial circumstances of CBE members. Hence savings activities should be encouraged and promoted amongst CBE members. Apart from the explicit benefits, savings activity provides members with access to low-interest rate loans. This also reduces dependency on financial sources outside the community which is consistent with the Sufficiency Economy concept. Additional financial resources within CBEs also constitute an important source for reinvesting in CBE activities and improving product efficiency.

In addition to having an appropriate business model, CBEs must have an accountable and transparent governance structure. This includes transparency regarding the allocation of shares and dividends to CBE members and participation in decision-making, especially revenue distribution. In this way, a members' sense of belonging to the CBE is likely to be enhanced. Social audits might be a key tool for addressing this governance concern

such as those used by the Community Partnering for Local Development Initiative (Gibson and Hill 2010b).

Governments and CBEs could also be encouraged to address sufficiency of partnerships with CBEs, in particular regarding provision of financial, marketing and production technology expertise. In relation to the OPC certification, government can facilitate ways of ensuring that a greater proportion of CBEs can achieve much higher OPC certification.

9.4 Concluding comments

Fieldwork in developing countries, particularly in remote regions, requires detailed planning. However, despite such planning, unanticipated situations can occur which have a direct impact on the cost and also time to conduct the work. Below are some experiences of these issues in northern Thailand, which may assist other researchers contemplating undertaking similar studies.

In the field survey, this research used enumerators who were fluent in a northern native dialect to obtain information from ethnic groups and northern native Thais. In a few instances, the assistance of local translators was asked for because some hill-tribe respondents were only comfortable with their own language. Moreover, there were multiple minority groups in the same village and their languages were not always the same. Therefore, data collection in hill-tribe villages took more time compared to the northern native Thai villages. Future studies should take this diversity into account in their planning.

Climatic conditions also affected the accessibility of some selected villages, in particular the villages located in upland areas. As a result of conditions caused by weather conditions, this research spent more time in the data collection than had been initially planned.

Ideally an experimental design with random assignment method would be used for the type of research that is the focus of this thesis. However, such a method is both costly and time consuming. Therefore a quasi-experimental design with constructed controls method was developed and provides an alternative methodological approach for other researchers who have limited resources to conduct their research.

In this study, the PSM method is used as a main tool for examining the impacts of CBE membership on household poverty and the WLS method used to further examine the factors affecting poverty. Khandker et al. (2010: 64-65) noted that under the assumption of conditional independence, to have more efficient and consistent estimates, the propensity scores can be as the weight in the WLS. Given the availability of time and data, further research on this area could further unravel the full impact of CBE. Moreover, the number of observations of non-member households as a proportion of the whole sample was relatively small. Thus, in order to implement and replicate the PSM approach, it is imperative to have larger sample size that will highlight the difference between the control and treatment groups.

Given the personal nature of some of the data collected for the survey, it was essential to spend time establishing trust with the respondents. Also due to memory issues it is important to use other indicators of financial performance. Given the availability of desired data, further research could consider operational performance measurement along with financial performance measures.

Finally, despite these challenges the fieldwork is considered to have met the objectives of the thesis.

The thesis provides a sufficiently comprehensive investigation of the topic covering main CBEs which are managed by women's groups in three provinces of northern Thailand. It also includes four ethnic communities with wide range of socio-economic circumstances.

Based on the results of this research, CBEs are making a difference to poverty circumstances and capacity building at the grass roots level in northern Thailand. However, their impact is not uniform, neither within nor across CBEs. Therefore there is much scope for further investigation on ways to enhance this economic stimulus tool for continuing poverty reduction between immediate stakeholders — particularly on ways to increase collaborative efforts by government, NGOs and academics.

Appendices

List of Appendices

Appendix 1: Interview schedules

I. Interview schedule for household

ID | | | | | |

Name of the respondent (for record purpose only): ....…….……

Address: ……..……..……Tel. No. ….…….....…

Name of CBE: ….....

Date of interview (mm/dd/yyyy): …./…../….. Name of the enumerator: ……..…….....

Date of checking (mm/dd/yyyy): …../…./…… Researcher signature: .....

Section I: General information of the respondent and household characteristics

1. You are ☐ Inactive normal member of the CBE;

   membership duration .....year

   ☐ Active normal member of the CBE;

   membership duration .....year

   ☐ Committee member of the CBE;

   membership duration .....year

   ☐ Non-CBE member

2. How many members are in your household? .....persons

3. Could you please give me more details about the members?

	Name *(in order to be easy to interview only)*	HH. status[1/]	Marriage status[2/]	Sex	Age (year)	Educational level[3/]	Occupation[4/]		CBE membership status[6/]	Role in the CBE (rank and file member/ committee)	Membership duration (year)	Social and political role[7/]
							Main[5/]	Secondary				
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												

Note: 1/ Household status: (1) head of the household; (2) spouse; (3) son; (4) daughter; (5) father; (6) mother; (7) grandchild; (8) grandparents; (9) other relative; (10) other non-relative

2/ Marriage status: (1) single, (2) married, with the spouse permanently present in the household; (3) married with the spouse migrant; (4) widow or widower; (5) divorced or separated

3/ Educational level: (1) Illiterate (0 year); (2) Elementary school (1-6 years); (3) Junior high school (7-9 years); (4) Senior high school (10-12 years); (5) Bachelor's degree (13-16 years); (6) Master's degree (17-18 years); (7) Others (please identify)

4/ Occupation: (1) self-employed in agriculture; (2) self-employed in non-farm enterprise, (3) agricultural labor, (4) industrial labor, (5) transport worker, (6) construction worker, (7) traders, (8) government service, (9) non-government service, (10) self-service, (11) homemaker, student, inactive (unwilling to work or retired), (12) unemployed and looking for a job, (13) not able to work (handicapped); (14) others (please identify).

5/ Main and secondary occupation should be distinguished on the basis of time allocated to different occupations.

6/ CBE membership status: inactive normal member, active normal member, committee member and non-member.

7/ social and political roles, such as village head and village health volunteers.

Section II. Material deprivation

This section consists of questions related to production, income, agricultural and non-agricultural expenditure, consumption of the household, saving and credit, and household assets

1. Farm and non-farm activities of the household

1.1 In year 2008 or crop year 2008/09, what kind of production activity did your household do? Please identify the period of time for doing each activity and the main contribution in each activity.

Production activities	Main contribution[1/]	2007			2008												2009		
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
I. Farm activities																			
(1) Plantation																			
1.																			
2.																			
3.																			
(2) Livestock																			
1.																			
2.																			
3.																			
II. Non-farm activities																			
1.																			
2.																			
III. laborer																			
(1) Farm laborer																			
1.																			
2.																			
(2) Non-farm laborer																			
1.																			
2.																			
3.																			

Note: Main contributor: (1) head of household; (2) spouse: (3) both head of household and spouse; (4) other members (please identify)

1.2. Landholding in 2008

Parcel No.	Size of land (Rai)	Land tenure[1/]	Ownership[2/] (For own land/ Relative's land only)	Rent[3/] (For rental land only)
1				
2				
3				
4				
5				
6				
7				
8				

Note: 1/ Land tenure: (1) own land; (2) rental land; (3) relative's land (no need to pay for rent)
2/ Ownership: (1) head of household; (2) spouse; (3) son; (4) daughter; (5) father; (6) mother; (7) grandmother and grandfather; (8) other relatives (please identify)
3/ Rent can be in forms of cash (baht/rai/year) and (or) yields (unit/rai/year) (please identify)

1.3 Land use and value of activities in land[1/] in 2008

Parcel No.[2/]	Price (baht/rai)	Water availability[3/]	Value of activities in land identified by land use[6/] (baht/parcel)									
			Homestead land[4/]	Pond/water body[5/]	For rent	For non-farm work[7/]		For livestock		For plantation		
						Activity	Value	Activity	Value	Activity	Rai	Value
1…...rai												
2.....rai												
3.....rai												
4.....rai												
5.....rai												
6.....rai												
7.....rai												
8.....rai												

Note: 1/ Total value of land will be calculated by adding value of activities in each piece of land with present value of land.
2/ Parcels mentioned in this column must be the same as those mentioned in item 1.2 (section II) in terms of their order and size of land.
3/ Water availability: (1) absolutely sufficient (2) occasionally insufficient (3) absolutely insufficient
4/ In column 'homestead land', please identify the value of fruits, vegetables and timber.
5/ In column 'pond or water body', please report the value of fish production (sale plus own consumption).
6/ The value should be imputed at the replacement cost, i.e. the value the asset will face in the market if it were sold.
7/ Non-farm work is both non-farm production activity and non-farm laborer that occurred in the land.

2. Plantation activities

2.1 Crop 1: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me details about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (…….……)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

2.2 Crop 2: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me details about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (…….)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

2.3 Crop 3: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me details about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (……)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

2.4 Crop 4: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me detals about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (……)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

2.5 Crop 5: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me details about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (……)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

2.6 Crop 6: …… Area .....rai Number of crop/year: ….. crops Total income/year: ..... baht/year

Total cost/year: ……baht/year Total cost/crop: ..... baht/crop

Could you please give me details about production cost per crop?

Activities	Raw material				Equipment/machine					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1. Seeding																					
2. Soil preparation																					
3. Planting																					
4. Watering																					
5. Fertilising																					
6. Pesticide control																					
7. Weeding																					
8. Harvest																					
9. Post harvest																					
10. Others (……)																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

3. Total yields and income in crop year 2008/09

Yields and income allocation		Crop 1 …….	Crop 2 ……	Crop 3 ……	Crop 4 ……	Crop 5 ……	Crop6 ……
Harvest	Quantity (kg.)						
	Value (baht)						
Sold	Quantity (kg.)						
	price (baht/kg)						
	Value (baht)						
Household consumption	Quantity (kg.)						
	Value (baht)						
Using as rent	Quantity (kg.)						
	Value (baht)						
Keeping as seed for the next crop	Quantity (kg.)						
	Value (baht)						
Using as raw material of cottage food processing	Quantity (kg.)						
	Value (baht)						
Using as raw material of handicraft production	Quantity (kg.)						
	Value (baht)						
Waste (use as compost or green manure)	Quantity (kg.)						
	Value (baht)						
Other uses (please specify)	Quantity (kg.)						
	Value (baht)						

4. Handicraft production/food processing

4.1 Product 1: …… ☐ Produce for the CBE (as the CBE worker) ☐ household business

Frequency: …… times/year Production quantity/time: ..... Total cost/time: ..... baht/time

Total cost/year: …… baht/year Income/year: .....baht/year

Could you please give me details about production cost per time?

Process	Raw material				Equipment					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1.....																					
2.....																					
3.....																					
4.....																					
5.....																					
6.....																					
7.....																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

4.2 Product 2: …… ☐ Produce for the CBE (as the CBE worker) ☐ household business

Frequency: …… times/year Production quantity/time: ..... Total cost/time: ..... baht/time

Total cost/year: …… baht/year Income/year: .....baht/year

Could you please give me details about production cost per time?

Process	Raw material				Equipment					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1.....																					
2.....																					
3.....																					
4.....																					
5.....																					
6.....																					
7.....																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

4.3 Product 3: …… ☐ Produce for the CBE (as the CBE worker) ☐ household business

Frequency: …… times/year Production quantity/time: ..... Total cost/time: ..... baht/time

Total cost/year: …… baht/year Income/year: .....baht/year

Could you please give me details about production cost per time?

Process	Raw material				Equipment					Household labor				Hired labor				Exchange labor			
	Type	Quantity	baht/ unit	Source*	Type	Day	Hour	Wage	Source*	Sex	person	d	hr	person	d	hr	Wage	person	d	hr	Expense
1.....																					
2.....																					
3.....																					
4.....																					
5.....																					
6.....																					
7.....																					

Note: *sources: 1) buy 2) own produce 3) government support 4) NGO support 5) farmer group support

5. (a) Cash flow of non-farm business of the household in 2008

Items	Handicraft production	Food processing	Grocery/ mini mart	Buy & sell in fresh market	Food shop/ restaurant	Money lender	Other 1 ……	Other 2 ……	Other 3 ……
Investment									
Loan (baht)									
Own capital (baht)									
Sale values (baht/month)									
Expenses (baht/month)									
Net income (baht/month)									
Household labor (Please identify: how many months/year, days/month and hours/day.)									
- Household head									
- Spouse									
- Other members (identify) ……..									
……..									
Hired labor (Please identify: wage, number of labors, months/year, days/month and hours/day.)									

5 (b) Cash flow of livestock activities in 2008

Items	Swine	Chicken	Duck	Cow	Buffalo	Other 1 ……	Other 2 ……
Investment							
Loan (baht)							
Own capital (baht)							
Production cycle (times/year)							
Number of young animals							
Cost of young animals (baht/year)							
Feed cost (baht/month)							
Medicine cost (baht/month)							
Transportation cost (baht/month)							
Household labor (Please identify: how many months/year, days/month and hours/day.)							
- Household head							
- Spouse							
- Other members (please identify)							
……..							
Hired labor (Please identify: wage, number of labors, months/year, days/month and hours/day.)							
Sale values of animals (baht/year)							
Sale values of young animals (baht/year)							
Other costs (baht/year) (please identify)							
……							
……							

6. Employment and income in farm and non-farm laborer/services in 2008

Household membership status	Farm and non-farm laborer/ services[1/]	Months employed/ year	Days employed/ month	Hours employed/ day	Quantity of product/ day	Wage[2/]
1. Household head	1.					
	2.					
	3.					
2. Spouse	1.					
	2.					
	3.					
3. Other members	1.					
	2.					
	3.					
	1.					
	2.					
	3.					
	1.					
	2.					
	3.					

Note: 1/ farm and non-farm laborer/services, such as food processing laborer, handicraft laborer, harvesting laborer, construction laborer, laborer in factory, agricultural machine service, money lender, company worker, and state enterprise worker.

2/ Please clearly identify unit of wage, such as baht/hour, baht/job, baht/day, baht/week and baht/month.

7. Income transfers

7.1 Are there any migrant members (national and/or abroad) in your household?

☐ Yes ☐ No

If yes; during year 2008 does your household receive any remittance from migrant members?

☐ Yes; how much? ……baht/month ☐ No

7.2 Are there any elder members, who retired or early retired from the Government offices, in your household?

☐ Yes ☐ No

If yes; have they earnt any pensions?

☐ Yes; how much? ……baht/month ☐ No

7.3 (a) Have you and household members got any gifts from friends, neighbors and other persons during 2008?

☐ Yes ☐ No

(b) If yes; could you please estimate value of the gifts? ……baht

7.4 Are they any members in your household have earned welfare pensions?

☐ No ☐ Yes; how much? ……baht/month

Please identify kind of welfare: ……

8. Household income allocation in year 2008

Income allocation (baht/year)	Sources of income									
	Plantation	Livestock	Handicraft production business	Food processing business	Other non-farm businesses	Farm laborer	Handicraft laborer	Food processing laborer	Non-farm laborer	Transfer from HH. members
1. Farm investment										
2. Handicraft investment										
3. Food processing investment										
4. Other non-farm investment										
5. Household consumption expenses										
6. Education expenses										
7. Debt payment										
8. Medical expenses										
9. Social expenses										
10. Alcohol/cigarette/ lotto										
11. Saving										
12. Others.....										

8. Household income allocation in year 2008 (continued)

Income allocation (baht/year)	Sources of income							
	Borrow from the CBE	Transfer from the CBE	Borrow from the Government offices	Transfer from the Government offices	Borrow from relatives	Transfer from relatives	Borrow from private organisation	Transfer from private organisation
1. Farm investment								
2. Handicraft investment								
3. Food processing investment								
4. Other non-farm investment								
5. Household consumption expenses								
6. Education expenses								
7. Debt payment								
8. Medical expenses								
9. Social expenses								
10. Alcohol/cigarette/ lotto								
11. Saving								
12. Others.....								

9. Household consumption expenditures in year 2008

9.1 Household consumption expenditures

Basic food and non-food consumption expenditures ..... baht/month

Items	Expenses (baht/month)
Milled rice	
Milling expenses (in case the household consumes its' rice product)	
Vegetables and fruits	
Red meats and eggs	
Dry foods and ingredients	
Beverages	
Fuels (such as kerosene, charcoal and fire wood)	
Washing stuff (such as cloth washing powder, dish washing liquid and soap)	
Cloths	
School launch and school bus (or other kinds of transportation)	
Alcohol and cigarette	
Lotto	
Travel/entertainment	
Repairing expenses (such as house repairing and motorcycle repairing)	
Others (please identify) …….	
……..…….	

9.2 Household social expenditures in year 2008

Monthly social expenditures ..... baht/month

Items	Expenses (baht/month)
Funeral ceremony	
New house ceremony and wedding ceremony	
Religion ceremony/festival	
Party (such as birthday party and new year party)	
Others (please identify)…….	
……..……..…	
……..…….....	

10. Credit

10.1 Could you please give me information about your household's credit (borrowing) in year 2008?

Sources of credit	Year of receipt	Amount borrowed (baht)	Arrear (baht)	Duration of loan (years)	Rate of interest (%)	Purpose of borrowing*
1. Agriculture and Agricultural Cooperative Bank (AACB)						
2. Other commercial banks						
3. Cooperatives						
4. Village funds						
5. Saving groups						
6. CBEs (food processing group/handicraft group)						
7. Pawn shops						
8. Traders						
9. Friends/relatives						
10. Others (specify)						
…….……..						
…….……..						

Note: * The examples of purpose of borrowing include financial support in farm activity, non-farm activity, house repairing/building, educational expense, emergency case and disaster.

10.2 During last 5 years (2004-2008), has your household ever faced of financial problems?

☐ Yes ☐ No

If yes, please identify the problem and the way to cop the problem.

Financial problem	Frequency (times/year)	Coping mechanism

If no, please briefly explain the reason and way to manage financing in your household.

……
……

11. Household assets in year 2008

11.1 Consumption durables

Items	Number of units	Year acquired	Buying price (baht/unit)	Duration (year)	Present value[1/] (baht/unit)
1. House (exclude homestead land)					
2. Other pieces of land (exclude farm land)					
3. Television					
4. Refrigeration					
5. Electric fan					
6. Radio					
7. Stereo/karaoke					
8. Sewing machine					
9. Cooking stoves					
10. Jewelry					
11. Car					
12. Motorcycle					
13. Bicycle					
14. Other vehicles:					
15. Washing machines					
16. Others (please specify)					
16.1……					
16.2……					

Note: 1/ The value should be imputed at the replacement cost, i.e. the value the asset will face in the market if it were sold.

11.2 Production durables

Items	Number of units	Year acquired	Buying price (baht/unit)	Duration (year)	Present value[1/] (baht/unit)
1. Warehouse					
2. Barn					
3. Farm land					
3.1…….					
3.2…….					
3.3……					
3.4……					
3.5……					
4. Stock of handicraft products[2/] (stock merchandise)					
5. Stock of food processing products[2/]					
6. Tractor					
7. Fishing net					
8. Thresher					
9. Sprayer					
10. Power tiller					
11. Wood cutter					
12. Equipments for handicraft production					
12.1 ……					
12.2…….					
12.3…….					
13. Equipments for food processing					
13.1…….					
13.2…….					
13.3…….					
14. Stock of plantation products (kg.)					
15. Water pump					
16. Others (please identify)					
16.1……					
16.2……					

Note: 1/ The value should be imputed at the replacement cost, i.e. the value the asset will face in the market if it were sold.

2/ In case the household produces handicraft and food processing products as its own business

Section III: Access to basic needs

This section consists of questions related to health, education and shelter

1. Health

1.1 Please ✓ following your opinion in relation to these statements.

Statement	Have/does not have member in the following age	If the household has member in the following age		
		Yes (all members)	Yes (some members)	No
1. The children at birth have a minimum weight 2,500 grams.				
2. ≤ 1 year-old children are completely vaccinated.				
3. The children are feed mother's milk continuously at least the first four months.				
4. 5 year-old children are completely feed five groups of nutrition.				
5. 6-12 year-old children are completely vaccinated.				
6. 6-15 year-old children are completely feed five groups of nutrition.				
7. ≥ 35 year-old person access to health check up annually.				
8. Pregnant women are taken care of and completely vaccinated before giving a birth.				
9. Pregnant women are taken care both when they give a birth and after that.				
10. Household members have healthy and safety foods.				
11. Household members have knowledge of using medicine.				
12. Household members suffer from TB, HIV/AIDS, and anemia.				

1.2 When some members in your household got sick, how often you/members seek medical treatment?

☐ Always ☐ Sometimes ☐ Never

Please identify the reason.……. ……

1.3 "Access to medical services is very convenient." Do you agree with this statement?

☐ Extremely agree ☐ Quite agree ☐ Fairly agree

☐ Rarely agree ☐ Extremely disagree

Please identify the reason.……..

2. Education

2.1 Please ✓ following your opinion in relation to these statements.

Statement	Have/doesn't have member in the following age	If the household has member in the following age		
		Yes (all members)	Yes (some members)	No
1. 3-5 year-old children (early children) are nurtured for study readiness.				
2. 6-15 year-old children can access to nine-year compulsory education program (a junior high school education).				
3. Children who have finished the compulsory education program can continue study in a senior high school.				
4. Children who cannot continue study in school can access to job training.				
5. 15-60 year-old persons are literate.				

2.2 How many days a month in average, do the children absent from school?
…….days/week

2.3 Can household members access to useful information?

☐ Yes ☐ No

If yes, please identify the information sources and frequency of access.

Information sources	Frequency (times/week)
1. ……...…….	
2…….……...	
3……..……..	
4……..……..	

If no, please identify the reasons.

.....……
……

3. Shelter

3.1 Size of house…….square meters; number of stories ……stories

3.2 The internal area is allocated into rooms following their function ☐ Yes ☐ No

3.3 Ownership of house: ☐ household head ☐ spouse

☐ other members (identify)….....……

3.4 (a) Does the household have toilet?

☐ Do not have and never used it (go to defecate in the field/forest)

☐ Do not have, but use neighbour's toilet

☐ Do not have, but use public toilet ☐ Have, inside the building

☐ Have, outside the building

3.4 (b) Type of toilet

☐ Hole toilet ☐ Sewer toilet ☐ Flush toilet

3.5 The construction material used for the majority of the exterior walls of the house or building

☐ brick ☐ cement ☐ wood ☐ fiberglass

☐ bamboo ☐ Tong Tung leaves ☐ others (please identify):……...

3.6 The construction material used for the majority of the floor

☐ brick ☐ cement ☐ wood ☐ tile used for floor

☐ bamboo ☐ earth/sand ☐ others (please identify):……

3.7 The construction material used for the majority of the roof

☐ tile used for roof ☐ wood ☐ zinc

☐ Tong Tung leaves ☐ others (please identify):……..……

3.8 What is the primary source of water for the household?

☐ bore hole in residence ☐ well in residence yard ☐ piped public water

☐ river or stream ☐ pond/lake ☐ public well-open

☐ others (please identify):…….....

3.9 How does the household dispose of most of its garbage?

☐ public garbage service ☐ throw it in the river/stream ☐ burn ☐ bury

☐ throw it in vacant lots ☐ others (please identify):…….....

3.10 What type of lighting does this household use?

☐ Electricity ☐ candles

☐ Kerosene, gas ☐ others (please identify):…….....

3.11 What is the ownership status of house?

☐ owned and completely paid/inheritance ☐ owned with a mortgage

☐ rent ☐ given by relative or other to use for free

☐ provided by the Government ☐ others (please identify):.....

3.12 "Highly pleasant neighborhood" Do you agree with this statement?

☐ Agree ☐ Neutral ☐ disagree

3.13 "Household can always access to adequate and clean drinking water throughout the year." Do you agree with this statement?

☐ Agree ☐ Neutral ☐ disagree

3.14 "Household can always access to adequate using water all year round." Do you agree with this statement?

☐ Agree ☐ Neutral ☐ disagree

3.15 "Household's dwelling is neat and hygienic." Do you agree with this statement?

☐ Agree ☐ Neutral ☐ disagree

3.16 What is the observed structural condition of the house?

☐ Sound structure ☐ Need for major repairs

☐ Seriously dilapidated

3.17 What type of cooking fuel source primarily is used?

☐ Dung ☐ Collected wood ☐ Purchased wood or sawdust

☐ Charcoal ☐ Kerosene ☐ gas ☐ electricity

Section IV: Vulnerability and food security

This section consists of questions related to vulnerability and food security

1. Household investment in the last five years (2004-2008)

Investment	Values (baht)
Investment in farm water system	
Investing in new farm equipment	
Investing in livestock	
Investing in a new business or upgrading and existing business (please identify ……..….)	
Investing in handicraft production	
Investing in food processing	
Investing in others (please identify) ……..	
……..	

2. Investment in and access to social capital

2.1 The household provided childcare and livestock care to other households (without explicit payment).

☐ Yes ☐ No

2.2 Receiving children and livestock care (without explicit payment).

☐ Yes ☐ No

2.3 Neighbours were helpful in finding waged work

☐ Yes ☐ No

2.4 The household helped neighbours to find waged work.

☐ Yes ☐ No

2.5 Household was positively affected by auxiliary programs such as the forest conservation or the watershed program.

☐ Yes ☐ No

2.6 The household helped neighbours to do other things.

☐ Yes ☐ No

Please identify the helps:

……

2.7 Neighbours helped household to do other things

☐ Yes ☐ No

Please identify the helps:

……

3. Food security

3.1 During the last month, for how many days did your household not have enough to eat ……...days

3.2 Self-assessment of family food security situation

☐ Always deficit ☐ Sometimes deficit

☐ Comfortable ☐ Surplus

In case the household does not have enough food (always/sometimes deficit), how does the household cope with this problem?

……

……

3.3 During last year (2008), which kinds of food that your household had stocked?

Kinds of food[1/]	Duration (month)	Quantity[2/]	Source (household's product/buying/get it free)

Note: 1/ such as milled rice, garlic, sugar and vegetable oil
2/ Please clearly identify unit of food.

3.4 During the last week (last seven days), how many days did your household eat the following food?

Kind of food	Frequency (days/week)
Rice	
Chicken	
Pork	
Beef	
Fish	
Milk	
Eggs	
Bean	
vegetables	
Others	

3.5 What kind of rice does your household normally eat?

☐ Glutinous rice ☐ Non-glutinous rice

Last year (2008), how many kilograms of rice that your household consumed ……...kg.

Sources of rice:

☐ Produced by the household …… kg.

☐ Buying …… kg. Buying sources: ……

☐ Neighbors gave to the household for free. ..... kg.

☐ Other sources (please identify) …… amounts.....kg.

3.6 During the last five years (2004-2008), were there any changes in economic situation of your household?

☐ Changed in the good way ☐ unchanged

☐ Changed in the bad way

Please, identify the reason.

……
……....

Section V: Women's empowerment

1. Control over household assets

In your household, does the woman own the family home?	☐ Yes	☐ No
In your household, does the woman own agricultural land?	☐ Yes	☐ No
In your household, does the woman own any livestock?	☐ Yes	☐ No
In your household, does the woman manage or help manage any business?	☐ Yes	☐ No

2. Role in household decisions

Does the woman decide (individually or jointly with others) about children's education?	☐ Yes	☐ No
Does the woman decide on what crops to grow?	☐ Yes	☐ No
Does the woman decide to lease in/out agricultural land?	☐ Yes	☐ No
Does the woman make a major financial decision for the household (such as open a bank account and apply for a loan)?	☐ Yes	☐ No
Does the woman decide to sell crops?	☐ Yes	☐ No
Does the woman decide to buy/sell livestock?	☐ Yes	☐ No
Does the woman buy agricultural inputs?	☐ Yes	☐ No
Does the woman participate in the sale negotiations?	☐ Yes	☐ No

3. Work-time allocation

Does the woman manage or help manage any business?	☐ Yes	☐ No
Does the woman work on family-farm?	☐ Yes	☐ No
Does the woman work on any non-agricultural wage work?	☐ Yes	☐ No
Does any one of these works was also her primary work?	☐ Yes	☐ No
The woman does not want to change the way she spent her work time?	☐ Yes	☐ No

4. Control over minor finances

Does the woman keep the money from sale of livestock?	☐ Yes	☐ No
Does the woman have any regular personal spending money?	☐ Yes	☐ No
Does the woman have money for emergency use?	☐ Yes	☐ No

5. Control over major finances

Does the woman retain the money from the sale of crops?	☐ Yes	☐ No
Does the woman retain the money from the sale of livestock?	☐ Yes	☐ No
Does the woman retain her own wage earnings?	☐ Yes	☐ No
Does the woman retain children's wages?	☐ Yes	☐ No
Does the woman retain her husband's wages?	☐ Yes	☐ No

6. Division of domestic chores

Does the woman share the task of fuel gathering and preparing with others in the family?	☐ Yes	☐ No
Does the woman share water collection?	☐ Yes	☐ No
Does the woman share sweeping and cleaning?	☐ Yes	☐ No
Does the woman share cooking?	☐ Yes	☐ No
Does the woman share washing utensils?	☐ Yes	☐ No
Does the woman share washing clothes?	☐ Yes	☐ No

Section VI: Perception on good governance of the CBE

This section is composed of good government of the CBE in terms of participation of members in the CBE, complying with the CBE regulation and rules, information realisation and equality.

Please give scores (please √) in each of the following statements based on your perception on good governance of the CBE.

(3 = agree; 2 =neutral; 1 = disagree)

Good Governance	Score		
	3	2	1
(1) Participation in the CBE 1. The members have a voice in drafting regulations and rules of the CBE.			
2. Voices of the members have been considered in addressing regulations and rules of the CBE.			
3. Voices of the members in decision making have been considered by the committees.			
4. It is easy for the members to participate in the CBE activities.			
5. The members participate in working assessment of the committees.			
6. There is no conflict among the members.			
7. There is no violence of conflict.			
8. The conflict can be solved by a platform of the members' and committees' opinion.			
9. The conflict can be solved by compromise between the two parties.			
10. The members appreciate with the conflict solving.			
(2) Complying with the CBE's regulations and rules 1. The members understand the regulations and rules.			
2. The regulations and rules are acceptable for the members.			
3. The CBE has improved the regulations and rules following present situation.			
(3) Information realisation			
1. The CBE's operation is transparent.			
2. The members always receive information from the committees.			
3. The committees can explain clearly about the CBE's situation.			
4. The information that the members receive from the CBE is always updated.			
(4) Equality			
1. All members are treated equally.			
2. The members and non-members are treated equally.			
3. The members appreciate with benefit distribution of the CBE.			
4. The members appreciate with the CBE's welfare.			

Section VII: Perception on community participation

Could you please give scores (please√) in each of the following statements based on your perception on community participation?

(3 = agree; 2 =neutral; 1 = disagree)

Community Participation	Score			Community Participation	Score		
	3	2	1		3	2	1
1. The respondent has a voice in drafting regulations and rules of the village.				10. There is no violence of conflict.			
2. The respondent has a voice in the village meetings.				11. The conflict can be solved by a platform of public opinion.			
3. Voices of the respondent have been considered.				12. The conflict can be solved by compromise between the two parties.			
4. The respondent has a chance to participate in the village meetings.				13. The respondent has rights to be a candidate in the election of head of the village and committees.			
5. The respondent always participates in the village's meetings.				14. The respondent always participates in working assessment of head of the village and the committees.			
6. There is a compulsory task of the respondent to participate in the village meetings.				15. The respondent has taken collective effort to maintain/develop natural capital of the village.			
7. The respondent always participates in public activities.				16. The respondent has taken collective effort to maintain/develop social capital of the village.			
8. Normally, a platform of public opinion is taken place for finding the best solution of the important problems/issues of the village.				17. The respondent has taken collective effort to maintain/develop human capital of the village.			
9. Referendum is the most significance for making decision in important problems/issues of the village.				18. The respondent has taken collective effort to maintain/develop financial capital of the village.			

Section VIII: Happiness

1. What is the cause of your happiness?

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

2. Are you satisfied with size of agricultural land of your household?

☐ very satisfied ☐ satisfied ☐ rarely satisfied

☐ totally unsatisfied

Please identify the reason:……..

3. Are you satisfied with your house?

☐ very satisfied ☐ satisfied ☐ rarely satisfied

☐ totally unsatisfied

Please identify the reason: ……..…

4. Are you satisfied with economic status of your household?

☐ very satisfied ☐ satisfied ☐ rarely satisfied

☐ totally unsatisfied

Please identify the reason: …….

5. How is your physical health?

☐ very good ☐ good ☐ quite bad

☐ totally bad

Please identify the reason: ……..……...…..…

6. How is your mental health?

☐ very good ☐ good ☐ quite bad ☐ totally bad

Please identify the reason: …….

7. Are the household members living in harmony with each other?

☐ very good ☐ good ☐ quite bad ☐ totally bad

Please identify the reason: …… ……

8. The members in your household always spend time with each other.

☐ very agree ☐ agree ☐ quite disagree ☐ totally disagree

Please identify the reason: …….....

9. Are you satisfied with infrastructure system in your village?

☐ very satisfied ☐ satisfied ☐ rarely satisfied ☐ unsatisfied

Please identify the reason: .....

10. How is the environment around your house and village?

☐ very good ☐ good ☐ quite bad ☐ totally bad

Please identify the reason: .....

11. In your opinion, how is the quality of your village? (Does the village have any problems?)

☐ very good ☐ good ☐ quite bad ☐ totally bad

Please identify the reason: .....

12. You have opportunity to contribute in public activities (that you are interested in) in the village.

☐ very agree ☐ agree ☐ quite disagree ☐ totally disagree

Please identify the reason: .....

13. You are a good example for other people.

☐ very agree ☐ agree ☐ quite disagree ☐ totally disagree

Please identify the reason: …….....

14. You have chance to share your knowledge and opinion with others in the village.

☐ very agree ☐ agree ☐ quite disagree ☐ totally disagree

Please identify the reason: …….....

15. Are you happy with your work?

☐ very happy ☐ happy ☐ quite unhappy ☐ totally unhappy

Please identify the reason: …….....

16. Are you happy to live with others in the village?

☐ very happy ☐ happy ☐ quite unhappy ☐ totally unhappy

Please identify the reason: …….....

17. You have chance to enjoy your leisure time whenever you want.

☐ very agree ☐ agree ☐ quite disagree ☐ totally disagree

Please identify the reason: …….....

18. Are you satisfied with your current economic and social status? (appreciate in who you are and what you do)

☐ very satisfied ☐ satisfied ☐ rarely satisfied ☐ unsatisfied

Please identify the reason: …….....

19. In your opinion, does your household succeed?

☐ very successful ☐ successful ☐ quite fail ☐ totally fail

Please identify the reason: …….....

II. Interview schedule for community-based enterprise

ID ☐☐☐

Name of head of CBE (for record purpose only) ……..…….…… Tel. No .....

Name of the CBE…….……..…….. Tel. No .....

Address…….……..…….…….…

Date of interview…….....…

Section I: General Characteristics of the CBE

May I have some information about general characteristics of the CBE?

1. Pattern of the CBE

   ☐ Natural group ☐ Co-operative

   ☐ Registered group (Group registered with government office(s).)

2. How long have the CBE experienced in this business?…….years
3. How many members?.....persons
4. Could you please tell me: what is the main reason for establishing the CBE?

   ☐ To create employment and supplementary income for the villagers

   ☐ To empowerment women in the village

   ☐ To create good reputation for the village

   ☐ To create marketing power

   ☐ To support the members in terms of raw materials (supplier of raw materials)

   ☐ To support the members in terms of marketing (collective sale and marketing channel)

   ☐ To support the members in terms of knowledge and technology

   ☐ To support the members in terms of financing (saving and credit)

   ☐ To create a better chance for the group of villagers to achieve government supports

   ☐ To solve poverty problem in the village

   ☐ Other reasons (please identify)……...

5. Who is the main supporter of establishment of the CBE?

   ☐ No supporter: The villagers who have the same problem (e.g. physical illness, unemployment and low income) join together to establish the CBE.

   ☐ No supporter: The villagers who have the same need join together to establish the CBE.

☐ No supporter: The villagers who have the same skill/basic ability join together to establish the CBE.

☐ Government office (please identify)……..

☐ NGO (please identify)……...…….……..

☐ Others (please identify)……...…….……..

6. Could you please tell me: What is the main aim (goal) of the CBE?

☐ Increased sales ☐ Increased market share

☐ Business growth ☐ Maximise profit

☐ Survival (sustainable business) ☐ Better quality of life of the members

☐ Other aims (please identify)…….…..…….

7. Who is the target group (member) of the CBE?

.....

Section II: Organisation management

1. May I have some information about the committees? (Year 2008)

Positions	Age	Gender	Marriage status	Educational level	Previous occupation	Present occupation	Role in/outside the village[1/]

Note: 1/ other positions or contributions of the committees

2. What is the duty of each committee following the CBE's regulation and real duty in practice?

Positions	Duty (following the CBE's regulation)	Real duty in practice	Experience in CBE (year)

3. Could you please briefly explain about the criteria and methods for selecting head of the CBE and the Committees?

Positions	Criteria	Selection methods

4. How long are head of the CBE and the committees normally in the office? ……..years

5. Did head of the CBE receive any compensation/award from the CBE, in 2008?

☐ Yes ☐ No

If yes, how much the compensation/award that head of the CBE received?

……..baht/month

If no, please identify the reason.

……

……

6. Did the committees receive any compensation/award from the CBE, in 2008?

☐ Yes ☐ No

If yes, how much the compensation/award that the committees received?

……..baht/month

If no, please identify the reason.

……

……

7. Does the CBE have any motivation method for encouraging the committees to work effectively?

☐ Yes ☐ No

If yes, please explain briefly: how to?

……

……

If no, please identify the reason.

……

……

8. Does the CBE have any criteria for new member recruitment?

☐ Yes ☐ No

If yes, please explain briefly.

……

……

If no, please identify the reason.

……

……

9. Does the CBE have any regulation for meeting participation?

☐ Yes ☐ No

If yes, please explain briefly.

……

……

If no, please identify the reason.

……

……

10. How often does the CBE have an ordinary meeting? …….times/month

11. How often do the stakeholders participate in the ordinary meeting?

Stakeholders	Participation (please √)					
	Always	Often	Usually	Sometimes	Rare	Never
Head of the CBE						
Committees						
Members						
Government officers						
NGOs						
Venerable persons in the village						
Others (please identify)						
……						
……..						

12. What is the main issue discussed in the ordinary meeting?

1. ……

2. ……

3. ……

13. How to communicate between committees and members? (The answer can be more than one choice.)

☐ The CBE meetings ☐ Announcement via local radio broadcasting station

☐ Committees visit members at their house ☐ Others (please identify)……

14. May I have some information of the CBE's activities?

Activities	Participated members (persons)
Cottage food processing	
Handicraft producing	
Saving	
Grocery	
Gas station	
Others (please identify)	
……	
……	
……	

15. Could you please identify kind of support that the CBE needs in terms of organisation management?

Kind of support	Briefly detail of requested support (e.g. objective of request)	Expected supporter

Section III: Perception on role of the CBE in members' household and the village

1. From your experience of being head of the CBE, do the CBE contribute any benefits to members' household?

☐ Yes ☐ No

If yes, what is the benefit received by the members?

1. ……

2. ……
3. ……
4. ……
5. ……

If no, please briefly explain the reasons.

……

……

2. What are the things that the CBE should do or improve in order to contribute a better benefit to members?

1. ……
2……..
3……
4……
5……

3. Do you think the CBE contributes any benefits to the village (that may be indirectly benefits to members' household)?

☐ Yes ☐ No

If yes, what is the benefit from the CBE to the village?

1. ……
2. ……..
3. ……
4. ……
5. ……

If no, please briefly explain the reasons.

……

……

4. Please give me some suggestions: what are the things that the CBE should do or improve in order to contribute a better benefit to the village?

1. ……
2……..
3……
4……

5. Do you agree with these statements?

5.1 The CBE can reduce poverty in members' household.

☐ Extremely agree ☐ Quite agree

☐ Fairly agree ☐ Rarely agree

☐ Extremely disagree

Please briefly explain the reasons.

……

……

The CBE can reduce poverty in the village.

☐ Extremely agree ☐ Quite agree

☐ Fairly agree ☐ Rarely agree

☐ Extremely disagree

Please briefly explain the reasons.

……

……

6. Does the CBE have any strategies for dealing with poverty problem?

☐ Yes ☐ No

If yes; please briefly explain the strategies.

……

……

If no; please identify the reasons.

……

……

Section IV: Production management

1. Production activity

1.1 Main type of the CBE's product:

☐ cottage food ☐ handicraft

1.2 In 2008, how many main products did the CBE have? …… products

1.3 Could you please identify name and producing period of each product?

Product	Unit	Production period and monthly output (unit/month)											
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.

1.4. Other products

In 2008, besides the main type of product mentioned in item 1.1, did the CBE produce other types of product?

☐ No ☐ Yes, please identify

Type of product	No. of kinds of product	Production period (identify month)	Cost (baht/year)	Income (baht/year)

2. Other activities

In 2008, besides production activity mentioned in item 1, did the CBE do other activities?

☐ No ☐ Yes, please identify

Activity	Initiative year	Operation period (identify month)	Cost (baht/year)	Income (baht/year)

3. May I have some information about land used in the CBE?

Plot no.	Year of holding	Area (rai)					Land utilisation
		Head of the CBE's land	Donated land	Public land	Rental land		
					(rai)	Rent (baht/rai)	

4. Could you please identify machine, equipment, and factory used in the CBE?

Items	Year of holding	Amount (unit)	Buying price (baht/unit)	Duration (years)	Repairing expense (baht/year)	Utilisation

5. Average product and average cost (per lot)

- *This question is used for getting information of main products identified in item 1.3only.*
- *Make a copy of this page for other main products following name list in item 1.3.*

5.1 Product no.1: name of product:

…….

Output per lot: …….. (Unit: ……)

5.1.1 Average cost of raw material, packaging, and label (per lot)

Items	Unit (identify)	Amounts of each item used per lot	Price (baht/unit)	Average cost (baht/lot)

5.1.2 Average cost of labour (per lot)

Procedures	Employee (person)		Hours/person		Wage/person			Average cost (baht/lot)
	Male	Female	Male	Female	baht/day		baht/ job	
					Male	Female		

5.1.3 Average cost of machine and equipment (per lot)

Items	Working time (hours/lot)	Depreciation[1/]/hour (baht/hour)	Average depreciation cost (baht/lot)

Note: 1/ Depreciation per year can be calculated from question no.4 page 2.

6. Production capacity in 2008 and outputs, sales volume, and stocks of main products in 2007 and 2008

Product	Production Capacity Year 2008	Actual quantity of product (unit/year)					
		2007			2008		
		Output	Sale	Stock	Output	Sale	Stock

7. Raw material, packaging and label

7.1 Stock management of raw material, packaging and label in 2008

Items	Unit	Buying period (identify month)	Cash/ credit	Sources	Quantity (unit/lot)	frequency (lots/month)	Price (baht/unit)	Transportation cost (baht/unit)	Stocks/month (unit/month)	Maintenance cost (baht/month)	Total Stocks (unit/year)

7.2 Problem of raw material, package, and labels

Problem[1/]	Effected product	Solving method

Note: 1/ Problems can be about maintenance, quality, price, quantity, and so on.

8. Labour

8.1 Employment (year 2008)

Product	Amount of labour (persons)				Capacity (hour or day /person)	Membership status (please √)		Source of labour
	Permanence		Temporary					
	Male	Female	Male	Female		Member	Non-member	

8.2 Problem of employment

Problem[1/]	Effected product	Solving method

Note: 1/ Problems can be about quality, wage, quantity, and so on.

8.3 Does the CBE have any criteria of labour recruitment?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.4 Does the CBE have any wage adjustment policy?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.5 Does the CBE have any overtime employment policy?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.6 Does the CBE have any welfare for labour?

☐ Yes, please explain briefly.

1. ……
2. ……
3. ……

☐ No, please identify the reason.

……

……

8.7 Does the CBE have any training program for labour?

☐ Yes, please identify the training.

1. ……
2. ……
3. ……

☐ No, please identify the reason.

……

……

8.8 Does the CBE have any working assessment of labour?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.9 Does the CBE have any mechanism/system for checking quality of raw materials before buying?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.10 Does the CBE have any mechanism/system for controlling quality of products during the production process?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8.11 Does the CBE have any mechanism/system for checking quality of products before sale?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

9. Technology problems

Problem	Effected product	Solving method

10. Product maintenance

Product	Unit	Stock (unit/month)	Time period (identify month)	Maintenance method	Cost of Maintenance (baht/month)

11. Waste/pollution management system

Product	Types of waste/pollution	Quantity of waste/pollution	Cause of waste/ pollution	Solving method	Cost of solving (baht/year)

12. Could you please identify kinds of support that the CBE needs in terms of production management?

Kind of support	Briefly details of requested support[1/]	Expected supporter

Note: 1/ e.g. objective of request

Section V: Marketing management

1. May I have some details about main products of the CBE in 2008?

Product	Type of package	Net volume (weight/pack or unit/pack)	Price (baht/pack)	
			retail	wholesale

2. Has the CBE ever developed its products?

☐ Yes, please identify products, year of development, and methods.

Product	Year of development	Method of product development

☐ No, please identify the reason.

……

……

3. Has the CBE ever done market testing for new products?

☐ Yes, please identify products and marketing strategy used to introduce a new product.

Product	Method of market testing

☐ No, please identify the reason.

……

……

4. Has the CBE's product ever won any reward or certification?

☐ No

☐ Yes, please identify products, rewards/certification and supporters.

Product	Year	Reward/certification	Reward/certification supporter

5. Has the CBE achieved "Food and Drug Standard"? * *This question is for cottage food processing group only.*

☐ Yes, please identify

Product	Type of Food and Drug Standard	Year of achieving

☐ No, please identify the reason.

……

……

6. Has the CBE achieved "Good Manufacturing Practice: GMP"? * *This question is for cottage food processing group only.*

☐ Yes ☐ No, please identify the reason.

……

……

7. Has the CBE achieved "Community Product Standard"? * *This question is for handicraft producing group only.*

☐ Yes, please identify

Product	Year of achieving

☐ No, please identify the reason.

……

……

8. Besides the standards mentioned above, has the CBE achieved other standards?

☐ No

☐ Yes, please identify: name of the standards, supporters, and products

Product	Name of standard	Supporter

9. Has the CBE ever developed the packaging?

☐ Yes, please give me some details about packaging development.

Old style of packaging	New style of packaging	product	Year of development	Reason of the development

☐ No, please identify the reason.

……

……

10. Can the CBE determine selling price of product?

☐ Yes ☐ No

If yes, could you please explain briefly about the method of price determination?

……

……

……

If no, who does normally determine the price? How to?

……

……

……

11. What is the CBE's method to maintain a good relationship with present clients?

……

……

……

12. What is the CBE's method to seek for and attach new clients?

……

……

……

13. Do the CBE use electronic mail to contact with clients?

☐Yes ☐ No

14. Do the CBE use a mobile phone to contact with clients?

☐Yes ☐ No

15. Do the CBE sell products via e-commerce?

☐Yes ☐ No

16. Could you please identify the promotion strategies of the CBE in 2008?

(The answer can be more than one choice.)

Promotion strategies	Cost (baht/year)
□ Advertising via website	
□ Advertising via leaflet	
□ Advertising via mass media (e.g. sign, radio, T.V.) Please identify: ……	
□ Show and sale products at domestic fairs/festivals	
□ Show and sale products at exhibitions in overseas	
□ Discount	
□ A gift/present (after buying)	
□ Delivery service	
□ Others (please identify) ……..	

17. The CBE's market channels in 2008

Product	Client/ buyer	Market level [1/]	Sale/lot(Unit)	lot/ year	Retail/wholesale		Distribution Cost (baht/unit)
					Retail	Wholesale	

Note: 1/ Market level can be local market, province, other provinces, Bangkok, export market, and so on.

18. The CBE's competitors in 2008

Product	Competitor	Market level	Weakness	Strengthen	The CBE's overall attitude about the competitor

19. What is marketing problem that the CBE has faced?

Problem	Product facing the problem	Solving method

20. Could you please identify kinds of support that the CBE needs in terms of marketing management?

Kind of support	Briefly detail of requested support[1/]	Expected supporter

Note: 1/ e.g. objective of request

Section VI: Financial management

1. Shares

Does the CBE call for share capital?

☐ Yes ☐ No

If yes:

1.1 The CBE's share capital

1.1.1 The CBE's share capital for starting investment

(a) How much is the money that head of the CBE, committees and members invest in order to start the CBE? ……...baht

(b) The price of a single share is ……..baht/share

(c) How many shareholders? ……...persons

(d) How many shares totally? ……...shares

- How many head of the CBE's shares? …….shares
- How many committees' shares? ……..……shares
- How many members' shares? ……..……shares

1.1.2 The CBE's share capital in 2008

(a) How much is the share capital in 2008? …….…...baht

(b) The price of a single share is …….……..…...….baht/share

(c) How many shareholders? …….……..persons

(d) How many shares totally? ……..…shares

- How many head of the CBE's shares? ……shares
- How many committees' shares? ……..……shares
- How many members' shares? ……..……shares

1.2 Distribution of shares

Amounts of share per person (share)	Shareholder (person)	Percentage (%)
Total = ……..	Total = ……..	100

1.3 Does the CBE have any regulation for share holding?

☐ Yes, please briefly explain the regulation.

……

……

……

☐ No, please identify the reason.

……

……

If no, please identify the reason.

……

……

In the future, will the CBE call for share capital?

☐ Yes ☐ No

Both 'yes' and 'no' answers, please give me the reason.

……

……

……

2. How much the CBE's working capital? …….baht/month

3. Has the CBE ever experienced any problem about working capital?

☐ Yes, please identify the problem.

……

……

……

What is the method to solve the problem mentioned above?

1. ……

2. ……

3. ……

☐ No, please briefly explain: How to manage the CBE's working capital?

……

……

……

4. Has the CBE ever lent money?

☐ No ☐ Yes

If yes: Has the CBE ever experienced any problem about the borrowing? (such as the amounts of credit, sources of credit, and condition of credit)

☐ No

☐ Yes, please identify the problem.

1. ……
2. ……
3. ……

What is the method to solve the problem mentioned above?

1. ……
2. ……
3. ……

5. Has the CBE ever been faced with any problem about getting into debt?

☐ Yes, please identify the problem.

1. ……
2. ……
3. ……

What is the method to solve the problem mentioned above?

1. ……
2. ……
3. ……

☐ No, please briefly explain: How to manage the CBE's loan?

……

……

6. Accounting

6.1 Does the CBE have accounting?

☐ Yes ☐ No

If no; please identify the reason.

……

……

6.2 Will the CBE do accounting in the future?

☐ Yes ☐ No

Both 'yes' and 'no', please identify the reason.

……

……

6.3 When did the CBE start to do accounting? ……

6.4 How many kinds of accounting does the CBE have? ……..kinds

Please, identify:

1. ……..……

2. ……..

3. ……..

6.5 What is the benefit of the CBE from doing accounting?

1. ……..……

2. ……

3. ……

6.6 (a) Who is the person taking responsibility in doing accounting? ..……

(b) Accounting experiences of the accountant: ……..years

(c) Educational level of the accountant: …….

(d) Has the accountant ever attended the training course/short course about accounting?

☐ Yes, please identify

Training issue	Frequency (times/year)	Supporter/trainer

☐ No, please identify the reason.

……

……

7. Does the CBE have any regulation for allocating the dividend?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

8. Does the CBE have any regulation for allocating its benefits?

☐ Yes, please explain briefly.

……

……

☐ No, please identify the reason.

……

……

9. In 2008, does the CBE provide dividend to the members?

☐ Yes, how much does the dividend per share?……..baht/share

☐ No, please identify the reason.

……

……

10. The CBE's debtors in 2008. (Clients who have received trade credit from the CBE)

Debtor	Total credit (baht)	Duration (month)	Arrear (baht)	Condition of credit

11. Have the CBE ever experienced any problem about the debtors?

☐ Yes, please identify the problem.

1. ……

2. ……

3. ……

What is the method to solve the problem mentioned above?

1. ……

2. ……

3. ……

☐ No, please identify the reason.

……

……

12. Could you please identify kinds of support that the CBE needs in terms of financial management?

Kind of support	Briefly detail of requested support[1/]	Expected supporter

Note: 1/ e.g. objective of request

Section VII: Stakeholder network of the CBE in financial activity

Could you please identify financial networks of the CBE?

(5 = extremely appreciate; 4 = quite appreciate; 3 = fairly appreciate; 2 = quite depreciate; 1 = extremely depreciate)

Source of credit	Objective of borrowing	Year of borrowing	Loans (baht)	Duration (years)	Condition of credit	Arrears (baht)	Level of appreciation (please √)					Reason
							5	4	3	2	1	
1. commercial banks												
2. Government offices												
3. NGOs												
4. Private lenders												
5. Saving of the CBEs (Saving activity)												

Could you please identify financial networks of the CBE? (Continued)

(5 = extremely appreciate; 4 = quite appreciate; 3 = fairly appreciate; 2 = quite depreciate; 1 = extremely depreciate)

Source of credit	Objective of borrowing	Year of borrowing	Loans (baht)	Duration (years)	Condition of credit	Arrears (baht)	Level of appreciation (please √)					Reason
							5	4	3	2	1	
6. Other CBEs												
7. Saving of the village (e.g. village fund, saving group)												
8. Other sources (please identify)												
……												
……												

Appendix 2: Financial ratio formulas

Financial ratio formulas used in the current study was summarised from Meunier (2010) and Drake (2009).

Liquidity ratios

Liquidity ratios are normally used to measure ability of a firm to meet its current obligations.

Current Ratio (times)

$$= \frac{\text{Total current assets}}{\text{Total current liabilities}}$$

Acid-test Ratio (or Quick Ratio) (times)

$$= \frac{\text{Total current assets - Inventory}}{\text{Total current liabilities}}$$

$$= \frac{\text{(Cash + Marketing securities + Accounts receivable)}}{\text{Total current liabilities}}$$

Activity ratios

Activity ratios indicate how much an enterprise has invested in a particular type of asset (or group of assets) relative to the revenue the asset is producing.

Total Asset Turnover Ratio (times)

$$= \frac{\text{Sales revenues}}{\text{Total assets}}$$

Leverage ratios

Generally, leverage ratios or debt ratios are used to measure the degree of protection of suppliers of long-term funds and can also aid in judging a firm's ability to raise additional debt and its capacity to pay its liabilities on time.

Debt-Equity Ratio (or Debt to Equity) (times)

$$= \frac{\text{Total liabilities}}{\text{Equity}}$$

Debt Ratio (or Total Debts to Assets) (times)

$$= \frac{\text{Total liabilities}}{\text{Total assets}}$$

Profitability ratios

Profitability ratios measure management ability to control expenses and to earn a return on the resources committed to the business.

Sales Revenues (baht)

Gross Profit (baht)

= Sales revenues – Cost of sales

Gross Profit Margin (percent)

$$= \frac{[(\text{Sales revenues} - \text{Cost of sales})]}{\text{Sales revenues}} \times 100$$

Return on Assets (ROA) (percent)

$$= \frac{(\text{Earning before interest and tax})}{\text{Total assets}} \times 100$$

$$= \frac{\text{Net profit}}{\text{Total assets}} \times 100$$

Appendix 3: Initial screened poverty indicators using the linear correlation coefficient procedure

Table A.3.1 Initial screened poverty indicators

Dimension/Indicator[1/]	Unit	Value and sign of correlation coefficient (Pearson Correlation)	Number of sampled households used (N)
II. Vulnerability			
1. Doing household's enterprises (excluded handicraft and food processing) to earn a living	No/yes	.254**	343
2. Working as a farm labourer to earn a living for the household	No/yes	-.217**	343
3. Receiving help regarding seeking a job from neighbours	No/yes	-.163**	343
III. Women's empowerment			
4. Woman participates in making decision on major issues of family finance	No/yes	.175**	343
IV. Happiness			
5. Satisfaction with size of a household's agricultural land	Likert scale[2/]	.162**	343
6. Satisfaction with a household's housing	Likert scale[2/]	.156**	343
7. Success of a household	Likert scale[2/]	.195**	343
V. Access to basic needs			
8. Access to health check up	No/yes	.152**	336
9. Access to medical knowledge	No/yes	.205**	342
10. Literacy of 15 to 60 year-old members	Likert scale[3/]	.252**	341
11. The internal area of household's house is allocated into rooms following their function.	No/yes	.147**	334
12. Water closet facility inside the house	No/yes	.207**	342
13. Water closet facility outside the house	No/yes	-.188**	342
14. Having sewer toilet in the house	No/yes	-.255**	329
15. Having flush toilet in the house	No/yes	.270**	329
16. Using bamboo/plywood/Tong Tung leaves as a main construction material of exterior walls	No/yes	-.172**	343
17. Using concrete as a main construction material of exterior walls	No/yes	.185**	343
18. Using wood as a main construction material of floor	No/yes	-.209**	343
19. Using tile used for floor as a main construction material of floor	No/yes	.266**	343
20. Using public wells as a main source of water	No/yes	-.163**	343
21. Using bore hole in a residence as a main source of using water	No/yes	.223**	343
22. Neat and hygiene dwelling	Likert scale[4/]	.179**	342

Table A.3.1 Initial screened poverty indicators (continued)

Indicator	Unit	Value and sign of correlation coefficient (Pearson Correlation)	Number of sampled households used (N)
23. Using collected firewood as a main type of cooking fuel	No/yes	-.279**	343
24. Using gas as a main type of cooking fuel	No/yes	.342**	343
25. Always having enough food	Likert scale[5/]	.171**	343
26. Number of days in past 7 days that the household ate chicken	days	.157**	310
27. Number of days in past 7 days that the household ate pork	days	.151**	330
28. Number of days in past 7 days that the household ate beef	days	.164**	310
29. Number of days in past 7 days that the household drank milk	days	.160**	341
VI. Household consumption expenses			
30. Total food expenses	baht/month[6/]	.382**	343
31. Expenditure for cooking fuels	baht/month	.183**	343
32. Expenditure for cleaning substance	baht/month	.298**	343
33. Expenditure for cloth and shoes	baht/month	.233**	343
34. Education expenses	baht/month	.286**	343
35. Recreation expenses	baht/month	.322**	343
36. Expenditure for house and car repairing	baht/month	.204**	343
37. Transportation expenses (car fuels and bus fees)	baht/month	.153**	343
38. Communication expenses (telephone and internet)	baht/month	.161**	343
39. Total household ceremonial expenses	baht/month	.669**	343
40. Medical expenses	baht/month	.773**	343
41. Personal expenses	baht/month	.190**	343
42. Total household non-food expenses	baht/month	.894**	343
43. Total household consumption expenses	baht/month	.887**	343
44. Average household saving per month	baht/month	.718**	343
VII. Household income			
45. Income from household's own non-agriculture businesses (excluded handicraft and food processing)	baht/year	.721**	343
46. Income from non-agriculture hired labour (excluded handicraft and food processing)	baht/year	.211**	343
47. Total household income	baht/year	.740**	343
VIII. Household product values			
48. Value of non-agriculture products (excluded handicraft and food processing products)	baht/year	.721**	343
49. Value of total household product	baht/year	.703**	343
IX. Household assets			
50. Present value of household-owned housing land	baht	.203**	343
51. Present value of household-owned farm land	baht	.240**	343

Table A.3.1 Initial screened poverty indicators (continued)

Indicator	Unit	Value and sign of correlation coefficient (Pearson Correlation)	Number of sampled households used (N)
52. Present value of household consumer durables	baht	.638**	339
53. Present value of house	baht	.535**	336
54. Present value of total household-owned land assets	baht	.270**	343
55. Present value of total household-owned non-land assets	baht	.622**	332
56. Total assets	baht	.548**	332
57. Total debts	baht	.167**	343
58. Household wealth (net wealth)	baht	.553**	332
59. Number of television	Number	.328**	343
60. Ownership of fridge	No/yes	.231**	343
61. Number of fridge	Number	.269**	342
62. Ownership of fan	No/yes	.231**	343
63. Number of fan	Number	.331**	343
64. Ownership of karaoke/MP3 player	No/yes	.251**	343
65. Number of karaoke player	Number	.263**	343
66. Ownership of gas stove	No/yes	.294**	343
67. Number of gas stove	Number	.271**	343
68. Ownership of jewellery	No/yes	.206**	343
69. Present value of jewellery	Number	.377**	343
70. Ownership of car	No/yes	.248**	343
71. Number of car	Number	.541**	343
72. Ownership of motorcycle	No/yes	.185**	343
73. Number of motorcycle	Number	.207**	343
74. Ownership of washing machine	No/yes	.292**	343
75. Number of washing machine	Number	.407**	343
76. Ownership of air condition	No/yes	.352**	343
77. Number of air condition	Number	.685**	343

Note: **: Correlation is significant at the 0.01 level (2-tailed).

1/ Dimension I (social participation) is excluded because there is no significant correlation between the variables reflecting this dimension and the benchmark indicator at 0.01 level of significance.

2/ 1 = total unsatisfied; 2 = rarely satisfied; 3 = satisfied; 4 = very satisfied

3/ 1 = No, not at all; 2 = Yes, for some 15-60 year-old members; 3 = Yes, for all 15-60 year-old members

4/ 1 = disagree; 2 = neutral; 3 = agree

5/ 1 = always deficit; 2 = sometimes deficit; 3 = comfortable; 4 = surplus

6/ Currency exchange rate was 31.4 baht per 1 AUD at 11 August 2011 (Siam Commercial Bank 2011).

(Source: Survey data)

Appendix 4: Average treatment effect on the treated (ATT) using kernel matching method (reps 50)

Table A 4.1 Average treatment effect on the treated (ATT) using kernel matching method (reps 50): Based on model A (propensity of being CBE member)

	No. of treated	No. of control	ATT	Standard errors	t-statistics
Poverty index	202	124	-0.067	0.240	-0.280
Poverty group	202	124	-0.069	0.243	-0.285
Absolute poor (0=non-poor; 1=poor)	202	124	-0.011	0.106	-0.106
Consumption expenses					
Total food expenses (baht/month)	202	124	-248.11	292.41	-0.848
Cloth expenses (baht/month)	202	124	58.26	72.90	0.799
Educational expenses (baht/month)	202	124	414.23	292.15	1.418
Recreation expenses (baht/month)	202	124	-31.44	167.87	-0.187
Medical expenses (baht/month)	202	124	-195.30	212.23	-0.920
Total non-food expenses (baht/month)	202	124	262.55	777.89	0.338
Total consumption expenses (baht/month)	202	124	14.44	886.22	0.016
Saving (baht/month)	202	124	-231.55	1063.59	-0.218
Per capita consumption expenses (baht/month/person)	202	124	-47.60	287.98	-0.165
Household production					
Total household product values (baht)	202	124	34825.78	46765.71	0.745
Household assets					
Present value of consumer duration assets (baht)	202	124	-22300	65896.29	-0.338
Present value of house (baht)	202	124	23586.93	44440.55	0.531
Total land assets (baht)	202	124	44673.72	83280.12	0.536
Total non-land assets (baht)	202	124	1966.87	98641.50	0.020
Total assets (baht)	202	124	15071.78	158000	0.095
Access to basic needs					
Health					
Access to health check up (0 no; 1 yes)	202	124	-0.016	0.120	-0.135
Access to medical knowledge (0 no; 1 yes)	202	124	0.017	0.103	0.165
Education					
Literacy of 15 to 60 year-old members (0 no; 1 yes)	202	124	0.038	0.093	0.409
Sanitation and hygiene					
Type of water closet[1/] (0 no; 1 yes)	202	124	0.067	0.020	3.288**
Bamboo wall (0 no; 1 yes)	202	124	0.004	0.052	0.073
Access to clean drinking water (0 no; 1 yes)	202	124	0.053	0.123	0.431
Energy sources					
Collected firewood (0 no; 1 yes)	202	124	0.137	0.112	1.227

Note: ** At significance level 0.05

1/ Dummy for flush toilet is used as a proxy for type of water closet.

Table A 4.2 Average treatment effect on the treated (ATT) using kernel matching method (reps 50): Based on model B (the probability of being committee member)

	No. of treated	No. of control	ATT	Standard errors	t-statistics
Poverty index	63	118	-0.064	0.141	-0.457
Poverty group	63	118	0.095	0.151	0.630
Absolute poor (0=non-poor; 1=poor)	63	118	-0.065	0.062	-1.051
Consumption expenses					
Total food expenses (baht/month)	63	118	-444.76	369.48	-1.204
Cloth expenses (baht/month)	63	118	38.15	91.78	-0.416
Educational expenses (baht/month)	63	118	-50.93	734.83	-0.069
Recreation expenses (baht/month)	63	118	-506.14	415.75	-1.217
Medical expenses (baht/month)	63	118	294.51	201.50	1.462
Total non-food expenses (baht/month)	63	118	-668.08	1310.07	-0.510
Total consumption expenses (baht/month)	63	118	-1112.84	1506.42	-0.739
Saving (baht/month)	63	118	2007.29	1098.13	1.828**
Per capita consumption expenses (baht/month/person)	63	118	-104.94	515.45	-0.204
Household production					
Total household product values (baht)	63	118	49676.40	82023.16	0.606
Access to basic needs					
Health					
Access to health check up (0 no; 1 yes)	63	118	-0.147	0.067	-2.187**
Access to medical knowledge (0 no; 1 yes)	63	118	0.006	0.048	0.131
Education					
Literacy of 15 to 60 year-old members (0 no; 1 yes)	63	118	0.023	0.025	0.927
Sanitation and hygiene					
Type of water closet[1/] (0 no; 1 yes)	63	118	0.034	0.063	0.540
Bamboo wall (0 no; 1 yes)	63	118	0.038	0.039	0.970
Access to clean drinking water (0 no; 1 yes)	63	118	0.026	0.060	0.441
Energy sources					
Collected firewood (0 no; 1 yes)	63	118	0.000	0.100	0.000
Social participation					
Village meeting participation (0 no; 1 yes)	63	118	0.034	0.085	0.397
Village public activity participation (0 no; 1 yes)	63	118	0.049	0.066	0.734
Decision participation in a CBE (0 no; 1 yes)	63	118	0.159	0.074	2.152**
Having a voice in setting regulation and rules in a CBE (0 no; 1 yes)	63	118	0.109	0.078	1.390
Receiving help regarding child and animal care from neighbours (0 no; 1 yes)	63	118	0.031	0.080	0.386
Receiving help regarding seeking a job from neighbours (0 no; 1 yes)	63	118	-0.190	0.098	-1.935**

Note: ** At significance level 0.05

1/ Dummy for flush toilet is used as a proxy for type of water closet.

Table A 4.3 Average treatment effect on the treated (ATT) using kernel matching method (reps 50): Based on model C (the probability of being active normal member)

	No. of treated	No. of control	ATT	Standard errors	t-statistics
Poverty index	85	40	0.118	0.391	0.302
Poverty group	85	40	0.066	0.404	0.163
Absolute poor (0 non-poor; 1 poor)	85	40	-0.307	0.221	-1.390
Consumption expenses					
Total food expenses (baht/month)	85	40	-271.10	278.15	-0.975
Cloth expenses (baht/month)	85	40	95.07	45.25	2.101**
Educational expenses (baht/month)	85	40	-15.88	595.67	-0.027
Recreation expenses (baht/month)	85	40	-63.63	322.82	-0.197
Medical expenses (baht/month)	85	40	23.46	45.03	0.521
Total non-food expenses (baht/month)	85	40	625.79	1069.37	0.585
Total consumption expenses (baht/month)	85	40	354.69	981.48	0.361
Saving (baht/month)	85	40	811.15	391.14	2.074**
Per capita consumption expenses (baht/month/person)	85	40	151.39	323.74	0.468
Household production					
Total household product values (baht)	85	40	5337.84	37500.93	0.142
Access to basic needs					
Health					
Access to health check up (0 no; 1 yes)	85	40	0.453	0.122	3.702**
Access to medical knowledge (0 no; 1 yes)	85	40	-0.139	0.137	-1.016
Education					
Literacy of 15 to 60 year-old members (0 no; 1 yes)	85	40	-0.062	0.137	-0.451
Sanitation and hygiene					
Type of water closet[1/] (0 no; 1 yes)	85	40	-0.050	0.195	-0.255
Bamboo wall (0 no; 1 yes)	85	40	0.026	0.072	0.359
Access to clean drinking water (0 no; 1 yes)	85	40	-0.112	0.183	-0.612
Energy sources					
Collected firewood (0 no; 1 yes)	85	40	-0.008	0.211	-0.036
Social participation					
Village meeting participation (0 no; 1 yes)	85	40	-0.150	0.171	-0.877
Public activity participation (0 no; 1 yes)	85	40	-0.068	0.053	-1.301
Having a voice in village meeting (0 no; 1 yes)	85	40	-0.126	0.063	-1.988**
Decision participation in a CBE (0 no; 1 yes)	85	40	0.219	0.219	0.998
Working assessment participation in a CBE (0 no; 1 yes)	85	40	0.231	0.251	0.918
Having a voice in setting regulation and rules in a CBE (0 no; 1 yes)	85	40	0.209	0.256	0.816
Receiving help regarding child and animal care from neighbours (0 no; 1 yes)	85	40	-0.353	0.094	-3.747**
Receiving help regarding seeking a job from neighbours (0 no; 1 yes)	85	40	0.451	0.179	2.522**

Note: ** At significance level 0.05

1/ Dummy for flush toilet is used as a proxy for type of water closet.

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