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The perceived effects of work on health of rubber farmers in southern Thailand

**A dissertation presented in fulfilment of the requirements for
the degree of Doctor of Philosophy in Nursing**

**Massey University, Palmerston North
New Zealand**

**Piyaporn Boonphadh
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Abstract

This study was conducted in a rubber farming community in Southern Thailand with rubber farmers and their first-line public healthcare providers as the study informants. The study aims were to first, explore perceived effects of work exposures in rubber farming on rubber farmers' health, second, identify decisions made in response to the effects of work exposures on health, and third, determine influencing factors on the construction of the perception and the process of decision making.

Data were obtained using ethnographic research methods, underpinned by an interpretative paradigm. Unstructured interviews and participant observation were employed as the principal means of data collection. Together with the primary methods of data collection, note taking (fieldnotes, fieldwork personal journal, and photographs) and reviewing/analysing existing documents were employed. While data were being collected, initial data analysis was carried out to make sense of information gained and direct further steps of the data collection. After terminating the data collection, ethnographic data analysis suggested by Spradley (1979, 1980) was used to determine themes to meet the aims of the study.

The study findings reveal that individual rubber farmers and healthcare providers construct perceptions of effects of rubber farming on rubber farmers' health and decisions on the actions taken to manage the rubber farmers' work-related health problems based on their own accounts of compounding factors. Among factors identified, discrepancies between health policy and its practice, coupled with the existence of a hierarchy of power—superior-inferior relationships among individual levels of health authority—emerge as the most powerful factors, inducing the emergence of other factors.

Recommendations made as a result of this study draw attention mainly to the minimisation of the discrepancies between health policies and their implications, and the establishment of partnership status among authorised health agencies and between health agencies and rubber farmers in order to improve the quality of occupational safety and health services provided to the rubber farmers.

Acknowledgements

Completing this thesis has been a life-changing experience for me. I grew up in a family of modest means in southern Thailand. My father was a government fisheries officer and my mother worked in a canning factory. We owned a small rubber field that my father had inherited from his parents, but it did not generate any income at that time because the trees were still immature. My parents sacrificed to ensure that my two sisters and I received the best possible education and had everything we needed. We were sheltered from life's difficulties, and encouraged to focus only on study because my parents believed that a good education would be the key for us to avoid the hardships they had experienced. Even after I graduated with a bachelor's degree in nursing I continued working within the isolation of the university environment, first as a nurse and later as a nursing lecturer. I did not think much about how other people lived their lives. I eagerly took up opportunities for further study abroad at the masterate and doctorate level. To date, I calculate that I have spent three-quarters of my life in full-time study.

It was only when carrying out the fieldwork for this research that I first pushed myself outside my comfort zone, by deciding to live with the rubber farmers I wished to study so as to experience and learn from their lives directly. My primary motivation for staying in the field was to gain the best data for my research. Everywhere I went in the villages I was treated with the utmost hospitality and respect. Seeing how the lives of the rubber farmers were dominated by long hours of hard work opened my eyes to the economic realities that forced them to put aside concern for their own health and safety to try to earn enough to feed, house and educate their families. I saw local healthcare workers under pressure to not always do or say what they thought was best for the farmers' welfare.

Back in New Zealand, I began working part-time as a nurse in a rest home and hospital for the elderly to supplement my scholarship. Most of my co-workers were caregivers working as many hours as they could for a minimal wage. Just as in Thailand I was treated with friendship and respect. And I saw my co-workers under the same pressures to compromise health and safety in order to make ends meet and retain their jobs.

Around this time, I watched a movie, “The Motorcycle Diaries.” It tells the true story of a young Argentinean doctor, Che Guevara, who travels around Latin America on a motorcycle to learn firsthand the conditions facing ordinary people and what can be done to improve them. What he saw paralleled much of my own experience in the Thai rubber fields and challenged me to think more deeply about my experiences. I had never heard of Guevara before that time. But when I learnt that he had gone on to become a leader of a popular government in Cuba, which has become a world leader in public health prevention and care, I decided to investigate further.

I greatly appreciate the experience that I have gained during this study. And I would like to take this opportunity to express my gratitude to the people of the rubber farming community, including farmers, villagers, health volunteers, healthcare providers, and my host family, for their unconditional help and willingness to share their lives with me. I would also like to thank my co-workers at the rest home for further opening my eyes to the realities of the wider world.

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Abbreviations

CCs	WHO Collaborating Centres in Occupational Health
CEO	Chief Executive Officer
CSMBS	Civil Servants Medical Benefit Scheme
CUP	Contracted Unit of Primary Care
ILCI	International Loss Control Institute
ILO	International Labour Organisation
LICS	Low Income Care Scheme
MOPH	Ministry of Public Health
MUHEC	Massey University Human Ethics Committee
NCD	Non Communicable Disease
NGOs	Non-Government Organisations
NHSO	National Health Security Office
OSH	Occupational Safety and Health
PHC	Primary Health Care
SSS	Social Security Scheme
SVHCS	Subsidised Voluntary Health Card Scheme
TTM	Thai Traditional Treatment
UCS	Universal Coverage Scheme (30 baht Health Card)
WHO	World Health Organisation
WIND	Work Improvement in Neighbourhood
WISE	Work Improvement in Small Enterprise

Chapter 1: Introduction and background of the study

1.1 Introduction

In this study ethnographic research methods were used to collect and analyse information about the perceived effects of work on health among rubber farmers dwelling in a rubber farming community in southern Thailand. Also, the rubber farmers' decisions and factors influencing the process of decision making to deal with work-related health problems and maintain health status are clarified. To establish a view of occupational health and safety among rubber farmers, health staff working at the local health centre (a component of primary care level or a first-line unit of public health services, providing health services to all people dwelling in the designated area) were also invited to address their perception of the farmers' health problems and recommended ways to promote rubber farmers' health and safety at work. Factors influencing the healthcare providers' provision of health services to the rubber farmers are, in addition, revealed.

The study was conducted in accordance with one of the principal missions of the university, where I work: building up a variety of knowledge, and conducting research based on local issues, aiming to cooperate with regional authorities to solve local problems. All faculties of the university share a common mission regarding faculties' expertise. The Faculty of Nursing, where I hold a lecturer position, focuses on developing new knowledge and carrying out research related to health issues.

My interest in rubber farmers formed when I supervised nursing students carrying out their community nursing practice in rubber farming communities. Initially, it was considered that I was knowledgeable about rubber farmers as I live in the south of Thailand, the biggest area for rubber cultivation and grew up in a family which has strong connections with rubber farming. However, I gradually realised there was little that I and other health personnel knew about the life of rubber farmers. As a registered nurse and a nurse lecturer, I was particularly interested in their health. Given the call for attention to work-related injury and illness among, and occupational safety and

health services provided to, Thai farmers (Srisuparp, 2003; Thepakorn & Padungtod, 2007) and the understanding of how work can greatly influence all aspects of the health of individuals—including their overall quality of life (Rogers, 1994), I narrowed the scope of the study to the rubber farmers' health in relation to the work they do, as I had found very few publications addressing this issue.

1.2 Study Background

1.2.1 Work-Health overview

Half of the overall global population is in the workforce, taking the major role in economic and social development (WHO, 2006, 2007a). Human beings and work cannot be separated (Foster, 1995). People commit to work not only for financial reasons, but also for gaining identity, achieving fulfilment and searching for excitement (Bloemhoff & Sumlders, 1994). It appears that most adults spend roughly one fourth to one third of their time at work, and, during their time at work they are exposed to potential work hazards (Rogers, 2003).

Since the era of the Greeks and Romans, the effect of work on health has been recognised. During those periods, slaves were commanded to carry out dangerous work, such as mining and construction, because it was known that the work could damage a person (Bamford, 1995). Later, there was some evidence of writing about work and the risk to body and life. In 1700, a book entitled *The Diseases of Workers*, written by Bernardo Ramazzini, an Italian physician and professor of medicine and sometimes referred to as the Father of Occupational Medicine/Industrial Hygiene, was published (Khon, Friend, & Winterberger, 1996). Ramazzini suggested that doctors had an obligation to visit the workshop and observe the activities.

The effect of work on health can either be immediately seen or take a period of time before the effect can be diagnosed (Foster, 1995). This time difference has led to the use of two different terms, *work-related injuries* and *work-related diseases*. Whilst *injury* is clarified as tissue damage caused by acute exposure to physical or chemical agents, for instance, laceration, chemical burn, fall, *disease* is referred to as a process leading to the change of structures or functions of the body and it is recognised by

sequences of signs and symptoms (Laird, 1995). The definition of the two terms enables occupational health personnel to distinguish and to report whether incidents are a result of an injury or a disease.

Each occupation has different effects on workers' health depending on the hazards in relation to the nature of work, and the work conditions, and environment. Hazards are classified into five categories, incorporating chemical, physical, biological, ergonomic, and psychological hazards (Bamford, 1995; Rogers, 1994; Stranks, 2007). Chemical hazards are, for instance, toxic substances, solvents, fibres or dust—whereas physical hazards include noise, vibration, radiation, abnormal pressure and extreme heat or cold. Biological hazards are micro-organisms (e.g. bacteria, viruses, fungi, and zoonoses or animal-borne diseases). Ergonomic hazards relate to manual handling, repetitive movement, design of work station, and posture when working. Psychosocial hazards are about the relationship of workers with social issues. These could be organisational culture, relationship between employer-employee, relationship between co-workers, responsibility of the job, or shift pattern and so forth (Bamford, 1995; Rogers, 1994; Stranks, 2007).

There are other factors that influence the effects of work on workers' health. These include the demography of the working population, climate conditions, level of technology, socioeconomic development, development of occupational health and safety policies, and infrastructures (Bloemhoff & Sumlders, 1994; Rantanen, 1994). While mechanical, physical and chemical factors are the major causes of health problems in industrialised countries, pesticides, heavy physical work, organic-dust toxicity, micro-organisms and accidents are the main causes of occupational burdens of agricultural countries (Rantanen, 1994; Zejda, McDuffie, & Dosman, 1993). In less developed countries occupational health problems are also provoked by some other non-occupational factors such as parasites and infectious diseases, poor hygiene and sanitation, poor nutrition, general poverty and illiteracy (Rantanen, 1994).

1.2.2 International Occupational health and safety awareness

Work could influence all aspects of the employee's well-being (e.g. physical, psychological, emotional, and social) and that influence extends beyond the working boundary to affect one's overall quality of life and national social economics (Rogers, 2003). A country or workplace without efficient policy to ensure the health and safety of workers is likely to experience economic loss (Rantanen, 1994). In 2005, the World Health Organisation reported that throughout the world, two million workers died as a result of work-related diseases and injuries, and that accidents and occupational diseases cause economic loss up to 4% of the gross national product (WHO, 2005). There may also be some other economic losses that remained underreported, such as damage to tools and equipment, loss of customers, and legal action expenses (Wassel, 2002).

Therefore, Wassel (2002) points out that to maintain the work profit of individuals, communities and countries, health at work and safe work environments should be valued and maintained. All workers should have access to occupational health services (Rantanen, 1994). Hence, a commitment to workers' health has been made by countries throughout the world with continuous support from the World Health Organisation (WHO) and its occupational health and safety alliances, incorporating WHO collaborating Centres in Occupational Health (CCs), the International Labour Organisation (ILO) and related Non-Government Organisations (NGOs).

However, despite ongoing interventions within individual nations and at the international level, to prevent occupational hazards and to protect and promote health at work only a small minority of the global workforce is able to access occupational health services, resulting in large gaps regarding the health status of workers and their health risks at work both within—and between—countries (WHO, 2007a). In 2005, the WHO concluded that only 15% of the world's 2.9 billion workers have access to occupational health services (WHO, 2005). Youth, female workers and those working in small businesses, the informal sector and agriculture are amongst those who are the most affected by the gaps in occupational health services and employment legislation (Rongo, Barten, Msamanga, Heederik, & Dolmans, 2004; WHO, 2005).

Thus, in the most recent Workers' Health Global Plan of Action 2008-2017, WHO advises all members to continue with the plan to provide full coverage of essential interventions and basic occupational health service for primary prevention of occupational and work-related diseases and injuries to workers of all work sectors (WHO, 2007a) .

1.2.3 Labour force and Workers' welfare, health and safety in Thailand

1.2.3.1 Characteristics of the labour force

In Thailand, the legal age to enter the workforce is 15 years old (Thailand Ministry of Labour, 2004a). According to the report of the Labour Force Survey, 2nd Quarter (April-June) of the year 2006, 55.36 % of the total population (65.2 million) is in the current labour force with a 1.7% unemployment rate (Thailand National Statistics Office, 2006a). Out of the total number of the current workforce, 34.41% is in agriculture, 14.29% is in the category of employed service workers and shop and market sales workers, 11.83% is in the category of craftsmen and related trades workers, 11.73% is in the category of elementary occupations (self-employed shopkeepers, salespersons, general services), 8.46% is in the category of plant and machine operators and assemblers (Thailand National Statistics Office, 2006d). The rest of the labour force is scattered in other occupations, legislator, senior officials and managers (7.1%), professional (4.08%), technicians and associate professionals (4.17%), clerks (3.6%), and workers not classified by occupation (0.13%) (Thailand National Statistics Office, 2006d).

The education level of employed persons reported in the 2nd quarter (April-Jun) 2006 illustrates that 58.93% of the overall number in the labour force did not have education higher than elementary level [3.55% had no education, 33.87% had not completed elementary education, and 21.51% had completed elementary education] (Thailand National Statistics Office, 2006c). The wage, Baht per month, of employed persons reported in 2006 demonstrates that the average wage calculated from those of all employed persons is 8,309, and the workers in agriculture, hunting, forestry and fishing earn the least, 3,566 and 3,443 respectively, while those of extra-territorial

organisations and bodies earn the most, 65,425 (Thailand National Statistics Office, 2006b).

According to the Social Security Office, the Ministry of Labour and Welfare, in 2006, 808 workers lost their lives as the result of work-related injuries, 21 workers became disabled, and 3,413 lost body parts (Thailand Social Security Office, 2007). In 2006, Kerdklai (2006) concluded that the three major environmental and occupational diseases as reported by the Passive Surveillance System for Occupational and Environmental Diseases network, were musculoskeletal diseases, toxic effects of contact with venomous animals, and skin diseases. Also, in the Thailand Health Profile 2001-2004, the working aged population was reported to be the major group experiencing road traffic accidents nationwide, as well as the group tending to face other health problems, including HIV/AIDs, diabetes, liver cancer, drug abuse, schizophrenia, and alcohol abuse (Bureau of Policy and Strategy, 2005).

1.2.3.2 The development of workers' welfare, health and safety and its responsible bodies

According to the Ministry of Labour (2004b), the expression of concern about Thai labour force was begun when the country transformed from an absolute monarchy to a constitutional monarchy. However, initially the concern did not address health and safety issues, but was directed towards supporting people earning a living and promising everyone job opportunities. Then in 1933 the first Employment Act was released, together with the establishment of the Employment Service Section which was upgraded to the Labour Division in 1934. Later, in 1936, the Labour Division was directed to administer the Labour Investigation Act which, for the first time, focused on studying, inspecting and improving working conditions. Following the growth of the labour force and economics, the Labour Division was upgraded to the Labour Bureau under the supervision of the Public Welfare Department in 1962, and to the Department of Labour in 1965, but this time it was transferred to the administration of the Ministry of the Interior. The responsibilities of the Department of Labour then expanded to cover employment service, labour skill development and labour protection and welfare as well as covering the workmen's compensation fund (Thailand Ministry of Labour, 2004b).

When the Social Security Act was announced in 1990, the workmen's compensation fund was transferred to the Office of Social Security. Meanwhile, the Department of Labour retained its status for a period of time before being upgraded to the Ministry of Labour and Social Welfare in 1993. Then the Office of Social Security became a part of the new Ministry. Consequently, the duties of the Ministry of Labour and Social Welfare covered labour affairs, employment services, public welfare, labour skill development, labour protection, welfare and social security. Finally, in 2002, public welfare was moved to the new Ministry of Social Development and Human Security, and the Ministry of Labour and Social Welfare has since become the Ministry of Labour (Thailand Ministry of Labour, 2004b)

Nowadays, the Ministry of Labour consists of six offices and departments, including the Office of the Ministry, the Office of the Permanent Secretary, the Department of Employment, the Department of Skill Development, the Department of Labour Protection and Welfare, and the Office of Social Security (Thailand Ministry of Labour, 2004d). All offices and departments under the Ministry are committed to promoting and developing the quality of life and decent and secure work for labour, together with enhancing social security for labour, promoting and expanding greater employment opportunities, coordinating and promoting the skills of labour force, and improving labour management capability (Thailand Ministry of Labour, 2004c).

Along with the development of the Ministry of Labour, the Ministry of Public Health has also been attending to the health of the Thai working population. The identification of manganese toxicity in a battery manufacturing plant in 1964 to a very large extent drew the attention of the Ministry of Public Health to the safety and health of workers (Thailand Bureau of Occupational and Environmental Diseases, 2004). Two years after the incident, the Ministry established the first occupational safety and health plan in the 2nd National Socioeconomic Development Plan (1967-1971), and the Sanitation office was responsible for implementing the plan. Later, in 1968, the National Occupational Health Committee was established; the cooperating organisations were the Ministry of Public Health, Ministry of Interior, the Ministry of Agriculture and Cooperation, and the Ministry of University Affairs. In 1972, the Occupational Health Division was established under the Department of Public Health Promotion which later, in 1974, was renamed the Department of Health, Ministry of

Public Health. In 2002, the Division of Occupational Health was renamed the Bureau of Occupational and Environmental Diseases and its control was transferred to the Department of Disease Control of the same Ministry.

The Bureau of Occupational and Environmental Diseases regards itself as a Learning Organisation which is continuously developing its capacity to monitor, protect and control occupational and environmental diseases nationwide (Thailand Bureau of Occupational and Environmental Diseases, 2007). Thus the mission of the Bureau includes researching, analysing, developing, and distributing knowledge and technology relating to diseases and health-threatening factors caused by work and the work environment, cooperating and supporting related organisations to prevent and control occupational diseases and injuries.

Though the Division of Occupational Health was abolished from the Department of Health, the Department continues to conduct some activities to promote the health of the labour force, such as introducing the Healthy Workplace programme, with regard to its commitment to promote the health of all age groups to achieve Healthy Thailand (Padungthos, 2005).

The workers' welfare, health and safety are not the responsibility of one organisation. In addition to the Ministry of Labour, and the Ministry of Public Health, the Ministry of Industry is also a vital part in the operation (Siriruttanapruk & Anantagulnathi, 2004). In addition, the occupational safety and health of the Thai labour force is constantly supported and studied by scholars involved in health promotion and disease prevention, and occupation safety and health (Krungkrai Wong, Itani, & Amornratanapaichit, 2006; Osiri, 2006; Siriruttanapruk & Anantagulnathi, 2004; Srisuparp, 2003; Thepaksorn & Padungtod, 2007; Thungwa, 2004; Wuthipong, 1999). Other agencies also implement activities regarding the workers' welfare, health and safety, incorporating a number of Thai Labour Congresses, the Thai Labour Federation organised by industry, and the Thai Labour Advocates/Unions (Non-Government Organisations: NGOs).

1.2.3.3 Issues and trends in workers' welfare, health and safety

Occupational safety and health in Thailand has been set up in congruence with the global strategy on Occupational Health for All announced by the WHO in 1994. However, despite the involvement of multi-responsible bodies attempting to meet the goal, the occupational safety and health services do not cover all Thai working groups (Kalampakorn, 2003; National Health Development Plan Committee, 2001). Also, the reports on work-related diseases and injuries as well as other health problems related to work and the work environment reflect only the tip of the ice berg (Wuthipong, 1999). Similar to the worldwide situation stated by the WHO (2005), the most affected groups are the workers in small business, and informal sectors such as agricultural workers, and home-based workers (Kalampakorn, 2003; Wuthipong, 1999).

With the intention of closing the gap, new Labour Acts were released, including the Agriculture Labour Protection Act 2003, and the Home-based Labour Protection Act 2003 (Thailand Department of Labour Protection and Welfare, 2005). Furthermore, the relevant agencies have studied, developed and implemented projects in connection with the gaps in occupational safety and health provided to Thai labour force. The Bureau of Environmental and Occupational Health, for example, has developed the Passive Surveillance System for Occupational and Environmental Diseases network, and has been encouraging provinces to sign up to become network members. The members are directed to report occupational and environmental diseases, categorised in ten groups, including lung and respiratory diseases, physical hazards, skin diseases, musculoskeletal diseases, toxic effects of contact with venomous animals, toxic effects of contact with plants, heavy metal poisoning, toxic effects of organic solvents, toxic effects of gas and vapour poisoning, and toxic of effects of pesticides (Kerdklai, 2006).

There have also been studies in which ways to enhance the coverage of Occupational safety in health have been suggested. These include for example, a study by a group of researchers in which the Work Improvement in Small Enterprise (WISE) methodology was introduced by the International Labour Organisation (ILO) to improve occupational safety and health in small enterprises in Thailand

(Krungkraiwong et al., 2006). Then, there is a pilot project in which the strategy called “Work Improvement in Neighbourhood Development” (WIND), also developed by ILO, to promote health and enhance the safety work environment of farmers. This project began in mid-2005, organised by The ILO, the Public Health Department of Mahidol University, the Cooperative Promotion Department (Thailand Ministry of Agriculture and Cooperatives), and the Department of Labour Protection and Welfare (Fieldnote, 2005).

In spite of intensive efforts to promote the coverage of the services, there are still problems recognized. The Central Disease Control Office, the Ministry of Public Health has established a networking system to monitor work-related disease /injury, called the “Passive Surveillance System for Occupational and Environmental Diseases”. However, work-related disease/injury of Thai workers remains underreported due to the failure of the network’s members (e.g. the Subdistrict Health Centre, the Contacting Unit of Primary Care, the Provincial Health Office, and the Regional Disease Control Office) to update their information and report the information correctly; besides, not all provinces of Thailand have yet become members of the network (Kerdklai, 2006). There is also a problem regarding poor collaboration among the principal agencies, incorporating conflict and ambiguous overlapped tasks resulting in detached implementation, and either a task being repeatedly done by all parties or leaving gaps of services (Padungthos, 2005).

Furthermore, regardless of the Agriculture Labour Protection Act 2003 and the Home-based Labour Protection Act 2003, and other Acts in connection with the labour force, while employed persons are protected, self-employed persons—either in business or in the farming sector—are still being excluded from employment legislation. This includes the rubber farmers of Thailand.

1.3 Justification for the study

Rubber farming has been established in Thailand for over a century (Institute of Southern Culture Study, 1986). By 1992, Thailand had become the world’s largest supplier of natural rubber (The World Bank Group, 2001). Since then, the country’s contribution to the world market for natural rubber has gradually increased with the

record of 36% in 2003, exporting 2.87 million tons (Rubber Research Centre, 2004). The development is the result of the Thai government's strategy to expand the exporting power by establishing the Office of Rubber Replanting Aid Fund to manage the grant to support rubber fields' smallholders to replant rubber trees (The World Bank Group, 2001). The office now holds the status of a state enterprise, called the "Rubber Estate Welfare Fund Office", under the Ministry of Agriculture and Cooperatives, providing the same services to rubber fields' owners, plus offering a grant under some conditions to farmers who wish to plant rubber trees but do not own any land (Ministry of Agriculture and Cooperatives, 2005). Throughout the nation, rubber cultivation covers an area of 2,019,006.72 hectares or 20,190.07 square kilometres, in which 84% of the total rubber cultivation area is scattered in all 14 provinces of the southern part of the country (Rubber Research Centre, 2004). The three provinces of the south holding the leading positions in cultivation are Surat-Thani, Songkla, and Trung respectively.

Farmers are independent and self-sufficient, which creates a challenge for health professionals in accessing the safety and health information concerning this particular target group (Martin, 1997). Rubber farmers are no exception. The exclusion of self-employed rubber farmers from the Labour Protection Act causes underreporting of work-related health problems experienced by rubber farmers, leading to limited health services being provided to this specific farming group. In addition, despite the facts that rubber farming has been promoted and rubber has become one of the country's biggest export agricultural products, there have been limited documents and studies on rubber farmers and the effects of farming on their health. The two existing studies involving rubber farmers' health to some degree (Chaiear et al., 2001; Nhu-Urai, 1999) suggest the need for further studies to explore further features of risks at work of rubber farmers in detail and how the rubber farmers deal with their health concerns in depth.

I was concerned as to how I could successfully uncover rubber farmers' health problems and needs, and obtain findings that could be beneficial to the development and implementation of an occupational health and safety plan for these farmers. A group of researchers recommend that to enhance the acceptance of research findings

and their applicability, the target population should be involved in generating knowledge (Entwistle, Renfrew, Yearley, Forrester, & Lamont, 1998).

Consequently, I believed I could enhance the rubber farmers' involvement in managing their health starting from encouraging them to express their own health perceptions and interests according to their lived experiences (Ness, 1997). Health services necessary for the rubber farmers then could be established based on the farmers' information, rather than based solely on 'objective' information (Raeburn & Rootman, 1998). Understanding how people explain causes of injuries at work and how they perceive possibilities for prevention would increase the effectiveness of preventive efforts (Torell & Bremberg, 1995). In contrast, if the perception of the target group is ignored or excluded, occupational health and safety programmes that are developed and provided are likely to experience failure due to lack of interest or acceptance by the target group (Sofie, 2000).

Though it is crucial to take the voice of the target group into account to expand the effectiveness of health promotion and disease preventive efforts in an occupational group, the views of health experts are not considered insignificant (Slovic, 1987). Slovic (1987) emphasises that two-way communication is essential; otherwise the success of the efforts is likely to decline. As a result, in addition to recruiting rubber farmers, I decided to invite the health personnel who were assigned to look after the health of rubber farmers to be among the study informants. I took the following statement to heart.

Each side, expert and public, has something valid to contribute.

Each side must respect the insights and intelligence of the other.

(Slovic, 1987, p.286)

1.4 Study design, and objectives

..One way of getting to the heart of a medical question is not only knowing these places, not only visiting them, but also getting to know the people who make up those cooperatives and workplaces...
(Guevara, 1960, p. 49)

Consistent with the statement by Guevara (1960), ethnographic research methods with an interpretative paradigm were considered appropriate to direct the study on the understanding that when people tell their story, they express a specific perspective and meaning of an event, which is the truth of their experience, not an objective truth (Bailey & Tilley, 2002).

The main goal of this study was to generate information, focusing on individual perception, beneficial to the development of occupational safety and health services provided to rubber farmers. Therefore, ethnographic methods were applied to capture information from rubber farmers and rubber farmers' first-line-public health care providers in order to: **first**, explore perceived work exposures and work-related health problems in rubber farming, **second**, identify decision on responses to work exposures and work-related health problems and **third**, identify influencing factors on the construction of the perception and the process of decision making on actions taken to handle work exposure and work-related health problems.

1.5 Chapter Outline

The study is presented in nine chapters, including this first chapter; Introduction and background. In this chapter, an overview of the effects of work on health, international occupational safety and health awareness and Thailand's occupational safety and health situation is provided. This background information constitutes justification for the conducting of the study. The study goal, objectives and research methods employed in the study are also outlined.

In the second chapter a review of the literature, an overview of the past and current situation of occupational health and safety aimed at agricultural sectors worldwide and in Thailand is provided, as well as a demonstration and discussion of an accident causation model extensively used to identify causes of accident, work-related injury and illness. Existing knowledge in relation to the prevention of work-related injury and illness is also reviewed. The information reviewed facilitated the process of data collection and the analysis of the study findings.

The third chapter illustrates the research methods adopted to obtain study information and the procedures of the fieldwork detailing the process from preparing to enter the field, entering the field, being in the field, and leaving the field. This includes explaining how information obtained was handled and analysed, along with the awareness of ethics and role conflict that I encountered in the fieldwork.

The fourth chapter is focused on general information about rubber farming and the rubber farmers studied, gained from observation, interview and the survey questionnaire. The information is presented in two main categories, including the general characteristics of the rubber farming (i.e. field ownership, working days-hours, work activities and work exposures and their effects on health) and the rubber farmers' household conditions and health behaviours, and accessibility to healthcare services. This broad background of rubber farming and rubber farmers enhances the understanding of the information which is contained in the later chapters.

In the fifth chapter, the study findings are presented with emphasis on perceived work exposures and work-related health problems in the rubber farming of rubber farmers. As well, the factors underlying the rubber farmers' construction of the perceptions are specified.

The sixth chapter includes the decisions on actions taken by rubber farmers to deal with perceived work exposures and work-related health problems, along with the factors influencing the process of decision making.

In the seventh chapter, the identical issues stated in the fifth and sixth chapters are presented, but from the perspective of healthcare providers working at the local health

centre. Thus, the work exposures and work-related health problems involved in rubber farming, as perceived by the healthcare providers, are integrated with their recommendations to improve the health of rubber farmers—and the obstacles delaying the implementation of the proposed recommendations are discussed this chapter.

In the eighth chapter, the study findings presented in Chapters 4, 5, 6 and 7 along with the information demonstrated in the review of literature chapter are brought together to examine the gaps in occupational safety and health services provided to the rubber farmers. Here the underlying factors which collaboratively influence the rubber farmers' and healthcare providers' constructions of perceptions and decision making are identified and discussed. In addition, the applicability of safety and health models—presented in chapter 2—to enhance the understanding of the occupational safety and health situation of rubber farmers is discussed

Lastly, in the ninth chapter the general conclusion of the study is presented, together with the implications and future directions advised in the study findings. The implications and future directions are illustrated at two levels, long-term and immediate as they affect public health organisations, health professionals and scholars, related health personnel, and rubber farmers and their communities.

In each chapter, examples and excerpts are displayed to enhance understanding of particular circumstances. Also, please note, words displayed in *italic* form are folk terms. Folk terms appear in most chapters because it is not possible to translate some Thai words and expressions into a single English word. Meanings of folk terms may be viewed in Appendix A. However, when a folk term is presented for the first time, its meaning—based on the informants' understanding—is given in brackets behind the term.

Chapter 2: Review of Literature

2.1 Introduction

The principal mission of occupational safety and health is promoting workers' health, and preventing the workers from, or reducing their possibilities of, experiencing work-related accidents, injuries and illnesses (Rantanen, 1994; Rogers, 2003; Slappendel, 1995). To facilitate the achievement of the mission, knowing causes of harm at work is essential as that knowledge has a great influence on the process of deciding what possible intervention is to be put in place (Rantanen, 1994; Slappendel, 1995). Therefore, in this chapter a series of studies concerning farmers' health conducted in Thailand and other countries is reviewed. Then an explanation of causes of work-related injuries/illness is presented and discussed using the International Loss Control Institute (ILCI) Loss Causation Model, the classic and most well-known loss causation model (Slappendel, 1995). Subsequently, suggestions of potential approaches to eliminate and minimise work-related injuries and illness based on previous occupational safety and health studies are demonstrated, in which the association between individuals' perceptions and actions are highlighted.

2.2 Farm-related injuries/illness

Farming has been identified as one of the most hazardous occupations causing one of the highest rates of fatality and injuries (Dimich-Ward et al., 2003; Donham, Rautiainen, Lange, & Schneiders, 2007; Forastieri, 1999; International Labour Organisation, 1997; Solomon, 2002; Stallones & Xiang, 2003; U.S. Department of Health and Human Services, 2002). As a result, there have been a range of studies conducted, worldwide, in which attempts have been made to identify farm-related injuries and illnesses—also farm hazards—and find ways to deal with, and monitor, the circumstances (Robertson, Murphy, & Davis, 2006).

In New Zealand, for example, various occupational health organisations and experts continue to carry out studies concerning farm-related injuries among New Zealand

farmers. In 1999, with the support of New Zealand Occupational Safety and Health services, a group of scholars (Power, Glass, Stratford, & Erkinjuntti-Pekkanen, 1999) undertook a pilot study on rural workers' health which revealed that if not a fatal incident, the farm-related injuries experienced and reported by farmers are musculoskeletal injuries, lacerations, eye injuries, fractures, bruising and crushing. These kinds of injuries were also reported among Scottish farmers while tagging and clipping cattle (Lindsay, Sivasubramaniam, Macdonald, & Godden, 2004).

A study of musculoskeletal disorders in farmers and farm workers in the United Kingdom illustrates that farmers are at high risk of accidental injuries, particularly musculoskeletal disorders, for example, osteoarthritis, low back pain, sprains, and fractures (Walker-Bone & Palmer, 2002). In Thailand, musculoskeletal pain was highly reported by most farmers participating in the study of muscular pain and analgesic use (Osiri, 2006) and the rubber farmers participating in the study of the working culture of rubber farmers (Nhu-Urai, 1999).

In addition, there have been a variety of work-related illnesses which are reported to develop among farmers. According to the reports and previous studies of farmers' health and safety risks (Forastieri, 1999; Power et al., 1999; Zejda, McDuffie, & Dosman, 1993) farm-related illnesses experienced by farmers include hearing loss, allergic reactions, skin problems and respiratory problems, and cancer. A study of the prevalence of latex sensitisation in the workers of latex glove factories and rubber tree tappers, conducted in Thailand, revealed similar results. Twenty percent of each group of participants were reported to have symptoms of work-related respiratory problems (wheezing, breathlessness, and cough) and skin problems (eczema, itchiness and rash) (Chaiear et al., 2001). In the United Kingdom, farm-related respiratory problems have also been recognised and researched (Linaker & Smedley, 2002). And in the United States, an elevated risk of cancer among farmers has been reported (Dodge, Mills, & Riordan, 2007). Moreover, as farmers have constant contact with animals and plants, they encounter infectious and parasitic diseases (Forastieri, 1999).

Other than physical health problems, farmers are exposed to a number of psychological health issues. In a study of anxiety and depression among farmers of Western Norway, it was reported that the anxiety and depression levels revealed by

farmers were higher than those of non-farmer participants (Sanne, Mykletun, Moen, Dahl, & Tell, 2004). In the United Kingdom, a high rate of suicide, as a consequence of occupation stress, among farmers has been noted (Gregoire, 2002). And in Thailand, mental weariness has been reported to be one of the health concerns amongst rubber farmers (Nhu-Urai, 1999; Thungwa, 2004).

2.3 Causes of farm-related injuries and illness

It is widely presented that any situation leading to harm is rarely caused by one single cause but by a set of conditions. Stranks (2007), for example, explains that when there is an event resulting in an accident or ill health, there is a chain of causation. The ILCI Loss Causation Model presented by Bird and Germain in 1986 (Figure 2-1) has been considered a simple—but one of the most efficient—model to identify causes of accident and injury. The model enables users to identify underlying causes and comprehend the sequence of the accident necessary to the management of health and safety at work, then, to establish the decision to eliminate and isolate the causes or minimise the possibility of accident based on this understanding (Bird & Germain, 1986; Slappendel, 1995; Stranks, 2007). There are five components demonstrated in the ILCI Loss Causation Model including loss, incident, immediate causes, basic causes, and lack of control. Bird and Germain employ a sequential approach to explain the occurrence of loss and incident.

2.3.1 Loss and Incident

Bird and Germain (1986) explain that *loss*, which is identified as harm to people, including injury and illness, disability, and death, damage of property or disruption of work process, takes place as a result of an incident. And that the *incident*, an undesired event, which could—or does—result in loss (near-accident or accident) occurs when people or property are exposed to energy or substance. The energy and substance could be either kinetic, electric, acoustic, thermal, radiant, or chemical. In more recent occupational safety and health textbooks, energy and substance are reframed as hazards at work. As mentioned in the previous chapter, work hazards are classified into categories, incorporating biological, chemical, mechanical/structure, physical and psychological hazards (Bamford, 1995; Rogers, 1994; Stranks, 2007).

2.3.2 Immediate causes

Based on the ILCI Model, although the hazards are registered as direct causes of loss, loss can happen only when the immediate causes, substandard acts and substandard conditions, involve and induce contact between the people or property and the hazards, allowing occurrence of an accident. While substandard practices emphasise workers' behaviour at work or human causes, substandard conditions refer to technical causes (Slappendel, 1995). Examples of substandard practices include operating equipment without authority, using defective equipment, failing to use personal protective equipment, improper loading, and improper lifting—whereas substandard conditions include inadequate barriers or protective equipment, defective tools, inadequate warning systems, poor housekeeping and hazardous environmental conditions (Bird & Germain, 1986).

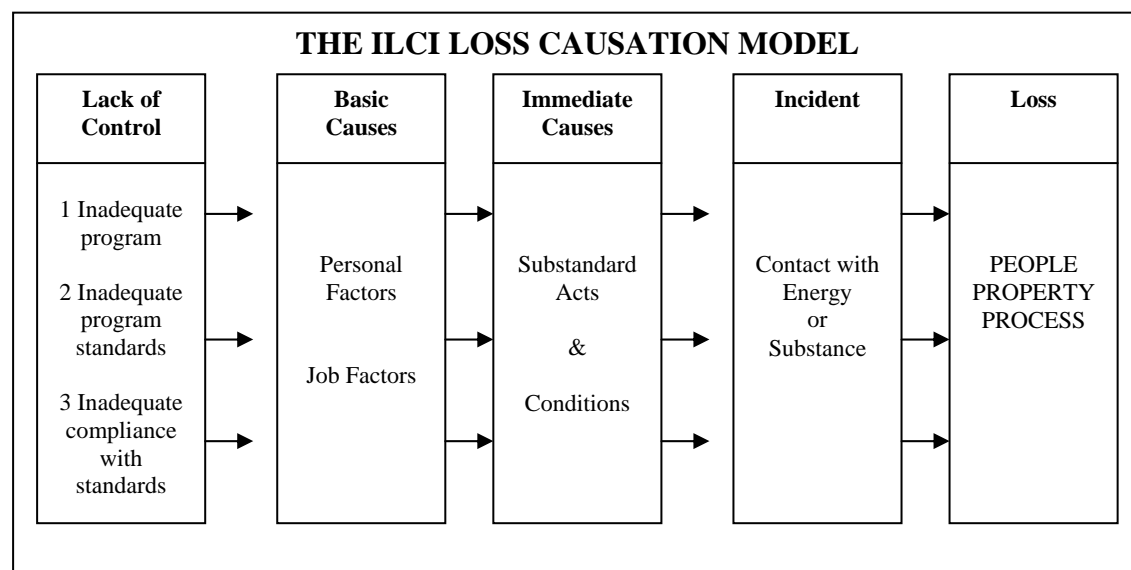


Figure 2-1 ILCI Loss Causation Model (Bird & Germain, 1986, p.22)

In agriculture, like other occupations, different types of farming or the same kind of farming in different circumstances carry different risks (Slappendel, 1995). Farmers in highly-mechanised agriculture settings have been reported to experience different farm-related injuries/illnesses from those who work in small-scale agriculture settings with conventional methods (Forastieri, 1999). In the United States, the United Kingdom, Australia and New Zealand, mobile mechanical equipment, tractors and

other machinery and vehicles are the main causes of fatal and non-fatal injuries (Forastieri, 1999; Park et al., 2003; Power et al., 1999; Solomon, 2002). The injuries include being caught in, stuck by, run-over or rolled-over by a machine (Dimich-Ward et al., 2003). Injuries not caused by mechanical equipment include being crushed or struck by livestock, and those which occur through the use of hand tools (Stallones & Xiang, 2003). In developing countries, China and Ethiopia for instance, because farming uses less advanced technology than developed countries, non-machinery equipment and livestock are responsible for most of the farm-related injuries (Xiang et al., 2000).

Farm-related injuries, following the ILCI loss causation model, are prone to happen when farmers decide to undertake substandard acts. A substandard act is, for example, farmers refusing to wear earmuffs while working with machinery and equipment causing them to suffer hearing loss (Hass-Slavin, McColl, & Pickett, 2005). Or else making an error of judgement (Power et al., 1999), for instance, a farmer was thrown from the quad bike he was riding when a bucket of milk he was carrying caught in the throttle of the bike. And, in another case, a horticulture worker violently accelerated while carrying a colleague on the back of his utility truck causing his colleague to fall off and suffer a fractured collar bone and neck injury (Power et al., 1999). Besides being a cause of injury, a substandard act is also a possible cause of unnecessary death. In 1996, a New Jersey dairy farmer was killed by a cattle feeding machine when he decided to fix a 20-year-old machine with faults while the machine was still running, resulting in his head being caught between the moving belt and a wooden support beam (New Jersey Department of Health and Senior Services, 1996).

Farming has an inherently dangerous work environment as, in addition to machinery and non-machinery equipment, farming involves exposure to several toxic substances, including organic dusts from grain, hay, animal feed, microorganisms (bacteria, moulds) and their toxins, inorganic dusts and fumes from minerals, fertilisers, herbicides, pesticides and fungicides, as well as fumes from engine exhaust (Linaker & Smedley, 2002; Zejda et al., 1993). Prolonged exposure to toxic substances could lead to a number of health problems for farmers. Hay dust is reported as a cause of asthma, whereas *Saccharopolyspora rectivirgula* found in mouldy hay, grain and

straw dust is documented as a cause of hypersensitivity pneumonitis (Linaker & Smedley, 2002).

The association of pesticides and herbicides with health problems has also been studied. Zejda et al. (1993), based on their review of several related studies, note that pesticides are reported to link with cancer in farmers and herbicides are reported to increase the risk of Parkinson's disease. In Thailand, pesticide and herbicide poisoning has been a major health problem of farmers (Choomchuay, 2000; Thungwa, 2004). Pesticides containing organophosphate substances applied to control insects and fungi have been reported to inhibit activities of the cholinesterase enzyme, the enzyme required for nervous function of the human body (Rama, 1995). In 2004, an assessment of health risks of Thai farmers using blood examination for cholinesterase enzyme level revealed that 42.2% of farmers participating in the study had pesticide poisoning (Bureau of Policy and Strategy, 2005). Pesticide poisoning has also been a major public health concern in Sri Lanka (Van Der Hoek, Konradsen, Athukorala, & Wanigadewa, 1997) and India (Chitra, Muraleedharan, Swaminathan, & Veeraraghavan, 2006).

Besides pesticides, paraquat, which has more than 200 trade-names, has been widely used among Thai farmers, including rubber farmers, to control weeds and grasses in their fields because of its fast and broad spectrum action (Thungwa, 2004). Paraquat, a non-selective herbicide, has been recorded to be toxic to the human body (PAN International Website, 1996). In cases of ingestion, the toxicity of paraquat causes fatality and damages lungs and kidneys in humans (Thungwa, 2004). The toxicity of paraquat reduces at the concentration used for spraying. With constant exposure to paraquat at spray strength, farmers were reported to suffer skin irritation, blistering and ulceration, flaking of skin, necrosis, nose bleeding, deterioration of eyesight, nausea, and damage or loss of toe and finger nails (PAN International Website, 1996). Because of its toxicity, paraquat is banned in several countries including Sweden, Kuwait, Finland, Australia, Denmark, Slovenia, and Malaysia, and its application is highly restricted in Indonesia, Hungary, South Korea, Germany, the United States, Norway, and Switzerland (Thungwa, 2004).

The unique character of farm work, not having visible enclosed walls with a well-organised workforce and workplace like those of an industrial or office setting, makes the occupational health problems experienced by farmers different from those experienced among workers in other settings (Randolph, 1993; Rantanen, 1994). Farmers are exposed to all kinds of weather (Forastieri, 1999). In early 2008, not only did the drought spell take the New Zealand farmers' revenue away, but it also caused psychological distress among farmers (Ketterns & Fawkes, 2008). Natural disasters affect farmers' financial status, which has a negative impact on farmers' and family members' mental well-being (Dean & Stain, 2007).

2.3.3 Basic causes

After the discovery of immediate causes, according to Bird and Germain (1986), basic causes that provide explanation for the existence of substandard acts and substandard conditions should be identified and dealt with. Otherwise, incidents and harm are prone to recur. Basic causes are personal factors and job factors or the work environment (Bird & Germain, 1986). Age and personal experience play a vital part in the risk rate of injuries. Lindsay et al. (2004) reported that Scottish farmers of younger age had a higher rate of injuries in comparison with older farmers who possessed more work experience. However, as pointed out by the authors, greater work experience and higher familiarity with the work does not always lead farmers to act safely; instead it sometimes induces farmers to develop risk-taking behaviour. Thus, experience is a factor accounting for both negative and positive influences on safe work behaviour.

Farming knowledge and skill also influence the likelihood of farm-related injuries and illnesses. The study by Chomchuay (2001), mentioned earlier, confirms this view. Southern Thai farmers who did not have knowledge of insecticide applications and the possibility of toxicity from insecticide remaining in the human body appeared to have greater risk of insecticide poisoning than those with that knowledge. The lack of knowledge of chemical use among farmers is also reported in China (Cha, 2007). A Chinese farmer, interviewed by Cha (2007), stated that her main source of farming knowledge was her own parents who learned to farm from her grandparents, and despite the attempt of the Chinese government to distribute knowledge about

pesticides to farmers, the only other source of information was a pesticide vendor who visited her several years ago. Reed et al. (2006) highlight informal learning, passing on farming knowledge from one to the next generation, as a potential cause of farm-related injuries and illnesses. When novice farmers informally learn to work around the farm by copying their parents, they are prone to inherit some unsafe work behaviour from the old hands.

Nevertheless, a study conducted in a remote farming area of Sri Lanka by Van Der Hoek et al. (1997) suggests that having knowledge and experience of the harm of farm exposures is not always a guarantee of farmers' compliance with standard safety precautions when personal motivation is involved. Motives leading to substandard acts include for instance the desire to finish work, a wish to constrain the budget, and an attempt to secure profit (Van Der Hoek et al., 1997). The study by Reed et al. (2006) raises a similar perspective. In the study, the researchers explain that farmers are often motivated by the desire to get the job done, thus, they sometimes ignore safe work behaviour, or young farmers work beyond their abilities just to satisfy their superior.

Above and beyond, personal perception is another factor which might influence farmers to abandon attempts to prevent injury at work. Individual perception is very subjective; thus different people or the same person at a different time may hold different views of what is safe and what is unsafe (Slappendel, 1995). Accordingly, to investigate causes of accidents at work, personal perception warrants attention. To illustrate the point, when the Sri Lankan farmers participating in the study by Van Der Hoek et al. (1997) perceived safety practices as an obstacle to work, and wearing personal protective equipment as an embarrassing act, and regarded health problems caused by work exposure as an inevitable part of the job—regardless of the knowledge and experience of health problems caused by chemicals—the farmers omitted the safety practices when spraying pesticides.

Apart from personal factors, the possibility of farmers' exposure to risks at work could also be advanced due to the job conditions and the environment itself. For instance, long work hours, heavy physical tasks, an inadequate number of helping

hands, use of unsuitable equipment, and handling aggressive animals all contributed to increasing Scottish farmers' risk of injuries while tagging and clipping cattle (Lindsay et al., 2004). In New Zealand, the contour and hilly surfaces of farm lands in combination with the use of vehicles around the farm, and working alone are often reported as multifaceted causes of farm accidents. In February 2008, a farmer was found who had been trapped in his utility truck for six hours and suffered spinal injury after his truck rolled 50 metres down a bank on his hilly farm (*Dominion Post* newspaper, 2008). And a month earlier, another farmer was reported to experience serious leg fracture as a result of a 'quad' bike accident (Staff reporters and NZPA, 2008). In some countries, like Thailand, there are some other inherent hazards embedded in farm environments. Rubber farmers, while working in their fields, ought to be wary of poisonous creatures, including snakes, centipedes, and scorpions (Nhu-Urai, 1999).

2.3.4 Lack of control

According to the ILCI loss control model, though the basic causes are viewed as underpinning substandard practices and conditions, the lack of control (e.g. inadequate development of safety policies/procedures/guidelines, inadequate assessments of needs and risks, inadequate supervision, inadequate performance evaluation) is viewed as the origin of the sequence of the loss causation model. Lack of control concerning workplace management systems, is the result of insufficiency of workplace safety/loss control programmes and activities, confusion and unclear standards of practice, and failure to comply with existing safety standards. Bird and Germain (1986) believe that effective management of health and safety and control of loss at work could be achieved only when these underlying causes are determined and addressed.

In farming, the lack of control and insufficiency of work safety standards and management is registered as one of major factors influencing farm-related injuries and illness. Where farming is a self-employed, informal, and small-scale operation among family members, there is an issue of the awareness of– and standard for–prevention and control of hazards at work (Rantanen, 1994). The incident of the death of the New Jersey farmer, mentioned earlier, proves the claim. In the investigation, the

occupational health team diagnosed insufficient safety guidelines due to the fact that it was family-based farming as one of the contributing causes of the incident (New Jersey Department of Health and Senior Services, 1996).

A number of researchers suggest ways to strengthen farm safety control and standards and the occupational health services provided to farmers. Lindsay et al. (2004) advised Scottish policy makers, safety advisers and farming communities to consider a review of tagging and clipping cattle guidelines to improve the safety issue. By the same token, a study among adolescent farmers in a rural Iowa county of the United States identified the need for further development and implementation of guidelines and formal farm safety training for both adults and youth working in agricultural setting (Park et al., 2003). On top of the strategies, introducing laws and regulations to reinforce compliance with farm safety practice is recommended by Reed et al. (2006).

Moreover, to promote access to occupational safety and health knowledge among farmers, in Sweden, one study included the suggestion that newspapers have a high potential to be a resource of farm health and safety information to benefit the farming population as well as the public in general (Lundalv, 2006). It was recommended that public health professionals should ensure knowledge is shared with journalists. In the United Kingdom, to deal with the insufficient support provided to small holding farmers, a study focusing on the mental health of farmers (Gregoire, 2002) invited non-government organisations to take part in offering farmers in rural communities support, advice and counselling in dealing with occupational stress.

The ILCI Loss Causation Model's general principle encourages and enables workplace health and safety bodies to understand that an accident occurs as a result of a series of causes. It dismisses the notion that cause of an accident is the fault of one person. Following the model, causes of work-related injuries and illness are being systematically and efficiently investigated and dealt with rather than being concealed by parties involved to avoid being blamed and punished (Bird & Germain, 1986).

2.4 Injury and illness prevention and safety promotion

In the ILCI Loss Causation model, Bird and Germain (1986) strongly believe that reinforcement of supervision and training, together with safety control standards, policies and regulations is the most crucial approach to the achievement of work-related injury and illness prevention. This idea has been opposed by other safety scholars (Cohen & Swift, 1999; Slappendel, 1995). Slappendel (1995) noted that because individuals, workers and management possess different understanding of health and safety at work dependence on safety control and provision of supervision and training of workers as a principal way of eliminating other causes of work-related injuries and illnesses might not be a convincing solution. At one level, Cohen and Swift (1999) agree with Bird and Germain on the importance of reinforcement of policies and procedures, however, they approach the prevention of injury in a more comprehensive way.

Cohen and Swift (1999) stress the collaboration of all parties, incorporating individual workers and their communities, health professionals, organisations and policy makers at government level, as the most critical key to the success of injury prevention. They suggest that changes of safety practice, policies and legislation should be established with the influences of each party involved. As a consequence, the authors have presented a guideline, named the *spectrum of prevention*, to create such collaboration, and a comprehensive approach to prevent chaotic incidents as well as to promote safety. The spectrum of prevention consists of six levels in which each level of the spectrum embraces a particular activity and when the levels are integrated with each other they create multifaceted drives, bringing about more effective preventive action and optimum results (Cohen & Swift, 1999). The six levels of spectrum are presented in Figure 2-2.

The spectrum begins with strengthening individual knowledge and skill to enhance individual resources and capability to prevent injury and disease and to promote safety. This responsibility is not limited to health professionals but extends also to other organisations and community agencies. In the belief that the community as a whole could play an important role in promoting health and safety, and changing behaviours and safety policies, promoting community education is sited at the second

level of the spectrum. Mass media are accounted as a key influence for transferring safety knowledge to the community.

Influencing policy and legislation
Changing organization practices
Fostering coalitions and networks
Educating providers
Promoting community education
Strengthening individual knowledge and skills

Figure 2-2 The spectrum of prevention (Cohen & Swift, 1999, p. 203)

The third level of the spectrum, educating providers, focuses on the importance of continuous improvement of professionals' knowledge and skill to prevent injury and illness and promote safety. Subsequent to the first three levels, which concentrate on the individual, community and professionals, the fourth level of the spectrum—fostering coalitions and networks—encourages the establishment of collaboration among all parties to elevate the success of intervention.

Next, changing organisation practices, the fifth level of the spectrum, credits the modification and establishment of internal safety regulations and norms of organisation as one of the prominent influences on health and safety practices. At the last level of the spectrum, influencing policy and legislation, the authors address the passage of law and the adoption of formal policies as a necessary step to ensure public health and safety. The movement of individuals, communities and professionals towards injury prevention and safety promotion has great potential to influence the development of policy and legislation. The new policy and legislation then initiate the changing of safety practices of organisations.

The spectrum of prevention has shifted the approach to modification of individual safety behaviours from concentrating on education to enhancing the application of a combination of activities initiated from, and collaboration among, all parties involved.

Slovic (1987) supports the concept of collaboration, underlining cooperation between health authorities, decision makers and the public as key to establishing effective health promotion and disease prevention in an occupational group.

The Work Improvement in Neighbourhood Development, WIND, introduced by the International Labour Organisation (ILO) is an example of efforts to improve farmers' working and living conditions by mean of supporting the sharing of responsibilities to promote health and safety in farming communities. The WIND programme was first developed based on the concept of the participatory action-oriented training approach in 1995 by the ILO and a number of safety-and health-related organisations in Vietnam (International Labour Organisation, 2005). It has then been refined according to farmers' own ideas and experiences together with the cooperation of an organisation of farmers, local health services and occupational safety and health professionals both at national and international levels (Khai & Kawakami, 2002). The WIND programme has now been adopted by other countries in the south-east Asia region, including Thailand.

2.5 Influence of collaboration between health professionals, associate personnel and organisations and target populations on occupational safety and health

Regardless of evidence of attempts to deal with farmers' occupational safety and health in countries throughout the world, the World Health Organisation comments on their futile outcome. In the Workers' Health: Global Plan for Action 2008-2017 the World Health Organization continues to urge its members to work towards the issue, improving safety and health conditions of—and allocating essential occupational health services to—workers in informal sectors, also incorporating farming populations (WHO, 2007a). Thailand is addressed as one country with limited occupational safety and health services (WHO, 2007b).

The Thai Ministry of Public Health's response to occupational safety and health, as reported by the World Health Organization (2007b), remains passive and restricted to medication care provision and financial compensation, therefore, the proficient

prevention of occupational hazards is still limited. Within the same report, the World Health Organization recommends the Ministry to concentrate on establishing and strengthening levels of collaboration with other sectors outside of the Ministry to maximise the effectiveness of health promotion and disease prevention schemes. This is because, as illustrated in Figure 2-3 below, using the community health promotion cycle by Guldán (1996), immature collaboration between health authorities, other agencies, and the target population is seen to be accountable for the limited success of disease prevention and health promotion measures.

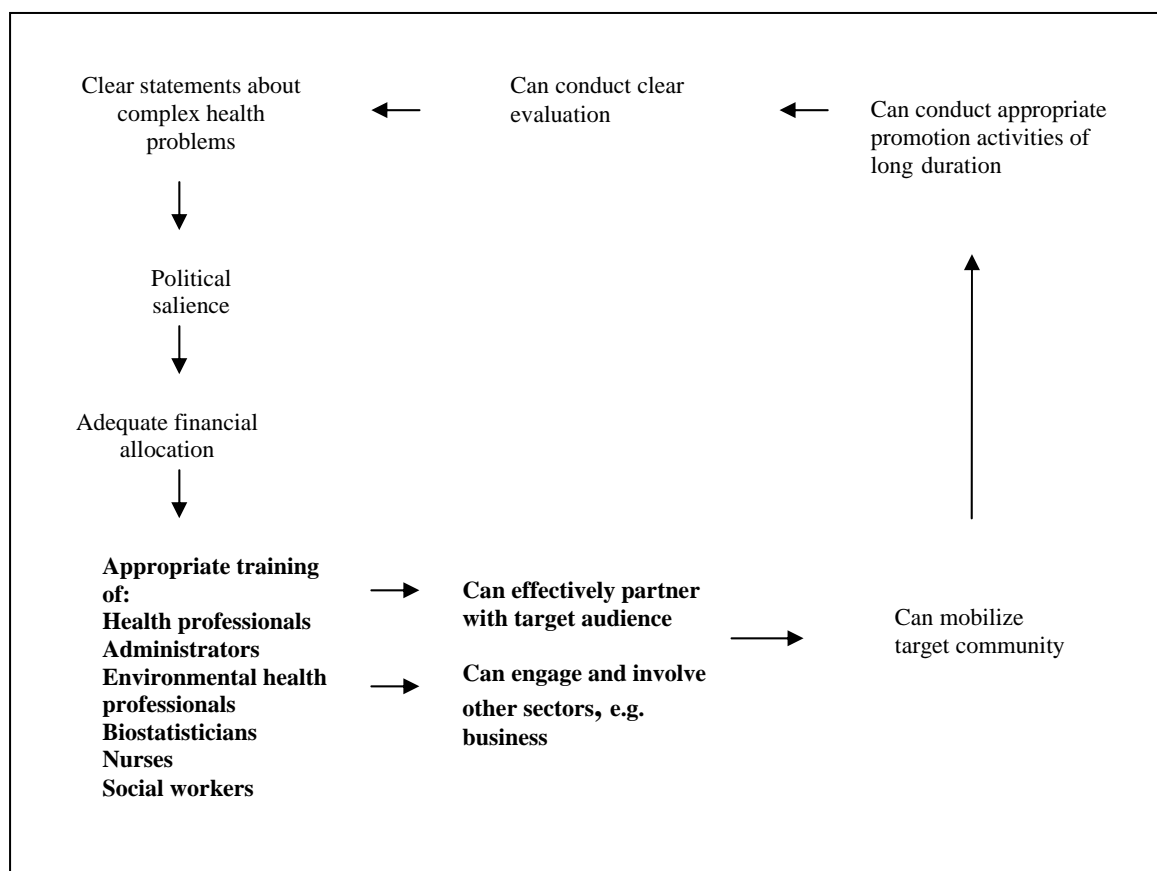


Figure 2-3 Community health promotion cycle, highlighting its main obstacles

(Guldán, 1996, p. 690)

The model (Guldán, 1996) points out that without clear understanding of health promotion by health professionals, associated personnel and organisations, the effective partnership with the target population and sectors of the public would not occur. Absence of the latter two components causes a chain of failures, including failure to enhance target community involvement, to conduct appropriate health

promotion schemes, to produce reasonable evaluations, and to establish clear statements about complex health problems, to identify political salience and to allocate adequate budget. The chain of failure, sequentially, worsens the condition of the prior components. Hence, Gulden (1996) suggests that the success of health promotion is possible only when health professionals recognise the interdependence of individuals and their communities, and genuinely empower them to participate in improving their own health. This advice also extends to injury and illness prevention and safety and health promotion in work settings (Peltomaki et al., 2003).

Enhancing the participation of workers could begin from inviting them to identify their own health and safety concerns according to their own perspectives instead of building up plans directed at them based on ‘objective’ information (Raeburn & Rootman, 1998; Rantanen, 1994). A study of determinants of safe work practices in industrial workers by Garcia and Canosa (2004) identified that when workers were allowed to participate in decision making the lost-time accident rates tended to decline. Cohen and colleagues (2003) also support the view that *“access to decision making can empower people to take action for the well-being of their community, and can encourage them to think proactively about how to make the places they live and work risk-and injury-free”* (p.479).

Burch (2001) and Ness (1997) agree on the importance of this level of participation. The authors explain that health professionals and lay people do not necessarily hold the same perceptions of health, illness and treatment. Failure by health professionals to recognise the differences of perspectives and the significance of individual perception leads to failure of implementation of health activities (Burch, 2001).

Thus, prior to the development of strategies and policies to promote health and safety at work, occupational safety and health authorities and other bodies involved are reminded to clarify and recognise the influence of the individuals’ perception, decision making and selecting actions in dealing with workplace health and safety (Stranks, 2007). The promotion of workers’ initiatives is considered as an essential approach to raise occupational safety and health awareness and delivery services to meet the need of particular groups of occupations (WHO, 2005).

2.5.1 Human perception and behaviour

Even given the same event different persons hold different perceptions of the cause of the event, therefore, approaches believed to successfully prevent the recurrence of the event are diverse (Torell & Bremberg, 1995). Also, the same person could also alter his/her perception according to time, emotion, and experiences gained over time (Robertson et al., 2006). If the perception of risk is inaccurate, improper decisions and actions, adverse effects, accidents and injuries are likely to take place (Rundmo, 1995).

Torell and Bremberg (1995) identified that when two persons perceive causes of an accident differently, they suggest different solutions to prevent the recurrence of the accident. For example, if human behaviour is perceived as the cause of an accident, then to prevent further accidents behaviour modification is recommended. If physical environment and equipment are perceived as the cause then improvement and re-design of equipment are likely to be recommended. And if the accident is thought to have happened by chance without any explanation, it is seen as not preventable. When an Act of God is accounted as the main cause of an accident, persons involved are unlikely to perform proactive appraisal to prevent the occurrence and reoccurrence of the accident (Stranks, 2007).

Perception and behaviour are closely linked. Stranks (2007) defines perception as “the awareness of objects, qualities or events stimulating a person’s sense organ” (p.454), and behaviour as “the observable action of a person or animal” (p.447). People perceive and obtain information through senses, seeing, hearing, smelling, tasting and touching; they then process and interpret, give meaning and significant to sensations or stimuli, and act accordingly (Glendon & McKenna, 1995). Also Stranks (2007) explains that when individuals receive a stimulus, they respond to—or act towards—it in one way or another, either accepting, rejecting, modifying, ignoring, or distorting, depending on factors such as past experience, motivation, inherent abilities, capability to store information, quality of receptors (eyesight, hearing ability etc.), and beliefs, culture and norms (Glendon & McKenna, 1995; Stranks, 2007). These factors account for the unique individual perception of, and action taken towards, a situation.

The link between the process of perception and behaviour together with the influencing factors has been adopted to explain causes of workplace injury and illness. The model of accident causation (Figure 2-4) developed by Hale and Hale (1970) is one of the most famous models illustrating the linkage (Stranks, 2007).

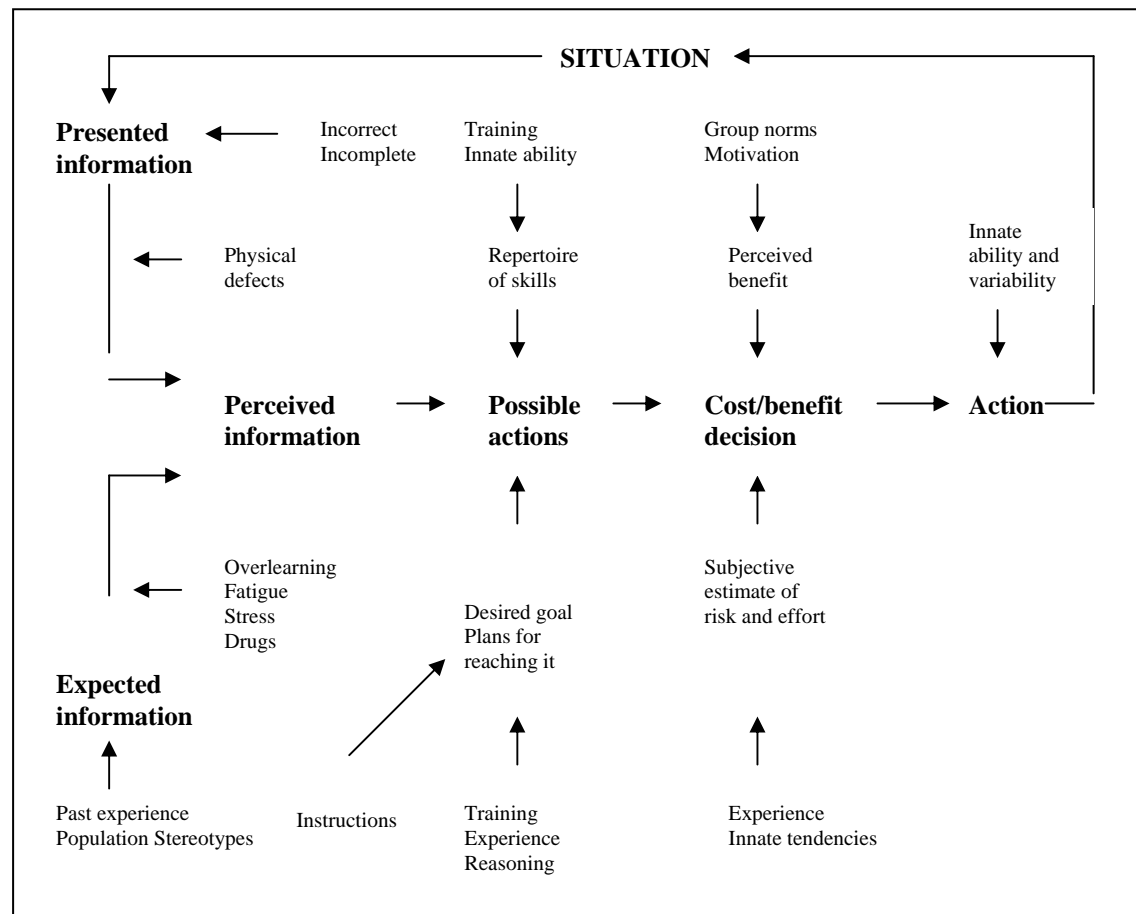


Figure 2-4 Model of accident causation (Hale and Hale, 1970, p. 118)

The model (Hale & Hale, 1970) illustrates that individual perception of information is formulated based on two main sources. First, presented information perceived by individuals' senses (e.g. sighting, hearing, smelling) in a particular situation (e.g. instrument readings, layouts, and warning signs). If presented information is incorrect, or is distorted by individuals' own physical defects, an error solution may take place. Second, expected information, past experience of—and familiarity with—a situation, physical and psychological conditions potentially lead individuals to fail to notice some aspects of a situation. After the preliminary perception is formed, individuals proceed to consider what possible actions to take in response to the situation. This

phase is affected by individuals' range of abilities, desired goal and plans to accomplish the action. The two features (preliminary perception and response decision) are influenced by past training, experience, and inborn abilities.

In the next step, individuals bring in the perceived benefit, affected by group norms and motivations, and their subjective estimate of risk and effort, influenced by experience, age and personality, to decide on an action. After all that, the individual processes the action to deal with the situation, in which the result may be varied depending again on the individual's innate ability and variability or physical and psychological condition. The outcome of the process together with feedback as presented information then would be taken, in combination with other factors, by the individual to deal with similar situations in the future. Hale and Hale (1970) remind us that the step-by-step classification of possible factors involved in the process of perception and action is necessary in order to understand their complicated interaction.

2.5.2 Risk perception and reaction to perceived risk

The terms *risk perception* and *risk-taking behaviour* are addressed in a range of health and safety literature (Cohen et al., 2003; Glendon & McKenna, 1995; Rundmo, 1995; Slovic, 1987; Stranks, 2007). Slovic (1987) states that different people possess different meanings of risk, resulting in different actions being taken in dealing with the same risk. This notion is also presented by other researchers (Glendon & McKenna, 1995; Peden, Reed, & Rayens, 2005).

Glendon and McKenna (1995) explain that every job carries some scale of risk, thus, individual workers constantly encounter and handle risks in one way or another. As a consequence of a range of factors, workers at times perceive risk and perform actions that are not consistent with rational judgements (Stranks, 2007). These factors include the nature of hazards (e.g. familiarity and experience of the risk, understanding of the cause-effect of risk, and perceived benefit of taking risk), risk consequences (e.g. fear of risk consequences, delay effects, and negative effect on the individual), and management of risks (e.g. personal control over risk, trust and distrust in risk control system) (Glendon & McKenna, 1995; Stranks, 2007).

Glendon and McKenna (1995) clarify that familiarity of risks develops in the situation where individuals are repeatedly exposed to the same hazards. Such familiarity happens not only in lay people but also among experts, and makes people overconfident of their abilities to handle the risks, forming biased risk information, and incomplete understanding of the causes and effects of risks. The authors further link the familiarity of a risk with the acceptability of that risk in which individuals regard risk as not worth a thought. Otherwise, individuals might decide to take a risk because of foreseen benefits. Glendon and McKenna (1995) explain that when individuals associate risk with benefit, the perceived benefit drives them to agree to live with the risk with the confidence that the risk is somehow well under control.

Diverse understanding of the effects of risks also occurs in relation to the effect manifestation time. If the effect is immediate, severe and not worth taking in exchange for a benefit, the risk is registered, whereas in the case of delay in manifestation of negative effect, the risk is prone to be overlooked by—and unknown to—individuals involved (Slovic, 1987). These two different understandings result in different reactions to the risk. While some approach would be initiated in an attempt to eliminate, reduce or control a risk that is immediately manifested, there would be none when the risk is overlooked or unknown.

There are also other factors involved in the development of individuals' perception of risks and risk-taking behaviours. These factors, include inadequate risk communication, individual mistakes, individual wilfulness to challenge the risk, individual state of alertness, and individual priority as well as those factors indicated in the ILCI loss causation model (Bird & Germain, 1986; Glendon & McKenna, 1995; Stranks, 2007).

2.6 Limitation of literature concerning occupational safety and health of Thai farmers

Through the process of reviewing literature, I recognised the limited availability of documents and studies on occupational safety and health situation of Thai farmers. Also, the obtainable studies and documents concerning occupational safety and health

conducted in Thailand did not provide sufficient directions and models which could be applied to accomplish the aims of the study (displayed in chapter 1: section 1.4). Hence, in this study, I adopted guidance gained from reviewing the ILCI Loss Causation and Accident Causation models originated to analyse and improve occupational safety and health in industrial workplaces. Furthermore, the other models—the spectrum of injury prevention and community health promotion—and results of previous studies reviewed provided me with additional directions to comprehend the rubber farmers’ occupational safety and health situation.

However, I was concerned that the applicability of the models and the results of the previous studies to explain rubber farmers’ occupational safety and health situation might be limited because the models and the majority of the previous studies that have been reviewed were not developed based on the Thai context. This issue is further discussed in chapter 8: section 8.3.

2.7 Summary

The review of literature discloses that a work-related injury and illness as well as an accident at work occur because of compound causes. When attempting to prevent accident and injury and promote safety at work, all possible hazards and risks should be thoroughly investigated and dealt with. This procedure could not be done without cooperation between individual workers and other related agencies involved. In the case of self-employed farmers, the collaborators are possibly local health personnel and other local bodies. Given that all work carries unique hazards and risks, together with the fact that different individuals are involved, the occupational safety and health activity implemented successfully in one workplace might not reveal the same result in another workplace, or in different workers in the same workplace. Individuals’ perception of the effects of work on health, or risk at work and its influencing factors is considered as one of the key explanations of the diverse results. This understanding, as a consequence, directs occupational safety and health bodies to consider options in dealing with accident and injury prevention as well as safety promotion at the workplace in a more comprehensive and effective way.

To create successful occupational safety and health services, this review of literature has led to recognition of the importance of acknowledging individual views of work exposures, their effects on health, and the close link between an individual view and the decision on action to be taken when encountering a risky situation. As the intention in this study was to establish information beneficial to developing occupational safety and health services provided to rubber farmers, research methods underpinning interpretative ethnography were employed to capture the perceptions of rubber farmers and their first-line public healthcare providers on work exposures, work-related health problems, and their responses to perceived situations. Hence, the next chapter is focused on the application of ethnographic methods to collect and to analyse study information.

Chapter 3: Design and methods

3.1 Introduction

Each research methodology holds its particular characteristic, shaped by underlying philosophy and theoretical framework, offering different values to knowledge (Leininger, 1985). In this study, combination of the review of literature and the study objectives led to the decision to adopt ethnography to inform methods for this study. Therefore, in this chapter an overview of ethnography is presented together with the application of ethnographic methods used to collect study information, the process of fieldwork, analysis of study information, and procedures taken to ensure both the trustworthiness of the study findings and ethical awareness.

3.2 Methodology and methods of data collection

Ethnography is a research methodology adopted initially by anthropologists to study different groups of people and to describe how a social and cultural phenomenon has been formed within a community or a group of community members (Allen, 2004; Boyle, 1994; Fossey, Harvey, Fiona, & Larry, 2002; Hammersley, 1990; Leininger, 1985; Maanen, 1983). People are viewed as parts of communities in which each of them has his or her own personal experiences (Fossey et al., 2002). Therefore, informants in a study based on ethnographic methodology are encouraged to describe in their own way and language their routine and daily life, or what they do (cultural behaviour) and what they make and use (cultural artifacts) in accordance with what they know (cultural knowledge) (Spradley, 1980).

Later, given that understanding the culture of people is a key to the success of health programmes (Morse & Field, 2002) ethnography has been recognised and employed by social sciences researchers and health-related scholars, including nurse researchers (Aamodt, 1991; Boyle, 1994; Leininger, 1985). Over time ethnography has been developed based on diverse underlying theoretical perspectives held by different groups of researchers (Brewer, 2000). However, the main features of ethnography, as concluded by Atkinson and Hammersley (1994), are an intensive focus on exploring

the nature of particular social phenomena, with a primary aim to obtain unstructured information, the investigation of a small number of cases, and explicit interpretation of the meanings and functions of human actions. The findings of a study using ethnographic methodology integrate the ‘emic perspective’, that is the subjective information obtained from study informants, and the ‘etic perspective’, that is the framework brought by the researcher to the field of study (Roper & Shapira, 2000). The findings are presented in verbal form to describe and explain how a particular cultural context shapes up people’s experience and knowledge which influences lifestyle and behaviour with the least involvement of numerate and statistical forms of data (Aamodt, 1991; Atkinson & Hammersley, 1994; Leininger, 1985).

Ethnography embedded within an interactionism-interpretivism theoretical perspective was selected for this study. The decision was made considering the objective of the study—that is, to explore the understandings of insiders (rubber farmers and their first-line public healthcare providers) on work exposures in rubber farming and their effects on health, and how the understanding is applied to form and guide an action (Blumer, 1969; Brewer, 2000). According to Blumer (1969), researchers holding an interactionist perspective view meanings as products of social interaction, developed through the people’s understanding of activities as they interact with others. To deal with a situation one communicates with oneself to examine, select, and modify meaning given to the situation before making a decision on what action one would adopt. Therefore, Blumer (1969) described the application of understandings as a process of interpretation.

...interpretation should not be regarded as a mere automatic application of established meanings but as formative process in which meanings are used and revised as instruments for the guidance and formation of action. It is necessary to see that meanings play their part in action through a process of self-interaction. (Blumer, 1969, p.5)

Concerning my influences, experience and interest in the direction of the study the explicit clarification of my involvement in the study process, indicating what was

done and why is also presented in this chapter (Hammersley & Atkinson, 1995). The explicit clarification is beneficial as it offers information to readers to decide whether or not the study findings are trustworthy (Borbasi, Jackson, & Wilkes, 2005; Koch & Harrington, 1998; O'Reilly, 2005).

Following the selection of the methodology, unstructured participant observation and interview were determined as being the main methods of data collection in this study (Hammersley, 1990). Also, along with the primary methods of data collection, note taking (fieldnote and fieldwork personal journal, photographing) and reviewing/analysing existing documents were employed. The application of multiple ways to collect data is considered fundamental to ethnographic research (Angrosino, 2002; Morse, 1991). Despite the fact that I primarily used unstructured interviews as the most appropriate means to provide opportunity to the informants (rubber farmers and their first-line public healthcare providers) to freely express their thoughts (Angrosino, 2005), for particular reasons (indicated under the subheading 'survey questionnaire'), I added a structured interview, using a survey questionnaire, as another form of data collection in this study.

In the following sections, I separate the explanation of how I applied each method of data collection, yet in the field it was not simple to identify the order of the methods used (Hammersley & Atkinson, 1995; O'Reilly, 2005).

3.2.1 Participant observation

Participant observation has been accounted as a major form for data collection in ethnographic research (O'Reilly, 2005; Simmons, 2007). It is mainly adopted to capture the 'etic' perspective or the researcher's viewpoint on the context related to the study interest (Boyle, 1994). Or else, the information yielded from observation is used to confirm the information gained from interviews (Mulhall, 2003).

Roles of researchers when conducting participant observation are classified according to degrees of involvement of researchers with people and activities in the field of study, ranging from complete observer to complete participant (Germain, 1993; Hammersley & Atkinson, 1995; Hopkins, 2002; Mulhall, 2003; Roper & Shapira,

2000; Simmons, 2007; Spradley, 1980). As the field was a small community where everyone knows everybody, it was impossible to hide my identity. Given that being visible, interacting with informants and participating in some particular activities were beneficial for gaining trust from the informants and enabling me to grasp a wide range of information, in this study I employed the role 'observer-as-participant' (Roper & Shapira, 2000).

To bring participant observation into practice, Angrosino (2002) and Hammersley and Atkinson (1995), remind researchers to be conscious about the role taken in relation to the people and culture studied, as well as to constantly reflect on what they have learned. Without these aspects, Angrosino (2002) suggests that observations in ethnographic research would not be different from those of missionaries or traders living among, and communicating with, Indians but making no attempt to understand them and their culture.

In research underpinned by ethnographic methodology, it is common for researchers to use unstructured forms of observation without predetermined designs, but with some ideas of what to observe which may change as the research progresses (Mulhall, 2003). In this study, the continuum of observation from, 'descriptive observation', 'focused observations' to 'selective observation' suggested by Spradley (1980) was applied. At the outset of the study, descriptive observation was adopted to gain the general idea and the understanding of the social and cultural scenes; focused and selective observation were then integrated as the data collecting processes in order to obtain more insight and comprehensive information about particular social and cultural circumstances relevant to the study objectives.

3.2.2 Interviews

Interviews were conducted side by side with participant observation to grasp an 'emic' perspective or informants' viewpoints to confirm or challenge what I had seen and perceived from observations (Leininger, 1985; Roper & Shapira, 2000). These improved the comprehensiveness of study information by enabling me to obtain information that was unable to be collected from direct observation (Brewer, 2000; Roper & Shapira, 2000). There was no visible boundary between the two methods.

Participant observation and interview were circularly used throughout the period of data collection (O'Reilly, 2005; Roper & Shapira, 2000).

In this study, the interviews were mostly conducted in an informal manner, using open-ended questions to facilitate the flow of conversation to create a relaxing and flexible atmosphere which encouraged the informant to open up their ideas (Brewer, 2000; Leininger, 1985; O'Reilly, 2005). However, as remarked by several authors (Brewer, 2000; Fetterman, 1998), the stream of conversation between researchers and informants was based on the interest of the study.

Following the recommendation of Spradley (1979), the three kinds of questions ('descriptive', 'structural', and 'contrast') were employed to direct the interviews with the informants of this study. Descriptive questions were used at the opening phase of an interview to examine how things work or what happens around the place, whereas structural and contrast questions were applied to expand understanding of information gained (Spradley, 1979). The complementarity between the three kinds of questions promoted harmony and smoothed the stream of conversation with informants.

3.2.2.1 Transcribing and translating

With the permission of the informants, pre-arranged interviews were recorded using a recording device (MP3). Listening to, and transcribing, all interview records enabled me to make sense of the information gained and to plan what next to look for (O'Reilly, 2005). For the same reason, I, myself, translated interviewed transcripts from Thai to English. Also, the translation was done to make the information presentable in my written thesis since I did my study in an English-speaking country.

The transcripts, both in Thai and in English, were recorded verbatim considering the perspective that I had to repeatedly return to them for analysis. However, it was quite a challenge to do the translation because sometimes it was impossible to find an English word that has equal meaning to Thai. To deal with the matter, I used the Thai words in the writing and explained their meanings in English or in Appendix A.

3.2.3 Fieldnotes, Fieldwork personal journal and photographs

Alongside participant observations and interviews, fieldnotes and a fieldwork personal journal, an important component of ethnographic fieldwork, were kept during the period of data collection (Fetterman, 1998). They served as a set of data which later was analysed and used in the written process (Mason, 2002). Fieldnotes and journaling also enhanced my understanding of the situation observed and provided hunches for further exploration.

In this study, fieldnotes and the fieldwork journal were recorded separately (Fetterman, 1998; Spradley, 1980). While in fieldnotes raw data from participant observation and interview were recorded verbatim, in the fieldwork personal journal I inserted my own perception of the situation, experiences and analytical ideas (Spradley, 1980). Also, in the journal, decisions made and problems encountered during the period of data collection were noted (Fetterman, 1998).

Apart from recording using fieldnotes and the fieldwork personal journal, in some situations—with consent from the informants—photographs were used as another means to record information. Photographs were used to simplify the process of analysis and were expected to enable readers not familiar with rubber farming to understand some contexts unique to the informants.

3.2.4 Review and analysis of existing documents

Supplementary data were also gathered through reviewing and analysing existing documents related to the study interest (Roper & Shapira, 2000). The review of existing documents from various sources is recommended as a beneficial method used to expand and construct more complete understanding of the informants' circumstances (Germain, 1993; Roper & Shapira, 2000).

3.2.5 Survey questionnaire

Considering the lack of background information about the informants, I included the use of a survey questionnaire as another method of data collection (O'Reilly, 2005).

Having some background knowledge about rubber farming and rubber farmers created ideas of what to observe and to ask informants, and how to begin conversations. This in turn, enhanced the likelihood of the informants' willingness to share their experiences (O'Reilly, 2005). Germain (1993) supported the fact that reviewing some past information, events, and demographic data relevant to study informants is valuable, as such information enables researchers to broaden their understanding and to describe relevant characteristics of the people studied.

Besides, growing up in Thai society, I noted that some questions, such as those concerning financial status, rubber field ownership, and education level, were going to generate an uncomfortable atmosphere when informants were asked in person (Brewer, 2000). Moreover, interviewees are prone to feel offended when interviewers show no sign of prior knowledge relevant to the particular context of informants. Thus, the use of a survey questionnaire was a way to minimise their discomfort and the information gained was used to stimulate the flow of conversation while interviewing informants.

In section 3.3 (Preparation for entering the field) I addressed how the questionnaire used in this study was developed (subheading 3.3.3), and what strategies I employed to determine sample size and recruit the respondents of the questionnaire (subheading 3.3.4.1). Then, in section 3.5 (In the field: collecting data), I described how the questionnaire was distributed when I was actually in the field.

3.3 Preparation for entering the field

The process of preparation prior to the period of data collection included selecting the field of the study, obtaining permission to enter the field, developing the questionnaire, choosing sampling strategies, attending to ethical considerations, and obtaining approval from the relevant Ethics committee of my university.

3.3.1 Selection of the field of the study

The field of the study (Ellen, 1984) was a rubber farming community since rubber farmers and healthcare providers working in a rubber farming community were the study interest. There is a variety of locations in Thailand where rubber farming is the

dominant occupation. Therefore, the field of the study was selected based on the following criteria.

3.3.1.1 Location

I selected the southern region of Thailand as the location of the field for two main reasons. First, the southern part of Thailand is the region that occupies the heaviest distribution of rubber cultivation in the country. Second, carrying out the study in the south was an advantage since I am a southerner and fluent in southern dialect (Ellen, 1984; O'Reilly, 2005). There are 14 provinces in the southern regions, including my hometown, Surat-Thani province, which is known as one of the biggest sites of rubber farming. I decided against the idea of conducting the study in my hometown, realising that conducting a study in the area where the researcher is familiar with, or is a part of, the community could be problematic (Hammersley, 1990; Simmons, 2007) because of potential role conflict and role obligations as I grew up in the area, and my parents and most of my relatives and friends still live there. Also, I would be perceived by informants as an insider and expected to have knowledge of rubber farming. Having informants make that assumption is disadvantageous to the study because informants are likely to give short answers and the atmosphere is prone to become awkward (Simmons, 2007).

3.3.1.2 Transferability of knowledge

Not only Buddhist Thais are involved in rubber farming but also a great number of Muslim Thais. Therefore, it was necessary to select a field of study where the recruitment of both groups to be study informants was possible. This combination of informants was expected to enhance the level of transferability of the study findings (Ellen, 1984; O'Reilly, 2005). As a result, the five provinces located in the lower part of the south of Thailand where Muslim Thais dwell alongside Buddhist Thais were considered.

3.3.1.3 Safety

Among the five provinces, three were not considered to be options for safety reasons. At the time of establishing the plan for data collection and the period of data

collection (2004-2005), the rebellion of a Muslim separatist group began to strike in most parts of the south of the country causing vast fear among civilians of the areas.

3.3.1.4 Accessibility to field supervisor

Between the other two provinces, I decided on one province against the other for a few reasons as follows. I selected the one that is one of the biggest rubber cultivation areas in the country because it was more practical (O'Reilly, 2005). It was practical because it was the location where I was able to access my field supervisor. Also there were additional benefits, including accessibility to existing information related to the study interest because the location is where a range of businesses relating to rubber farming are located (the centre of the rubber market of the lower south, a rubber research centre, and a rubber education centre).

3.3.1.5 Site selection

Rubber farming is scattered all over the province. To decide which location was the most suitable and practical, with the information about the province provided by my colleague, I selected one subdistrict, consisting of six villages, in which the numbers of Buddhist and Muslim residents were approximately equal. The other communities were dominated either by Buddhists or Muslims.

3.3.2 Permission to enter the field

Due to the bureaucratic system in that location, I applied for permission to enter the field from the head of the district health office. I translated the study proposal from English to Thai and had a colleague who is bilingual review the draft. Then, late in 2004, I submitted the details of the study in the Thai version to the district authority for approval to conduct research in that area. Permission was granted. Because the name of the selected subdistrict was cited in the letter certifying the permission, the letter is not presented in the report of this study in order to secure the anonymity of the field of the study and study informants as explained later in this chapter (Under the subheading-Ethical issues and role conflict in the field).

3.3.3 Developing the questionnaire

The questionnaire used in this study was designed in cross-sectional style (Asal & Beebe, 2004; Bowling, 2002; Norwood, 2000). The style of the questionnaire suited my purpose well because the information produced concentrated on distribution and characteristics of events in defined groups and disease and health aspects in occupations at a particular point of time (Rogers, 2003).

In this study, the questionnaire was formulated to meet the purpose of the study based on, first, the information gained during reviewing the literature, second, the knowledge of rubber farmers and rubber farming I obtained while supervising nursing students and third the knowledge of occupational health and safety that I had derived from studying for my masterate in nursing (Baer & Weller, 2002; Punch, 2003).

The questionnaire used contained five sections which are A) demographic information, B) work history/condition, and environment, C) household environment, D) health behaviour, and E) health conditions/problems. (See Appendix B-2: Questionnaire). The first section, demographic information, includes information such as gender, age, religion, income, number of family members. In section B, the items of work history and conditions were formed based on my knowledge of rubber farming and findings of previous studies concerning occupational safety and health in farmers. These include, for example, working days and hours, field ownership, and number of family members working in the same rubber field, and work exposures.

In section C, concerning the combined home-work environment of a farming nature, respondents were asked about the distance of their homes from the nearest rubber field, exposure to mosquitoes, snakes and other pests (e.g. rats, mice, flies) in and around households. Respondents were also presented with a few questions regarding household hygiene including sources of drinking water, litter management and availability of a lavatory in the household. The availability of a lavatory was mentioned due to the report of the behaviour of defecating outside a lavatory of populations of rural areas of the south of Thailand (Chongsuvivatawong et al., 1994). Chongsuvivatawong and colleagues (1994) suggested that this behaviour of defecating outside a lavatory increases the risk of the parasitic (hookworm) infection.

In section D, respondents were asked about eating and drinking behaviour, food hygiene, and other personal care and hygiene and the use of personal protection devices while working. Also respondents were asked about their behaviour of wearing footwear in connection with the fact that the third stage of hookworm larvae penetrates the skin on the feet (Behnke, Cercq, Sacko, Gilbert, & Quattara, 2000).

Lastly, in section E, questions were concentrated on asking the respondents about their health conditions within the past 12 months, health resources available and their choices from these health resources. Health conditions listed in this section related to those questions in the prior sections. For example, the questions about experience of being diagnosed with Dengue haemorrhagic fever, snake bite, and hookworm were associated with those of section C. Questions about musculoskeletal pain and injuries were linked to the work condition in section B. And the question about sleep disturbance arose from the fact that rubber farmers start working before dawn, as early as 2 a.m. (Gagliardi, 2005). After that there were some health conditions, such as eye irritation, cough, runny nose, skin problems, breathing difficulties, extracted from the study on sensitisation to natural latex carried out in Thai rubber farmers and workers in glove manufacture in Thailand (Chaiear et al., 2001).

3.3.3.1 Quality control of the questionnaire

Because respondents replying to the questionnaire were required to tell of past experiences, I was aware of recall bias (Kleinbaum & Breitmayer, 1982). To minimise the bias and enhance the validity and reliability of study results, respondents were asked to recall their past experiences within a reasonable time reference (Alreck & Settle, 1995; Bowling, 2002). The draft of the questionnaire was repeatedly modified to ensure that questions were relevant, unambiguous, and well presented (Alreck & Settle, 1995).

The draft of the questionnaire was sent to two experts to examine (Polit, Beck, & Hungler, 2001). One of the experts is an associate professor who has expertise in Public Health Nursing, and who has been involved with health promotion and prevention of diseases provided to a range of people living in the south of Thailand, including rubber farmers. Another expert is a statistician in the statistics consultancy services, Institute of Information and Mathematical Sciences, Massey University. The

questionnaire content and structure of the questionnaire were then modified taking into account the suggestions of the two experts.

At the initial stage, the questionnaire was drafted in English, and subsequently was translated to Thai to suit respondents. Following the translation, the Thai version of the questionnaire was reviewed by a field supervisor who is bilingual. The Thai version was pre-tested with 20 rubber farmers who were not part of the actual survey questionnaire respondents to determine that instructions and wordings used in the questionnaire were appropriate to the Thai culture, clear and understandable by the pilot group (Bryman, 2001; Nueman, 1994). The results showed that few instructions were unclear and some wordings were not understood by the pilot participants. The questionnaire was then modified accordingly.

3.3.4 Sampling strategies

3.3.4.1 Respondents, sample size and sampling strategy and distribution of survey questionnaire

The respondents to the questionnaire were primarily rubber farmers. Considering that those not involved in farming but living in the same area with rubber farmers might be affected by the farming environment (Cryer, 1995), a number of residents of the subdistrict not involve in rubber farming were recruited. The information gained was also expected to produce a snapshot of similarities and differences between rubber farmers and those of other occupations in the same geographical area.

As there was no existing report indicating the actual number of rubber farmers in the subdistrict, I was unable to calculate a sample size. I settled for the sample size of 1,000 following the recommendation of Bryman (2001). The author explains that the higher the number in the sample, the greater the accuracy of the result because it lessens the possibility of sampling error, and sample size in the region of 1,000 produces the most noticeable accurate result as the sample size climbs up from the lower figures. However, after passing 1,000 samples, the steep increases of accuracy become not as much perceptible.

Quota sampling was employed because of the intention to recruit respondents from different categories (Bryman, 2001). Eighty per cent out of 1,000 questionnaire copies were to be distributed equally between Buddhist and Muslim rubber farmers aged 15 (the legal age to enter the Thai workforce) and above, throughout the six villages of the subdistrict. And the rest (20%) of the copies were for workers in other occupations.

3.3.4.2 Interview informants and sampling strategies

The potential informants for participant observation and interviews were separated into two groups. The first group was rubber farmers aged 15 and over who had been working as rubber farmers and were willing to share their time, experiences, and knowledge. The second group was the health staff of the subdistrict health centre, and first-line public healthcare providers of the subdistrict residents. Due to the nature of the ethnographic research in which the quality of the information is decided based on the richness of the information, it was not practical to state the number of informants interviewed or events observed during the process of preparation (Germain, 1993).

Purposive sampling was applied to recruit study informants whereby the informants were selected on the basis of their familiarity with, experience of, and current involvement in the scope of the interest of the study (Germain, 1993; Spradley, 1979). As the collecting of data progressed, snowball sampling—another sampling method common in ethnography—was adopted (Roper & Shapira, 2000; Streeton, Cooke, & Campbell, 2002). That was when new informants were introduced by earlier selected informants. Besides the purposive and snowball samplings, additional informants were selected using opportunistic samplings (Germain, 1993) as there were chances where informants were unexpectedly recruited.

The three sampling strategies were also applied to sampling time and context when performing participant observation (Germain, 1993) given that in different times and contexts people might act and think or engage differently in various situations encountered (Hammersley & Atkinson, 1995). And neglect of the differing features could result in erroneous notions of one's culture and behaviour (Bryman, 2001).

The purposive, snowball and opportunistic sampling strategies were to be interchangeably applied based on appropriateness of events and progress of the study to ensure the coverage samplings of people, time and context and enhance the completeness of study findings.

3.3.5 Ethical considerations

The plan to illustrate ethical awareness throughout the study period was prepared (Ellen, 1984; Erlandson, Harris, Skipper, & Allen, 1993; Hammersley & Atkinson, 1995; Mulhall, 2003; O'Reilly, 2005; Simmons, 2007; Spradley, 1980). Before entering the field, as mentioned earlier, the permission to access to the field was obtained.

With all questionnaire copies I attached a covering letter (a Thai version translated from the English version: Appendix B-3, B-4) to introduce myself and explain the aims of the survey, confidentiality of the results, and how the results would be used. Returned completed questionnaire copies were regarded as an indication of respondents' willingness to take part in the study. And to prevent respondents from being identified, the returned questionnaire copies were coded using numbers, not names.

For observations and interviews, I also gave potential informants the covering letter. The participation of informants was voluntary. Once potential informants agreed to be study informants, a written consent form was presented. Written consent forms (a Thai version translated from the English version) (Appendix B-5, B-6) were obtained from literate informants. For illiterate informants, consent was given orally, and recorded on a recording device. However, I did not consider presenting consent forms in some events of participant observation where the individuals could not be identified and the situations observed happen commonly in the study setting (Roper & Shapira, 2000).

All informants were assured that they had the rights to withdraw from the study at any stage, to refuse to answer any questions, and to ask questions related to the study. Confidentiality of the data collected was maintained. Identifying information gained

from the informants was not reported at any stages of the study. For those who appeared in photographs, permission was granted.

3.3.6 Obtaining Ethics approval before conducting the study

The application to the Massey University Human Ethics Committee (MUHEC) is basically required for the approval of the appropriateness of the study design, and to ensure that the study would not generate any harm in any aspects to anyone, mainly the study informants, involved in the study. Since this study relates to human issues, I submitted an application accompanied by a copy of the research proposal, Thai and English versions of questionnaire copies, information sheets, consent forms and the letter seeking permission to enter the field of study to the committee for the approval of research in December 2004. Ethics approval was granted (Appendix B-1).

3.4 Entering the field: establishing rapport

This was the early period of the data collection, which was begun in early April 2005. I mostly concentrated on establishing rapport with potential informants and making myself familiar with the field.

3.4.1 Meeting health staff of the subdistrict health centre and village health volunteers

I noted that prior to having informants share their experiences and ideas, it is crucial to develop a relationship with them to gain their trust and allow them to get used to me and feel comfortable with seeing me being around (O'Reilly, 2005). The first day entering the field, I introduced myself to health staff at the subdistrict health centre given that this study was related to health. At the subdistrict health centre, there were three health staff, two support staff, and one housekeeper. The health staff consisted of the head of the health centre, a public health specialist, and a midwife.

The public health specialist of the health centre responsible for undertaking disease prevention and occupational safety and health scheduled me to meet all village health volunteers of the subdistrict at their monthly meeting.

On the visit to the health centre, I obtained further general information about the field (O'Reilly, 2005). The subdistrict is composed of six villages which for this study, were each given a code number, V1, V2, V3, V4, V5, and V6. The number of households situated in the subdistrict was 1,315 with 6,446 residents (Subdistrict Health Centre, 2005a). The residents of the subdistrict were approximately 40 % Buddhists and 60% Muslims. Most of the population living in V1 and V2 were Muslims (88.12% and 89.23% respectively). All residents of V 3, 4 and 5 were Buddhists. In V6; 95.04% of the population were Buddhists and 4.95% were Muslims.

At the meeting day, 100 health volunteers including both Buddhists and Muslims were present. The purpose and plan of the study were explained to the meeting parties and questions regarding the study were answered. There was one question of particular interest. I was asked “are you one of us?” The question implied was whether I am a Buddhist or a Muslim. Since I was then still unfamiliar with the field and not knowledgeable about people, I did not request a clarification of the purpose of the question, but simply replied ‘I am a Buddhist’ (Ellen, 1984). This situation illuminated my awareness about religious sensitivity.

3.4.2 Decision on situating in the field

Because of time constraints of the doctorate programme (Simmons, 2007) and available funds granted by the study sponsor (Ellen, 1984) I initially decided that six months was going to be the maximum period of time for my fieldwork. Planning the fieldwork carefully, and being in the field most of the days in that six-months period would provide me with enough time to settle myself in, and to formulate the participant observations covering separate times and events in order to understand the informants' perceptions and behaviour. Consequently, I decided to stay in the field. Merging self in the field is considered as an effective way to develop rapport with study informants and other residents of the subdistrict and to broaden understanding of people's perspectives, behaviour and activities in line with their everyday life and social context (Ellen, 1984; O'Reilly, 2005; Spradley, 1980)

I was invited to stay at an available cottage built above a carport (Figure 3-1) at the house of the public health specialist who is a Muslim. The decision to stay there gave

rise to the following few concerns, including privacy, and accessibility to both Buddhist and Muslim villagers and to the field supervisor. Last but not least, the concern about religious sensitivity. Being a Buddhist, I predicted that it would be simpler to develop a rapport with, and to gain trust from, potential Buddhist informants regardless of where I stayed on the condition that I spent sufficient time with them. In contrast, it would be more difficult to build rapport with potential Muslim informants if I refused the offer of a place made available by the public health specialist. As a result, to break the ice with, and enhance the possibility of being accepted by, the Muslims, I accepted the offer (Brewer, 2000; Ellen, 1984).

3.4.3 Making myself at home: moving to stay in the field

The cottage is separated from the family's main house. It is located where I was able to sit on the cottage's veranda to observe what was going on around the place. The cottage also gave me privacy and convenience to ensure the confidentiality of study informants. However, I did not carry out any interviews at the cottage in order to avoid the chance of the informants being identified.

At the beginning, I commuted between villages within the subdistrict using a utility truck. When I had stayed in the village for a while, the villagers were familiar with seeing the green utility truck. In the villages, not many families owned a car or truck. Therefore, when they needed to travel as a group to a special occasion held somewhere away from the subdistrict it was then the truck I had was useful. For example, I drove a group of village health volunteers and rubber farmers to attend the funeral of the former head of the health centre, held at a temple away from the sub-district.



Figure 3-1 The cottage and the truck



Figure 3-2 Scenery observed from the cottage; a rubber farmer after work

Nonetheless, I found that the truck was not practical when I wanted to go only around a village. It also to some extent, was a partition between me and potential informants. Therefore, I opted to use a bicycle. The cycling brought me closer to the villagers and the potential informants. I could simply stop for a brief conversation. Also, while cycling, sometimes some villagers were able to satisfy their curiosity about who I was by asking me to stop at their places for a friendly conversation. And this was an effective way to introduce my study and to gain rapport and recruit study informants. Those who were not involved in rubber farming invited me back to their homes if I needed any help. Otherwise, they introduced me to rubber farmers dwelling around their households. The use of a bicycle removed the invisible wall between me and the village atmosphere, the villagers and the potential informants.

Notably, after living in the field for some time, I noticed that residents of different religions rarely live as next door neighbours. The Buddhists and Muslims clustered in separate areas either in different villages or in the same village but in separate sections. I realised that there was a hidden religious discrimination among the two groups. There are “They” and “We” or *Thai* (Buddhist Thais) and *Kak* (Muslim Thais), either way around depending on who was talking. Thus, I believed that my decision to stay in the Muslim household area and not mind eating food cooked by Muslims was a

proper decision (Brewer, 2000). Feeling comfortable being around both groups and showing no sign of discrimination throughout the fieldwork period, I did not come across any difficulties in being accepted by both Buddhist and Muslim informants and villagers.

3.5 In the field: Collecting data

While in the field, I undertook the role of observer-as-participant. Once rapport had been established up to a reasonable level, gatekeepers were identified and the study information was gathered according to the plan. Each method of data collection as planned was conducted in cyclic approach.

3.5.1 Role in the field

Since I planned to take the role observer-as-participant I made myself visible to the studied informants and everyone involved in the field. I was called *Ajan* (lecturer, teacher) because of my lecturer position. Sometimes I was called *Mhor* (doctors, nurses, health personnel) regarding my nursing background. I was also called 'Pom' which is my nickname used among family, close relations and friends. I introduced the nickname to everyone whom I met in the villages to avoid formality.

Though, the observer-as-participant was the primary role I undertook, at the beginning stage of the study, and in some situations throughout the study, I took the role of passive participant, or complete observer, such as in the village board meeting, health personnel meeting, and the likes.

3.5.2 Identifying gatekeepers

Although I was granted permission to enter the field from the head of the district health office, based on my knowledge of the Thai bureaucratic system, I was aware that there were gatekeepers as they hold the key to access the field, the informants and information (Brewer, 2000; Bryman, 2001; Hammersley & Atkinson, 1995; O'Reilly, 2005). There are two main types of gatekeepers: formal gatekeepers and informal gatekeepers (Brewer, 2000). In this study, the formal gatekeeper was the director of

the district health office who granted permission to access the field on behalf of all of the people.

Following the stay in the field and establishment of rapport I was able to identify the public health specialist and a few of the village health volunteers as informal gatekeepers on the basis that they were willing to be facilitators, being knowledgeable about the people and rubber farmers of the subdistrict, and being respected by both Buddhist and Muslim residents (O'Reilly, 2005).

3.5.3 Distribution of questionnaire

Most of the village health volunteers were willing to assist with distribution of questionnaire copies (Ellen, 1984). I arranged times and places for questionnaire administration training at the convenience of each group of the village health volunteers (V1, V2, V3, V4, V5 and V6). Some health volunteers were confident of their ability to administer the questionnaire independently; however, some requested supervision when they went to their first respondent. Some were not confident to handle the questionnaire at all. Therefore, the latter volunteered to accompany me to their designated area in which I distributed and administered the questionnaire. The number of questionnaire copies distributed by each village health volunteer was equal to the number of households located in their designated area (10-15 households).

To complete a questionnaire copy, literate respondents completed the questionnaire on their own with little help from me or the village health volunteers. For illiterate respondents or respondents with poor eyesight, questions and options of answers were read to them aloud. The expected time required completing a questionnaire copy was 15-20 minutes (Appendix B-3, p.264). However in actual situation, some respondents required longer period of time, ranged from 30 minutes to 45 minutes. This was due on many occasions, to the two parties (respondents and questionnaire distributors) engaging in prolonged conversation before beginning to and between filling a copy of the questionnaire.

A month after the training and distributing the questionnaire copies, I started to receive completed questionnaire copies. Within three months, I got most of the

completed forms returned to me. When editing each returned questionnaire copy, I discarded some of them because they were half completed and some respondents did not meet the inclusion criterion (aged below 15). In summary, 964 copies of returned questionnaire were qualified to be utilised. The proportion of the returned questionnaire from rubber farmers and non-rubber farmers was approximately what had been planned, 77.9% from the former and 22.1% from the latter. In addition, the numbers of Buddhist and Muslim respondents were virtually equivalent. Within the total number of the respondents, there were 57.3% females and 42.7% males.

Regarding the total number of the respondents (964), the number of completed questionnaires was relatively equal in Buddhist and Muslim groups, 460 (47.8%) and 498 (51.7%) respectively. The rest of the completed questionnaires were completed by Christians (0.5%). Among the 751 rubber farmers (RF) who completed the questionnaire, the distribution of Buddhist and Muslim respondents was comparable (50.6% and 49.1% respectively). This result was the benefit from the involvement of equal numbers of Buddhist and Muslim village health volunteers.

The information gained from the survey provided hunches for participant observation and interview and chances to strengthen rapport with potential informants. Within a month from the first day of the distribution of the questionnaire, the villagers' suspicion about my presence had vanished.

3.5.4 Participant observations and interviews

I did the participant observation and interview in a cyclic pattern depending on encountering situations and opportunities (O'Reilly, 2005; Roper & Shapira, 2000). Observations and interviews were begun after I had some of the completed questionnaire copies returned to me.

3.5.4.1 Informants and key informants

Informants were selected and recruited using purposive, snowball and opportunistic samplings illustrated earlier. Procedures to obtain consent from the informants were followed. Being in the field I was able to observe and participate in many events regarding the study interests. At the end of fieldwork, in conclusion, I interviewed 28

rubber farmers and the three health staff of the subdistrict health centre, including the head of the health centre, the public health specialist, and the midwife. Among the 28 rubber farmers, 18 of them were purposively recruited when I met them through the process of distribution of questionnaire copies. The remainders were recruited using either snowball or opportunistic samplings. The numbers of Muslim and Buddhist informants were relatively equal. There were 14 Muslim and 14 Buddhist farmers, and one Muslim and two Buddhist health staff. The number of years of working as rubber farmers ranged from 3 years to 46 years. The combination of the informants' demographics and characteristics was a beneficial consequence of using the sampling techniques selected.

Without prior plan, out of 28 rubber farmers, 6 of them held the position of village health volunteers (O'Reilly, 2005). The combination of role between being a rubber farmer and being a health volunteer became an additional interest of the study. It prompted a question, 'do this group of rubber farmers share the same perception with the rubber farmers who are not health volunteers?' This continuous development of fieldwork is considered a phenomenon that commonly happens in study underpinned by ethnography (Hammersley & Atkinson, 1995).

Among the informants, several were outstandingly keen on volunteering to share their information and experiences. Consequently, they were counted as study key informants as they were informative and often able to provide guidance through particular knowledge and aspects of the study interests (Angrosino, 2005; Bryman, 2001; Germain, 1993). A few of the key informants illustrated the role of gatekeepers, continuously directing me to situations, events or people which they thought might provide some advantages to my study (Bryman, 2001).

3.5.4.2 Participant observation

At the early stage, I engaged in 'descriptive observations' as described by Spradley (1980, p.33) to gain general ideas and understanding of the social and cultural scenes. This observation began while I was distributing and collecting the questionnaire and lasted until the very last days of data collection. I walked, cycled, and drove throughout the setting to observe the general environment and the rubber fields of the

setting. I also took note of general activities occurring around the area, as well as the daily routine of rubber farmers and what was going on in the field.

As the data collecting was processed I obtained more of the ‘focused observations’ and ‘selective observations’ (Spradley, 1980, p.33). I, for instance, I went with a rubber farmer to observe a typical day of working in the rubber field of both rubber farmers who sell rubber latex, and those who process rubber latex into rubber sheets before selling the product. Going to the rubber field, I had a chance to discover her rubber field’s environment and her working behaviours as well as gaining direct experience of tapping rubber trees and collecting rubber latex. I also located myself at the subdistrict health centre to observe what health problems brought most rubber farmers to the health centre and how the health personnel advised the rubber farmers to take care of their health and deal with health problems.

Often the events and situations or things that I observed arose from the information previously gained and initially analysed from observation, interviews, casual conversation with passers-by rubber farmers or other members of the community (Hammersley, 1990; O'Reilly, 2005). For instance, noticing that the rubber farmers often obtained non-prescribed medications from the grocery stores, I went to a few grocery stores in the subdistrict to examine what medications were in the stores. And when informed by some informants that they favoured massages given by a particular folk massager to relieve muscle pain I went to visit and gained the massager’s permission to observe her services and to talk to her.

The key informants and the gatekeepers regularly informed me about, and invited me to participate in, activities related to rubber farming and farmers taking place in the field. For example, at the onset of a Hepatitis A epidemic in the subdistrict, the public health specialist invited me to participate in disease investigation and to attend the meeting between the health staff of the health centre, the health officers from the district health office and regional disease control office, and the key persons of the community. This later was beneficial to broaden my understanding of the study findings.

3.5.4.3 Interview

As suggested by Spradley (1979), I used descriptive questions at the opening phase of an interview to examine how things work or what happens around the place. I, for example, asked an informant, “Could you please tell me the routine of your working day?” The questions were aiming at giving the informant an opportunity to freely tell the story at his or her own pace. I carefully listened and noted what next question to present and decided whether it should be in the form of a descriptive question, structural or contrast question.

Another descriptive question I used was, “How do the work activities influence your health conditions?” Following what was given as an answer, I built up my next question(s). When an informant mentioned about fellow rubber farmers experiencing rashes and itchiness as a result of working in the field without indicating if he experienced the same problem, I asked another question using more specific or structured types of questions to expand the information. “Talking about bushes, when working in the field, you said some people might get rashes and itchiness. What is your experience and what would you do if you had those problems?” Using an open-ended structural question had shown its advantage. The reply from the informant was not just, “Yes, I do” or “No, I don’t”, or telling the list of ways to deal with the problem. It instead illustrated the broader view of the informant on health, work and living conditions. The reply was presented in the following excerpt:

Well! If I have it, I will just run back home and put Sam-buck [an ointment] on the spots. It [rashes, itchiness] would be gone. Sometimes, if today it hasn’t been healed, tomorrow, it would be. Well! People who are in this work cycle, rubber farmers, don’t really have time to care about this little problem...feels itchy, scratch where it is, then. They don’t really care much.
(PBT, interviewed 13/06/05)

Now referring to the first descriptive question, the typical day in the field, when the informant mentioned that some rubber farmers continue to process the rubber latex to rubber sheets, I used a contrast question which I applied to expand my understanding of rubber farming. So I asked, “What are the differences between finishing the typical day at selling rubber latex, and processing rubber latex to rubber sheets?” The following is the reply:

There is a big difference. The difference is the time consumed. To make a rubber sheet, we need to put rubber latex into a block, in which rubber latex is added with *Num Som Kha Yang* [acetic acid/formic acid, coagulating substance]. It is important to know how to do it, otherwise, it would be the end of the story... right now, they [the money earned from selling rubber latex and rubber sheets] aren't much different, 6 baht, I guess, but selling rubber latex means we buying some kind of convenience for ourselves... currently we get 52 or 50 baht [per kilogram of rubber latex]. (PBT, interviewed 13/06/05)

The answer was not the differentiation of the procedures between the two ways of handling rubber product which I could gather just by observing them. Rather, it clarified what the informant, and perhaps other rubber farmers, presented with the same questions were actually concerned about. For example, while the previous informant showed less concern about money, other informants illustrated the opposite:

When we make rubber sheet, there would be some latex left each day which we could put together with the latex left from other days, or the next days... by doing this we would have additional kilograms. When we sell it in the form of latex we lose some profit because the price the buyer gives us is converted into dried rubber product. Definitely we lose money that we should get. If we make rubber sheet the weight doesn't change much. I have experimented with that. (MA, interviewed, 02/08/05)

Besides the application of the open-ended style of questions during each interview, I needed to deliver some closed questions to confirm my understanding of what I had heard or to verify some particular detail (Ellen, 1984). For example, when the informant, MA, used a word that was new to me, I asked her—using a closed question—to confirm the meaning of the word I gathered from the context.

MA: ...since I worked for other people. One *Hai* I would go to market [selling vegetables]...

Researcher: ...you finished working in the rubber field, then the other half of the day you go to market to sell vegetables, *Hai* means half a day?

MA: yes.

(MA, interviewed, 02/08/05)

Preparing for each interview, I always had a brief list of questions in hand as it was at times helpful to keep the conversation flowing (Ellen, 1984). However, I did not present questions to the informants in sequences. I dynamically, and spontaneously, evolved the stream of questions with respect to the information and situation I encountered (Brewer, 2000; Fontana & Frey, 2000; Hopkins, 2002). Over the time of

the fieldwork, I gained more experience in interviewing, and learned that I did not have to ask each informant exactly the same questions, but used the specific interests in the study to guide me and to ensure that all informants had addressed their ideas and experiences in relation to those interests (May, 1991). Also, on many occasions, I found the need to be silent, or to stop feeding questions for a short while, in order to avoid pressuring the informants to respond to me when they tried to gather their thoughts. Handling the conversation in that manner, I was able to maintain a harmonious atmosphere, and gain meaningful information (Spradley, 1979).

When interviewing each informant for the very first time, I just slowly built up rapport with him/her. I repeatedly visited each informant throughout the period of data collection. In addition, I sometimes met the informants by chance and talked to them in random circumstances not meaning to interview them about the study interest. At times, I received information useful to the study unexpectedly. Thus, I hesitated to conclude how many times exactly I interviewed them. However, after I had a clearer picture of what I needed to ask, I did at least one prearranged interview with all informants seeing that it was somehow necessary to talk to them in depth with not much interruption from other people or unfolding events (O'Reilly, 2005).

When arranging for interviews, I left the informants to decide the times and the places to suit their agendas (O'Reilly, 2005; Wengle, 1988). At each prearranged interview, I had consent from all informants to record their conversation on a recording device (MP3) (Ellen, 1984). The MP3 was only a small device. After a while, the device became invisible to informants as they forgot about it. Thus, it lessened the informants' tension. Yet, at some interviews, the informants became anxious about having their statement recorded. In this circumstance, I terminated the use of the recording device. The absence of a recording device from the scene made most informants relaxed and I often got unexpected, but fascinating, information.

When the recording device was not applied, I made a short note of what I heard to ensure that I captured information correctly, and I reread my note immediately after the interviews and wrote it in full (O'Reilly, 2005). For occasions when presentation of either a pen and paper, or sound recording device were not appropriate, such as

having an opportunistic conversation with a rubber farmer on the side of the road, I had to make a mental note (Bryman, 2001).

3.5.5 Fieldnotes and fieldwork personal journal and photographs

I updated the fieldnote and fieldwork personal journal as soon as I could to prevent losing component of the information obtained (Mulhall, 2003). I recorded fieldnotes and my fieldwork personal journal in separate styles. In the fieldnotes I wrote things as I heard and saw them, whereas in my fieldwork personal journal, I inserted how I perceived, interpreted and felt towards the informants' statements, reactions, behaviour, the surrounding environment, and problems I encountered (Spradley, 1980).

To give an example, when I interviewed a village health volunteer who was also a rubber farmer, in the fieldnote I quoted what the informant said.

If they told me in advance (about schedule of community health activities) there would not be any problems, because I could manage the time off from tapping the trees—can't just leave the husband to work on his own. Or if the activity was in the afternoon, I would be able to participate because I would finish the work in the field then.

(Fieldnote: interviewed PMR, 07/06/05)

And what I entered in my fieldwork journal was:

Unsuitable timing prevents participation in the health activity; priority?
(Fieldwork personal journal, 07/06/05)

As the study progressed, I clarified my understanding by examining whether or not priority was a common factor involved in other informants' decisions about not participating in health activities (May, 1991).

When I combined the two notes together, I placed myself into confusing state and wrong direction. I experienced that my first reflection on statements by informants could be incorrect and it would be difficult to track back the information of what the informants really said if I put my own words to replace those of informants. For example, when MA (interviewed, 02/08/05) mentioned that she always ate *Num*

Peung with rice and hot water before going to the field, I immediately perceived that she mixed honey (as honey is the direct translation for *Num Peung*) and rice and water. Later I found that I had misunderstood even though I speak southern dialect. When MA talked about *Num Peung* she actually meant anything that is used for sweetening food (cane sugar, palm sugar, honey) while in my hometown, sugar is any kinds of sugar used for cooking but *Num Peung* is genuine honey from bee hives. This unpredicted information is described by Agar as “breakdowns” (p.20) which refer to differences of which the researcher become aware, initiating additional questions in the study (Agar, 1986).

In addition to the two types of note-taking, events, activities and background related to the study interest were recorded using a camera, considering that some particular circumstances were better explained using pictures. The notes in different forms enhanced the understanding of the situation and broadened the comprehensiveness of the study findings, as well as providing directions for further exploration.

3.5.6 Reviewing and analysing existing documents

The documents I reviewed included the job descriptions of the health staff of the health centre, the yearly health survey report and basic needs of the population in the subdistrict, the subdistrict magazine published by the local government office, and the list of medications available at the health centre as well as the national health policies and procedures, and the subdistrict health services plan directed by the Ministry of Public Health (Germain, 1993; Roper & Shapira, 2000). Each document reviewed illustrated its unique value. For example, the job description of the health staff (Chapter 7: Table 7-1) which raised the question, how did the health staff keep up with the long list of tasks? And the records of high rates of pain relief prescribed to rubber farmers confirmed the information gained from observation and interviews with rubber farmers that they always suffered from muscle pain and they often took pain relief of one kind or another.

3.5.7 Quality control of the information gained

To ensure the credibility or confidence in the truth of the information gained I committed to prolonged engagement in the field to ensure sufficient time to establish rapport with, and gain trust from, the informants and to ensure comprehensiveness of information (Lincoln & Guba, 1985; Maggs-Rapport, 2000). The long stay in the field was beneficial in terms of providing chances to verify the study's preliminary findings and interpretations with a range of key informants. As a result, I was able to minimise misinterpretation of the information caused by my own bias and experiences (Erlandson et al., 1993; Lincoln & Guba, 1985).

Using mental notes to temporarily store information gained I was concerned about recall bias. Therefore, when I was unable to clearly recall any information that I had heard or seen, when appropriate I returned to study informants for clarification.

I also, while in the field, discussed with the field supervisor and the major supervisor the information I gained on a regular basis while I was collecting data in the field and analysing the information gained. With their professional feedback and advice, I was capable of expanding the investigation so as to enhance the trustworthiness of the study findings (Erlandson et al., 1993). Consultation with the two supervisors was carried out through the analysis of information and presentation of findings in the report.

When writing the report, I entered the excerpts from the interviews with the informants to provide evidence to readers to substantiate the interpretation and to provide adequate information to those who are interested in transferability of the findings from the study (Norwood, 2000). One year after I had left the field and had analysed the information and written my report I returned to the field, visiting key informants for further verification of the findings.

3.5.8 Ethical issues and role conflict in the field

In the field, role conflict emerged. The conflict formed considering my role perceived by the health staff of the health centre. According to the health staff, I was not only a

passer-by researcher but I was also a qualified nurse, and a nurse lecturer. Thus, from their point of view, I was one of their health team, in other words an insider (Simmons, 2007). They expected me to be able to stand by at the health centre in the treatment room when all three health staff were engaged somewhere else. I was aware that if I agreed to attend the treatment room, I went beyond the line of researcher. However, it was not practical to deny the request. Therefore, prior to providing services to any clients, I informed each client who I was, and if they felt uncomfortable with my presence, they were free to return to the health centre when the health staff returned, or go to other nearby subdistrict health centres. In the process, I assured the clients that declining to receive health services from me did not create any effects on their future use of the health facilities.

Besides, as the field was a community in which everyone knows everybody, I experienced difficulty in safeguarding my whereabouts, creating complications for protecting the identity of informants. Concerning the difficulty, to disguise the identity of the informants, I visited and talked not only to the study informants but also many other villagers whether or not they were rubber farmers. I did not perform any interviews at the place where I stayed.

At the early stage of the data collection, when I immediately took notes in public because of being nervous about losing information, I was asked what I wrote about. I then was careful where I wrote up fieldnotes and my fieldwork personal journal (Mulhall, 2003).

The findings at the later stage showed the possibility of having an effect on the career prospects of the health staff of the subdistrict health centre regarding the genuine information they disclosed (Hammersley & Atkinson, 1995). The use of pseudonyms to cover the identity of the health staff of the health centre without disguising the identity of the place of fieldwork were unlikely to effectively protect the informants from being revealed. Because of having the actual name of the place written in the report, it would not be difficult for anyone to identify the informants as at the subdistrict health centre there was only one head of the health centre, one public health specialist and one midwife (Fetterman, 1998). Accordingly, together with using codes to cover the actual names of the informants, I suppressed the name of the

health centre and the subdistrict. As a result, the letter of permission to enter the field is not attached to the report of this study.

3.6 Leaving the field

After six months of being in the field, I terminated the data collection because of saturation of information, as well as the time and budget limitations. Throughout the stay in the field, the atmosphere was friendly and I was befriended by the host family and several other persons, thus leaving the field became an emotional time (Hammersley & Atkinson, 1995). I exchanged contact details with them, both for future personal contact and in case I needed to clarify the analysis of the information.

3.7 Analysis of information

For the survey questionnaire I applied the Statistical Package for the Social Sciences (SPSS 13) to analyse the information. Approximately a month after I began the fieldwork, though I had not yet received all distributed copies of questionnaire back, I began to carry out a preliminary analysis of the survey information which I mainly generated in the forms of descriptive statistics, frequencies and percentages. Based on the results shown by the analysis, I was able to see the trends of what I should be observing and interviewing the informants about.

Likewise, I began and continued to analyse the information obtained from the observation and interviews throughout the process of data collection (Boyle, 1994; Hammersley & Atkinson, 1995; Roper & Shapira, 2000; Spradley, 1979). The analysis continued until I was writing up the report (Hammersley & Atkinson, 1995).

To start the data analysis, Hammersley and Atkinson (1995) suggest that the researcher should read through all data sources, participant observation records, interview records, fieldnotes, fieldwork journal and other material to make sense of the information and to seek for interesting patterns relevant to the study focus. The data are coded and put into particular categories. The researcher then determines similarities, differences, and relationships across the whole categories in order to identify cultural phenomena being researched (Hammersley & Atkinson, 1995). This

process of analysis is similar to those indicated by other authors, such as descriptive analysis noted by Boyle (1994), content analysis advised by Germain (1993), ethnographic analysis suggested by Roper and Shapira (2000), as well as the steps of ethnographic analysis indicated by Spradley (1979, 1980). However, each author might favour additional procedures and instructions which are believed to facilitate the completeness of data analysis.

Because I was a novice researcher who was conducting an ethnographic study for the first time, I searched for a simple but effective instruction to analyse ethnographic data. Therefore, I selected to follow the step-by-step ethnographic analysis introduced by Spradley (1979, 1980). This process of analysis consists of domain analysis, taxonomic analysis, componential analysis, and theme analysis.

At the early stage of the data analysis, I used the “domain analysis” to arrange the information gained into categories. This analysis made the initial analysis explicit. It also assisted with making sense of the information gained. Therefore, domain analysis was employed throughout the data analysis. I started with categorising the general information of rubber farming for better understanding of rubber farmers’ work nature and conditions. For instance, after reading through the information from interview transcripts and fieldnotes, I captured that the rubber farmers classified themselves into a few different types. Therefore, I set the cover term “Rubber farmers” using semantic relationship “is a type of” to lead the search for its included terms (the types of rubber farmers). The included terms of this category that I came up with were, 1) independent rubber farmer, 2) *Yang Wa*, and 3) *Kong-Si*.

The other domains (or categories) that I noted during the data analysis were, for examples, X is a main task in working in a rubber field, X is a part of a typical working day in a rubber plantation (tapping), X is the rubber farmers’ perception of being healthy, X is an effect of work on health perceived by rubber farmers, X is the way of dealing with a health problem of rubber farmers, X is an effect of rubber farming on rubber farmers’ health as perceived by health workers, and X is the way to deal with rubber farmers’ health as suggested by the health workers.

The results of this acted as the foundation of the further steps of the analysis. Looking back to the types of rubber farmers stated earlier, after I read through the information, I recognised the informants' inclination to separate the three types of rubber farmers. Therefore, "componential analysis" was set to clarify the dimensions of contrast between the three domains.

Table 3-1 Example I: Analysis

Domains	Dimension of Contrast			
	Field owning	Working status	Money earned	Number of working days/week
1) Work in own field	yes	Independent	Receiving all money earned	2-1-2, or 3-1-3 (work-off-work) Free to decide working days
2) Yang-Wa	Yes/No	Partnership with owner	Depending on the agreement with the owner, 60/40, or 50/50	Agreement between the two parties, but usually 2-1-2, or 3-1-3 (work-off-work)
3) Kong-Si	Yes/No	Employer-employee	Money earned calculated by number of kilograms of rubber sheets made by each employee	Agreement between employer-employee, (workdays could be every day)

Concerning the study focus, the results of the contrast later led to more insight understanding, how the types of rubber farmer affected the health of rubber farmers. Therefore, I looked through each informant's interview transcript seeking for the relevance of the two domains. Excerpts from interview transcripts revealed that the second and the third groups of rubber farmers perceived that their health was affected by their work to a greater extent than that of the first group.

The rubber price has gone up, but the trees don't have rubber latex. People [rubber farmers] get sick of it. Go to the field, tap the trees, nothing comes out from it. Feeling tired. Walk past each tree with no hope. No *Num yang* [rubber latex]. For those who work in their own field, it is fine, but not the same for those who work for others. They need to split the money, feeling hopeless [when get less money]. (PTP, interviewed 11/08/06)

PSA [a subdistrict health staff member who lives locally] advised me to take the muscle relaxant and suggested that I stop working. But I said I couldn't. It is not my own field... (PTP, interviewed 11/08/05)

The “taxonomy analysis” was employed to expand my understanding of the domains I had identified. For instance, within the three types of the rubber farmers, to illustrate a cultural scene, I conducted a domain analysis focusing on “the stages of the typical day in the rubber field”. The “included terms” revealed from using the domain was;

X is a part of the stages of a typical night in the rubber field

- a) Waking up and getting ready
- b) Going to the field
- c) Tapping rubber trees
- d) Giving time for the latex to flow
- e) Collecting rubber latex
- f) Selling the rubber product
- g) Going home
- h) Preparing equipment (sharpening knife) ready for the next night in the field

Then I used taxonomy analysis to regroup the included terms and examine if there were any further included terms I could identify. I rearranged the stages of the typical day in the field under three cover terms, “before going into the field”, “in the field”, and “leaving the field”.

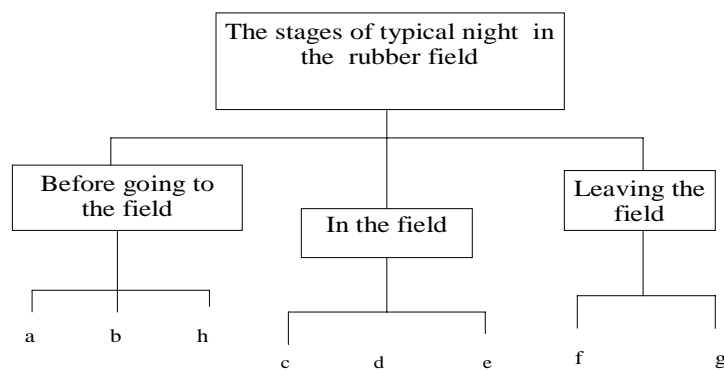


Figure 3-3 Example II: Analysis

Stages a, b, and h were put under the cover term “before going to the field”. Stages c, d, and e were under the cover term “in the field”, and f and g were under the cover term “leaving the field”. After I had repeatedly read through interview transcripts and the notes, I found additional included terms for each new cover term revealed.

Under the included term, a, b, c, d, e, f, g, and h, I had added more included terms after repeatedly reading through my notes and interview transcripts.

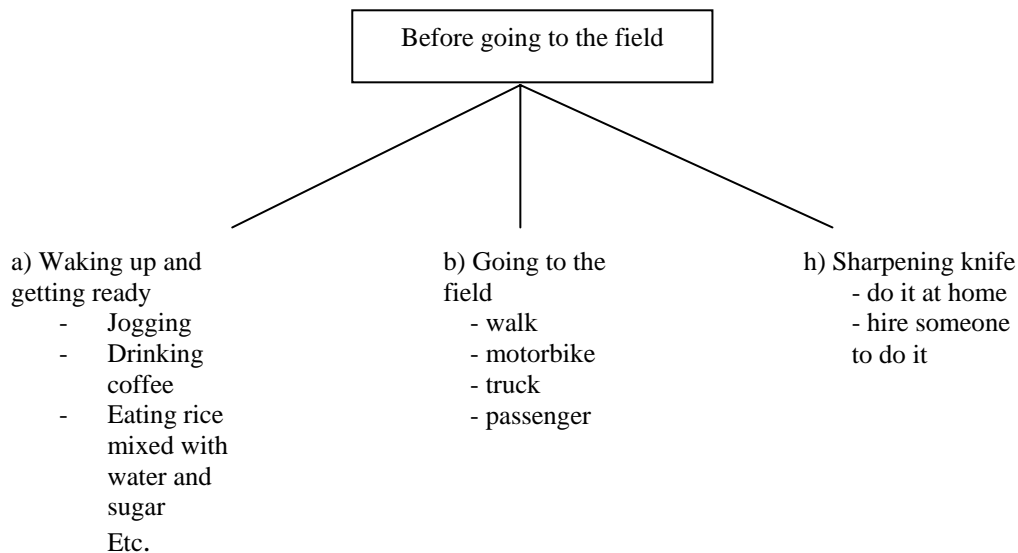


Figure 3-4 Example III: Analysis

I repeated the same process of searching for additional included terms for the newly emerged cover terms, in the field, and going home. For example, under the included term d, “giving time for the latex to flow”, I found out that some rubber farmers went home to take their children to school, some had a rest and had something to eat, and some went to tap rubber trees in another rubber field.

I continually did the taxonomy analysis with the other domain analysis. For example, when I discovered the list of included terms under the cover term, “effect of work on health”, I regrouped them into two main categories, positive and negative perceptions, before I moved on to further analysis.

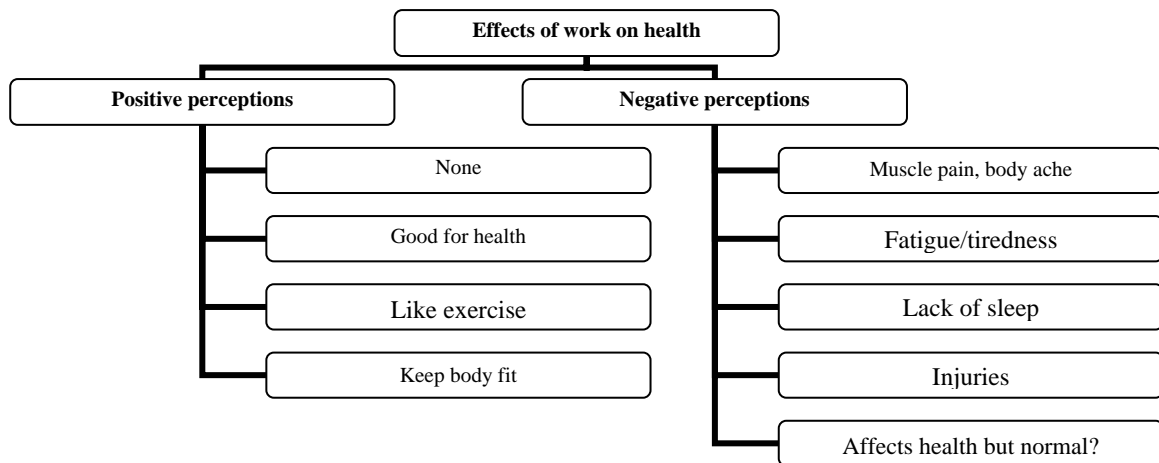


Figure 3-5 Example IV: Analysis

In order to confirm the results as well as sorting, coding and searching for common patterns of the data relevant to the study questions, I as well applied different presentations of the analysed information in different forms. For instance, after skim reading through each interview transcript, I drew the above diagram to facilitate the coding and summarising of the information using the cover term, “the informants’ perception of the effects of the rubber farming on their health”.

The diagram, then, assisted me to see my thoughts more clearly. It aided me to re-think, re-word, and re-sort the information concerning the interest. I created the table to confirm the thoughts revealed in the diagram by making a table to illustrate the same focus, effects of work on health as perceived by the rubber farmers, but this time, I added words excerpted from the interview transcripts and my reflections.

Table 3-2 Example V: Analysis

Cover term: Effects of rubber farming as perceived by rubber farmers			
Effects	Themes	Effects	Themes
<p>Work affects only people with health problem, such as gout, asthma</p> <p>Work affects only people who 'Pae'</p>	<p>Destructive effects on selective cases</p>	<p>Physical Injuries/Health Conditions</p> <ul style="list-style-type: none"> • Thor Yang Deed • Bitten by <i>Tauy Yai</i> <i>Mun</i>/snake/centipede/scorpion • Cut by knife • Bark falls into eyes • Eye irritation from bright light of battery headlamp • Nausea from <i>Than Hin odour</i> • Dizziness/headache from lack of sleep/rest • Hair burned by fire of headlamp • Karma <p>Psychological problems Related to</p> <ul style="list-style-type: none"> - season - rubber price in the rubber market, - lack of sleep/rest - money shortage - scared of ghosts (going to the field in the dark) - scared of strangers - field owning status 	<p>Destructive effects-</p> <p>But some of the health problems indicated by some informants as a small deal, as they do not happen every day.</p> <p>Frequency?</p> <p>Some said "get used to it"- familiarity?</p>
<p>It is normal to have <i>Khed Meay</i> when doing hard work</p>	<p>No way to take the problem away Accepting situation?? Unavoidable??</p> <p>Severity of health conditions?</p>	<p>→</p>	<p>↓</p> <p>Destructive effects but not a big deal</p>
<p>It is good for health, no harm</p> <p>Keep the body fit</p> <p>It is like having exercise</p>	<p>Constructive effects</p>	<p>-</p>	

To determine, whether or not my reflective thoughts were commonly found indicated in the informants' interviews, I then went back to each interview transcript, re-reading each one closely, coding what each informant said in relation to each point I had noted. Subsequent to coding each interview transcript individually, "theme analysis", was applied to compare and contrast the coding of each interview transcript against each other in searching for their common principles and relationship aiming at answering the research question. From the table above, I answered the research question, "What are the rubber farmers' perceptions of effects of rubber farming on their health?" with four themes, which are constructive effects on health, destructive effects on health, destructive effects on the health of selective cases, or under particular circumstances, and destructive effects on health but are not perceived as major concerns.

The analysis was a dynamic process in which the steps moved back and forth with my intention of answering all of the research questions as well as to verifying the findings.

3.8 Summary

Ethnography and ethnographic methods of data collection and the approach to analysis were appropriately selected for collecting data for the study. The range of methods of data collection and the steps of the analysis complemented each other, contributing to the comprehensiveness and trustworthiness of the study information and findings.

Chapter 4: Rubber farming and rubber farmers:

General information

4.1 Introduction

To enhance understanding of the context presented in the later chapters, in this chapter I describe the general characteristics of both rubber farming (i.e. field ownership, working days-hours, work activities and work exposures and their effects on health) and the rubber farmers (i.e. household and health behaviours, and accessibility to healthcare services). The information presented was drawn collectively from the survey questionnaire¹, and “descriptive” participant observations and interviews. A range of photographs of work activities and equipment unique to rubber farming are also illustrated here.

4.2 Rubber farming

4.2.1 Field ownership

According to the results of the survey, about half of the rubber farmers who responded to the questionnaire worked in their own fields, and the other half reported working in fields owned by other people (relatives, neighbours). Three different categories of rubber farmers were identified in relation to rubber field ownership. First, when the rubber farmers stated that they worked in their own field they either referred to working in a field officially owned by their immediate family, or their spouse’s immediate family. Otherwise, they worked in a field which they officially inherited from their parents, or in a field that they bought and established after they got married. The profit earned from working in their own field was solely theirs.

Second, rubber farmers worked in a field owned by relatives (extended family, such as cousin, aunt, uncle) or neighbours and the profit earned was divided between the field owners and the rubber farmers.

¹ See Appendix C for demographic information about survey respondents

The share of benefit could be 60:40 or 50:50, depending on the agreement between individual owners and farmers. The relationship between the farmer and the field owner is not in the form of employee-employer but rather constituted a partnership. This type of farming is called *Yang Wa*. *Yang Wa* is widely practised among farmers not owning any rubber field, owning a small piece of rubber field, or waiting for the trees in their own field to grow. *Yang Wa*, in that case, is an option to secure family income.

Lastly, rubber farmers not owning any rubber field, who worked in a big rubber plantation, mostly owned by wealthy Chinese-Thai descendants, so that the plantation is called *Suan-Jeen* (*Suan* means farm, field, plantation, and *Jeen* means Chinese-Thai descendant, so that *Suan-Jeen* means rubber field owned by Chinese Thai descendant). The relationship between field owner and farmers tends to be employee-employers. The income paid to the employees is decided by the field owner based on the number of kilograms of daily rubber latex or sheets, that each rubber farmer produced.

4.2.2 Working days

There is no fixed rule as to which days to work in the rubber fields. However, there are common patterns in the number of working days concerning a particular working task (tapping rubber trees). The first working pattern is 2-1-2 cycle (2 days' work-a day off-2 days' work), second, 3-1-3 cycle (3 days' work-a day off-3 days' work), and third, work every day. The first and the second patterns were the most favoured alternatives of the rubber farmers working in small/medium-sized rubber fields, and *Yang Wa*. The third pattern was generally adopted by rubber farmers who work in *Suan-Jeen*.

The pause between the working days is to allow the rubber trees to recover their condition, and produce sap (Rubber Research Centre, 2004). In the third working pattern, a large rubber field is divided into many sections by the field owner. Each employee is given two to three sections to work. On different working days, each employee taps a different set of trees. Thus, each set of trees is given time to regain condition.

However, during the monsoon season (October-January) rubber farmers might have a long break from tapping the trees because latex rubber mixed with rain water is of no value (PBT, interviewed 13/06/05). Moreover, during summer (March-May) when the rubber tree leaves fall, it is recommended that rubber farmers stop tapping the trees. Yet, some rubber farmers interviewed continued tapping rubber trees (PSK, interviewed 29/07/05), or returned to tap the trees earlier than the recommended time because of financial circumstances (PBT, interviewed 13/06/05).

It is the whole month [the fall], but we only stop tapping for 15 days...If stop longer than that... starve! [Not having enough money to survive]. (PBT, interviewed 13/06/05)

4.2.3 Working hours

The cool climate of the night is the best time for the rubber latex to flow (Gagliardi, 2005; Rubber Research Centre, 2004). Therefore, while the questionnaire respondents in other occupations started working at approximately 08.00 a.m., most rubber farmers began working before dawn, and some rubber farmers reported that they began tapping before midnight.

There are roughly 500 trees per hectare (Rubber Research Centre, 2004). The starting time of individual farmers was associated with how many trees they tapped, in other words, dependent on the size of the rubber field. For example, rubber farmers tapping 280 trees started at 04.00 a.m., those tapping 700 trees started at 02.00 a.m., and those tapping over 1,000 trees started around midnight. However, the number of trees tapped is not always the determinant of one's starting time. Some rubber farmers tapping 300 trees started working at 01.00 a.m. to finish their work in the rubber field in time to start their second job.

The length of the working day depends on the way the product is managed. Rubber farmers may sell rubber latex directly, or process the rubber latex to rubber sheets before selling the product. If the former choice is made, rubber farmers mostly would finish the work of the day before midday. In contrast, the rubber farmers with the latter choice would continue to work until the afternoon.

4.2.4 Work activities: Typical day at work

When talking to rubber farmers about their typical day at work, they explained the process of tapping the trees. The southern dialect for “tapping the trees” used among the rubber farmers is *Thud Yang, or Kreed Yang*. The meaning of *Thud* and *Kreed* is equivalent to “strike something gently with a knife” while *Yang* refers to a rubber tree or rubber trees. However, when rubber farmer says “*Yang*” they might be talking about rubber latex, rubber sheets, or other rubber products, depending on the context of the conversation.

TYM (interviewed, 16/08/05) stated that rubber farmers start tapping rubber trees when the trees are about 7 years old, or earlier if rubber farmers had financial difficulty. The rubber farmers keep the trees until they are no longer profitable to tap, which could be up to 25 years. However, different breeds of trees and the tapping skill of individual rubber farmers might extend or shorten the number of profitable years.

4.2.4.1 Preparation before going to work

Because of the early start of the work, the rubber farmers went to bed not long after their evening meal. When it was time to get up, and get ready for work, individual rubber farmers each had their own ways to begin their day. MA (interviewed, 2/08/05) said she always took a few tablespoons of rice mixed with sugar and water, and a little bit of salt before going to the field. She claimed that the recipe kept her healthy. PMR (interviewed, 18/07/05) preferred to get ready for work by jogging a few rounds around her house, and drinking a cup of coffee. She said the jogging and the coffee helped with getting rid of sleepiness. After that the rubber farmers checked and prepared equipment needed to take with them for work.

The equipment includes 1) a tapping knife: rubber farmers normally bring more than one tapping knife with them to ensure that the knife used is always sharp. Using a blunt knife could damage the tapping surface. 2) A headlamp: the headlamp is required as there is no natural light when rubber farmers are tapping trees. 3) Small bucket: a bucket is needed when rubber farmers collect rubber latex from each tree. 4). A scrubber which is used to wipe rubber latex from the latex cup. 5) 20-litre container(s): when the small bucket is full, rubber latex is transferred to a 20-litre

container. 6) A form of transport, in which motorbike is the most common, is required for commuting and transferring rubber product. Rubber latex is transported to sell at a rubber latex buying station and rubber sheets are taken to dry at a drying shed.



Figure 4-1 A tapping knife with safety cap



Figure 4-2 A tapping knife with safety cap removed



Transport (motorbike)

A small bucket

Lhon: a bigger rubber container

Figure 4-3 transport, small bucket, and container



Figure 4-4 Headlamp

Calcium carbide



Figure 4-5 Scrubbers

4.2.4.2 Tapping

After the early preparation, the rubber farmers travelled to their fields. The survey revealed that 83 % of the rubber farmers travelled to their fields by motorbike, while the remainder reported walking (8.4%), using a bicycle (1.2%), or travelling by utility truck (1.2%).

Following their arrival at the field, the rubber farmers walk along the rows of rubber trees, tapping individual rubber trees one after another until reaching the last trees in the field. While tapping, the rubber farmers adjusted the small iron gutter, stuck through the bark of each tree to make a track for the latex to drip into the latex cup.



Figure 4-6 checking the tapping site and adjusting the gutter



Figure 4-7 tapping the last rubber tree of 500 trees



Figure 4-8 checking the flow of the rubber latex

When observing, tapping seemed simple, however, when attempted, it was not as simple as it seemed. Tapping requires a long time of practice. TYM (interviewed, 16/08/05), a rubber farmer for 15 years, explained that an experienced rubber farmer carefully strokes the tapping knife with a 30-35 degree diagonal on the tree's bark, and skilfully estimates how deep the knife should be cut into the tree in order to reach the latex vessel. The vessel is the layer between the soft bark and the cambium of the tree. To yield the maximum amount of rubber latex, rubber farmers need to stroke the knife on the first outer layer, called *hard bark*, through the soft bark, and cut the latex vessel as close as possible to the cambium (it is highly recommended to leave 0.5 millimetre between the vessel and the cambium) but not to damage the tree by cutting deeply through the cambium layer (Rubber Research Centre, 2004).

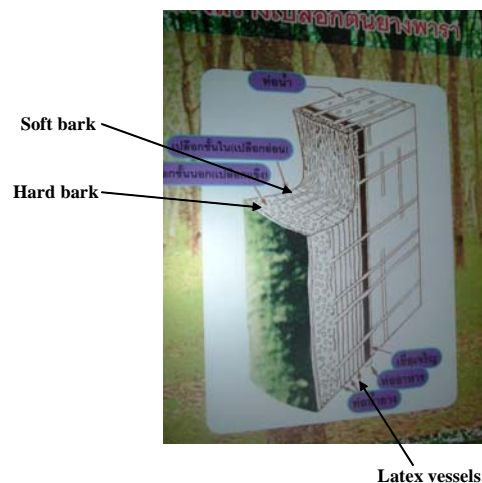


Figure 4-9 Latex Vessels (Source: a picture of latex vessels of rubber trees displayed at an agricultural fair at Prince of Songkla University, Thailand in 2005 [No reference])

One to six years before cutting the trees down or when the other tapping sites along the trunk of the trees are no longer worth tapping, rubber farmers extend the length of the handle of a tapping knife using a long stick to enable them to reach the highest point of the trunk of rubber trees (Rubber Research Centre, 2004). The procedure is called *Yang Choy* (PTP, interviewed 11/08/05).

Rubber farmers interviewed stated that they learned how to farm and tap rubber trees from family members such as parents, older siblings, or their spouse. Children constantly go to the rubber field with parents while parents are working. When the children are young, they play in the field-whereas older and more mature children might help their parents in fertilizing the trees, tapping the trees and/or collecting rubber latex. In that way children gradually pick up how to farm and tap the trees and it is how the knowledge and skill of rubber farming are passed from one generation to another within a family. An informant said that she learned how to tap the trees from her father soon after she finished primary school. When her tapping skill was approved she was given the responsibility of tapping rubber trees in their family rubber field. Another informant told me that when she was a young girl, whenever she saw a tapping knife she used it to tap any trees around her house. It was just for play in those days, but later she began to tap the real rubber trees in a rubber field, earning money to cover her college expenses.

4.2.4.3 Having a break: Waiting for rubber latex to flow

After finishing tapping all trees of the day, just before sunrise, the farmers waited for at least half an hour for the latex to flow into the latex cup.

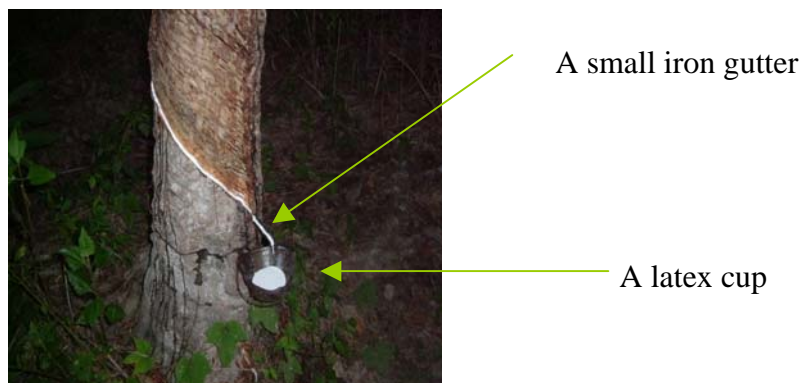


Figure 4-10 flow of rubber latex: from the tapping site into the cup through the small gutter

While waiting, some might go back home to take care of children by getting them ready for school. Some preferred to stay at the field, either having a nap at a little hut if there was one, or having something to eat or drink. Some take the chance to go to *Ran Num Cha* [an outdoor café] for a light breakfast and a cup of tea or coffee. Some

rubber farmers said they went back home to use the toilet. However, because returning home to use a toilet was perceived as time-consuming, the majority of the respondents (68%) stated that they defaecated on the ground when necessary.

4.2.4.4 Collecting rubber latex

After the break time, the rubber farmers returned to work, collecting rubber latex from each tree. Equipment needed is a bucket and a scrubber, and one, two or three *Lhon* (a big plastic container) depending on the amount of latex gained. Rubber latex from each latex cup is poured into the bucket, and the scrubber is used to wipe the latex out of the cup. Once the bucket is full, the latex is poured into a *Lhon*. The cycle is repeated until the rubber latex is collected from all the trees.

If rubber latex is to be sold in the form of raw rubber latex, ammonia or sodium sulphite is added to the *Lhon*. The addition of the anticoagulant substance is to prevent the coagulation of the latex. If the rubber latex collected is to be transformed to rubber sheets, anticoagulants are not required, but a coagulant substance (acetic/or formic acid) is needed.



Figure 4-11 collecting latex from each tree



Figure 4-12 pouring collected latex from the small bucket into the Lhon, ammonia or sodium sulphite might be added

4.2.4.5 Selling rubber product

The rubber latex is sold in the form of rubber latex or rubber sheets according to the preference of individual rubber farmers. PBT (interviewed, 13/06/05) said that although he agreed that if he transformed the rubber latex into rubber sheets before

selling the product he would earn more money, he preferred to sell rubber latex because he would finish the work of the day earlier. He indicated that although less money was paid, selling the rubber latex was more convenient for his wife and himself.

Right now, they aren't too much different [the money earned per kilogram from selling rubber latex and rubber sheets] 6 Baht, I guess. But selling rubber latex means we are buying some kind of convenience for ourselves... currently we get 52 or 50 Baht [per kilogram]. (PBT, interviewed, 13/06/05)

Conversely, NCH (interviewed, 31/08/05) preferred selling rubber sheets to selling rubber latex. She argued that it was difficult to manage the money received on a daily basis from selling rubber latex. She explained that the sale of rubber sheets, which she did twice a month, gave her a lump sum of money and that made it easier for her to manage income for living expenses and saving.



Resting at home



END OF THE WORK

Pouring rubber latex mixture into the square tins, leaving rubber latex to set



Removing latex block from the tin and pressing the latex block



Stepping on the rubber latex block to flatten it



Mangling the rubber sheets



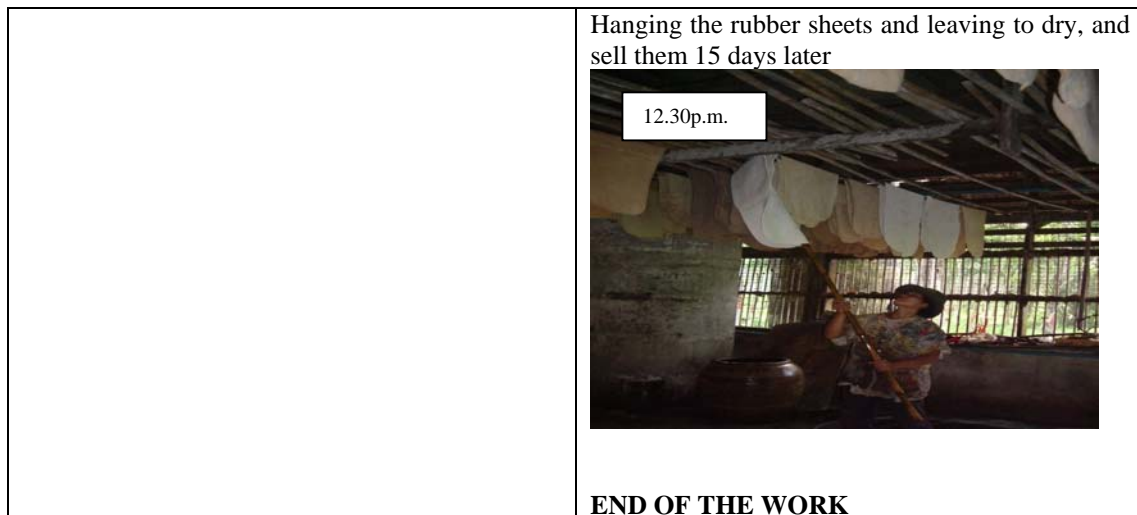


Figure 4-13 a set of pictures; selling rubber latex vs. processing rubber latex to rubber sheets

4.2.4.6 Activities after work

After finishing the work in the field, individual rubber farmers spent their time on a variety of activities. Most of them had a meal, a shower, and some might try to get some sleep and rest. However, there were some rubber farmers interviewed who said that they continued working in unpaid or paid work. For example, PYD (interviewed, 08/09/05) said that after coming from the field, she did some housework, while NMM (02/08/05) told me that she went to the fresh market in the city where she sold some vegetables. BNH (10/08/05) enjoyed taking care of *Nok Koa* (a pet bird: a breed of bird which has beautiful singing voice) his birds and sometimes going back to the field to do field maintenance, fertilising or, cutting overgrowth. And PSK (interviewed, 18/07/05) said that after having a rest, when it was fruit season, she helped the owner where she worked with fruit picking in a fruit plantation, otherwise she helped the field owner with tidying up the field or planting new rubber trees in the rubber field where the previous trees were chopped down. PCH (interviewed, 18/07/05) told me that after the work in the rubber field, he and his wife spent time raising goats from which they later collected benefit by selling them.

Before the evening meal, rubber farmers ensure that their tapping knives are ready for another night in the field. Keeping the knife sharp is very important because it maximises the ability of the rubber farmers to reach the latex vessel of the rubber trees without damaging the bark of the trees more than necessary (Thungwa, 2004).



Figure 4-14 sharpening a tapping knife

Some of the rubber farmers reported that they sharpened their knives themselves, whilst others, especially females and novice rubber farmers, hired someone to sharpen their knives which might cost 10-12 Baht per knife. The latter group stated that sharpening the knife is not as simple as it seems, particularly at the hook-like end of the knife where the sharp part is. Thus, without efficient skill, they might cause damage to the knife rather than improve its quality.

4.2.5 Work exposures and rubber farmers' health: Rubber farmers (RF) vs. Nonrubber farmers (NRF)

Rubber farming is a physically demanding occupation. As can be seen in Table 4-1, a significantly higher proportion of rubber farmers (RF) than nonrubber farmers (NRF) reported that the job entailed repetitive body movement (RBM) (i.e. RBM of elbow, shoulders, wrist, neck, back, waist, and knee), as well as heavy lifting, walking and use of manual equipment. Despite this, the only negative health consequence reported by a significantly greater portion of RF than NRF related to this demand was that of neck pain, with 70% of the RF and 62% of the NRF reporting this condition ($\chi^2=4.33$, $p = .03$). No significant differences were noted for shoulder pain, back pain, wrist pain, knee pain or leg pain (see Table 4-2). This inclination could be explained by the similarity of the physical demanding nature of occupations between the two groups. The majority of NRF reported to engage in labouring occupations (i.e. agriculture workers, drivers, factory employees, builders, and handymen).

Consistent with previous studies (Randolph, 1993; Rantanen, 1994), a significantly higher number of RF reported inherent hazardous exposures related to the outdoor

work environment (e.g. sunlight, heat, and moisture) than NRF. However, no significant differences were reported for health problems in relation to the exposures (i.e. headache, cold, exhaustion).

Though a higher percentage of the RF reported being diagnosed with hookworm (1%), and bitten by snakes (3%) than NRF (0%, 1% respectively), the numbers of respondents reporting these health problems were too small to test for significance.

Table 4-1: Proportion of Workers Reporting Physical Demands of the Job and Hazardous Workplace-Related Exposure (RF vs. NRF)

Exposures	RF		NRF		χ^2	P
	N	%	N	%		
RBM elbows	700	94	168	81	34.34	***
RBM shoulders	707	95	172	83	31.12	***
RBM wrists	720	96	180	87	25.25	***
RBM neck	700	94	160	77	52.90	***
RBM back	717	96	166	80	57.17	***
RBM waist	724	97	167	80	67.36	***
RBM knee	707	95	155	75	76.79	***
Heavy lifting	664	91	109	53	161.91	***
Use of manual equipment	725	98	183	87	41.61	***
Walking	713	97	131	65	170.99	***
Moisture	621	85	84	41	163.03	***
Heat/humidity	625	84	137	65	38.79	***
Sunlight	658	89	111	53	137.56	***
Mosquitoes	720	87	108	51	289.83	***
Snakes	615	84	37	18	323.21	***
Hookworm	313	56	25	12	68.05	***
Sharp object	677	92	102	50	201.85	***
Chemicals	408	58	39	20	87.08	***
Work-related stress	337	52	99	47	1.86	

p-value: * <.05, ** <.01, *** <.001

A significantly higher proportion of RF ($\chi^2 = 12.36$, $p < .001$) reported having work-related accidents (28%) than NRF (15%). The work-related accidents experienced by rubber farmers were, for example, tripping over a rubber tree root and uneven surface, hand/finger being cut by tapping knife and small iron gutter, having a hand/finger bitten by a centipede, or a scorpion-like arachnid. A likely cause of accidents is the unique working time in rubber farming (before daybreak) which prevents rubber farmers from having clear vision of the surroundings. Also, the rate of accidents reported involving fingers or hands was possibly related to a significantly lower

proportion ($\chi^2 = 12.36$, $p < .001$) of RF (16%) wearing gloves at work than NRF (30%).

Table 4-2: Proportion of Workers Reporting Negative Health Consequences (RF vs. NRF)

Negative health consequences	RF		NRF		χ^2	P
	N	%	N	%		
Neck pain	511	67	130	61	4.33	***
Shoulder pain	496	68	136	67	.49	
Back pain	630	85	167	80	3.74	
Wrist pain	428	59	122	59	.00	
Knee pain	516	70	137	65	1.08	
Leg pain	504	70	141	67	.39	
Exhaustion	596	80	164	78	.24	
Accident	191	28	30	15	12.36	***
Eye irritation	452	61	98	47	13.36	***
Itchy skin	367	50	86	42	4.02	*
Rashes	269	37	62	30	2.84	
Headache	580	76	170	80	.53	
Cold	604	81	180	85	1.09	
Herbicide poisoning	23	3	4	2	.50	
Breathing difficulty	174	24	56	27	.65	
Nausea	173	24	54	26	.245	
Diarrhoea	296	40	88	42	.07	
Stomach ache	252	34	64	30	.91	
Feeling depressed	439	60	129	63	.41	
Sleep disturbance	354	49	119	56	3.32	

p-value: * < .05, ** < .01, *** < .001

The proportion of RF reporting eye irritation and skin irritation/itchiness (61%, and 50% respectively) was significantly higher ($\chi^2 = 13.36$, $p < .001$, and $\chi^2 = 4.01$, $p = .04$ respectively) than NRF (47%, and 42%). These health problems were likely to be the result of exposure to chemicals used in rubber farming (anticoagulant substance [ammonia], and coagulant substances [acetic/or formic acid]) (Wikipedia, 2008a, 2008b, 2008c). Moreover, the itchiness of their skin was possibly a result of mosquito bites. A significantly higher proportion ($\chi^2 = 289.83$, $p < .001$) of RF reported mosquito bites (87) than NRF (51).

The itchy skin was also likely to be the result of working in unclean work clothes. A significantly lower proportion ($\chi^2 = 82.72$, $p < .001$) of RF (34%) reported “always washing work clothes after wearing them once” than NRF (68%). The following excerpt outlines the reason given by a Muslim rubber farmer for not washing work clothes:

The dried rubber latex only attaches on the outside of the outfit, not the inside. It might not look pretty, but it is only the dried rubber latex on the outside. I would only wash the outfit when it really stinks, then when the rubber latex became thickly aggregated, I would just throw it away. (PTP, interviewed 11/08/05)

Similarly, ND (interviewed 20/07/05), a Buddhist rubber farmer, did not worry much about washing work clothes.

I have two working tops, a pair of pants [usually wear], If it is a sunny day, I sweat a lot. I would wash them. If it is not sunny, I just hang them all under the sunlight. The top gets dirtier than the pants do...because it is exposed to sweat more. I hang the pants under the sun... they are not really dirty. (ND, interviewed 20/07/05)

4.2.6 Work exposures and rubber farmers' health: Buddhist rubber farmers (BRF) vs. Muslim rubber farmers (MRF)

As can be seen in Table 4-4, significantly higher proportions of Buddhist rubber farmers (BRF) than Muslim rubber farmers (MRF) reported feeling depressed and experiencing sleep disturbance. Nevertheless, the percentages of the two groups reporting experiencing work-related stress were not significantly different (see Table 4-3). No significant differences were noted for repetitive body movement; however, the proportions of BRF reporting neck, knee and leg pains (88%, 75% and 74% respectively) were significantly higher than MRF (82%, 66%, and 65% respectively) (see Table 4-4).

Moreover, significantly higher proportions of BRF reported accidents, eye irritation, itchy skin, and herbicide poisoning than MRF. These health problems were possibly related to the higher percentages of BRF reporting exposure to chemicals used in rubber farming (66%) than MRF (58%), though the differences were not significant. Unlike the assumption in the previous section, the different proportions of the BRF and MRF reporting "washing work clothes after wearing them once" was not able to explain the significantly higher portions ($\chi^2=6.66$, $p <.01$) of BRF reporting itchy skin (55%) than MRF (45%). While BRF reported a higher rate of itchy skin than MRF, the number of BRF (92%) who reported "washing their work clothes after wearing them once" was significantly higher ($\chi^2=12.78$, $p <.001$) than MRF (83%)

Table 4-3: Proportion of Workers Reporting Physical Demands of the Job and Hazardous workplace-Related Exposure (BRF vs. MRF)

Exposures	BRF		MRF		χ^2	P
	N	%	N	%		
RBM elbows	349	94	349	94	.19	
RBM shoulders	352	93	353	96	2.43	
RBM wrists	360	96	358	97	1.23	
RBM neck	355	94	343	94	.00	
RBM back	363	96	352	96	.00	
RBM waist	369	97	353	96	.49	
RBM knee	357	95	348	96	.16	
Heavy lifting	345	93	317	90	3.07	
Use of manual equipment	366	98	357	98	.00	
Walking	363	98	348	95	2.09	
Moisture	307	83	312	86	1.23	
Heat/humidity	325	87	298	81	3.46	
Sunlight	332	89	324	86	.03	
Mosquitoes	360	96	358	98	1.92	
Snakes	307	83	306	85	.65	
Hookworm	146	41	165	48	2.79	
Sharp object	343	92	332	92	.00	
Chemicals	234	66	173	50	18.86	***
Work-related stress	199	56	177	50	2.48	

p-value: * <.05, ** <.01, *** <.001

Apart from the health problems listed in Table 4-2 and 4-4, rubber farmers—both BRF and MRF—stated that they suffered from chronic health problems. Their definition of chronic health problems was extended from that of health professionals. Rubber farmers counted symptoms they repeatedly experienced as chronic health problems, for example, fainting, headache, and skin rashes. There were also other health problems mentioned by rubber farmers which required further exploration, for instance, *Pae* and *Tai* (see Chapter 5).

Table 4-4: Proportion of Workers Reporting Negative Health Consequences (BRF vs. MRF)

Negative health consequences	BRF		MRF		χ^2	P
	N	%	N	%		
Neck pain	263	71	247	69	.42	
Shoulder pain	252	68	242	67	.01	
Back pain	329	88	299	82	4.09	*
Wrist pain	228	62	198	56	2.32	
Knee pain	278	75	236	66	7.25	**
Leg pain	273	74	229	65	7.56	**
Exhaustion	311	83	283	78	2.50	
Accident	110	32	80	24	4.70	*
Eye irritation	245	65	205	57	5.09	*
Itchy skin	204	55	163	45	6.66	**
Rashes	142	39	127	36	.42	
Headache	283	75	295	78	2.27	
Cold	312	83	290	79	1.27	
Herbicide poisoning	17	12	6	2	4.21	*
Breathing difficulty	94	25	79	22	.72	
Nausea	89	24	82	23	.11	
Diarrhoea	153	42	142	39	.29	
Stomach ache	128	34	123	34	.00	
Feeling depressed	242	66	196	54	9.26	**
Sleep disturbance	196	53	157	45	4.89	*

p-value: * <.05, ** <.01, *** <.001

4.3 Rubber farmers: household and health behaviour

4.3.1 Home and workplace

Rubber trees were seen standing tall in tidy lines endlessly along the two sides of the gravel and dirt roads throughout the subdistrict, and most houses were surrounded by rubber trees. The rubber field was not only a workplace but also a playground for children.

Because of the unclear boundary between rubber fields and household areas, residents of the subdistrict were frequently disturbed by pests, including mosquitoes, flies, rats/mice, and snakes. The only significant difference reported between RF and NRF in terms of pests was that of snakes, where a significantly higher proportion ($\chi^2 = 21.39$, $p < .001$) of RF reported seeing snake in or around their households (26%) than NRF (11%) (See Table 4-5).

Table 4-5: Proportion of Workers (RF vs. NRF) Reporting Vermin in or Around Households

Pests in or around households	RF		NRF		χ^2	P
	N	%	N	%		
Mosquitoes	732	96	209	97		
Flies	613	82	161	76		
Rats/mice	479	64	129	61		
Snakes	198	27	23	11	21.39	***

p-value: * < .05, ** < .01, *** < .001

No significant difference was noted for reported presence of snakes in or around households between BRF and MRF. However, significantly greater numbers of BRF reported evidence of flies and rats/mice around households (86%, 70% respectively) than MRF (78%, 58% respectively) (see Table 4-6).

Table 4-6: Proportion of Workers (BRF vs. MRF) Reporting Vermin in or Around Households

Vermin in and around households	BRF		MRF		χ^2	P
	N	%	N	%		
Mosquitoes	373	98	357	97		
Flies	326	86	286	78	8.04	**
Rats/mice	266	70	212	58	12.22	***
Snakes	108	29	89	24		

p-value: * < .05, ** < .01, *** < .001



Figure 4-15 a set of pictures: distance between households and rubber field

4.3.2 Health behaviours

4.3.2.1 Food hygiene

Because of “Clean Food Good Taste”, a food safety campaign launched by the Ministry of Health (Thailand Ministry of Public Health, 2006), the health staff of the health centre had educated villagers about the importance of washing hands before handling food, and cleaning raw food material before cooking. Two health staff of the subdistrict health centre, of different religions, had opposing views of the success of this education programme. The public health specialist, a Muslim, stated that the Muslim residents washed their hands more often than the Buddhist population did. This was because it was compulsory for Muslims to wash their hands in accordance with their daily prayers, five times a day.

...before praying we must wash our hands, and that is five times a day. You think those who are not Muslims would clean their hands as often as we [Muslims] do. We work at health centre, we clean our hands often because we contact clients, but the villagers who don't contact with anything, and you think they will clean their hands before meals? But at least before Muslims pray they ought to wash their hands. (Public health specialist, interviewed 31/08/05)

The head of the health centre, a Buddhist, held an opinion contrary to that of the public health specialist.

...It is different, for *Thais* [Buddhist Thais], when we say they need to educate their children about the importance of washing hands before eating, they do as we suggested. Opposite to *Kak* [Thai Muslims], they would say, they have told their kids, but are not able to convince them to do as suggested. (The head of the health centre, interviewed 18/08/05)

The statement of the public health specialist was consistent with the results of the survey in which the number of Muslim rubber farmers (74%) who reported always washing their hands before handling food was significantly greater ($\chi^2 = 8.15, p = .01$) than Buddhist rubber farmers (65%). Yet, no significant difference was noted for health problems (i.e. diarrhoea) related to these two conditions.

4.3.2.2 Household drinking water and water supplies

According to the report of the subdistrict health centre, in 2005, throughout the sub-district, there were altogether 24 artesian wells, a kind of deep well drilled through “impermeable strata” (*The American Heritage Dictionary of the English Language*, 1992), 24 wells, and seven stations of public running water (Subdistrict Health Centre, 2005a). The water used to operate the public running water was drawn from the streams running through the subdistrict. Bottled drinking water was supplied by private water suppliers. This source of water tended to be favoured because of the convenience of having it delivered to households. Among the types of water supplies, the village running water was reported to be the main source of drinking water of rubber farmers of both religions (33%) and of nonrubber farmers (41%).

There were no significant differences for the numbers of RF (37%) and NRF (35%), and between the numbers of Buddhist and Muslim rubber farmers (34%, 39% respectively) who reported never treating water (bringing it to the boil) before drinking regardless of the source of the water.

When exploring the treatment of drinking water by asking a number of rubber farmers, KPO, for example, believed that filtering well water using two layers of thin cloth was a fine method to treat water before drinking.

I filter it [well water] before drinking.... I use two pieces of fabric [plain white cotton cloth], put one on the top of another... place them on the outlet of a bucket and pour the water into the bucket through them. (KPO, interviewed 26/06/05)

NJ (interviewed 31/08/05) held the same idea. She stated that she filtered water from a well before drinking. NJ suggested to her daughter-in-law that when water was filtered there was no need for the water to be boiled before drinking as filtering was enough to get rid of microorganisms in the water. Furthermore, other rubber farmers considered putting water in a refrigerator as a technique to purify untreated water (Fieldnote, 2005).

In July 2005, when 35 children and many other residents of the subdistrict were diagnosed with Hepatitis A, drinking water from a range of sources was collected and

tested. The results indicated that water from the village stream, wells of several infected persons' households and of the main mosque, the village running water, and drinking water provided at the subdistrict school were all contaminated by the Hepatitis A virus (Fieldnote, 2005).

The contamination of the water in the stream and wells was explained by substandard household toilets in which toilets were situated next to the water sources. And the village running water, using the water from the stream, was found not to be treated before being supplied to households. When the public health specialist of the subdistrict discussed the matter of untreated running water with the person (a staff member of the local government office) responsible for the water supply she was informed that the demand for the water was high leaving insufficient time for water to be treated and, most importantly, the machine which was used to add chlorine in the process of treatment was broken.

The bottled drinking water supplied by private manufacturers was declared—by a number of health personnel involved in the inspection and control of standard drinking water produced—unfit to drink before having been boiled. As health staff of the District Health Office and the public health specialist of the subdistrict health centre explained, once the manufacturers had passed the first inspection, they no longer adhere to the standard of hygiene. That is, the water distributed to households may be drawn directly from a waterfall via a pipe, without any treatment, into bottles. When attempting to deal with the standard of the manufacturing process, the public health specialist said that she places herself in a difficult situation as manufacturing owners often hold a position of influence with people in senior positions to those of the health staff (Fieldnote, 2005).

The suggestion of the health team to villagers to stop bathing in the stream and using the contaminated water was rejected as there were no other choices of drinking water available for the villagers. Some suggestions were insensitive to particular groups of villagers, such as when Muslim residents were asked to consider not rinsing their mouths using the well water at the main mosque before prayers.

4.3.2.3 Household litter management and toilet facilities

Burning household litter on bare ground was the most common practice for its management as reported by 77% of the rubber farmers and 67% of nonrubber farmers ($\chi^2 = 21.39, p < .001$). This evidence contradicted the report of the subdistrict health centre which declared that 100% of the households of the subdistrict used rubber bins to collect their household litter (Subdistrict Health Centre, 2005a).



Figure: 4-16 household litter management

Also, inconsistent with the report of the subdistrict health centre (2005a) which indicated that 100% of households in the subdistrict had a standardised toilet facility (flush toilet), 3% of Muslim rubber farmers, 4% of Buddhist rubber farmers and 3% of nonrubber farmers reported not having any toilet facility at home.

4.3.2.4 Drinking and smoking behaviours

No significant difference was noted between the proportions of rubber farmers and nonrubber farmers who reported drinking alcohol and smoking, whereas the proportion of Buddhist rubber farmers (33%) reported drinking alcohol was significantly higher ($\chi^2 = 64.66, p < .001$) than Muslim rubber farmers (9%). According to Islamic practice, consuming alcohol is prohibited, so the Muslims who reported drinking alcohol gave the reason that this drinking was for health benefits.

They believed that alcohol can detoxify the toxicity of herbicides. This notion was also held by the Buddhists (Fieldnote, 2005).

4.3.2.5 Choices of healthcare services

When seeking health services, rubber farmers, both Muslims and Buddhists, and non-rubber farmer respondents showed similar patterns (see Table 4-7).

Table 4-7: Proportion of Workers (RF vs. NRF) Reporting Choices of Healthcare

Choices of health care	RF		NRF		χ^2	P
	N	%	N	%		
Doing nothing	102	14	22	11	25.24	.001
Using folk remedies	34	5	5	3		
Consulting folk healers	4	1	5	3		
Buying medication from grocery stores	65	9	6	3		
Buying medication from pharmacy stores	174	25	46	23		
Going to subdistrict health centre	236	33	78	39		
Going to public hospital	46	7	13	7		
Going to private health practices	21	3	14	7		
Others	31	4	8	4		

The proportion of the respondents who reported going to receive health services from public health institutes, including the subdistrict health centre and the public hospital was higher than respondents who reported receiving care and treatment from other sources (i.e. using folk remedies, consulting a folk healer, going to private health practices, using self-prescribed medication). The next most preferred choice of care was buying medicine from a drug store (either self-prescribed medication or medication prescribed by pharmacist), and a significantly higher proportion of Buddhist rubber farmers (31%) reported using this choice of healthcare than Muslim rubber farmers (18%) (see Table 4-8). The third most preferred choice was “doing nothing” with a significantly greater portion of Muslim rubber farmers (21%) than Buddhist rubber farmers (8%) reporting preferring this choice.

Table 4-8: Proportion of Workers (BRF vs. MRF) Reporting Choices of Healthcare

Choices of health care	BRF		MRF		χ^2	P
	N	%	N	%		
Doing nothing	29	8	73	21	70.57	.001
Using folk remedies	13	4	21	6		
Consulting folk healers	2	1	2	1		
Buying medication from grocery stores	29	8	36	10		
Buying medication from pharmacy stores	112	31	62	18		
Going to subdistrict health centre	131	36	103	29		
Going to public hospital	28	7	18	5		
Going to private health practices	16	4	5	2		
Others	2	1	29	8		

4.3.2.6 Accessibility to healthcare services: Public health schemes

In Thailand, currently, three public health security schemes—including the Civil Servants Medical Benefit Scheme (CSMBS), the Social Security Scheme (SSS), and the Universal Coverage Scheme (UCS) –are provided to ensure accessibility to healthcare services for different population groups. Each scheme provides a different level of benefit with the least health benefits covered by the UCS (See Chapter 8). Most rubber farmers who responded to the survey in this study reported being UCS beneficiaries (92%). Despite the fact that the mean income of rubber farmers (7,099 baht/month) was less than that of nonrubber farmers (9,138), the percentage of rubber farmers (24%) who reported using their own money to cover health expenses was higher than nonrubber farmers (18%), though, there was no significant difference (see Table 4-9).

Table 4-9: Proportion of Workers (RF vs. NRF) Reporting Public Health Schemes Used

Public health schemes	RF		NRF		χ^2	P
	N	%	N	%		
30 baht health card: Universal Coverage Scheme (UCS)	685	92	143	68	86.22	***
Civil Servant Medical Benefit Scheme (CSMBS)	13	2	11	5		
Social Security Scheme (SSS)	21	3	41	20	37.96	***
Using own money	175	24	14	2		
Private health insurance	14	2	8	4		

p-value: * < .05, ** < .01, *** < .001

And regardless of having a similar level of average income, a significantly higher proportion of Buddhist rubber farmers (28%) reported using their own money to cover healthcare costs than Muslim rubber farmers (19%) (See Table 4-10).

Table 4-10: Proportion of workers (BRF/MRF) reporting public health schemes used

Choices of health care	BRF		MRF		χ^2	P
	N	%	N	%		
30 baht health card: Universal Coverage Scheme (UCS)	340	90	343	94		
Civil Servant Medical Benefit Scheme (CSMBS)	9	2	4	1		
Social Security Scheme (SSS)	12	3	9	6		
Using own money	106	29	68	19	9.02	**
Private health insurance	8	2	5	1		

p-value: * < .05, ** < .01, *** < .001

4.3.2.6 Participation in community health activities

The proportion of rubber farmers (38.7%) reporting taking part in community health activities provided by the subdistrict health centre was significantly lower ($\chi^2 = 7.80$, $p = .02$) than NRF (42%). Though the percentage of Muslim rubber farmers (40.4%) reporting joining in health activities was higher than that of Buddhist rubber farmers (36.8%), the difference was not significant. Rubber farmers suggested that their working time was an obstacle to their pursuit of these

4.4 Summary

In this chapter an overview of rubber farming and some aspects of rubber farmers' health, and general living conditions, health behaviours, and accessibility to healthcare services have been presented, enhancing readers' understanding of the context presented in the chapters that follow. In the field, the information gained from this stage pointed to a number of "breakdowns" (Agar, 1986), creating questions and directions to be explored further using "focused" and "selective" observations and interviews. These include "what do rubber farmers mean by *Pae*?", "What does *Tai* mean in the context of rubber farmers?" Hence, in the next chapter the focus is on the viewpoints of rubber farmers about the effects of work on health.

Chapter 5: Being healthy and the effects of rubber farming on health: Rubber Farmers' viewpoint

5.1 Introduction

In the previous chapter, a general idea of rubber farming (rubber farming-work exposures and effects on health) and rubber farmers' household and health behaviour was established based on the predetermined framework (objective viewpoint), gained from the literature I reviewed, and from my visit with the health volunteers to the rubber farmers while distributing the copies of the questionnaire to them. Now, in this chapter, an in-depth understanding of “being healthy” and “effects of rubber farming on health” focused on the “subjective” viewpoint of rubber farmers is presented. Factors influencing the construction of the rubber farmers' perspective are, in addition, discussed to enhance understanding of why rubber farmers defined “being healthy” and perceived “the effects of rubber farming on health” in the way they did.

5.2 Being healthy and the effects of rubber farming on health: rubber farmers' viewpoint

Consistent with Glendon and McKenna (1995), the rubber farmers accept the work exposures and their effects on health because of foreseen benefit. They accept the risks because the work secures their families' economic well-being. Being self-employed, working in a small-scale farm, earning just enough for a day's expenses, coupled with a lack of access to any compensation for sickness/injury leave, most rubber farmers could not afford to lose a day's work.

Consequently, the interplay of living and working conditions—the notion of an inseparable bond between life and work—is a major element influencing the construction of rubber farmers' meaning of “being healthy” and their understanding of “effects of rubber farming on health”. Rubber farmers accounted this inseparable bond as a reality, meaning that as long as they live, they cannot avoid working, and that the work hazards and health problems are an inevitable part of that work. Adverse

effects of work on health remain visible, but given that the effects do not hinder the ability to work (ability to function), rubber farmers believe the effects are not worth worrying about or what they stated as *Thum-mada* (Natural/routine/normal, or the situation is accepted as there is no other way to deal with it). This unawareness of the effects of work on health (i.e. long-term effects of herbicides/acetic acid/ammonia on health, and the idea that the body develops a level of tolerance to particular hazards) also occurs because of their limited knowledge about the effects and potential harm of work exposures on the human body.

Figure 5-1 below demonstrates an overall picture of rubber farmers' constructions of the meaning of "being healthy" and the understanding "effects of work on health".

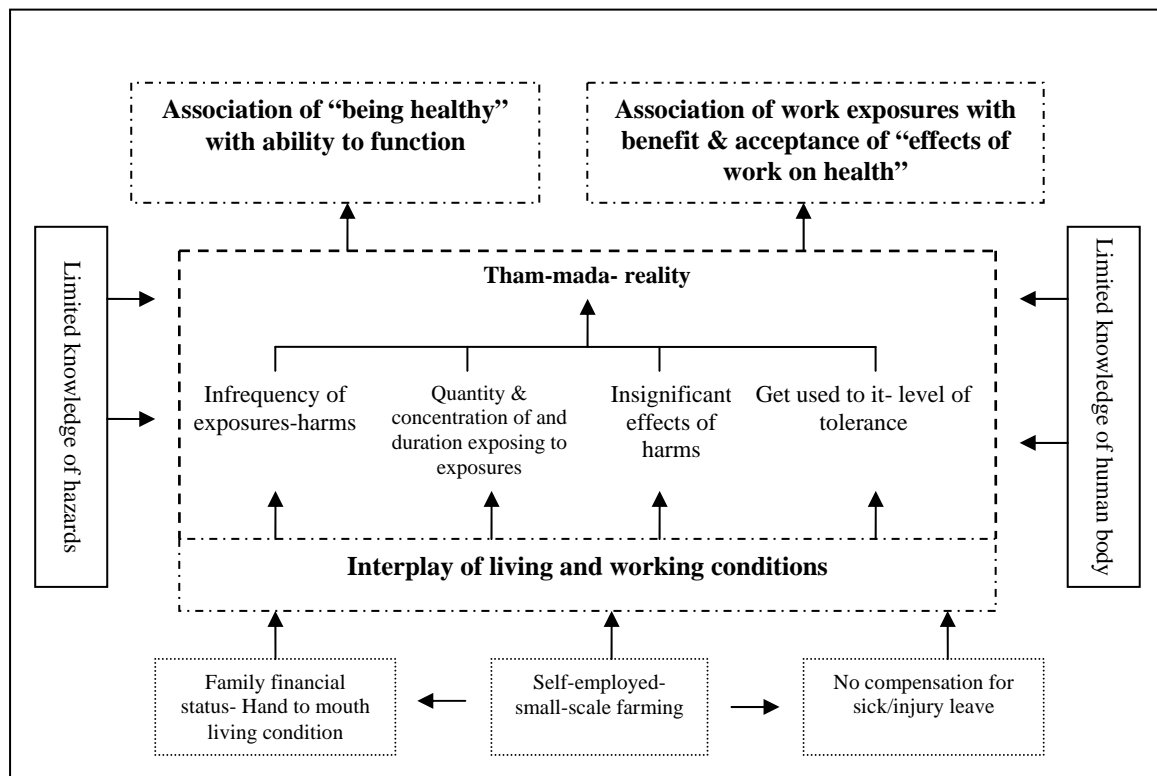


Figure 5-1 Rubber farmers' interplay of living and working conditions and perception of health and acceptance of work-related health problems

The following section elucidates the meanings of "being healthy" and the understandings of "effects of work on health" as classified by rubber farmers in which the elements showed in Figure 5-1 are integrated.

5.2.1 Being healthy

The meaning of “being healthy” expressed by the rubber farmers is illustrated in various aspects, including being illness free, and having the state of health which does not require hospitalisation, a visit to a doctor, or treatment. However, another group of informants held a differing definition of health. They argued that a healthy person could occasionally encounter health problems. Moreover, others associated the meaning of being healthy with ability to work.

5.2.1.1 Being healthy as being illness free

The rubber farmers interviewed, including both Muslims and Buddhists, when being asked the question “how do you describe being healthy?” promptly explained that being healthy is the absence of any illness, or other health concerns. A 29-year-old male rubber farmer of 10 years’ experience said “healthy is when no *Kai* [Feeling unwell, sick, having fever, health problems], no feeling of dizziness, and no headache” (NN, interviewed 12/08/05). A 60-year-old male, who started to be a rubber farmer when he was a young man, held a comparable opinion. He verified that being healthy is when there is “no *Khed Meay* [Body ache, or, sometimes is mentioned as *Khed* or *Meay*]”, no *Kai*, (PEH, interviewed 08/09/05). The meaning is supported by a statement of a 51-year-old female rubber farmer. She mentioned “...I keep myself healthy... I don’t really have any health problem.” (MA, interviewed 02/08/05).

ND, who has been working as a rubber farmer for 16 years, shared a similar opinion. She stated that good health is “being strong, no *Kai*, and no sign of stomach problem. Currently, I have got no health problems...” (ND, interviewed 20/07/05). Noticeably, ND’s health definition is extended from those stated earlier. She added disappearance of the chronic health condition she had been having, gastritis, as a feature of her state of well-being. She further stressed that “these days I feel fine...no headache, no dizziness...I am in good health”.

A middle-aged rubber farmer of 16 years’ experience supported the definition given above by indicating that she is unhealthy because she has a chronic health condition

and often feels unwell. She said “Other people [rubber farmers] are healthy, but I am *Kee Rook* [often feel unwell, not healthy], which makes my working life complicated” (PTP, interviewed 11/08/05). A 40-year-old rubber farmer agreed on the meaning. She pointed out that “my health is moderate, not bad, but not good either. I often feel unwell” (PYD, interviewed 08/09/05). Healthy people, in the view of the latter two informants, are the persons without chronic health conditions, or who are not repeatedly having health problems.

The meaning of “being healthy” in this category evolves around the fitness of body condition and freedom from illness. This definition could be associated with the following definition in which some informants described being healthy as when they have no requirement for hospitalisation, a visit to the doctor, or any kind of treatments.

5.2.1.2 Being healthy as no requirement for hospitalization, a visit to a doctor, or treatment

A group of the rubber farmers, both Muslims and Buddhists, believed that the state of being healthy is when they do not need medical attention such as being hospitalised, visiting a doctor, or taking medication for treatment purposes. The answer of a long-term rubber farmer, a career of 34 years in rubber farming, to the question, “What would be the indicator to tell you that you are healthy?” illustrates that a few days of bed rest and/or hospitalisation is an indicator of being unhealthy, in other words, healthy people should not need hospitalisation nor do they need bed rest. He said “I have never been *Kai*, never had to stay in bed for 2-3 days...never! I hadn't been to hospital until the day I needed to go for my low back pain... I have never been hospitalised” (PA, interviewed 09/06/05). Similarly, another rubber farmer and a life-time rubber farmer confirmed the statement by saying “See! I am 60 years old; I have been to hospital only once. It was because of diarrhoea...” (BNH, interviewed 10/08/05).

A Buddhist lady who has been a rubber farmer for over 30 years identified not having to visit a doctor as evidence of being healthy. She stated, “I don't really have any health problems apart from *Khed Meay*. I remember I haven't gone to see a doctor for 2 years” (PE, interviewed 08/09/05). ND, the 30-year-old rubber farmer mentioned

earlier, agreed that when she is in good health there is no need for her to see a doctor nor does she need to take any medication. She said, “currently, I have got no health problems... don’t have to see doctor, don’t have to take any pills...not having to take any medications is the best...” (ND, interviewed 20/07/05). Another middle-aged rubber farmer held an identical opinion. She stressed that, “a healthy person is the person that has never been to see a doctor. No *Khed Meay*, and no need to take any medications” (PYDS, interviewed 08/09/05).

In conclusion, this meaning of the state of being healthy involves three main indicators, no hospitalisation, no visit to a doctor required, no medication or treatment needed.

5.2.1.3 Being healthy as experiencing sporadic minor health concerns and common health problems in relation to work conditions

A few informants held a view of “being healthy” that allowed the existence of minor illness, and occasional health problems. A healthy person should require only a short period of time to recover from the illness/or health problem. Consequently, people with chronic illness are excluded from the healthy category.

A middle-aged male rubber farmer who is also the head of subdistrict health volunteers emphasised that being healthy is when a person is in a reasonable health status or what he called “sufficient health”. He said:

Sufficient health is when there is no persistent illness or chronic health problem. Throughout a year, a person only experiences minor illness which does not require several days of resting. No nonstop sickness [being sick all year round]. And [if s/he gets sick] get better after resting (PCH, interviewed 18/07/05).

Moreover, a common health problem in relation to work is acceptable in a healthy person. Remembering PTP, who insisted that being healthy is the freedom from chronic illness, here she presented another idea of being healthy which fits into the current category of being healthy. She expressed her view that, “Healthy people have *Khed* but it develops from work, from lifting a bucket full of *Num Yang* [Rubber latex]...” (PTP, interviewed 11/08/05).

In brief, the meaning of the state of being healthy in this classification refers to one's ability to rapidly regain health condition when being affected by an occasional insignificant illness, from which chronic illness is excluded.

5.2.1.4 Being healthy as being fit to work

Apart from the three meanings demonstrated, several rubber farmers linked the meaning of being healthy with the ability to carry on working. Also, when we read between the lines of the first three meanings of the state of being healthy, we would actually notice that all meanings given associate with "being fit to work".

PYD, who earlier agreed on being healthy as the freedom from illness, stressed that "for people with good health, they are fine with working, but people with inadequate blood volume [anaemia] would feel dizzy when tapping the rubber trees. Myself, I recover fast [from feeling unwell], say, if today I have a headache, tomorrow I will be able to go to tap the trees" (PYD, interviewed 08/09/05). PTP, who indicated that her working life is more complicated than others' because of her chronic health problem, said "...those who are in good health, they are energetic while working" (PTP, interviewed 11/08/05).

The reply of a 36-year-old female who worked in rubber farming for 28 years to the question, 'how do you describe yourself as being healthy?' is another example of the association between fitness of health and the ability to work. The informant decided to take a quack medicine on the basis of its effect on her ability to carry on working. She said:

Ya Boran [ancient folk remedies] are good, for a lot of people *Thook Rook* [one's body reacts positively to the medication/remedy given/taken and shows favourable results] with it. It enhances the regularity of periods. I actually do not worry much about the periods. I am happy with the *Ya Boran* because it makes me *Boa Tau* [feel well, no strain on the body], which helps me to be able to walk without any difficulty while working in the rubber field. (PSK, interviewed 29/07/05)

A 60-year-old rubber farmer, who previously described being healthy as no requirement for hospitalisation, assessed his ability to work based on the workload he could handle in the rubber field. He pointed out that "...Every year our body

condition slightly deteriorates. This year I could tap this number of trees, next year I don't know how many trees I could do. The workload would gradually decrease. Men at my age don't work in rubber fields anymore. They are unwell. Their wives work to earn the living. I am not in that stage yet" (BNH, interviewed 11/08/05).

Viewed closely, the meaning of being healthy as being fit to work is actually the concealed meaning included in the other meanings of being healthy given by the rubber farmers. The financial status of the rubber farmers relies on day-to-day earning, in other words, they live from hand to mouth. When they are ill or feeling unwell they miss out one or more working days. And that is enough to cause them to experience financial hardship, especially for those who do not earn enough to be able to save. The following quotation illustrates their situation.

Yes, I can save some money after all expenses during a day. If the trees give lot of rubber latex I can save more money. However, currently some people are unable to put some money aside, living on day to day basis. Not enough money earned. Those who have kids wouldn't have enough money to cover expenses when they only earn a small amount of money. See! If they have 200 baht, that's for kids, for food... *Ha Chao Kin Kum* [living on a hand-to-mouth basis]. Some people could cope, but some can't, so they live with difficulty. (PTP, interviewed 11/08/05)

Another middle-aged rubber farmer who is a village health volunteer experienced the same financial situation. She said, "Selling *Num Yang*, we would get money on a daily basis, and spend it on anything we want. Get the money and spend it all in one day..." (PY, interviewed 28/07/05). NJ, a rubber farmer of 24 years, also confessed that "Selling *Num Yang*, we have money every day, never mind having some for saving or not." (NJ, interviewed 12/08/05).

A rubber farmer who is a widow and the mother of four children, and who is a village health volunteer, mentioned, "I only have money to spend on a daily basis. If it is not enough, I have to borrow... borrow money from neighbour, relatives, friends...any of them...borrow today, give it back tomorrow...something like that." (PMR, interviewed 18/07/05). She added that, "...I am working only to earn enough money to cover my kids' school expenses. It would be fine if my kids were not at school...now I couldn't just stop working because I don't feel like working."

A rubber farmer who is the father of four children said;

We sell *Num Yang* day to day. People definitely think of putting some of the money aside [for saving]. However, the problem is kids going to school, teacher told kids to get extra things for school lessons, or asked kids to bring some money to school to pay for extra equipment. Therefore, the money for saving would be gone [with that kind of situation]. Sometimes, we get 500 baht for a day, thinking of spending 300 baht on food, and kids. The 200 baht [which we planned to save] would be gone too if teacher asked kids to do what I have said. Then, tomorrow would be a problem [no money left]... (PBT, interviewed 13/06/05)

The meanings of health revealed from this study, though partly similar to, are extended from those reported in a previous study conducted in a southern community of Thailand (Songwathana, 1998). The similarity is that the informants in both studies counted the absence of illness, and being fit to work as a meaning of health. In addition to the previous study, the rubber farmers in this study offered the reasons of why they associated “being healthy” with being fit to work.

The rubber farmers coupled the meaning of health to the ability to work because they depend on their day-to-day income. And that is because they are self-employed, in which they do not have compensation benefits. For rubber farmers who are employed to work for others, *Yang Wa*, and *Suan-Jeen*, the situation is not much different from those who work in their own fields. This is because rubber field owners do not take responsibility to provide sickness benefit to the rubber farmers whom they employ. Furthermore, the middle persons or companies that buy rubber latex, and rubber sheets from rubber farmers do not act as employers to the rubber farmers. The relationship between the two parties is ‘buyer-seller’. As a result, the middle persons, and companies do not hold any responsibilities towards rubber farmers’ welfare. As consequence, regardless of whom rubber farmers work for, when they are absent from even a day’s work, they would encounter financial obstacles. As a result, it is logical for the rubber farmers to define the meaning of “being healthy” in relation to being fit to work.

Furthermore, the results of a previous study by Ness (1997) are consistent in that the rubber farmers’ distinction between the meaning of health and illness is not strictly drawn. Rubber farmers continued to consider themselves healthy given that the presence of health problem is sporadic, minor, and related to the work, also that it did

not require them to be bedridden or hospitalised, or be seen by health professionals- and given that it is common for a healthy person to experience a health problem so long as s/he takes only a short period of time to regain his/her health. Also, unlike the study by Ness, none of rubber farmers appear to link the meaning of health to any psychological aspects, for instance, feeling loved, feeling worthwhile, feeling needed, or being concerned about the balance of work and personal life. Again, this could be explained by the rubber farmers' dependence on day-to-day income. As they are preoccupied with making a living, the aspects of health beyond obvious physical-functioning conditions are not in the list of priority (Naidoo & Wills, 2001; Peltomaki et al., 2003).

5.2.2 Effects of rubber farming and its environment on health as perceived by the rubber farmers

Rubber farmers' understanding of the effects of rubber farming and its environment on their health is a combination of four main aspects: first constructive effect, second destructive effect, third destructive effect on selective cases and fourth destructive effect but not worth worrying about.

5.2.2.1 Constructive effect of rubber farming and its environment on health

A number of the rubber farmers studied believed that rubber farming and its environment are beneficial to their health. MA, a Muslim rubber farmer of 37 years, stressed that she could stay healthy because she continually worked. She said, "I don't know... may be continue working [laugh]... If I don't do any work, I feel ill". (MA, interviewed 02/08/05). This statement is approved by a younger Buddhist female rubber farmer. She pointed out that working in the field is a way of exercise which keeps her feeling fresh.

...I think working in the field, tapping the trees, could be accounted as exercise... but *Mhor* [health personnel, medical doctors, nurses] said it isn't... I think it is an exercise because it makes me sweat, tired just like doing other exercises. On the day that I don't go to work, when I wake up in the morning, I don't want to get up from bed. I feel tired, I feel weak.... But on the day that I go to tap the trees I feel opposite. I could continue doing other things [after returning from the field]... I don't feel tired, I don't feel weak. I feel so energetic. I mop the floor [and doing other

housework].... Some people feel tired [after the field work], and weak.... For me, when I am tired it means I am doing some exercise... feel good when sweating quite a bit. Some people said they are tired because they go to their fields very early [middle of the night]... for me.... I could handle the work, working makes me sweat, and that makes me feel good. Free from disease. (ND, interviewed 20/07/05)

Sweating appears to be the key factor influencing the informant's perception that tapping the rubber trees is a kind of exercise. This view was shared by other informants. A 56-year-old rubber farmer, who has worked in the rubber field since she was a young woman, emphasised that working in the rubber field provides her with a chance to do exercise. She said, "Tapping the trees gives us a chance to do physical exercise, release some sweat, makes us healthy." (MA2, interviewed, 02/08/05). And this statement was also supported by a middle-aged female rubber farmer who acknowledged that rubber farming could cause some kinds of problems, however, it did not do any serious harm to the body; rather it was a form of physical exercise.

I don't think they [activities in rubber farming] harm our health. See! tapping the trees, working in the field is the work that we do in the morning which is very early, so it is rather a physical exercise. No harm to health, instead it is a kind of body work out. ... (PY, interviewed 29/07/05)

A 60-year-old rubber farmer interviewed held a similar opinion. He stated that rubber farmers have the advantage of doing exercise when working, whereas, people in other workforces do not have the same benefit.

The government work is tiring too, but it is different from tiredness of working in rubber field. Those government officers suffer from different kinds of health problems. They need to do exercise. For us who work in rubber field, it would be also good for us to do exercise...however; working the rubber field make us sweat a lot. Tapping the trees is the same [with exercise]... we have to sit on the heels, walk backward, standing up, work on *Yang Nha Soong* [upward tapping site] *Yang Nha Tum* [downward tapping site]... too many procedures. (BNH, interviewed 10/08/05)

Furthermore, another informant, a rubber farmer of 28 years, added that not only does rubber farming enhance physical health, but it also lightens mental health. When asked if work has any unfavourable effects on her health or not, she replied:

No, I don't think so... It is rather an exercise for me...when we are planting the rubber trees several people work together. It is kind of fun. Some carry the trees, some wait to put the trees in the holes, some wait to water the planted trees, some just walk around [laugh]. (PSK, interviewed 29/08/05)

Among this group of rubber farmers, because the positive effects of work on health are prominent in their views, the potential negative effects are not considered.

5.2.2.2 Destructive effects of rubber farming and its environment on health

In addition to those health problems demonstrated in the previous chapter, here the rubber farmers verified the experiences of undesirable effects of working in a rubber field on both physical and mental health. They offered explanations, according to their understanding and in their own terms, as to how a health problem occurred and what caused it. However, some of the health problems listed in the questionnaire were not mentioned by the informants.

Similar to the surveyed information, most rubber farmers interviewed talked about muscle pain, or what they called *Khed Meay* or *Khed*, or *Meay*, and said it is an unavoidable health condition which happens to all rubber farmers. Causes of muscle pain as described by rubber farmers are various. Some viewed, congruent with the literature, repetitive movement of the body—tapping the rubber trees, stepping on rubber blocks, rotating the mangling device, working and walking for a long period of time—as the major causes. Which part of the body would suffer from the condition basically depends on what tasks they do.

...When collecting *Num Yang*, it is heavy. You will feel it heavier and heavier...bending body again and again, along 30, 40, and 50...hundreds of trees. The pain is around the waist level [lower back]... also the pain is here [at the shoulder blades]... (TYM, interviewed 16/08/05)

The rubber farmer quoted above also made it clear that health professionals should not get confused between two similar terms, *Khed Meay*, and *Khed Khud Yok* [an acute muscle spasm/sprain] since their causes are different. He explained that the previous problem develops over time as a result of repeated movement, but the latter

problem happens abruptly as a consequence of heavy lifting with a wrong position (Fieldnote, 2005).

When I was talking to female rubber farmers, they provided another explanation of the low back pain. They registered that “misplacement of the uterus” or what they called *Mod Look Long Tum* is the main reason of the back pain. They explained that when they lifted a big container full of rubber latex, the abdominal pressure generated pushed the uterus into the wrong place, below its normal position.

Sometimes when I lift [a container filled with] *Num Yang*, it [the heavy lifting] causes *Mod Look Long Tum* and that gives me back pain. (PSK, interviewed 29/07/05)

PSK also pointed out that the problem (*Mod Look Long Tum*) worsens in married women.

Those who have husband with them, it is normal for them to have problem with *Mod Look* [uterus]... *Mod Look Long Tum* worsens when having intercourse. I guess that there should be some kind of connection. (PSK, interviewed 29/07/05)

Arising from the discussion about muscle injury, the informants explained that prolonged back pain leads rubber farmers to a severe health problem which they called *Tai*. In Thai language *Tai* means kidney(s). In the health professional term, when a person is diagnosed with a *Tai* disease it means the person is having a problem concerning his/her kidney(s), for example, kidney failure, kidney stone. However, the informants who claimed that they had experienced the *Tai* elucidated that *Tai* is the result of chronic low back pain which develops from the repetitive movement of the body in the rubber field, bending the body, and heavy lifting. A rubber farmer who is also a health volunteer explained:

No, [I] couldn't sit [while working on downward tapping site]. It is the mixture of bending, and looking up. The muscle would be strained, especially the back muscle. It [back muscle] works hard. Some people gave up [working]. Some needed to go to see a doctor. And some developed *Tai* (PBT, interviewed 13/06/05)

The perception generated an additional question, “Did rubber farmers know what kidneys really are, and what they do for the human body?” So I asked, and the answer I received was;

No, I don't know... See! I always want to ask *Mhor* [physicians or nurses or any other health-related personnel] lots of things. Isn't *Tai* located in the backbone, *Sen Tai*? [that is *Tai* is a kind of nerve]" (PSK, interviewed 18/07/05)

KPO (interviewed 26/06/05), who is a rubber farmer and a folk massager, agreed with the answer.

Apart from muscle pain and its consequences, rubber farmers, consistent with farmers of other agricultural types, indicated that they often felt tired, dizzy, and experienced headaches, due to the physical demands at work coupled with the work hours in the rubber field (Fieldnote, 2005). The latter appears to be of particular concern to rubber farmers since it also carries with it other health problems, including risks of getting bitten by poisonous snakes and other creatures.

I don't have much sleep at night, only 2-3 hours, sometimes I couldn't sleep, so I often have headaches. (KPO, interviewed 24/06/05)

The dark night blinds the rubber farmers from clearly seeing their surroundings. Thus, often, they are bitten by a scorpion-like arachnid, which they called *Tauy Yai Mun*. The arachnid is seen throughout the year, but more during the rainy season. It often hides in the latex cups, and underneath dried leaves. Therefore, the most common part of rubber farmer's body that gets stung by the creature is the hands.

There is this thing called *Tauy Yai Mun* [a scorpion-like arachnid]. It normally hides under the latex cup. It looks like a scorpion, but smaller. If we get stung by it, it is so painful. [A neighbour] just got stung by one on her hand. (PY, interviewed 28/07/05)

In some circumstances, rubber farmers said they were confronted with poisonous snakes; the pit viper or *Kapa* snake as it is called by the rubber farmers, is the most common type. *Kapa* is categorised in the haemorrhagin group in which its venom causes degeneration and lysis of endothelial cells in capillaries and small vessels, causing haemorrhages in tissues (Farlex Free Dictionary, 2008; Khow, Chanhom, Omori-Satoh, Puempunpanich, & Sitprija, 2002; Ramathibodi Poison Centre, 2003).

PYD (interviewed 08/09/05) said she got bitten by pit viper once every four or five years.

Because they work before dawn, a headlamp is an essential part of the equipment required by rubber farmers. There are two types of headlamps; *Than-Hin* (a carbide headlamp) and *Mho-Bat* (rechargeable battery headlamp). Each of them generates a specific problem to its user. Some rubber farmers stated that the *Than-Hin* headlamp (see Figure 5-2) generates a kind of gas with an unpleasant odour which makes its user feel nauseous. Sometimes, the flame providing the light to work in the dark at the tip of the headlamp burns their eyebrows and hair. For these reasons some rubber farmers preferred to use a battery headlamp.

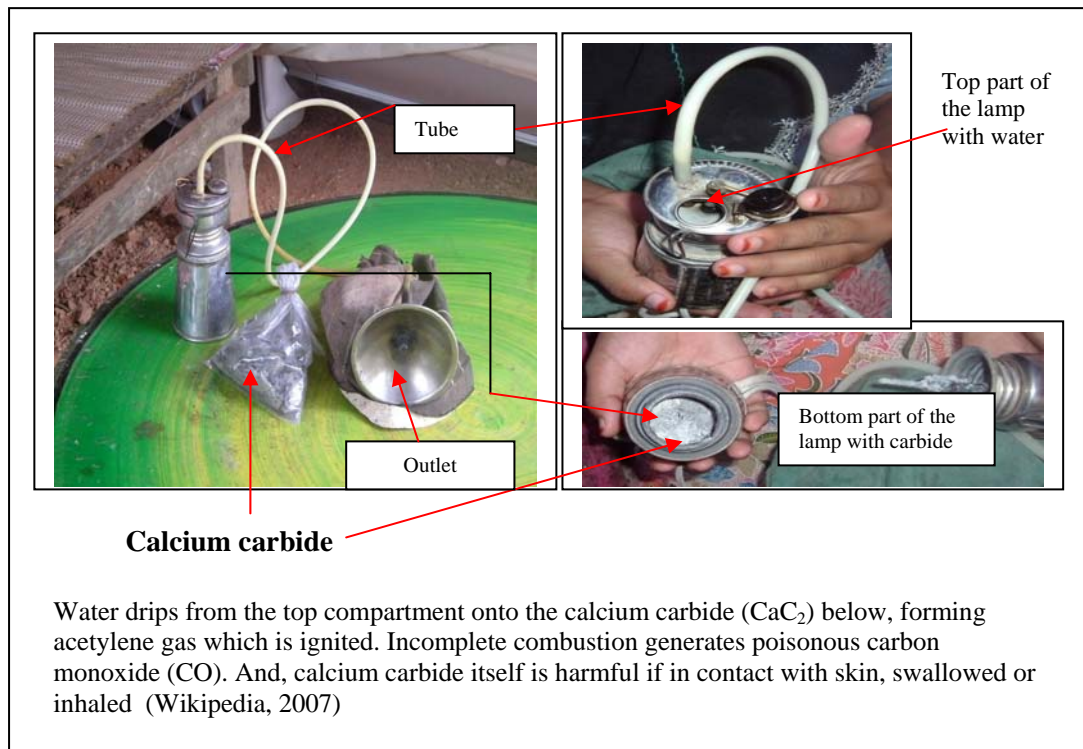


Figure 5-2 Carbide headlamp operation

However, there are a few disadvantages of the battery headlamp. First, it produces a very bright light which causes eye strain (PBT, interviewed 13/06/05). Second, it is costlier than using the *Than-Hin* headlamp (KPO, interviewed 26/06/05). Third, from time to time, the rechargeable battery loses its power and stops working in the middle

of the task (ND, interviewed 20/07/05). Because of these disadvantages some informants choose the *Than-Hin* headlamp.

Apart from the headlamp, there were also other hand tools used in the field highlighted by the study informants as causing injuries. The rubber farmers mentioned the tapping knife as a common cause of injury. An informant said that the knife is extremely sharp, and once it makes a cut on skin it would take a long time for the wound to heal (PY, interviewed 28/07/05). While checking the returned questionnaires I identified another word, *Thor Yang Deed*, thus I followed it up in interviews with rubber farmers. PY (interviewed 28/07/05) explained that *Thor Yang* is the small steel gutter inserted into each rubber tree to drain the rubber latex from the surface of the tree into the cup tied to the tree. Rubber farmers explained that *Thor Yang Deed* means that the gutter springs back and smacks a part of the body, mostly hands, and facial area causing the skin to tear, when rubber farmers tried to remove dried rubber latex left in the gutter (PSK, interviewed 29/07/05).

Karma is another particular health problem revealed from the interview information. In Buddhist doctrine, “Karma” is associated with motive behind an action, creating good or bad consequences which restraints one within the cycle of “samsara” (cycle of cause and effect), or release one to “nirvana” (extinction of all attachment) (Wikipedia, 2008d). The consequences of “Karma” are manifested either in the present or in the next life (Buddha Dharma Education Association, 2008). In this study, *Karma* as mentioned by female rubber farmers is a health problem—fungal infection of the nails—causing a “suffering” pain (PR, interviewed 20/07/05). Given that in Thai society “Karma” is often referred to as suffering and suffering is caused by “Karma” (action) (Songwathana, 1998), the rubber farmers named the fungal infection of nails as *Karma*. The causes of the *Karma* identified by the informants who had the health condition were wearing gumboots and socks, and contact with the coagulant substances; formic acid or acetic acid (Fieldnote, 2005). Though “Karma” is associated with Buddhist doctrine, the *Karma* (fungal infection of nail) was also reported by Muslim rubber farmers who have also adopted this name for it.

Besides the physical health effects, there are psychological concerns raised by the rubber farmers who were studied. The concerns predominantly link to the nature of work in the rubber field. As mentioned elsewhere, working in the rubber field begins before sunrise. The early rising and limited hours of sleeping cause stress and sleep disturbance. Individual rubber farmers' stress could be more severe when they have family finance-related issues on their minds.

The family-financial distress is often caused by a drop of the rubber price in the rubber market not only locally but also worldwide. It also relates to the change of season. Rubber trees produce less latex sap during the dry season (March-May), while during the monsoon season (October-January), heavy rain interferes with working in the field and most importantly, the quality of the rubber latex is degraded to valueless when mixed with rain water. As the farmers mostly make their living on a daily basis, not being able to go to the field for even a day or a few days could cause them financial trouble, especially to those who have limited savings (PBT, interviewed 13/06/05). A rubber farmer who is a solo mother of four children said, "I can't afford to stop working; my children are still at school. I need the money to support them" (PMR, interviewed 18/07/05).

When the rubber price increases most outsiders believe that the rubber farmers would be happy because they would have more income. However, the rubber farmers themselves pointed out that the increased price of rubber does not mean that they earn more money, because the rubber prices rise when the rubber trees normally produce less rubber latex in the dry season or when the farmers cannot go to tap the trees in the monsoon period. In other words, the rubber price increases because of the imbalance of the demand and supply; there is a greater—or the same—demand but less rubber latex goes into the market.

The increase of the rubber price means nothing to us, because it goes up when the trees produce less latex. It is rather depressing, tapping trees after trees, but no sap. It is tiresome...When the rubber price is higher; the prices for other goods are higher too. When the rubber price slumps, those of other goods do not. They just stay expensive...see! That's why the increase or decrease of rubber price does not do us any good either way. And that's our life... I [a single woman] am not too bad. I could save some money. But especially during this time [dry summer] some rubber farmers, with a few children in particular, would not be able to save any money,

living on day-to-day faith. The little income is not enough to feed the whole family. Earning 200 baht, but have to try to manage it to cover what, children's school expenses plus food. So they just live on a hand-to-mouth basis. (PTP, interviewed 11/08/05)

Not only the weather and the rubber price, but belief in the existence of ghosts is also another factor influencing the rubber farmers' mental state. Some farmers suggested that it is somewhat frightening when going to, and working in, the field in the dark (TYM, interviewed 16/08/05). However, among female rubber farmers they said they were not aware of ghosts, but strangers. They admitted that at times they felt unsafe, and feared being threatened by strangers while working in their rubber field alone in the dark.

One summer night, when there were not many rubber farmers going to tap rubber trees, I went alone. There was a man who stopped his motorbike at the field where I was walking. He asked, "Are you alone?" So I lied that there was another person working with me. But he kept walking towards me. I was so frightened. I ran for my life, turned my headlamp off, and hid behind a tree. The man shone his headlamp to search for me a while then he quit looking for me. I still remember how frightening it was...so never mind ghost; I am more concern about strangers. (PSK, interviewed 18/07/05)

It was interestingly that a few widows, Muslims in particular, indicated that being a widow is not quite the same as being an unmarried single woman. They are often approached by males, including married men. A female informant stated that some men just "push their luck" hoping that she would agree to have a relationship with them. She mentioned that being a widow is often assumed to mean that one is 'public property' or is assumed to be available to any men. Thus, when going to the field, she mentioned that she had to take extra care to ensure that no one was following (Fieldnote, 2005). Likewise, another Muslim female informant stated the reason for deciding to be a man's third (or fourth) wife is so as to provided her with a shelter, a sign to indicate to other males that she belongs to someone which is a reassurance that she would not be harassed by them (Fieldnote, 2005).

Lastly, rubber farmers who have narrowly escaped being—or who have been—bitten by a poisonous snake reported they often feel paranoid once they see something moving in a close proximity to them.

Not long ago, I saw a cobra while I was collecting *Num Yang*... it had already lifted its head up into the air... I was terrified because if I was bitten [by the cobra], I would be dead ...ever since, whatever I see I think it is a snake.... (KPO, interviewed 25/06/05)

The negative effects of their farming on the health of rubber farmers—expressed by the rubber farmers themselves—are in some way, parallel with those mentioned in the literature. For example, hand tools, inherent work environments and conditions were defined as the potential risks at work. Yet, during interviews and observations, the rubber farmers provided more penetrating views of their own outlook on a single risk and its effect in the way that health professionals, if not spending time talking to them, would not be able to comprehend.

5.2.2.3 Destructive effect of rubber farming and its environment on the health of selective cases, or under particular circumstances

Continuing from the previous view, though the rubber farmers believed that there were risks and harms at work, some believed that whether or not the work in the rubber field affected one's health depended on an individual farmer's personal condition. A rubber farmer of 20 years expressed his view that only people with a chronic health condition would be affected by rubber farming tasks.

I think actually there aren't any problems [from working in rubber field]. What I am saying is that only persons with a chronic disease would be affected by the work ... A person with asthma or gout might have a problem while they work in the rubber field. The work is tiring. So people with asthma might not be able to do it. They might need to sit, and open the mouth [breathing through the mouth to catch up their breath] and start work again when they feel better. Now, look at people with gout, the work requires repeated movement, bending body... and when it gets to collecting *Num yang* [rubber latex], it is heavy [to carry bucket full of rubber latex]. If a person has gout on the right side the problem would be more severe as all the weight would go to the side of the body. For those who are well [not having chronic health condition], I don't think they would have any problems caused by working in a rubber field. (PBT, 13/06/05)

A female rubber farmer expressed a similar notion. She said, “tapping the trees gives us a chance to do physical exercise... makes us healthy. But those who are at old age, they might have pain in their joints”. (MA2, 02/08/05). Thus, a person with a particular physical condition is perceived to have a higher likelihood of being affected

by the work on a rubber farm. A 60-year-old rubber farmer also mentioned aging as contributing to the development of health problems in relation to the work. This is what he said.

I am older... [The body strength] isn't as good as it used to be, the body immune system is less active. When I was a kid I could work in the paddy field, no problem, rain doesn't do any harm to me. Nowadays can't stand the rain, when [I] expose to the rain, I feel like *Kai* [feeling unwell, or having a health problem (i.e. fever, a headache)] is developing. (BNH, 10/08/05)

Body weight appears to be another concern. A thin female rubber farmer pointed out that "we are fine [don't have any problem caused by the work], but fat people might have. There are both fat and skinny people working in the rubber fields...fat people are full of health problems" (MA, 02/08/05).

While ammonia, acetic acid, formic acid, calcium carbide, and pesticides are reported to have adverse effects on the human body (Chitra, Muraleedharan, Swaminathan, & Veeraraghavan, 2006; Wikipedia, 2007a, 2007b, 2007c; Witthayawirasak, 2004), a number of rubber farmers suggested that only rubber farmers who are sensitive to the substances would be affected by them. The condition is described widely in folk terms as *Pae* or *Mai Thook Kun* [that is negative reaction of an individual body to something]. Though BNH agreed that acetic acid/formic acid–*Num Som* or *Num Som Kha Yang* in local terms—is somehow dangerous he believed that only people who *Pae* would be affected by the substance.

It is dangerous somehow. People who *Mai Thook Kun* with *Num Som Kha Yang* would have skin peeling on the underside of their feet. For those who do not *Pae* they would be fine. I am fine with it because I worked with *Num Som* for a long period of time before changing to selling *Num Yang* where *Num Som* is not required. (BNH, interviewed 10/08/05)

While the calcium carbide headlamp has negative effects on the ability to work of a young male rubber farmer, it does not affect a 51-year-old female rubber farmer and a 30-year-old rubber farmer.

Some people *Pae* gas [emitted from carbide headlamp], having headache and 'puke'...I also have the problem. When I work for a long period of

time the odour of the gas has bad effects on me (PBT, interviewed 13/06/05).

It [the gas emitted from carbide headlamp] does nothing to me. (MA, interviewed 02/08/05).

I guess... it is because I get used to it [the gas]... the nose has adjusted to the odour and accepted it. Some people said the unpleasant odour gives them headache, and makes them feel sick... but it doesn't happen with me" (ND, interviewed 20/07/05).

The village health volunteers who are also long-term rubber farmers shared opinions consistent with the expression above. PY, who has been working as a rubber farmer for more than 20 years and has been a nominated health volunteer for several years, admitted that although the ammonia—known as *Amm* among rubber farmers—added in the rubber latex is somehow harmful to the body, it helps solving few particular health problems:

I think of chemicals that we use, *Amm* in particular. I reckon that when it accumulates in the body, it must be harmful. When it enters [inhaled by rubber farmers] the nose, it causes *Saab* [irritating/burning sensation] in the eyes, and nose. If we have a wound on a hand and it is contacted with the fume of *Amm* we would feel *Saab*. However, it somehow makes the wound heal more quickly. I have experienced it myself. I had a wound and it was exposed to the fumes, the wound became dark, but it healed quickly. Also, if we catch cold, the fumes help with getting rid of the cold quickly. (PY, interviewed 28/07/05)

Another long-standing rubber farmer and a village health volunteer held a similar idea. She believed that as she is used to using acetic acid/formic acid, generally known as *Num Som Kha Yang* [formic/acetic acid], the substance does no harm to her, it rather does some good.

We use it [acetic/formic acid] every day, so we get used to it...but our sarong would be rotten. We have to change to new one all the time... it doesn't do any harm to the feet because we rinse them with water while we contact it. It instead makes our nails clean because it polishes them...the nails are shiny, but not pretty... (PYD, interviewed 08/09/05)

This statement was also supported by PY. She emphasised that concentrated *Num Som Kha Yang* indeed is harmful, but once it has been diluted with water it does not affect the body the same way.

It [acetic/formic acid] is okay. It is rather good for the nails, making the nails clean and pretty. But when we mix it with water, the fumes get into the nose, and it is irritating" (PY, interviewed 29/07/05)

Two rubber farmers, mother-in-law and daughter-in-law, recommend that the diluted substance enhances the wound healing process. The mother-in-law said, "if we have a sore on a hand, it [acetic/formic acid] would *Kud* [burns] the sore, causing burning sensation. But it makes the sore heal fast". (NJ, interviewed 12/08/05). The daughter-in-law supported the statement.

In addition, the notion of *Pae* [negative reaction of body to something] is also applied to rubber farmers' reaction to other conditions, for instance, exposure to the changes of weather, and being bitten by a *Tauy Yai Mun* [scorpion-like arachnid]. A young female rubber farmer, ND, claimed that the change of weather affect her health.

During rainy season and the dust in dry season. I *Pae* dust. Rainy season is different from dry season... during rainy season I expose to the rain....but during dry season I contact with the dust.... I often have a cold during the dry season. It keeps coming back to me every 2-3 weeks. It's because of the dust. (ND, interviewed 20/07/05)

The head of the village health volunteers held a similar belief. He said:

Catching cold from being in the rain, changing of weather, and the dryness. Different person, different immune system...Rain doesn't have any effects on some people. There are the people who wouldn't catch cold even when they were exposed to heavy rain. But some people would have to run to see a doctor after exposure to even light rain" (PCH, interviewed 14/06/05)

When a rubber farmer gets bitten by *Tauy Yai Mun* the one who *Pae* the poison of the creature would suffer more pain than those who do not have the same reaction. This point of view is shared between rubber farmers who are not village health representative (PSK) and those who are (PY).

I don't *Pae* this thing [the *Thauy Yai Mun*]...when I got stung, didn't take long for the pain to go away... one day I got stung by a *Thauy Yai Mun*, I could feel that the poison was running underneath my skin, through my underarms and my heart was pumping. Those who *Pae* its poison will have a big lump [inflammation] on the skin. But I don't really *Pae* it. (PY, interviewed 28/07/05)

It [*Tauy Yai Mun*] looks like scorpion, but smaller size. I have to have *Ya Mhong* [ointment] with me all the time. *Thauy Yai Mun* has a tail which looks like airplane. When I got stung by it, I had to apply *Ya Mhong*, and it would take a while before the pain went away, 4-5 days. I *Pae* it. (PSK, interviewed 29/07/05)

A couple who are rubber farmers involved in the village health volunteering team emphasised that each individual presents a different reaction to an exposure. The husband said:

Rubber farmers are different [in terms of body reaction to work hazards]. Some people *Pae Yung* [that is mosquito bites cause skin rashes, and itchiness]. My wife is having *Peuy* [sores/ulcer on skin/skin infection] because of mosquito and red ant bites ... she went to look for red ant eggs. We sell them [some Thais eat the eggs] that's why she has been suffering from *Peuy*. (PBT, interviewed 13/06/05)

Apparently, whether or not the rubber farmers are concerned about an effect of their work and work-related circumstances on health or not depends on the individual's direct experiences of a physical response to a particular stimulant. There is no difference in the perception of *Pae* between rubber farmers who were also village health volunteers and those who were not.

5.2.2.4 Destructive effects of rubber farming and its environment on health but are not perceived as matters of great concern

While rubber farmers perceived that rubber farming and its environment have particular influences on their health, such as those illustrated earlier, they declared that the problems are not worth worrying about. The rubber farmers referred to five aspects of work exposures and harms—infrequency, periodic quantity and duration, mildness, sense of getting used to (level of endurance), and *Thum-mada*—when justifying this perception.

1) Infrequency of exposures- harms

A number of rubber farmers connected the effect on health of a particular work exposure with the frequency of contact with the exposure. They appeared to suggest that it is all right as long as they do not come across the exposure on an everyday basis.

No problem... I am thinking, with *Amm* [Ammonia], we don't use it every day. In a year, it is only in the rainy season that we use it. (PBT, interviewed 13/06/05)

There is a cycle [of mosquitoes]... during the dry season ...they wouldn't be around...all gone... sometimes after finishing tapping the trees, sitting and having a rest, I wouldn't get any bites" (PBT, interviewed 13/06/05)

This farmer, who was also involved in village health volunteering activities, presented his view that the ammonia used for anticoagulation of rubber latex is not harmful since he is not exposed to it regularly. His point of view also applied to his awareness about mosquitoes.

A rubber farmer, who has worked in rubber farming since she was 14 years old, now in her 30s, shared a similar idea. She indicated that she does not worry much about getting bitten by a snake as she sees one only once in a while. She further raised her awareness of an attack from black insects while working in her rubber field. However, she suggested it is not a major concern as the insect appears only in the rainy season.

There is a kind of insect which is attracted to light.... They follow the light from the headlamp. We get stung by them. It is a tiny black insect with wings... look like ants with wings. They sting us on the hands and arms. But if it is not in the rainy season we don't see them. They appear only during the rainy season. (ND, interviewed 20/07/05)

The head of the subdistrict health volunteers had an equivalent understanding.

Health problems! I have thought about it, and I couldn't see any obvious effects of the work on rubber farmers' health. What I could think of is having an accident occasionally, which is a cut on the skin by the knife. Snake bite happens once in a while. (PCH, interviewed 14/06/05)

In summary, work-health related consequences which happen once in a while, or on seasonal basis are perceived as being of little unimportance by rubber farmers regardless of their involvement in health volunteer activities.

2) Quantity and concentration of, and duration exposing to exposures

There are a few chemicals involved in the rubber farming as stated earlier, for example, ammonia, formic/or acetic acid, and herbicides. The quantity and

concentration of the chemicals, and period of time exposed to the chemicals are the key points that rubber farmers consider when deciding whether or not the chemicals are harmful to their health.

A 41-year-old male rubber farmer advised that the coagulant acid (formic/acetic acid) is a little dangerous when it has not been diluted with water. The risk of exposure to the acid is only when he takes the lid off the bottle.

[I] need to turn my face away...once [I] finish the pouring, I turn my face back. Then add water into it [acetic acid]. If we don't dilute [the acid] it would be a little dangerous. (PAI & JUM, interviewed 03/08/05).

A long-standing rubber farmer and her daughter-in-law, who were rubber farmers for 24 and 15 years respectively, presented a similar perspective about formic acid. They told the story about a male rubber farmer placing a bottle of formic acid in the basket of the motorcycle which he was riding. Unfortunately, the lid of the bottle came loose. The concentrated formic acid spilled into the farmer's face. The farmer ended up with scars on his face as the result of the effects of formic acid. However, both recommended that diluted formic/acetic acid would not cause any harm, and if they do not come into contact with it too often, or are not in contact with too much of it they would be just fine. And the acid instead has a positive effect on the wound healing process.

We add only a tiny cup of the mixed solution [formic/or acetic acid and water] into a *Takong* [a rectangular aluminium container]. Just to make *Nam Yang* [rubber latex] turn into a rubber block. However, if we have a sore on a hand, it [the acid would *Kud* [burn] the sore, causing burning sensation. But it makes the sore heal quickly...it wouldn't be a problem even if we stepped on the rubber blocks because there isn't great amount of *Nam Som* [the acid] added into them." (NJ & NNU, interviewed 12/08/05)

An early middle-aged male rubber farmer shared the same idea on the effects of ammonia on health. He pointed out that contact with a small amount of ammonia in a short period of time would not cause any harm to his health. This view is shared by two rubber farmers who are also nominated village health volunteers.

We need it [ammonia]...it is the best buddy of rubber latex. [If we don't use it] the rubber latex would *Norn* [coagulate], turn to *Mae* [lumpy]. Add

it [ammonia] in the *Lhon* [a container with lid]... but its smell is bad...causing burning sensation in the nose. But it is not harmful...It only causes the sensation... I don't use mask when I pour the *Amm* [ammonia] because it takes a short period of time to pour it, it is fine [no harm]... use only one glass for a *Lhon* of rubber latex." (NN, interviewed 12/08/05)

My sister uses a small amount of *Amm*, so it is not going to be harmful... but if we do it every day and use a lot of it, it would be dangerous somehow (PR, interviewed 20/07/05)

NN also suggested that spraying a few buckets of herbicide is fine for the health. Therefore wearing a personnel protective device is not necessary. And when he needed to spray a greater amount of the herbicide he was more worried about tiredness, not the potential effects of the chemical on his body.

Sometimes I cover [using mask while spraying unwanted weeds, undergrowth in his field] but sometimes I don't. It depends; if I only spray one or three buckets I wouldn't wear a mask. But if I spray more than that, I would [wear mask]. Most of the time, I only use two or three buckets. Doing too much of it causes tiredness. It is heavy. (NN, interviewed 12/08/05)

Duration of exposure, quantity and concentration of the chemicals evidently are the rubber farmers' decision criteria shaping their awareness about the effects of chemicals on their health.

3) Insignificant effects of harm

Here, the perception of level of severity of an adverse health effect becomes an apparent factor influencing rubber farmers' decisions about which effects are to be concerned about and which ones are not. A rubber farmer, who worked in rubber farming for 46 years, suggested that having the bark of rubber tree falling into the eyes while tapping the trees is only a minor concern as the effect of the incident does not take long to disappear. He said:

Not a problem [having a piece of bark fall into the eyes]... If it [a piece of bark] gets into the eye, it would be difficult to keep the eyes open. So we have to rub it repeatedly. Just for a little while, it then will be all right. (BNH, interviewed 10/08/05)

The head of the subdistrict health volunteers again agreed with this rubber farmer. The following is what he stated.

There are those problems [headache, stress, and not being able to sleep, rashes and itchiness, having tree bark falling into their eyes], but I don't think they are big problems. (PCH, interviewed 14/06/05)

A life-time female rubber farmer suggested that if an injury is tolerable it would not hinder a rubber farmer from continuing the work. She said:

...When I pull the gutter out it bounces and hits my joints. It is painful. If the wound is big I apply betadine [antiseptic solution] on it. If it is not too big I leave it alone, it would be gone by itself. It is part of the job. If we could stand it [injury], and it [injury] is not harmful, it is not a problem..." (MA2, interviewed 02/08/05).

A 29-year-old male rubber farmer agreed that rubber farming caused him to have lower back pain, however, he believed that the condition was a minor concern. He stressed that, "I have *Khed* [muscle pain] only on my lower back, but it is not severe. It will get better after I have someone step on the back" (NN, interviewed 12/08/05).

According to the statement above, the severity of a work-health related problem is the criterion by which the rubber farmers decide whether a work-health effect is noteworthy or not.

4) Get used to it – Level of tolerance

Most rubber farmers confessed that work in the rubber field causes various health-related problems, for example, *Khed*, dizziness, lack of sleep, and unfavourable reactions to the odour produced by the carbide headlamp, and other chemical substances. However, they stressed that they have gradually adjusted themselves to the problems. Two female rubber farmers, sisters, applied the same understanding on the effect of formic/acetic acid. They disclosed that using the solution every day enabled them to get used to the consequences of the solution. So they said "We use it [acetic/or formic acid] every day, so our bodies just get used to it" (PYD & PYDS, interviewed 08/09/05).

A young female rubber farmer advised that her body is able to adjust to, and tolerate, a new condition. The condition then does not bother her any longer.

It is the matter of getting used to it. I used to have a nap in the day time every day. But once I had my newborn baby to look after, I didn't have much time to sleep. Since then, I gradually get used to not having a nap. (NCH, field note, 12/08/05)

Since they have developed the sense of “getting used to”, the sense of acceptance follows. They, then, discontinue looking at effects of work on health as problem. Some have formed further understanding that the body somehow had defeated problems and developed a level of tolerance to guard against them (work-related health problems).

I guess... it is because I get used to it [the odour of acetylene released from carbide headlamp]... the nose has developed a mechanism to prevent me from receiving the odour; the nose adjusted to it and defeated it. Some people said the unpleasant odour gives them a headache, and makes them feel sick... but it doesn't happen with me”. (ND, interviewed 20/07/05)

This notion could be further explained by the perception of unavoidability in the following category.

5) *Thum-mada* – reality

As mentioned earlier, most rubber farmers admitted that working in a rubber field, indeed, causes them to come across some kinds of health-related concern, yet they expressed the view that all the effects on health of the work are expected, or as they often say, the problems are *Thum-mada* [that is reality/natural/routine/normal circumstances, or the situation is accepted as there is no other way to deal with it]. This statement is shared between the rubber farmers not involved in village health volunteering, and those who are involved. A rubber farmer and a village health volunteer disclosed that:

Because the hands often moved, holding the knife, and carrying a bucket full of rubber latex, we have pain in our hands. However, it is *Thum-mada* to happen when tapping the trees. (PY, interviewed 28/07/05)

This notion is confirmed by a number of the rubber farmers studied. They pointed out that as long as they are doing physical work in the rubber field, the problems they are facing will still be there. So why should they be worried about them. A rubber farmer of 28 years stressed that “It is *Thum-mada* to have muscle pain [when working].

When I have it, I just come back home to have some rest. After a while it will be gone". She added that working in the field is tiring, but then again it is a *Thum-mada* situation. She said "It is mostly because we don't have enough rest. I think it is just about having no time for resting which makes me exhausted, but it is *Thum-mada*." (PSK, interviewed 29/07/05).

The perception is explained more clearly by the following quotations which emphasise that the health conditions come with the job and become part of daily life. The head of the village health volunteers held this idea. He illustrated that:

They [adverse effects of work on health] have merged with our daily living... (PCH, interviewed 14/06/05)

Yes, there are mosquitoes in the field. Well! It (rubber field) is a kind of bush, how could we avoid having mosquitoes? Rubber farmers and mosquitoes are always together, like a couple (MA2, interviewed 02/08/05)

A middle-aged rubber farmer and an aging rubber farmer studied held the same opinion that muscle pain is caused by the work, not because of having a disease, so it is a normal condition. Said the former, "We will always have muscle pain as long as we work" (PBT, interviewed 13/06/05), whereas the latter supported the statement by saying "It [muscle pain] is a working disease. I have muscle pain because I work, not because of having a disease" (BNH, interviewed 13/06/05).

5.3 Summary

The idea of inseparability between living and working, coupled with the limitation of knowledge of work exposures and the human body, convinces the rubber farmer to codify the effects of the work on health as a reality. And the rubber farmers' perceptions of "being healthy" and "effects of work on health" portrayed throughout this chapter are formed as a result of the process which to some extent, differs from scientific knowledge of health (i.e. *Tai*, *Pae*, adverse effects of pesticides, formic/acetic acid, and ammonia). And how these perceptions influence rubber farmers' decisions on actions to be taken in dealing with health problems caused by their work is presented in the next chapter.

Chapter 6: Managing work-related health problems:

The decision-making processes of rubber farmers

6.1 Introduction

In this chapter I illustrate the findings concerning the research question, “How do rubber farmers respond to work exposures and work-related health problems?” I focus on the rubber farmers’ decisions on actions to be taken to handle health problems that they frequently encounter in relation to their work. I, then, explain why rubber farmers use their own money to cover healthcare expenses when they have access to a public health scheme—the Universal Coverage Scheme (UCS) (indicated in Chapter 4), and portray how the notion of “the interplay of living and working conditions”, and rubber farmers’ viewpoints of “being healthy” and “effects of work on health” (presented in Chapter 5) influence the process of making decisions on actions to deal with work-related health problems.

6.2 Options to manage health problems

To manage a health problem, an illness, an injury, or an accident, in relation to work and work-life circumstances, an individual rubber farmer appears to consider three major options: biomedical medicines, folk remedies and supernatural means. These three applications have also been documented to be utilised among the Thai population in other studies (Jengsthiansub, Tengrung, Pinkaew, & Petchkong, 2002).

6.2.1 *Ya Luang* – Biomedical medicines

Ya Luang refers to medications manufactured in pharmaceutical factories or biomedical medicines. *Ya Luang* could be obtained from a hospital, a physician’s private clinic, a subdistrict health centre, a local private practice of a subdistrict health staff member, and a drug store. Some *Ya Luang* is sold at local grocery stores, so-called *Ya Nah Ran/Ya Chud*. Where a rubber farmer obtains *Ya Luang* is varied. *Ya* (medicines/remedies) bought from a drug store are either prescribed by a pharmacist or self-prescribed, while those bought from a grocery store are self-prescribed. *Ya*

Luang received from a hospital and a physician's private clinic is normally prescribed by a physician, while those received from a subdistrict health centre or a private practice of local health staff are prescribed by health-related personnel.

Prescribed medications are usually available where they are prescribed. Taking a prescription to a pharmacist/ chemist store or a drug store is not widely practised (Songwathana, 1998). Apart from the sources of *Ya Luang* mentioned, the remainder of medicines from the last visit to either one of the sources would be taken when there is an occurrence of a similar symptom to the previous health problem. Furthermore, sharing medicines between family members, neighbours, or friends who have experienced similar signs and symptoms of a health concern is commonly practised.

6.2.2 Folk remedies: *Ya Ban, Ya Boran, Ya Tom, Ya Samunprai, and Ya Re*

The terms, *Ya Ban, Ya Boran, Ya Tom, Ya Samunprai* are used interchangeably by the informants. They are primarily used to refer to folk remedies and are commonly obtained directly from well-known or respected *Mhor Ban* (folk healer) or *Mhor Samunprai* (folk healer who specialises in herbal remedies) in the local or a nearby region. These folk remedies may be recommended by family, a neighbour or friend and so forth. *Ya Re* is different. It is a ready packed remedy, declared as *Ya Ban, Ya Boran, Ya Tom, or Ya Samunprai*. It is usually bought from third party vendors who come around to households. The vendors introduce, and persuade potential customers to buy, their products. They would convince customers that their products are made based on a recipe initiated by a respected monk of a temple located somewhere, or by someone who is claimed to be a folk healer, unlikely to be a local. It is questionable that the buyer would obtain remedies directly from the persons who claim to be the founder of the remedy.

6.2.3 *Beeb/Beeb- Nuad and Yiap*

Beeb or Beeb-Nuad and *Yiap* are other types of popular treatment broadly regarded by the rubber farmers in this study as effective ways to relieve muscle pain. Whereas *Beeb/Beeb Nuad* is kneading an aching muscle with hands, so called massage, *Yiap* is foot treatment, stepping on one's body (i.e. legs, back), in order to relieve muscle

ache. A rubber farmer suffering muscle pain seeks treatment from a local folk massager, or a folk massager of a nearby village. The folk massager here refers to a massager who perceives him-or herself or is recognised by clients, as a professional/trained massager. However, the training is not obtained from any formal institute, but is passed on from the previous to the next generation, within a family or communities. The treatment is also performed by untrained massagers such as a family member, mostly children, a fellow rubber farmer, or a neighbour.

6.2.4 *Mhon or Katha and Jao Thee*

The supernatural/superstitious approach is a relatively familiar way of treatment among rubber farmers of both Buddhist and Muslim origins. The treatment is provided by a *Mhor* who is believed to have *Mhon* or *Katha*, a mysterious healing power. *Mhon* or *Katha* is treated as a family treasure passed from one generation to another, normally within the family. Otherwise it is performed by a religious individual, such as a Buddhist monk who has been in monk-hood long enough to accomplish incantational power. Though the Muslim rubber farmers do not seek treatment from a monk, they receive treatment from respected Muslim *Mhor* (Muslim folk healer who is believed to have supernatural power).

Jao Thee is a god of land or the spirit of land which protects the land and its residents. Both Buddhist and Muslim rubber farmers mentioned the belief. They expressed the view that they survive from dangers, for example, snake bite, because *Jao Thee* (the owner of the land) protects them. A few informants stated that without *Jao Thee* they would have been dead from a snake bite. There is also a notion that the big snake (a cobra or king cobra) often seen in a particular field is actually the *Jao Thee* of the land. And that is the reason why the snake remains safe and sound.

6.3 Making choices to maintain health and deal with a health concern

Consistent with the results revealed from the survey, there is no absolute sequence of the options rubber farmers decide to use to cope with a health problem. However, there is an obvious difference between the survey results and interviews with rubber farmers. In response to the survey, rubber farmers selected government health services, including the subdistrict health centre, and district hospital as their main source of health services, whereas, when talking to them in person, the rubber farmers tended to disregard these options as their favoured choices.

One possible explanation for this phenomenon is that in completing the survey, the rubber farmers attempted to give the answer that they thought they were supposed to give. It is likely that the presence of the village health volunteers with me made the rubber farmers anxious about the effects of their response on their future use of the government health facilities if they gave a different answer. I noticed this while I was helping a couple, both rubber farmers, to fill out the questionnaire. The husband quietly warned his wife not to mention using other choices for healthcare (e.g. using folk remedies, and self-prescribed medicines—*Ya chud*). The use of other sources to solve health problems was disclosed after I gained rapport with individual rubber farmers. The reason for the differing responses together with factors influencing decision making of rubber farmers on applying other approaches to manage health problems is integrated into the following section of this chapter.

The rubber farmers' decisions in relation to maintaining health and dealing with a health concern arise from the findings presented in the previous chapter, revolving around the interplay of working and living conditions. Thus, "maintaining health for the sake of work" vitally influences the process of making choices for rubber farmers. The priority, making a living, drives a rubber farmer to seek treatment enabling ability to work. "Indirect experience", obtained from word of mouth or eye witness, convinces a rubber farmer to try out a treatment. A "direct experience" is then formed. After a trial, if the outcome of a treatment or practice is favourable it is repeatedly employed and it is recommended to—and becomes an indirect experience of—fellow

rubber farmers. On the other hand, when the outcome is unfavourable the farmer terminates the treatment or practice and does not recommend it to others.

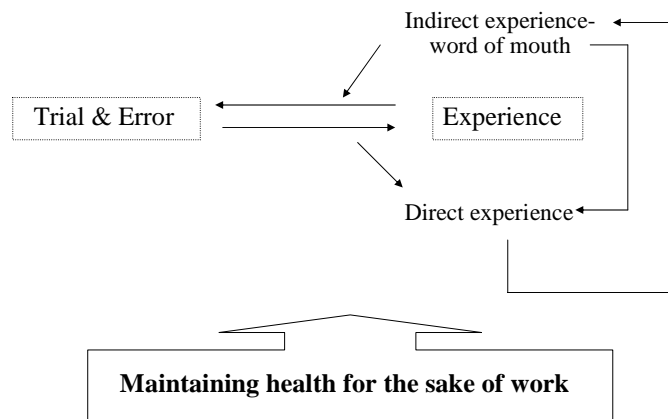


Figure 6-1 making choices

The figure above is not an attempt to draw a model but is aimed at presenting the rubber farmer's possible directions of dealing with a health problem. There is no exact beginning and ending point. The sequence tends to move in a circle resembling a Ferris wheel. Maintaining health for facilitating the ability to work seems to be the key engine driving the wheel.

6.3.1 Maintaining health for the sake of work

The common resolution is that rubber farmers maintain their health to ensure the ability to work. That is, whether or not rubber farmers decide on taking an action to manage a health problem depends on the effects of the health problem on their ability to work and their financial status. The following examples provide in-depth illustrations of this situation.

An excellent case example of a rubber farmer focused on keeping fit for work is NJ. NJ, a 54-year-old rubber farmer who had worked in rubber farming for 24 years,

disclosed her idea about her solution of dealing with health. I called NJ's collection of *Ya* (medicines/remedies) '*Ya Combo*', because seeing all the *Ya* she took reminded me of Hamburger Combos in commercial fast food restaurants. There is a routine series of the *Ya* that NJ consumes during a day to enhance her ability to work.

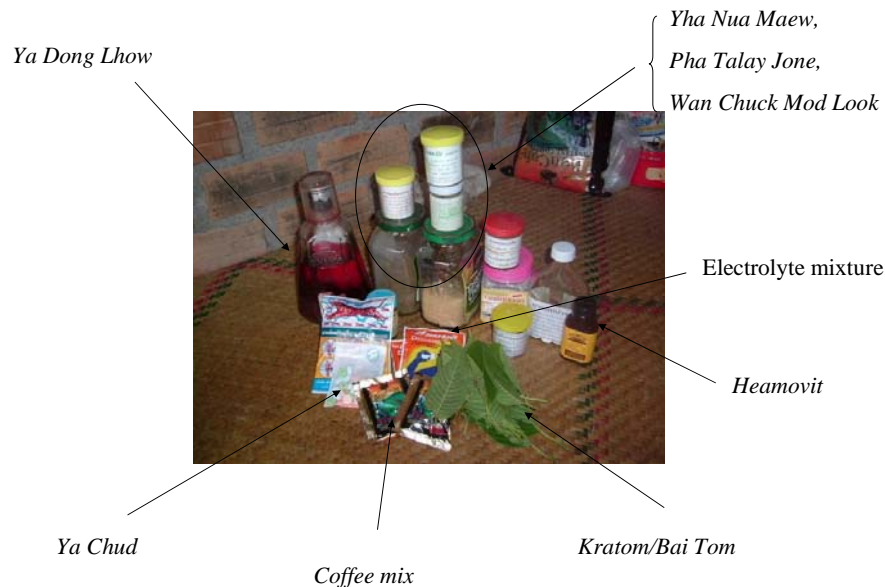


Figure 6-2 NJ's *Ya Combo*

NJ stated that all remedies she displayed on the bench when I was visiting her were helpful even though she could not clarify which ones actually do work.

I take everything all together; I couldn't tell which one is effective. But for the *Ya Chud* [self-prescribed pain relief tablets bought from a drug store or a grocery shop], if I don't have it I couldn't walk, the body is stiff... I have bought them, *Ya Samunprai* [Folk remedies/herbal remedies], so I got to take them. They don't cause any harms. We wouldn't be able to promptly see the result. (NJ, interviewed 12/08/05).

In order to maintain ability to work, NJ begins her working day before daybreak by drinking instant coffee, called *Coffee-Mix*, a powder mixture of instant coffee, coffee whitener, and sugar. She said, "I drink coffee, asking me how many cups per day...Hmm! after getting up from bed, I drink one cup... 5 cups between the two of us (herself and her husband)." (NJ, interviewed 12/08/05). Then *Ya Chud*, a combination of unknown nonprescribed tablets, is often taken to relieve muscle pain

while working. NJ said *Ya Chud* was excellent as it works quickly to relieve the pain so she takes it every day. NJ's daughter-in-law, who was also a long time rubber farmer, supported the statement.

Ya Chud is good to take when there is something wrong with *Sen* [nerves] caused by handling something with improper position. I would get one set [of *Ya Chud*] from my mother-in-law, [once I took it], the problem would be gone. (NCH, interviewed 12/08/05)

In addition to the drugs mentioned above, to enhance ability to work, NJ recommended chewing *Kratom* (sometimes called *Bai Tom*), classified as class 5 substance abuse, which has a combination of depressant, stimulant, and hallucinogenic effects on the human body (The Southern Academic Networks for Research and Database on Substance Abuse, 2005).

Bai Tom [*Kratom*]...hmm! It helps me to work better... when I wake up, feeling lazy, or having muscle pain, chewing *Bai Tom* is helpful. Then I am able to go to work, feeling fine. It actually acts like a muscle relaxant... (NJ, interviewed 12/08/05,)

NJ explained that her late father was the one who introduced her to the *Kratom*. She witnessed its power to enable the body to tolerate hard physical work. As she was impressed by the evidence, she started to consume it, so did her husband. Regardless of seeing the effect of the *Kratom* (restlessness, overactivity) on her toddler daughter, NJ's daughter-in-law favours taking *Kratom* for the sake of work.

NJ's ritual of remedy taking continues after finishing work for the day. NJ returns home and refreshes herself by drinking a glass of oral electrolyte fluid, as does her daughter-in-law. "When I come back from the field, I mix a pack of the electrolyte mixture with water and drink it..." (NCH, interviewed, 12/08/05).

Ya samunprai (Folk remedies/herbal remedies) are also suggested by NJ. Not only did NJ believe that *Ya samunprai* does no harm but she also believes that *Ya samunprai* is the unconditional answer of all healing choices. As a result, she owns quite a selection of remedies which she mostly buys from mobile vendors. The remedies obtained from this source are generally called *Ya Re*. NJ suggested that "*Ya Samunprai* could solve any health problems... The seller gets *Ya* [remedies] from a temple..." (NJ,

interviewed 12/08/05). Each of her remedies has a particular property to enhance health in different aspects.

She drinks a mixture of three remedies (see Figure 6-2), *Yah Nuad Maew*, *Pha Talay Jone*, and *Wan Chuk Mod Look*, after getting up from an afternoon nap. Two of the remedies relieve back pain, whilst another enhances appetite. This is what she said.

...*Yha Nuad Maew* [a remedy] is for relieving *Khed* [muscle pain] on the back, mixing it with water... *Pha Talay Jone* [a remedy] is also for relieving *Khed* on the back...add the three of them [*Yha Nuad Maew*, *Pha Talay Jone*, and *Wan Chuk Mod Look*] together in a glass of water and drink it. (NJ, interviewed 12/08/05)

...*Wan Chuk Mod Look* is good. It makes me able to sleep and enhances my appetite... (NJ, interviewed, 12/08/05)

She experiences the benefit of *Wan Chuk Mod Look*. Therefore, even though NJ doubted what *Wan Chuk Mod Look* was, she recommended that her daughter-in-law try out the remedy. NJ confirmed that the remedy promotes her and her-daughter-in-law's health and minimises the severity of muscle pain.

I don't know what it [*Wan Chuk Mod Look*] is, but it *Thook Kun* [one's body reacts positively to a medicine/remedy taken] with me...it relieves *Khed*, making it down to *Meay* [less severe muscle pain]. (NJ, interviewed 12/08/05)

Wan Chuk Mod Look, it *Thook Kun* with her [her daughter-in-law]. Since she has taken the *Ya* [the remedy], she looks good. It is good for her...It relieves *Khed*. (NJ, interviewed 12/08/05)

Her daughter-in-law said "almost every household has this remedy [*Wan Chuk Mod Look*]". (NCH, interviewed 12/08/05)

Besides all those remedies illustrated, there were other remedies that NJ advised that she and her husband had been taking in order to enhance their health. The following is what NJ added into her *Ya Combo*.

Some nights, when I have *Khed*, not being able to walk, I take *ANT* [a tradename for anti-inflammatory tablets sold in drug stores, and grocery stores], it is *Mai Thook Kun* [one's body reacts negatively to the medication/remedy given/taken]. Taking one tablet of *ANT* makes me feel

pain in my stomach... That's why I have to take another medication for stomach pain. (NJ, interviewed 12/08/05).

Heamovit [a trade name of a remedy to enhance the reproduction of red blood cells] is for enhancing physical health... take it before bed... (NJ, interviewed 12/08/05).

Sometimes I also have *Ya Tom* [a pot of boiled/steam remedy, normally it is a combination of a variety of herbs as recommended by a folk healer] in the kitchen. And *Ya Pradong* [a remedy taken to manage joint pain], I get them from the same *Mhor* [folk healer]. He thought that I might have *Pradong Khor* [pain in the joints]. (NJ, interviewed 12/08/05)

I don't get sick often. If I catch cold, I just buy a package of cold relief medication, *Tiffy*, *Decolgen* [Trade names of cold relief medication]. My husband takes *ANT*. It is for getting rid of *Khed Meay* [muscle pain] (NJ, p10, interviewed 12/08/05).

Samunprai Than Ta Wan No 41 [a remedy] enhances the appetite...*Hngeung Pla Mhor* [another remedy] is for relieving pain in the knees...and this one [a remedy] that I also bought from the same mobile vender is also for relieving *Khed* in the knees. Ten baht for a tablet. Take two tablets at a time. It makes me feel better... I got them all from a mobile seller, comes from North-East region. (NJ, interviewed 12/08/05)

The *Ya Combo* illustrates the rubber farmers' determination to eliminate, or otherwise minimise, health obstacles which hold them back from work. Furthermore, it raises a question as to how the rubber farmers arrived at the solution to attack a health concern which lessens work ability. Here, one of NCH's statements possibly provides an answer to the question. She said, "If I feel crook, no energy, I just buy some *Ya* [medicines/remedies] to take, no appetite, buy another *Ya* to take" (Laugh). (NCH, interviewed 12/08/05). The examples of NJ and her daughter-in-law mirror the situation of other rubber farmers interviewed.

6.3.2 Trial and Error, Direct and Indirect experience (word of mouth/eye witness)

The previous excerpt demonstrated that "Trial and Error" as illustrated in Figure 6-1 influences a rubber farmer to try a *Ya*. Once a rubber farmer has tried a *Ya* and has a "direct experience" of favourable effects from it, he would continue to use the *Ya*, as well as recommend it to fellow rubber farmers. The recommendation, named here as "word of mouth", acts as "indirect Experience" convincing other rubber farmers to try out the recommended *Ya*. Once a fellow rubber farmer adopts the recommendation

and experiences the same result the recommendation would be continually passed on to others. On the other hand, if the rubber farmer experiences poor results, the recommendation is disapproved and would not be recommended to others.

Consequently, the direct experience of an unfavourable result of a *Ya* or a health practice of a rubber farmer acts as an indirect experience of other rubber farmers, suggesting the latter refuse to try out the *Ya* or health practice. Trial and error, direct experience and indirect experience (word of mouth, and eye witness) are all strongly interrelated. The cycle appears to be continuous, exhibiting the strength of the lay reference system (Ogden, 2001).

PY, the 48-year-old rubber farmer, and a health volunteer, told the story of why she did not recommend people to take *Ya Re* (remedies bought from mobile vendors). She said:

... I don't think we should buy any of them [remedies/medicine] without seeing a doctor, such as buying medications and herbal remedies from a mobile seller [*Ya Re*]. A man of *Nai Yaw* [name of nearby village] told me that at the beginning, the *Ya Re* he took made him feel well and he had more energy. But later, it caused rashes on his body, which made him look like those with AIDS. He said when he first took it; it made him *Kla* [full of energy to perform activities], and *Thud Yang* [tapping trees] with no feeling of laziness. But later, his skin turned to *Peay* [sores/ulcer on skin/skin infection], like people with AIDS. He went to see a doctor at the District Hospital. The doctor said that if he had arrived later than he did, he would have experienced a serious health condition, unconsciousness. The doctor asked to have the *Ya* that this guy took, and had it examined. We didn't know the origin of the *Ya*. The result showed that there was *San Nu* [Arsenic acid] in it. That man's body was just like those of people with AIDS. (PY, interviewed 28/07/05)

This excerpt illustrates and confirms the evidence of passing on information from the rubber farmer who had the direct experience of the negative effect of the *Ya Re* to another rubber farmer. The latter one then adopted the word of mouth and her own eye witness as reasons to develop doubt about *Ya Re*.

Rubber farmers might follow someone's health recommendation to confront a health condition. Yet, at the end of the day, direct experience plays a vital role in the rubber farmers' choice to adhere, or not adhere, to an option for dealing with a health

problem. PE (interviewed 08/09/05), for example, after trying and rejecting all approaches which were approved by her fellow rubber farmers as effective ways to deal with *Tauy Yai Mun* [scorpion-like arachnid] bites, came up with her own solution.

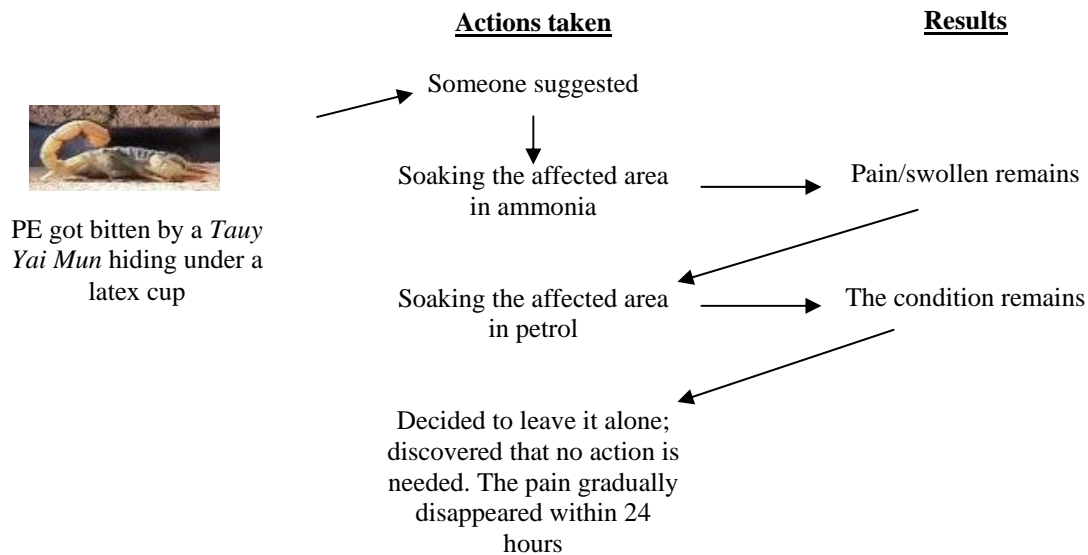


Figure 6-3 PE's process of making choices

Another instance that illustrates the power of the driving factors, maintaining health for the sake of working, and word of mouth and eye witness, is PBT (interviewed 13/06/05). PBT was a 47 year-old-rubber farmer. He had been a rubber farmer for 20 years. I asked him how he coped with work-related health problems which he experienced. He said struggling to make a living did not give rubber farmers a chance to care for their health.

Some people go back home to eat something [breakfast] while they wait for rubber latex to flow into the cups...then go back to collect it. But for me... I don't like to do that. I think it delays the work. (PBT, interviewed 13/06/05)

Well! If I have it [rashes, itchiness from mosquito bites], I would just run back home and put *Sam-buck* [a tradename of an ointment] on the spots. It [rashes, itchiness] would be gone. Sometimes, if today it hasn't been healed, tomorrow, it would be. Well! People who are in this work cycle, rubber farmers, don't really have time to care about this little

problem...feels itchy, scratch where it is, then. They don't really care much.
(PBT, interviewed 13/06/05)

In a month, I owe myself a big number of hours for sleeping. Sometimes, like the previous two days, I didn't have any sleep at all. I woke up at 2 a.m., worked in the rubber field, came back home, then up I went to look for some bait for fishing. I sat for 5 hours [for fishing]. Well! If I get some fish, we don't have to spend money on buying food... the food [fish] that I get could last for 2 days. And if I get more [fish] my mother would take the fish to market and sell them. (PBT, interviewed 13/06/05)

All three excerpts extracted from the conversation with this informant show how much the ability to work shaped his decision to do, or not to do, something for maintaining his health.

Three months prior to the interview, PBT encountered paralysis. According to PBT the condition was caused by working around the clock, earning money to support this family.

Three months ago, I was confined to bed, couldn't move, couldn't walk...
(PBT, interviewed 13/06/05)

[It was caused by] working, I did *Thud-Yang* [tapping rubber trees], and drove a 10-wheel truck, transporting goods. I started going to the rubber field at 9 p.m. in 20 *Rai* [area measurement] piece of land [contained approximately 1500 trees] finished the work at around 3.30 a.m....then I started driving the truck [transporting goods] at 7 a.m. I would be back home at 8 p.m., got something to eat, sharpening my knife, and up I went to the rubber field again.... I lived that life for 10 years... with my ex-wife...life was tough back then...work around the clock. (PBT, interviewed 13/06/05)

To cope with the paralysis PBT went through both *Ya Luang* [biomedical medicines and treatment] and alternative approaches. He began with taking *Ya Luang* orally and then he had an injection. But when he reached the critical point where he had to make a decision as to whether he wanted to undergo another biomedical treatment or not, he hesitated to go ahead with the option, surgery. The following excerpt explains his hesitation.

I was in pain... first time; the doctor only gave me some medication to take. It relieved the pain for few days... then it [the pain] was back...endless pain... then I became resistant to the medication... it didn't take my pain away when I took it. Then the doctor gave me injection right to where the

pain was...then when the injection no longer worked... there was only one way recommended to solve the problem. It was having surgery. ...I have seen lots of people... after having surgery...there are two solutions, problem solved and unsolved. If it is unsolved that means lying down forever [not being able to move at all], however, if the problem is solved it wouldn't give a favourable outcome, I might be limping ... I didn't want to take any risks. (PBT, interviewed 13/06/05)

PBT's witness of the consequences of surgery that he thought to be given to people with the same health condition as his took away his confidence in the surgery. As a result he refused surgery in spite of his wife's encouragement to proceed with it.

My wife was convinced that I should go to the hospital [the District Hospital]...but I refused. I rather asked *Loong* who is a *Mhor Samunprai* [folk healer who specialises in herbal remedies] and a massager to come to give a massage at home. He came once, after that I went to his place, I think for another 3 massages... it was altogether 4 times... then I got a pot of *Ya Tom* [a pot of boiled/steam remedy, normally it is a combination of a variety of herbs] from him... he reckoned that it would take 15 days to see a positive result. After finishing the first pot I was able to walk. ... then after 10 days of having the second pot I could go back to work in the rubber field, tapping the trees, collecting Num yang...it was fast... my condition gradually improved. (PBT, interviewed 13/06/05)

PBT showed more confidence in *Mhor Samunprai* than in biomedical treatment. Consequently, when his health condition had come to the deciding junction of going for, or not going for, the surgery, his decision was to receive the treatment from the *Mhor Samunprai*. Since PBT was strongly impressed by the result of the healing performed by *Mhor Samunprai* he had developed higher confidence in the *Mhor* and the healing. He then recommended the option to his fellow rubber farmers, coupling with diagnosing conditions of his fellow farmers.

... When someone has a waist pain, the person might say, "I have a pain, do you have any good medication which could take the pain away?" For example, if someone asks me that question, I would say, "I've known *Mhor Samunprai*, whereabouts do you feel the pain? What are your symptoms?" once the person answers to my questions. I would have an idea if there is any possibility whether *Mhor* [the healer] could solve the problem or not. If yes, then I would tell the person that a pot of *Ya Tom* would cost only 100 baht... and it would fix the problem. (PBT, interviewed 13/06/05)

Each excerpt which was previously illustrated concealed additional features influencing the “circle of trial and error, direct and indirect experience”. These are illustrated as follows.

6.3.3 Features influencing the “circle of trial and error, direct and indirect experience”

A rubber farmer’s decision to agree to receive a treatment or practice links to his/her “perception of health”, “cause of a health problem” and “faith in a particular healing choice”. The perception and faith are built up from either direct and/or indirect experience of a health problem. Accordingly, the perception and faith act as baseline information for a rubber farmer deciding on trying a treatment or practice to treat a health problem. The rubber farmers’ idea that different people might react to a healing choice differently, *Thook Kun* (one’s body reacts positively to the medication/remedy taken) and *Mai Thook Kun* (one’s body reacts negatively to the medication/remedy taken), also plays a part in a rubber farmer’s formation of faith regarding a choice of treatment. Furthermore, the notion of *Thook Kun* and *Mai Thook Kun* appears to be a key driver of the rubber farmers’ trial and error approach to one health recommendation after another. Noticeably, “convenience” in terms of timing and travelling, as well as “availability” of a healing choice influences the “trial and error cycle”.

The earlier example of PBT is reviewed to enhance the understanding of the influences of the ideas of *Thook Kun* and *Mai Thook Kun*., “convenience”, and “availability” of a healing choice in the rubber farmers’ process of decision making (Figure 6-4). Given that PBT, who was paralysed, perceived that the condition was caused by the hard work that he did, he tried to solve the problem by taking *Ya Luang* (biomedicines from the District Hospital). Once the *Ya Luang* did not give him a positive result based on his own experience, he rejected the treatment, and according to what he had heard about surgery he refused that approach. He said, “I didn’t want to take any risks”. He instead said, “My wife was convinced that I should go to the hospital [District Hospital for the surgery]...but I refused. I rather asked *Loong* [who is a *Mhor Samunprai* and a massager] to come to give me a massage at home”. This indicates that PBT weighed his degree of confidence between the two options. His

final decision demonstrated that his faith in Mhor *Samunprai* outweighed his faith in surgery. This is the consequence of his indirect experience of seeing or hearing about the failure of surgery. His faith in *Mhor Samunprai* became even stronger since he experienced a positive outcome. Whenever he had a chance, he did not hesitate to pass his faith on to his fellow rubber farmers. The faith that he had developed convinced PBT to continue receiving treatment from the *Mhor Samunprai*. The great influence of faith in healers on treatment seeking behaviours among the Thai population is also reported in other studies (Tangchonlatip & Leuvananonchai, 1993).

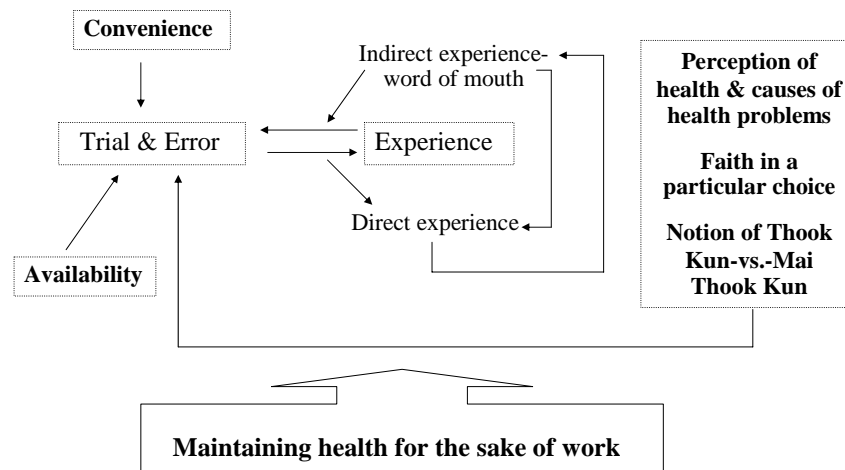


Figure 6-4 Features which influence the circle of trial and error, direct and indirect experience

Once such faith is implanted, it is not easily removed. After PBT recovered from the paralysis as he claimed, he believed that the health condition he had was not completely solved as a result of his continuing to work. He, therefore, continued taking *Ya Tom* made by the *Mhor Samunprai*.

Yes, it was fast... then my condition gradually improved. If you asked me, whether the health problem completely resolved? I would say, NO... with the kind of condition I had, to successfully heal it, I need to stop working. I continue working, whatever part of my body that inflames would remain inflamed. I guess, it is about nerve system, and the blockage of blood vessels, and having fat in the blood vessel, once the blood vessels are

blocked, the fat couldn't run through it. And that causes the pain... so *Ya Tom* is needed for making the fat melt. (PBT, interviewed 13/06/05,).

This excerpt displays the link between the rubber farmer's perception of a health condition and the decision, decided according to his faith, to adopt an approach to treat the health problem. His faith might not be shaken even though the rubber farmer encounters reports of lack of success of the approach experienced by someone else. That relates to the rubber farmers' view of *Thook Kun* and *Mai Thook Kun* (one's body reacts positively to the medication/remedy taken and one's body reacts negatively to the medication/remedy taken). The former term is sometimes referred as *Thook Rook* or *Thook Ya* whereas the latter term is used interchangeably with *Pae* (the notion of each individual reacting differently to a stimulant). Correspondingly, the point of view of an individual rubber farmer responding to a medicine, remedy, treatment or health practice also emerges.

... The remedy could give someone favourable result, but leave some others with adverse outcome. It really depends on how each individual reacts to the remedy... *Thook Rook*, *Thook Ya* [used interchangeably with *Thook Kun*]... (PBT, interviewed 13/06/05)

Wan Chuk Mod Look Thook Kun with her [a remedy- *Wan Chuk Mod Look*- has positive effects-*Thook Kun*- on her daughter-in-law]. Since she has taken the *Ya*, she looks good. It [the remedy] is good for her...It relieves *Khed* [muscle pain]. (NJ, interviewed 12/08/05)

I don't know what it is (*Wan Chuk Mod Look*), but it *Thook Kun* with me. ... It relieves *Khed*, making it down to *Meay* (Less severe). (NJ, p.6, interviewed 12/08/05)

When I have *Khed*, not being able to walk, I take *ANT* [a tradename of pain relief]. It *Mai Thook Kun* [has negative effects] on me. Taking one tablet of *ANT* makes me feel pain in my stomach. (NJ, interviewed 12/08/05)

This notion of *Thook Kun*- Vs- *Mai Thook Kun* possibly explains why individual rubber farmers develop faith in different health approaches.

The individual rubber farmer's decision on treatment is greatly influenced by rubber farmers' perceptions of causes of a health problem. This statement is supported by PSK's process of making a decision on actions to treat her back pain (Figure 6-5).

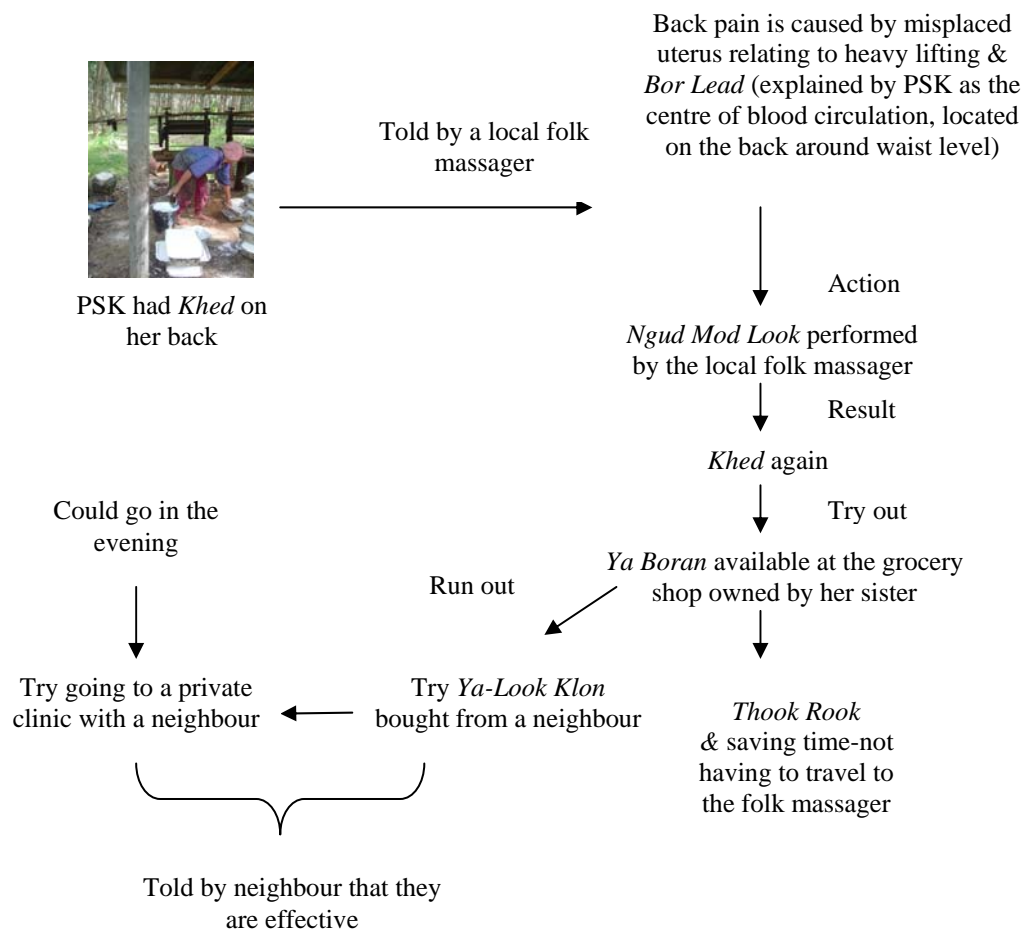


Figure 6-5 The involvement of perception of cause of health problems in PSK's process of making choices of treatment

PSK was told by the folk massager that *Mod Look Long Tum* (the misplacement of the uterus) causes *Khed* in the back (back pain). By acting upon the advice of the local folk massager, PSK indicated her faith in the folk massager. Therefore, she agreed to have a treatment, *Ngud Mod Look* (adjusting the position of the uterus by pushing the uterus back into place) and *Yiap* (stepping on one's body to relieve back pain), performed by the massager. PSK experienced favourable effects from the treatment. This result, as a consequence, affirmed her perception of the cause of back pain along with strengthening her faith in the massager.

Yes, I still do [have back pain]. *Mhor Ban* [the local folk midwife and massager] told me that it is about *Mod Look* [the uterus], and *Bor Lead* [the centre of blood circulation, located on the back around waist level]. Sometimes when I have unbearable pain I go to *Mhor Ban* for a *Yiap* [stepping on body to relieve muscle pain]... yes, it does help... Sometimes

when I lift rubber latex, it causes *Mod Look Long Tum*. *Mhor Ban* would *Ngud Mod Look* for me... She suggested to me that *Khed* in the back is caused by *Mod Look Long Tum*... [Massager also said] *Boa Lead* which is located at the back (touching her spine around waist level), is another cause of the back pain. I don't know [in which way the back pain is related to the *Boa Lead*]; *Mhor Ban* did not tell me about it. (PSK, interviewed 29/07/05)

However, as she continued working the pain in her back recurred intermittently. She found out that there was a *Ya Boran* [ancient folk remedy] sold at her sister's grocery shop which was reported to relieve muscle pain. She decided to try it (Trial & Error). She stressed that the result was great. She felt good, free from the pain and had more appetite. She said the remedy was *Thook Rook* (one's body reacts positively to a remedy) with her. Also it was "convenient" since she did not have to travel to the folk massager. The sister's grocery shop was right in front of PSK's house.

See [pointing at a bottle of something], I am taking this *Ya*. It is *Ya Boran* [ancient folk remedy: I saw the word '*Ya Pradong*' on its label], I am not exaggerating but this *Ya* 1) increases my appetite, and 2) makes me feel *Boa Tau* [no muscle strain]. Someone brought it here, I mean to my sister's shop [grocery shop, in front of her place]. So I bought it from there. ...I have had several bottles. How to say, it just make feel *Boa Tau* [no muscle strain/feel good] and no need to go for any *Yiap*, don't have to travel far [to the massager]...It [the remedy] is good, lots of people *Thook Rook* with it. It enhances the regularity of periods. I actually do not worry much about the period, but about making me *Boa Tau*, which helps me to be able to walk without any difficulty [being able to work]. (PSK, interviewed 29/07/05)

Unfortunately, the grocery shop had run out of the *Ya Boran*. PSK then went forward with what was "available" meanwhile. Her neighbour, a fellow rubber farmer, recommended that *Ya-Look Klon* (a remedy) that he had was effective in easing off the *Khed*. PSK did not hesitate to try it. At the same time, other neighbours, also fellow rubber farmers, suggested that they knew a *Mhor* (here means a medical doctor), who ran his own private clinic in town. The *Mhor*, as reported by the fellow rubber farmers, was good at treating muscle pain. Therefore, PSK joined the team heading to town to see *Mhor* one evening. She was happy to join the group because it was "convenient" for her. She had a free ride to town and the timing fitted with her rubber work. Evening is a suitable time for rubber farmers to carry out other activities besides work since they work at night, and have a nap during the afternoon.

PSK's story highlights that even if a rubber farmer developed faith in a treatment, the faith does not prevent the rubber farmer from trying out other options if the options are "convenient" and "available" as long as they are as effective as the previous treatment. However, it does not mean that the new treatment would abolish the faith which a rubber farmer held in the previous treatment. The faith in a previous treatment remains while faith in the new treatment develops. To support the point, the responses of a rubber farmer to snake bite are presented.

PYD, a 40-years-old rubber farmer and a village health volunteer, experienced snake bite twice over 10 years of her rubber farming career. The first time that she got bitten by a snake in her rubber field, she rushed to her older brother. She stated that her brother *Pud* (a treatment performed by folk healers using a spell–supernatural power, superstitious power) the snake's poison out from her body by using *Mhon* or *Katha* (magic word), (Songwathana, 1998) knowledge of which was passed between generations in her family.

Once, I grasped a young rubber tree, a snake was lying there, might be laying eggs, [got bitten], blood poured, I ran back home to my brother. I tied my arm with something to stop the poison running to my armpit. It was painful. I couldn't lift my arm, it was fat and heavy. I needed help to lift it up. My brother *Pud* the poison for me, he did it three times. The arm then became dried [shrunk- an indication of success of the healing perceived by the rubber farmer]. My brother performed the *Pud* three times, and I was all right then... he knows the *Katha*, and my other brother also does...it is passed from one to another generation within the family. (PYD, interviewed 08/09/05)

She obviously had full confidence or faith on her brother's *Katha*. Though it does not mean that she would reject other optional ways to save her life from the poison.

The other time that I got bitten by a snake I went to a health centre because I was far from where my brother was... I went to my brother the next day. He said if I already have the injection from the health centre, I was fine, no need to receive *Pud*. (PYD, interviewed 08/09/05)

When the brother was not in reach to provide the treatment, PYD was happy to receive the antivenom injection from the health centre. However, if she had an opportunity to choose she preferred to receive *Pud* from her brother. The faith that

PYD holds in her brother and his *Katha* was significant. She accepted the effectiveness of the injection following her brother's advice.

In some cases, the faith a rubber farmer has in a particular healer could change his/her health practice, like the case of BNH.

No, I don't prefer massaging...my back is painful sometimes but I don't ask for massaging... elderly in my family told me that if I have *Khed* do not go for *Yiap* or massage... I would just apply some ointment. I used to take *Ya Chud* [a combination of different pills in a package, sold in grocery shops or drug stores] But I have stopped... I have heard that it would burn our bone... information from hospital. When I went to see *Mhor* [here referred to medical doctor]) and *Mhor* knew that I took *Ya chud*. It could be bought from grocery shops. The *Ya Chud* eases off the pain but people who have taken *Ya Chud* for quite a while would have difficulty to solve their *Khed* problem later. *Mhor* recommended that I taking *Ya Chud*. I have *Khed* because I work, not because of having a disease. Secondly, I am older... [The body strength] isn't as good as it used to be, the body immune system is less active. (BHN, interviewed 10/08/05)

This excerpt reveals that BHN had faith in at least two different sources, the elderly in his family and the *Mhor* (medical doctor). His health practice to deal with muscle pain changed due to the *Mhor's* advice. "Faith" in old generation's advice came before "convenience" and "availability" reasons for choice of treatment as this informant was married to the local folk midwife and massager. He had developed a perception of the effects of massage on the body based on his ancestor's guidance.

If having massage all the time, in the long run, *Sen* [nerve] would be damaged and weaken because it has been disturbed frequently. Just like if we hit a tree every day, the tree would be ruined. Try hitting the tree every day then you will see what I mean. What the old generation said, I could imagine. Hitting a tree every day, don't have to hit it hard, the tree would be injured and bruised. That's similar to our body. Old people said do not go for massage, but taking *Ya* is fine. (BNH, interviewed 10/08/05)

Furthermore, NJ and her *Ya* combo and *Ya Re* that she took illustrates that convenience and availability do influence the decisions of rubber farmers on choices of remedies, medicines, and health practices in order to enable them to keep on working (demonstrated earlier in section 6.3.1; maintaining health for the sake of work). Each remedy that NJ bought and took was costly. She bought *Ya Tom* costing 300 baht, and the *Ya Re* (remedies sold by mobile vendor) including *Pha Talay Jone*,

Yha Naud Maew, Hngeung Pla Mhor, and Samunprai Than Ta Wan No 41 cost her 200 baht each. If she had gone to the subdistrict health centre she would have been entitled to use the Universal Coverage Scheme (UCS), a public healthcare scheme which requires the beneficiary to contribute 30 baht for a visit to public health institutes, or which is free of charge for rubber farmers aged over 60 years old. The excerpts below explain why she decided to spend more money.

It is 200 baht per bottle [each remedy of *Ya Re*]. The vendor comes to collect money later. The other day, he came, but I told him that I am not able to go to *Thud Yang* [tapping rubber trees], which means no money to pay for the *Ya* [remedies]. He said it was fine, he would come back again. I don't have to give the money all at once, doing the instalment pay. (NJ, interviewed 12/08/05)

[Not going to health centre where 30 baht scheme applied] well! How to say... it is inconvenient. It is better to have all medications ready at home, keep them in a plastic bag and take it to the field. I also have a medication to relieve stomach pain. (NJ, interviewed 12/08/05)

Excerpts from the interview with NJ illustrate that availability and convenience in terms of finance are important features that influences rubber farmers' decisions on the "circle of trial and error" to solve health problems. This explains the reasons why rubber farmers do not always seek health services from the government healthcare institutes (the subdistrict health centre and the District Hospital) where either they pay less, or treatment and remedies are free of charge.

TYM (interviewed 16/08/05) endorsed NJ's view that using the 30 baht health card (UCS) is inconvenient. He said going to receive a service from a government health institute is time consuming, as you have to wait too long, and some staff do not know what they are doing. He also displayed no faith in the application of the health card. He said, "When I used the health card, I was given a substandard medication, only paracetamol" (TYM, interviewed 16/08/05). As a result, he preferred to go to a private physician's clinic, paying more but receiving fast pain relief by injection. Most of the rubber farmers interviewed and observed agreed with this perspective. This finding opposes those revealed from the survey in which over 90% of rubber farmers said they used the 30 baht health card. It is also not consistent with the level of satisfaction (71.3% of total study respondents satisfied with the services) of the population in Songkla province with the services received under the health card

scheme reported in 2006 (Thai National Health Security Office & ABAC Poll Research Institute, 2006).

6.4 Decisions to protect and promote health

Rubber farmers' decisions to protecting and promoting health in relation to work-health related injuries, accidents, and illness, are associated with two main aspects. These are the interplay of living and working conditions versus health priority and the perception of the effects of rubber farming on the health of rubber farmers.

6.4.1 The influence of life priorities on a rubber farmer's decision to protect and promote health

Consistent with the process of making choices to treat health problems, the determination to make a living influences the rubber farmer's decision to adopt, or not to adopt, any approaches to protect themselves from the effects of work on health and to maintain health. The rubber farmers in this study illustrated that their determination about making a living and maintaining family financial status outweighed their determination to maintain health. However, this circumstance does not mean that the rubber farmers were focused on money for the sake of it, instead they worked to secure their everyday expenses and to support dependants of the family. In order to fulfil the family's financial requirements, the rubber farmers placed their health as the least important priority.

PAI and JUM, parents of three children, for example, decided to tap *Yang Choy* (the tapping site that a tapper could not reach without putting an extension stick into the tapping knife, or using a ladder) because they needed money to support their family.

I have done it [*Yang Choy*]. *Yang Choy* worsens the *Khed* [muscle pain] because I have to look up. Where I work now is the normal tapping site. When this one was closed for tapping I went to work on *Yang Choy* at *Nai Cuan* [an area]. It is because we have expenses every day. Children go to school, so doesn't matter if we have money or not, we still have the expenses to pay. That's why we have to work. (PAI & JUM, interviewed 03/08/05)

PAI and JUM knew that *Yang Choy* maximises the *Khed* problem. Yet they did it to meet the family's financial requirements. They sustained the work which is the family's only income resource, as the first priority.

See! When the latex flows well we have to seize our chance to tap the trees. Today we tap a set of trees and tomorrow we tap another set, so we tap each set every other day. That's why we could work every day. But we, human, would not have time to rest. Well! Rubber latex comes as the first priority. (PAI & JUM, interviewed 03/08/05)

PMR, a solo mother of four children, stressed a similar reason for keeping on working regardless of her health status.

Those rich people they work nonstop because they are worried that they would run out of money. Let's put it this way, they are just being greedy. I work because I have to support my children going to school. If they are not in school, there wouldn't be any problem. Since they are still in school, I can't just stop working whenever I want to. I just try not to go anywhere in the evening, take the time for resting instead. (PMR, interviewed 18/07/05)

The main reason for the rubber farmers' priority setting arises not from the will to be wealthier but to secure the family's basic financial expenses. Therefore, when rubber farmers are deciding whether or not they will take action to protect their health from work hazards and promote their health, they first would calculate the possible effects of the action on their work and income.

PSK was working hard, attempting to fulfil her dream of having a house for herself and her son to live in. "...I want to earn money enough to build a house. It is hard to explain... see! I am alone [no husband]... I see people own house, Allah! [An expression when being impressed] They are happy..." (PSK, interviewed, 29/07/05). The following image was PSK's house at the time of the fieldwork.

To complete her dream, PSK decided to hire someone to help her in collecting rubber latex.

Currently, I hire someone to help me in collecting *Num Yang* [rubber latex]. It helps a lot, which makes me able to tap the trees every day...I won't feel too exhausted. (PSK, interviewed, 29/07/05)



Figure 6-6 PSK's house condition at the time of the fieldwork

PSK's determination to earn enough money to build a house was the main motivation for hiring someone to help in the field rather than concern about her health. Hiring someone to help with the work in the rubber field was not costly. It was worth trading the loss of the small sum of money paid to the helper with the capability to keep working on a daily basis.

Discussion with TYM and PYA, husband and wife, about the ways to get rid of undergrowth in their rubber field disclosed that the couple made their decision based on how each way would affect the production of rubber latex, in other words, the family income rather than how each way would affect their health. TYM said "Spraying herbicides isn't good. It decreases the amount of rubber latex produced by the trees" (TYM & PYA, interviewed 08/08/05).

Ability to work without any unpleasant feelings is another concern that comes before health. TYM knew that herbicide is harmful to health. However, he refused to wear personal protective devices while spraying the herbicide as they made him feel uncomfortable and unable to work properly. He stated that wearing a mask made him unable to breathe and wearing a pair of goggles made him unable to see what he was doing when his sweat run through the goggles. The "knowing but not doing" is also

reported in the study among Sri Lankan farmers (Van Der Hoek, Konradsen, Athukorala, & Wanigadewa, 1997).

I couldn't breathe. But the spray [herbicides] of course has some effects on us so we have to cover the nose and mouth. But it makes me not able to breathe...The sweat makes the goggles dirty. We then couldn't see through them. When we want to take them off to clean them, we couldn't because our hands were contaminated by the chemical. That's the reason forcing us not to wear the goggles. And when we don't wear them we feel irritated in the throat and have diarrhoea. (TYM & PYA, interviewed 08/08/05)

NN suggested that spraying herbicides made him feel dizzy and have a headache. He knew that wearing a mask is required while handling herbicide. However, he did not comply with it since wearing a mask made him feel uneasy and not able to breathe while working.

I felt dizzy and had a headache [after spraying herbicides], so I sat down for a rest and had a shower when I arrived home. I couldn't breathe when I wore a mask. It also made me feel uncomfortable... (NN, interviewed 30/08/05)

Likewise, PTP wears a pair of slippers instead of gumboots while working even though she knows the possibility of being harmed by a poisonous snake. She stated that the gumboots were heavy. They made her feel tired and unable to walk. NM, who has helped her parents to collect rubber latex since she was a little girl, agreed with PTP.

No, today I didn't wear a pair of gumboots. Wearing those makes me feel tired and unable to walk. So I wore a pair of slippers. (PTP, interviewed 11/08/05)

I have never worn gumboots, wearing gumboots to collect *Num Yang* [rubber latex] slows my working pace. (NM, interviewed 17/08/05)

The rubber farmers registered the potential effects of work on health. But the focus on work and determination to make a living again directed most rubber farmers away from using personal protective devices to protect themselves from harm.

A rubber farmer, who claimed that she had never been bitten by a *Tauy Yai Mun* [scorpion-like arachnid] because she always wore gloves while working, almost led me to a wrong interpretation. When I heard the rubber farmer say "no problem with

Tauy Yai Mun because I wear gloves, all my children do the same... When I *Thud Yang* [tapping rubber trees] I wear gloves” (MA2, interviewed 02/08/05), she gave an impression that she recognised and prioritised the benefit to health of the use of a personal protective device and did not consider the practice as an obstacle to the work. However, when listening to her further explanation, it appears that preventing herself from being stung by the *Tauy Yai Mun* was only a by-product of wearing gloves while working. Actually, wearing the gloves to keep her hands clean for *La-Mard* (prayer) was her major concern.

When I *Thud Yang* I have to wear gloves. That’s because when it is time for *La-Mard* we have to wash our hands. The rubber latex stuck on the hands also needed to be removed. Wearing gloves prevents the hands from having dried rubber latex getting stuck on them. Therefore, we won’t have much trouble trying to get the hands clean before doing the *La-Mard*. (MA2, interviewed 02/08/05)

Among rubber farmers studied, concern about personal health is constantly positioned after concern about work; it is also placed after concern about living conditions. The following quotation from ND clearly illustrates personal health being placed aside when a rubber farmer is the family breadwinner, and the caregiver of the family’s dependants.

Don’t really do much exercise... don’t have time... around noon when I have time it is too hot [to do anything]... Then late afternoon, I have to cook. Don’t have time. Once I finish everything, it is time for bed, and getting up early for the tapping in the rubber field. Some people exercise... like an *Or-Sor-Mor* [village health volunteer] next door... she exercises every evening. And on the day that she doesn’t go to rubber field she runs in the morning. She could do it because all her children have grown up...I have a little boy [a son] ... If my son is older, I would like to do the same as the *Or-Sor-Mor* does.... After exercising she has a shower....then she cooks around late afternoon.... After finishing the cooking she goes for running again. I don’t have time for that. (ND, interviewed 20/07/05)

Although ND acknowledged the benefit of exercise she said that her living and working conditions (the requirement of the work in the rubber field and housework) had prohibited her from pursuing any other activities, including exercise. This priority of rubber farmers was inconsistent with the priority of health staff of the subdistrict health centre. While health personnel expected the rubber farmers to be

more proactive at protecting and promoting their health rather than focusing on their living and work conditions, the rubber farmers acted towards opposite direction.

For example, when the public health specialist of the subdistrict health centre suggested to a rubber farmer to take a break from the work because of the rubber farmer's health problem, the rubber farmer could not follow the suggestion because of her attempts to make a living and the fact that she is employed by someone else.

PSA [the public health specialist who lives locally] advised me to take the muscle relaxant and suggested me to stop working. But I said I couldn't. It is not my own field... (PTP, interviewed 11/08/05)

Dengue Hemorrhagic fever (DHF) has also been noted as a major health problem in Thailand for over 30 years, during which its incidence has shown only insignificant decline (Bureau of Policy and Strategy, 2005). Because the rubber farming environment and the climate of the south of Thailand enhance the breeding of mosquitoes, the cause of the vector-borne disease (DHF), the local health staff constantly advise the villagers in the catchment area to drain water in household containers at least once a week. Even though ND agreed with the advice, she said she could not comply with it because she did not want to waste the water.

I have got a pamphlet from the hospital....it suggests that we should release water kept in any containers at home at least every seven days. Say, once it is Friday, we should make it a mosquito and larvae eliminating day. But the container in our bathroom is big...if we change the water in it often...it would be a waste of water... (ND, interviewed 20/07/05)

TYM's statement could be used to explain the reason for the conflict. He said, "It is like those who make a coffin but they don't use it, while those who don't make it, use it." (TYM, interviewed 08/08/05). He implied that sometimes the health advice given to them is impracticable as the advice-giver does not completely comprehend the reality of the work circumstance.

If we follow the instruction we have to wear gloves, goggles, and mask. Most of the time the instruction given isn't practical. Those who wrote the instruction thought it is easy to do what they suggested. Why don't they try to do it? When we sweat, the sweat runs to the goggles. And then we couldn't see. When we try to wipe it out, we couldn't do it. (TYM & PYA, interviewed 08/08/05)

The circle of priorities below sums up the influence of the rubber farmers' priority of living and work condition versus health on the rubber farmers' decisions about protecting and promoting health.

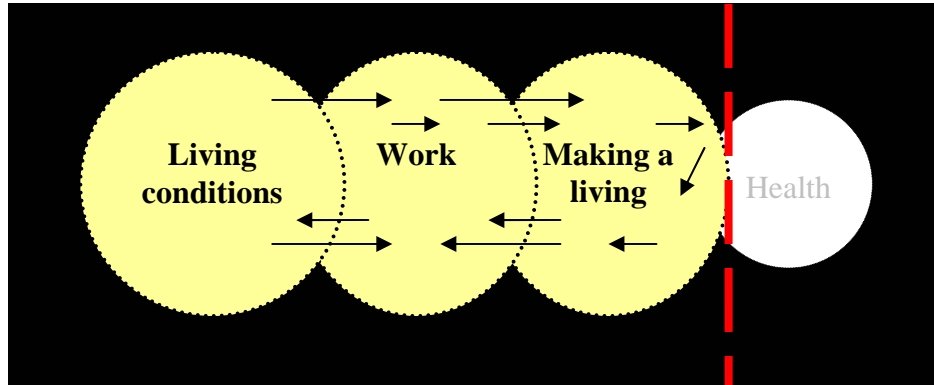


Figure 6-7 Rubber farmers' circle of priority

Health is placed in the background of the rubber farmers' life chain with a faded prospect. The rubber farmers keep moving back and forth between making a living which involves living and work conditions. The priority to make a living to some extent acts as a partition hindering the rubber farmers from going beyond their work and living demands to focus on their health.

However, it is not only the priority to make a living that holds the rubber farmers back from accessing the health sector, but also the rubber farmers' perception of the effects of work conditions and the environment on health. The perception is not a less significant factor influencing the rubber farmers' choice of taking, or not taking, an action to enhance their health condition.

6.4.2 The influence of rubber farmers' viewpoints of the effects of rubber farming on health on their decisions to protect and promote health

In Chapter 5, the rubber farmers' viewpoint of the effects on health illustrated include constructive effect, destructive effect, destructive effect on selective cases and particular circumstances, destructive effect but not a big deal. Here, the figure below demonstrates the influences of perceptions in rubber farmers' decisions on whether or

not to take an initiative to protect themselves from potential health risks in relation to their work.

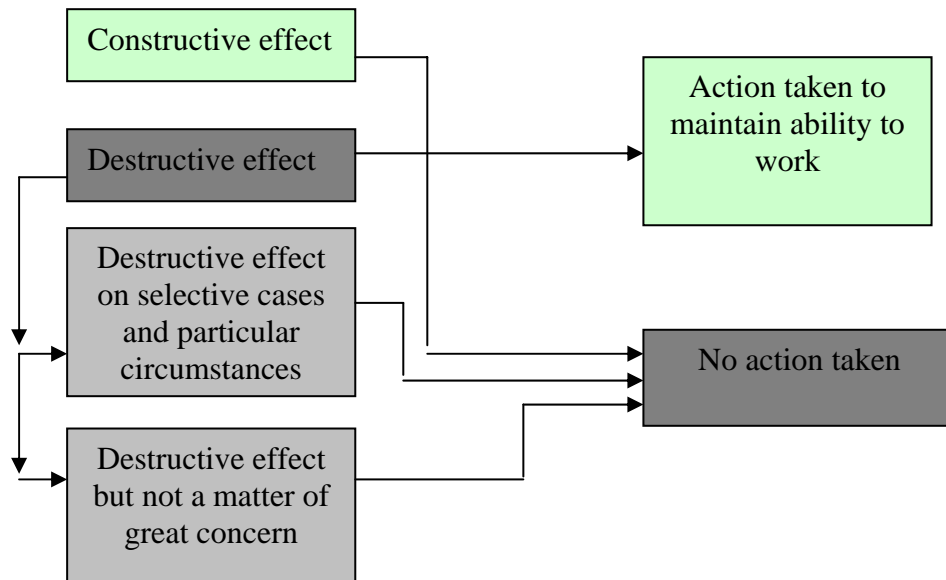


Figure 6-8 The influences of the rubber farmers' understanding of the effects of their work conditions and environment on their decisions on protecting and promoting health

There are two destinations to which these aspects could navigate the rubber farmers: 1) taking one or another action to maintain their ability to keep on working, and 2) taking no action. However, the diagram shows the possibility of every aspect on the left column leading the rubber farmers to the later destination, taking no action.

Once a rubber farmer has developed the idea that his/her working conditions are rather beneficial to health s/he would not take any precaution to prevent him-or herself from any potential work risks. For example, heavy lifting and repetitive movement, which are characteristics of rubber farming, cause muscle injury. Though some rubber farmers interviewed did not agree. They believed that the nature of the work is instead a good way for physical exercise, mentioned in the previous chapter. Therefore, when ND and fellow rubber farmers who shared the same understanding hold this perception, they are unlikely to take any initial approach to protect themselves from muscle injury. Similarly, PYD, who adopted the idea that the ammonia helps getting rid of a cold would not wear a mask when handling the substance. And PSK, who believed that *Num Som* (formic/acetic acid) makes the feet

clean would not be concerned about its possible danger. These two substances have, in fact, been documented as hazardous to the human body (Witthayawirasak, 2004).

Although the rubber farmers studied recognised that rubber farming and its environment create health-related problems they dealt with these concerns in separate ways. Some of them take action to minimise a health concern, while some would take no action. For example, PMR—who experienced feeling nauseous when using a Carbide headlamp—had discarded the headlamp. She had been using a rechargeable battery headlamp and no longer suffered from the effect of the previous device. PSK agreed that some people are affected by odour omitted from the carbide headlamp. However, she did not *Pae* the odour. She was fine when using carbide headlamp to work in the field. Therefore, she took no action in trying to find out whether the headlamp is actually harmful to health or not.

In addition, the rubber farmers who believe that indeed rubber farming and its environment affect their health, but it is not a matter of great concern for several reasons given in the previous chapter, would also end up with taking no action on protecting and promoting health. The rubber farmers—who expressed the view that working in a rubber field causes a number of health problems but the problems are reality and they get used to them—would not take any proactive approach to minimise the occurrence of the problems. Similarly, the rubber farmers who agreed that ammonia, formic/acetic acid, and herbicides have harmful effects on health would not take any action to protect themselves when they believe that exposures to the substances on occasional basis, or to their diluted forms would not do any harm to their health.

6.5 Summary

Maintaining health for the sake of work operates as the overriding factor that shapes rubber farmers' decision making re health problems. However, the other factors such as “experiences” (direct-indirect) of favourable or unfavourable results of choices of treatments, “availability” and “convenience” of access to the choices are also taken into account. Each factor relates to each other in a circular manner. That is, the chain

of the decision making is vibrant, moving back and forth, resembling a Ferris wheel. Nevertheless, no matter at which point an individual rubber farmer begins the cycle of decision making, s/he shares the same final goal which is determining to make a living due to the interplay between living and working conditions.

In the Chapters 5 and 6 I have demonstrated the viewpoints of rubber farmers on the effects of rubber farming on their health and their decision making process to solve work-related health problems, as well as factors influencing the formation of the perception and the process of decision making. In the next chapter I portray the views of the health staff who worked at the subdistrict health centre on rubber farming work-related health problems and the rubber farmers' health. Health staff members' recommendations on how to promote rubber farmers' health, and obstacles to the success of health promotion are also demonstrated.

Chapter 7: Perception of Subdistrict healthcare providers

7.1 Introduction

In this chapter I draw attention to the subdistrict healthcare providers' perceptions of rubber farmers' health. The obstacles identified by the health workers that are viewed as hindering the success of health promotion and disease prevention programmes delivered to rubber farmers and the rubber farming community are presented. The healthcare providers' suggested approaches to addressing the obstacles in order to improve the provision of healthcare services to the rubber farmers as well as to promote their health are also presented. First, a brief overview of the subdistrict health centre in the Thai context is provided to enable an understanding of the context from which the healthcare providers provide services to local communities.

7.2 Subdistrict health centre

The subdistrict health centre, commonly called by the locals and the informants as *Anamai*, is a substructure of the Provincial Administration. Health centres are classified as the primary care level or first-line public healthcare providers in the Thai public health services. Health centres, according to the Thai Ministry of Public Health (MoPH), are expected to provide integrated health services to the residents of their designated subdistricts, called *Tumbon*. The size of population covered by a health centre could range from 1,000 to 5,000 (Bureau of Policy and Strategy, 2005). Generally, the health centres of Thailand receive technical support and resources from Contracted Units of Primary Care (CUP), which are provincial and community hospitals. However, health centres are not under the line of command of the MoPH. They instead are part of District Health offices which are under the line of command of provincial administration led by a provincial governor who acts as Chief Executive Officer (CEO).

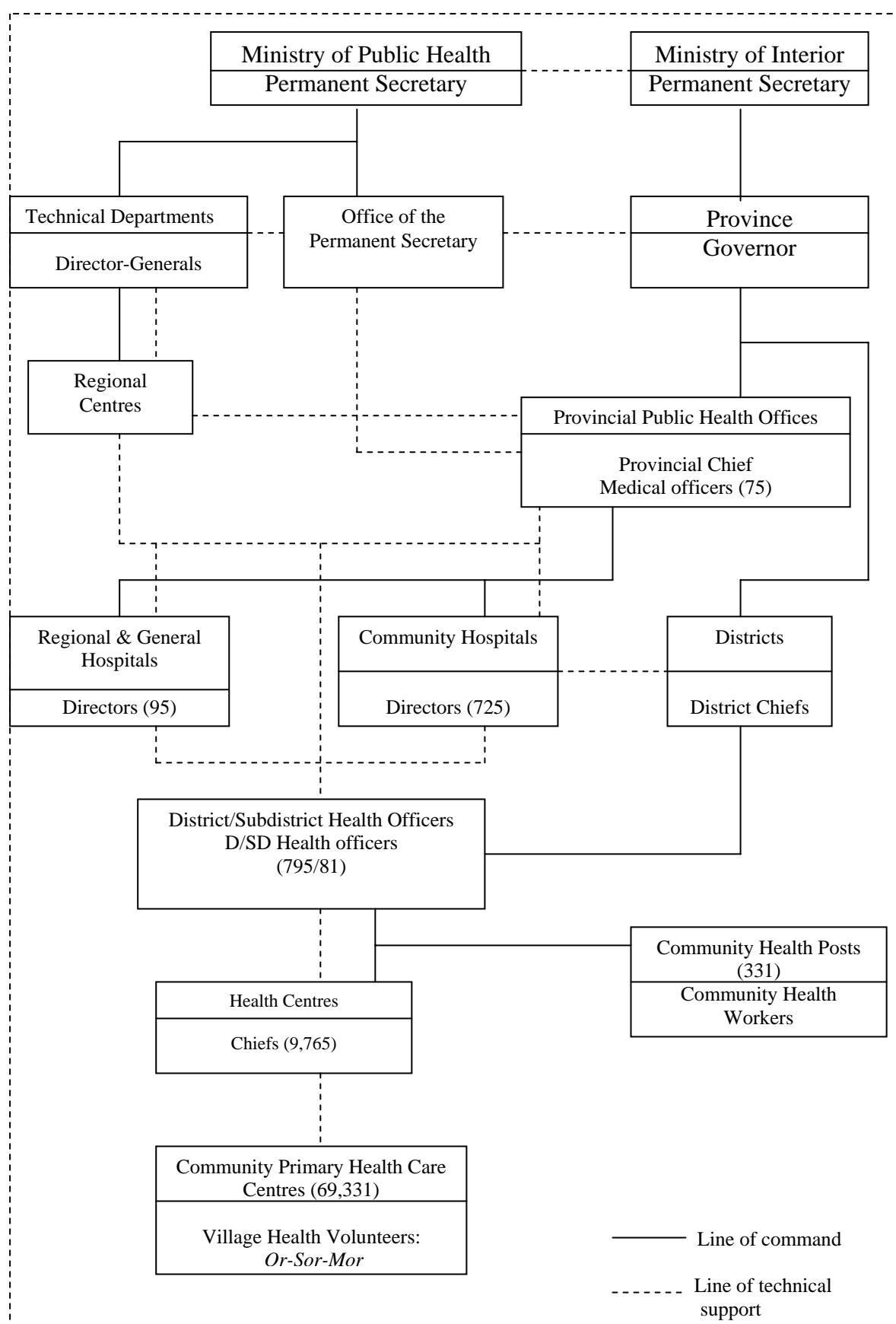


Figure 7-1 Structure of provincial health administration
(Bureau of Policy and Strategy, 2005)

A health centre has an obligation to provide health services following the standard operational procedures initiated by the MoPH. According to the MoPH's proposal, each health centre is responsible for providing health services including health promotion, disease prevention and curative care (Lorga, 2003). Ideally, the staff of a health centre includes a health worker, a midwife and a technical nurse. In the future, the MoPH wishes to allocate more health staff, including a dental nurse, a professional nurse and a health specialist, to work at each large health centre. Besides, there are village health volunteers, called *Or-Sor-Mor*, working as extra hands under the supervision of the health workers of health centres. They, theoretically, run the community primary health care centres in their villages (if there is one). The health volunteers are trained to provide some basic health services to villagers in their designated area, and to facilitate the work of health centres. One health volunteer covers 10-15 households (Fieldnote, 2005).

The health centre of the subdistrict where the study took place at the time of fieldwork, dealt with 1,315 households (population of 6,446) of six villages (*Moo-Ban*) under the administrative system of one subdistrict, with three health staff and two support staff (Subdistrict Health Centre, 2005a). The health staff included a public health administrator, who was the head of the health centre, a midwife, and a public health specialist (Fieldnote, 2005). The support staff included a computer and information support person and a maid. Furthermore, one morning per week, a nurse of the health centre's CUP was assigned to visit the health centre to assist with providing treatment and health consultation. There were about 107 village health volunteers under the supervision of the subdistrict health centre.

As directed by the MoPH, the health services that are covered by the health centre are curative care, family planning, maternal and child care, nutrition, health promotion and disease prevention. Each health worker is responsible for specific services. The curative care is shared among the three health staff members, based on task rotation. Health promotion, family planning, maternal and child care are under the responsibility of the midwife, whereas, the public health specialist is responsible for disease prevention. The head of the health centre, apart from the administrative responsibility, takes care of some activities concerning health promotion and disease

prevention. Details of the designated job description for each position are shown in the following table.

Table 7-1 Health Centre Staff's Job Descriptions (Subdistrict Health Centre, 2005b)

Position	Job description
Head of the health centre -Public Health administrator -Education: - Midwifery certificate - Technical nurse (2 years' training) - Bachelor degree in Public Health	<ol style="list-style-type: none"> 1. Developing administrative plan 2. Summarising and evaluating outcomes 3. Administering equipment and medication storage 4. Administering office files/archives 5. Preventing and controlling non-communicable diseases 6. Mobile health service 7. School health 8. Healthy Thailand 9. Inventories/stationery 10. Health educating, training projects 11. Developing the action plan for providing health services 12. Health promotion: population 13. Health promotion: elderly 14. Organising public brain storming 15. Establishing health promotion club 16. Updating demographic information, and health statistic 17. Improving health centre physical appearance 18. Dealing with public complaints on health services 19. Cooperating with related agencies 20. Financial report (with CUP) 21. Urgent assignments/requests directed by the government 22. Supervising/and monitoring health services 23. Health education and public relations 24. Cooperating for community development 25. Monthly report 26. Staff roster 27. Others, as assigned by higher authorities
Midwife -Education : Midwifery certificate	<ol style="list-style-type: none"> 1. Maternal and child care 2. Family planning 3. Health promotion 4. Nutrition 5. Health promotion: focusing on disable population 6. Mental health 7. Health education/public relations 8. Child development (0-6 years old) 9. Preventing and monitoring cervical cancer and breast cancer in women aged 35 years old and over 10. Health promotion: Menopause population both males and females 11. Supervising community primary health care centres 12. Others as assigned by higher authorities

Public Health Specialist -education: - Public health certificate - Public health specialist certificate	<ol style="list-style-type: none"> 1. Planning/developing project in health education 2. Immunization 3. Food safety 4. Preventing and monitoring communicable diseases 5. Epidemiology 6. Environmental hygiene and health 7. curative care 8. Food hygiene 9. Drug abuse 10. Supervising community primary health care 11. Protection of consumer rights 12. Medical supplies 13. Coordinating/public relations 14. Social security report 15. Monthly report 16. Thai traditional treatment 17. Others as assigned by higher authorities
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7.3 The health staff's perception of rubber farmers' work-related health problems

Health services for the working-aged population, or the occupational health and safety service, was not itemised in the designated job descriptions outlined above. However, from interviews with the health staff, it was revealed that the service was under the disease prevention scheme for which the public health specialist, together with the head of the health centre, were responsible. The statement given by the head of the health centre disclosed that the Health for All scheme, when it came to the working population, focused on the rate of employment and increased income. She said:

Yes, it [Health for All scheme] does [include working group]. The scheme focuses on every working person being employed and promoted [in terms of salary]. (Head of the health centre, interviewed, 18/08/05).

Occupational safety and health activities carried out by the public health specialist were focused on the formal sector, which consists of the industrial plants located in the subdistrict.

I am included into occupational health and safety inspecting team involuntarily under 2535 [1992] Act which indicates that the public health specialist and the head of health centre are part of the inspecting team. We have to go with the officers from *Or-Bor-Tor* [local government office] to do the occupational health and safety inspection. We have five factories in our catchment area. To renew their registrations, each factory is required to

pass the standards of the occupational safety and health. (Public health specialist, interviewed 31/08/05)

In discussion about work and its impact on health, the public health specialist suggested that every work has its own hazards, but what the hazards are depends on the type of work. She pointed out that work definitely affects health when the workers' physical health is unable to cope with the work.

It depends on work conditions. Every work has its own hazards. Nowadays, lots of people from this area work in cooling industries, involving exposure to seafood. Some people have skin problems, skin irritation, and itchiness. Some people suffer from nasal congestion which later develops to *Pae* [one's body is susceptible to/or sensitive to a particular stimulant causing negative reaction]. Some have to take days off, some have to keep looking for new jobs, moving from one factory to another. It displays the fact that those people's health is unable to cope with the work conditions. So I would say that work definitely affects health. (Public health specialist, interviewed 31/08/05)

However, even though over half of the population of the subdistrict are rubber farmers, the public health specialist admitted that there was no record of rubber farmers' health and special health needs and health services. She stated that "we are unclear about their (rubber farmers') actual health problems and how severe they are" (Public health specialist, interviewed 31/08/05).

Nonetheless, based on the experience of working at various health centres in which the majority of the population were rubber farmers, the health workers of the health centre did not hesitate to offer their concepts of rubber farmers' health and the causes of health problems in relation to rubber farming and rubber farmers' living conditions. They consider that rubber farmers' work-related health problems have four major causes. These are the nature of rubber farming, rubber farmers' level of knowledge and skill in rubber farming, rubber farmers' education level, and rubber farmers' financial status.

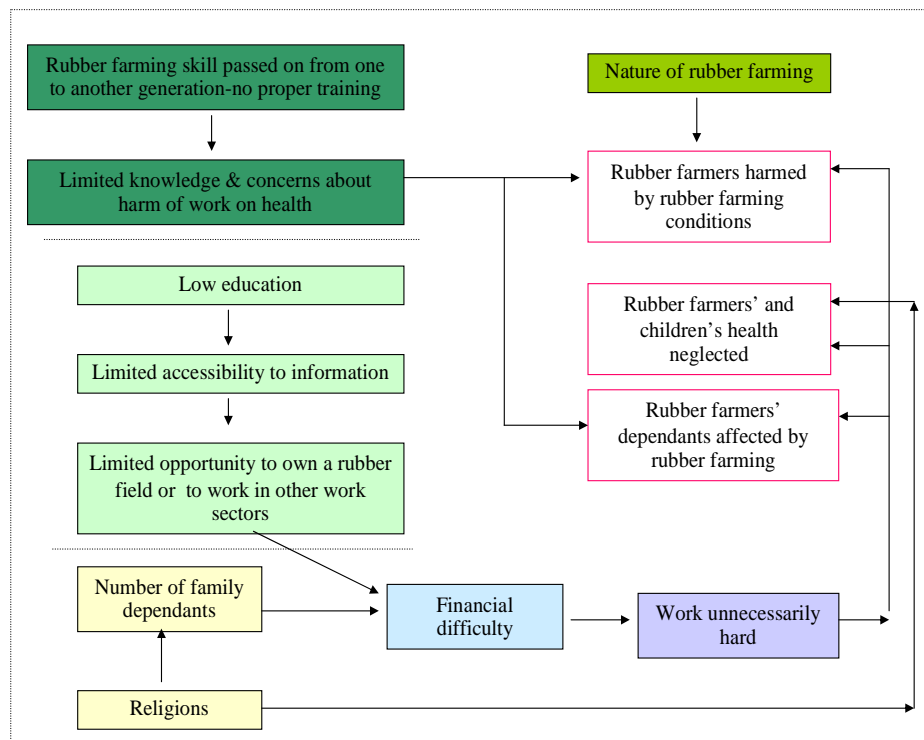


Figure 7-2 Causes and effects of rubber farming as perceived by health personnel

The health workers stated that the nature and conditions of rubber farming certainly affect the health of rubber farmers and those of their families in various ways. Consistent with the views expressed by rubber farmers, they believe that rubber farmers suffer mainly from muscle pain caused by hard physical work and lack of sleep which have dizziness, headaches and nausea as results. These are the most frequent health problems which bring rubber farmers to seek help from the health centre (Public health specialist, interviewed 31/08/05).

Both the public health specialist and the head of the health centre explained that the lack of sleep is surely caused by the nature of the rubber farming because the rubber farmers started working when people in other work industries were still asleep. Though the public health specialist noted that when comparing the rubber farmers to nurses, who also worked at night, she found a difference between the two groups. She said that somehow, nurses seemed to adjust themselves to night work better than the rubber farmers do as nurses ensured that they had a rest and sleep after finishing a night shift but the rubber farmers did not.

See! *Chaow-Ban* [lay people, villagers] also ask how nurses could stay awake for the night shift. I guess it is about getting 'used to it', or self-adjustment. Nurses make sure that they have a rest and sleep [after finishing night shift] but *Chaow-Ban* don't. Lack of sleep definitely has some effects on health. (Public health specialist, interviewed 31/08/05)

The main cause of the lack of sleep identified by the public health specialist was that some rubber farmers worked unnecessarily hard, which made them fail to balance time for resting and working.

Observing from the clients who came to visit the health centre, some of them work far too hard, unnecessarily hard. Those who know how to take care of themselves would start working at 3 or 4 a.m. and go to bed at 7 p.m. So they would have at least 6 hours of sleeping, and that's enough. Then they might have a little nap during the daytime. (Public health specialist, interviewed 31/08/05)

Her idea is in contrast to those given by the rubber farmers in Chapter 5. The rubber farmers do not commit to the hard work because they want to, but because they need to. Without daily work, they would struggle to juggle the financial requirements to serve basic family needs. After finishing work in the rubber field, they might need to go to another job, or look after household tasks, or have maintenance work to do in their rubber fields. As a result, they are unable to balance the time between work and sleep as nurses are able to.

The head of the health centre agreed with the reason given by the rubber farmers. She defined rubber farmers' financial difficulty as the reason behind the rubber farmers' hard working and worries.

That might relate to the big family and many kids which is the characteristic of this community. Each family member tries to make a living, having ten kids, they wouldn't have much time to take care of all of them, would they? Even when we have one or two kids we sometimes struggle to take care of them. (Head of the health centre, interviewed 18/08/05)

They lack sleep and rest. For some people with financial difficulty, they might even have to get up earlier in order to be able to tap more trees. Some people do not work in their own fields but work for others. Working in own fields isn't too bad, as they don't have to share the benefits with field owners. Most of the farmers do not own any rubber fields. The land around here is occupied by those *Thowkae* [people who own rubber fields, but instead of working in their fields, they hire local rubber farmers to

work for them] from the city. And people around here work for them.
(Head of the health centre, interviewed 18/08/05)

Thus, the head of the health centre associated the rubber farmers' financial difficulty with their endeavours to support their dependants financially and their field owning status. She explained further why she thought some rubber farmers were unable to own a piece of land and work for themselves.

Because they [rubber farmers] are not educated. They are not quick enough to access information. See? The land around my place... is mostly occupied by the people from Bangkok because they somehow accessed the city plan. They came here and bought all the land, the Prime Minister too. They got the information of where the road would be constructed. The road construction plan is always the main factor of rising price of land. See! This is really up to people's accessibility to information. (Head of the health centre, interviewed, 18/08/05).

The head of the health centre concluded that the rubber farmers' limited level of education restricts their access to information. As a result, they could not take prompt action on buying a piece of land as those with authority and knowledge could. She believed that the number of a family's dependants maximised the severity of the financial difficulty and kept the rubber farmers at a low level of education. Here, she failed to acknowledge her comment on the financial difficulty as one, possibly the most significant reason, of rubber farmers' inability to own a piece of land. She, instead, linked the concern with the practices of the rubber farmers' religions. She said Muslim rubber farmers appeared to have the problem (large family size) more than Buddhists. That is because the Muslims are not allowed to undergo any family planning and as well the Buddhist families—for some reasons—have better household management.

They [Buddhists] have fewer problems as their size of family is small, five people at the most. They mostly have two or three children. In *Thai* [referred to Buddhist Thais] households, they have better management, they make sure that their kids go to school. One good point of Thais is that even though their kids are sometimes naughty, or are being troublemakers, they try hard to keep the kids in school as long as they could at least until they finish high school. *Kak* [Muslim Thais], when we talk about education, they would say they have so many kids which makes them not able to support them to go to school. When we talk about family planning, contraception, they would say they can't do it as it would be against their

religion. In conclusion, they can't do anything that would improve their living conditions. We don't know what to do with them. Very few of [Muslim] housewives would come to us to ask for contraceptive pills, and, if they did, we would be asked by them to keep it secret from their husbands (Head of subdistrict health centre, interviewed 18/08/05).

She also pointed out that Muslim household affairs were different from those of Buddhists. From her view, she perceived that the husbands in Muslim households were not as helpful with making a living, taking care of housework, and children, as those of Buddhists. Consequently, they were prone to encounter more financial problems.

My major observation is that Muslim males aren't really helpful. Once they get married, most of the time women are family bread-makers while men stick to religious practices, going to mosques, or take care of *Nok Koa* [a kind of pet bird which has beautiful singing voice], or enjoying themselves at a *Ran Num Cha* [Open-air cafe selling hot/cold drinks and light meals]. Early morning, wives take care of household affairs, and children. Only in some families that husbands would go to help wives in rubber fields...For *Thais* [Buddhist Thais] husband acts as the front legs of elephant, leading his family, and earning money for family expenses while wife stay at home. (Head of the health centre, interviewed 18/08/05)

The statement differs from the information gained from fieldwork observation which showed no difference in the household issues between Muslims and Buddhists. Husbands of both heritages work equally hard (Fieldnote, 2005).

The head of the health centre suggested that the nature of rubber farming (working from the night to the early morning) and the attempt to make a living of rubber farmers to some extent affected the health of rubber farmers' young children.

Kids wouldn't have anyone giving them breakfast so they go to school with empty stomach. No one takes care of the kids, especially with small kids; they wouldn't be able to take care of themselves. Although sometimes they are left with an elderly relative at home, the elderly wouldn't be able to fully take care of kids. Some people just leave their kids at home without any supervision from any adults. The kids would have to get ready for school on their own, such as getting dressed...Among 700 children ages 0-7 years old, around 50 of them have a malnutrition problem. (Head of the health centre, 18/08/05)

In contrast, the public health specialist did not believe that rubber farming would affect rubber farmers' family members and those who lived in the rubber community but were not involved in rubber farming.

They [rubber farmers] do the farming, tapping the trees in their own fields, selling rubber latex by themselves. The family members, or those who are not involved in working in the rubber field, would not be affected by anything. They would not be disturbed by any unpleasant odour. Noise from motorcycle, well! I have never heard the noise when I sleep. But I don't know if people who live in rubber fields are affected by the noise or the work. But I don't think so, because tapping trees isn't a noisy job, they work quietly. So I don't think those who do not work in rubber field would be disturbed. (Public health specialist, interviewed 31/08/05,)

Consistent with the report of the World Health Organisation on the Global Strategy on Occupational Health for All (Rantanen, 1994), all health workers of the health centre highlighted that the poor personal hygiene of rubber farmers was one of the most significant health concerns that they had noticed. The head of the health centre disclosed that each year there was an epidemic of a disease relating to poor personal and household hygiene. She believed that the rubber farmers' neglect of their personal and household health and hygiene as well as the adverse effects on the health of their children were caused by the rubber farmers' preoccupation with making a living.

Each family member tries to make a living, having ten kids, they wouldn't have much time to take care of all of them, would they? Even we have one or two kids we sometimes struggle to take care of them. If you go around you would see their household environment is bad. It is a chronic problem. Each year, there will be an epidemic of a disease, last year they had diarrhoea problem, and this year they have hepatitis A. These are all about personal hygiene. And skin infection is another problem that we commonly see here. (Head of the health centre, 18/08/05)

The public health specialist confirmed the statement. Her view was that itchiness and skin problems experienced by rubber farmers had nothing to do with the rubber latex and the unwashed work outfit but rather indicated a lack of personal hygiene.

Talking about skin problems, skin irritation, itchiness, and skin infection, they are not necessarily related to working in rubber field. It is about personal hygiene. I also can't see the relationship between *Thud Yang* [tapping rubber trees] and the skin problems. Whether or not the itchiness caused by *Yang* [rubber product] or the work clothes, I doubt it. *Yang*

aggregates on the outside of the clothes, thickly. But I don't see anyone wearing the outfit shows any sign of skin problem. *Yang* mainly sticks on the outside layer not inside, thicker and thicker, which prevents the farmers' skin from contacting to *Num Yang* [rubber latex]. (Public health specialist, interviewed 31/08/05)

The public health specialist, who is a Muslim, also linked the rubber farmers' concern about personal hygiene and their children's health to the number of family members and religious practice.

Only difference between the two groups is that Buddhist parents seem to show concern more about their children's health. Hmm! it might be because Muslims often have more children than Buddhists do. Muslims might have 5 or 6 kids while the latter group has one or two. That's why they [Muslims] seem to neglect [children health]... I don't think any other religious teaching would talk about health and hygiene as much as we do... That hygiene teaching doesn't have any effects on their practice. I don't understand why *Kak's* household [Muslim household] is messy. The prophet even mentions how to eat, in which hand should we hold cup. I think it might be because when we learn we learn only main principles, such as where God is, what we could have faith in. Minor details then are being left untaught. Or those who teach religion might not know how to teach. Only teach kids how to perform *Ma-yang* or *La-Mard* [prayer]. They don't mention that household's hygiene is one of Islamic principles. (Public health specialist, interviewed 31/08/05)

Apart from the health concerns mentioned, the public health specialist explained that at the health centre, there was no record of the accidents caused by the work in rubber field. She said that most rubber farmers, and the health staff of the health centre tended to perceive minor accidents and injuries as a part of the job, therefore, the rubber farmers did not report their accidents and injuries to the health centre. The health staff also did not take the incidents seriously because they—like the rubber farmers—were familiar with their recurrence (Glendon & McKenna, 1995).

There are some people experiencing cut by knife. It is a direct effect, but it rarely happens. Those injured farmers might think that it is only a wee problem; therefore, they don't come to us for any treatment. In this case, we won't be able to keep the injury record.... Then some said, the problem comes with the work, so it is normal to happen or not I don't know, they don't tell me that. They come to us only when they can't stand the health problem which has occurred [wait until having severe condition, getting annoyed by the condition]. Come to us and say "*Mhor* [health personnel], I am feeling dizzy, having *Khed Meay* [muscle pain] all the time". Actually, if they are assessed by a nurse practitioner, the assessment would be better.

But our health personnel [of health centre] look at the problem as normal thing to happen [not taking it seriously]. (Public health specialist, interviewed 31/08/05)

The head of the health centre did not mention the potential harm of the chemicals used in the process of rubber farming, ammonia and formic/acetic acid, while the public health specialist presented an observation on the rubber farmers' reaction to the substances, she was not certain about what harm the ammonia could generate. Nevertheless, she believed that the rubber farmers handling ammonia had less chance of being affected by ammonia in comparison to the brokers who bought the rubber latex to which ammonia had been added. Like the rubber farmers' understanding, she held the notion of *Pae* that is formic/acetic acid harmed only those rubber farmers who were sensitive to the substance.

We were told by them [rubber farmers], but we don't know how harmful the chemical is to human health. I have noticed the unpleasant smell of ammonia when I passed a broker station where rubber farmers sell their rubber latex... (Public health specialist, 31/08/05)

Some of them *Pae Num Som Kha Yang* [negative reaction of body to formic/acetic acid]. They would come to us with skin irritation...Some develop a severe condition. They [rubber farmers] contact *Num Som* [formic/acetic acid] all the time. When they step on the rubber block, they have rash started from feet to shins. Well! Not all of them have the problems, though, just happen to those who *Pae*. (Public health specialist, 31/08/05)

Lastly, congruent with Park et al. (2003), the public health specialist concluded that the rubber farmers experience the harms at work as a result of having no proper training, since their farming skill and knowledge had been passed on from one to the next generation.

What happens is that rubber farming is an occupation that passes on among family members, from one generation to next generation. It is not a kind of occupation that requires official training. It instead merges into their lives since they are kids, learning by seeing what parents do. Say starting when they are in year 3 or 4 of primary school, some of them might go to rubber field with parents, helping them with this and that, and at the same time learning how to farm, how to tap rubber trees. It is basically passed from one to another person informally, no rules, no theory. (Public health specialist, interviewed 31/08/05)

7.4 Ideal ways to improve rubber farmers' health versus obstacles: Health workers' perspective

The health staff has recommended a number of ideas which, in theory, should improve the health of rubber farmers, and health services (left side of the seesaw in Figure 7-3). These include the promotion of rubber farmers' health knowledge with continuous system, proactive health promotion and disease prevention, good collaboration between the health staff, health authority, local government staff, and the community. However, they were not optimistic about their success because of foreseen obstacles.

The obstacles delaying the implementation of the ideal approaches perceived by the health staff arise from a range of directions (demonstrated on the right side of the seesaw in Figure 7-3). These include lack of health knowledge of, and poor collaboration among, parties involved. The conflicts of interest between rubber farmers, health staff of the health centre, the district health staff, and the local government staff appears to be an issue that hinders the success of collaboration.

Furthermore, the health staff have emphasised the poor staff administration, poor supervision, and corrupt system as the blockage of the success of the health services provided by the health centre. Nevertheless, there are other possible obstacles which were unrecognised by the health staff, but which were identified from the information gained. This includes the religious differences and perceptions of "other" (*Kak*-Thai Muslims and *Thais*-Thai Buddhists) of health staff, and the health staff's misjudgement of rubber farmers' circumstances and actions.

As demonstrated in the seesaw (Figure 7-3), the obstacles listed outweigh the ideal practices and overpower the practices of health workers. The obstacles listed hinder the health staff from pursuing the approach they thought to be the right one leading to the achievement of health promotion and disease prevention. How this situation occurred is explained as follows.

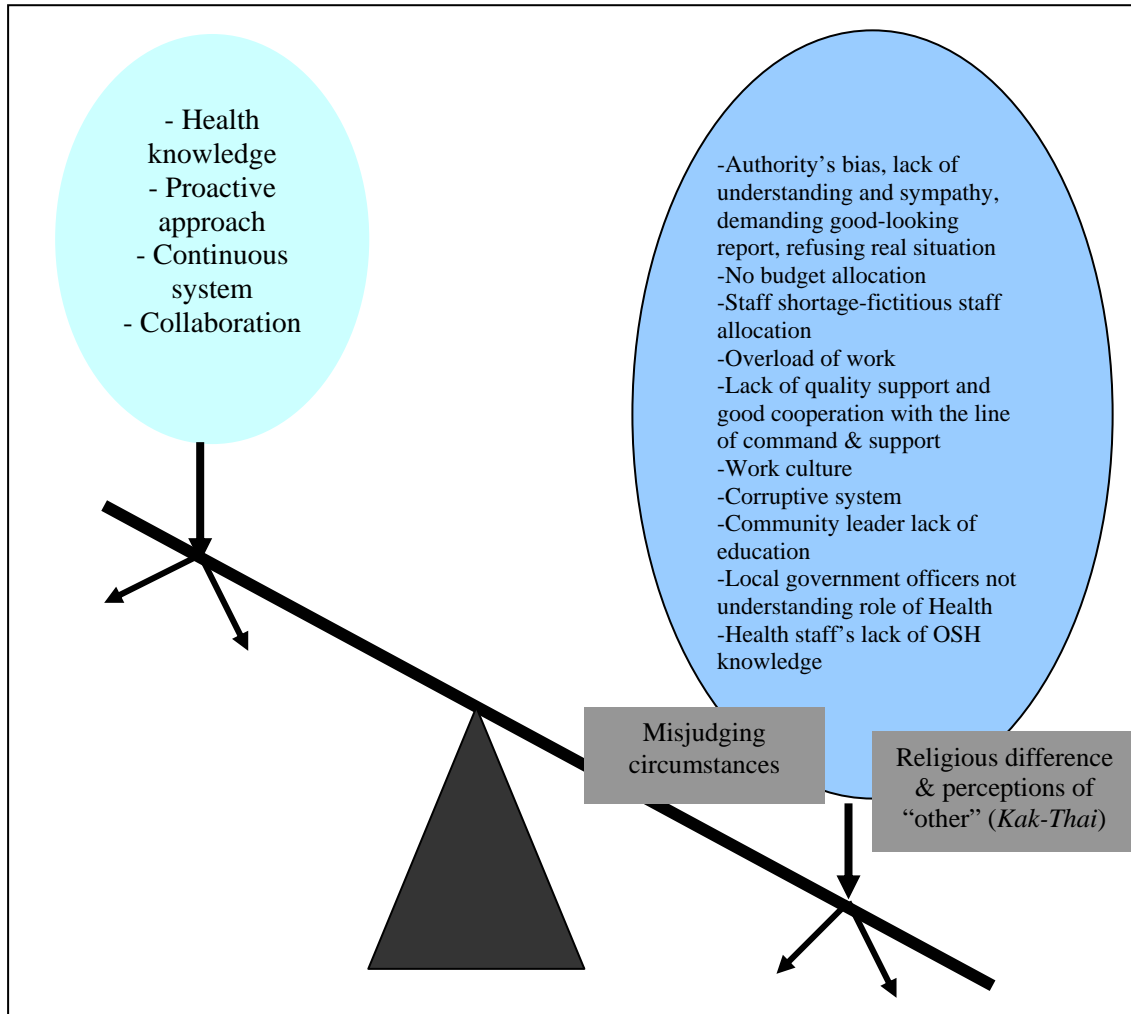


Figure 7-3 the seesaw of factors overriding practices of health staff

First of all, the health staff advised that the rubber farmers' perceptions and understanding of health and behaviour must be modified and promoted. Otherwise, there would always be problems and difficulties delaying the success of the rubber farmers' health improvement.

The problem is that *Chaow-Ban's* perception of health problems is different from ours. *Chaow-Ban* [lay people, villagers] has own *Chaow-Ban's* idea. We don't know how to handle this. And this is the problem. I think we should focus on modifying their behaviour, perception, and learning. (Public health specialist, interviewed 31/08/05)

The public health specialist pointed out that the differences between the health perceptions of rubber farmers and those of health staff restricted the cooperation of the two parties. For example, when there was an epidemic of Dengue Hemorrhagic

Fever (DHF) in a nearby village, the health workers were alarmed and tried to educate the people of the rubber communities about DHF. But conversely, the DHF would not be the focus of concern of the residents of the community.

Sometimes we point out a health problem, but *Chaow-Ban* do not agree that it is a matter requiring attention. That's why both parties couldn't cooperate. DHF, for example, having one case of DHF in a village of the same subdistrict, we rated it as a community health problem, and DHF epidemic, whereas *Chaow-Ban* did not think so... They would think that the DHF occurred in the nearby village, not in their village, so it is not their problem. In this case, doesn't matter how many times we give them health education, it would only temporarily raise their concern of what they should do, but they would not attach to it. (Public health specialist, interviewed 31/08/05)

As a result, she emphasised that it would be a waste of time to give health education if a rubber farmer had not come across a direct experience of a health concern—whereas those who had a direct experience would adopt the health information given to prevent themselves and their families from reexperiencing the same health problem.

About Hepatitis A, the households experiencing family members having Hepatitis A would learn how to prevent from getting the disease. In contrast, a family that has no experience of anyone in the household suffering from Hepatitis A, would not register whatever information we give to them even when we speak until our lips are about to fall apart. (Public health specialist, interviewed 31/08/05)

Besides, the different understanding of healthcare services held by the rubber farmers and the health staff appeared to be an obstacle—as perceived by the health staff—to improving the health of the rubber farmers. The health workers expressed that whilst they attempted to provide health education to the rubber farmers regarding promoting health and protecting themselves from work-related health concerns, the rubber farmers focused on receiving curative health services.

The head of the health centre mentioned that when rubber farmers came to see her due to muscle pain caused by work, she took time to explain to them about the adverse effects of strong pain relief and hesitated to prescribe medication. But the rubber farmers got upset as they interpreted her action in the wrong way.

If we give them another medication, Ibuprofen, they would be addicted to it because it gets rid of the pain quicker. However, if they continue taking the Ibuprofen, they would have stomach pain, or ulcer but they don't know that it is caused by the medication. We need to explain to them. Sometime, patients don't like to listen to us, informing them about this and that. They don't like us to explain. They often think that we trying to tell them not to take the pills because we don't want to, or we try to save the pills somehow. They don't understand that when we don't want to prescribe too many pills for them we actually intend to promote their health; prevent them from having adverse effects. (Head of the health centre, interviewed 18/08/05)

The head of the health centre stated that the Universal Coverage Scheme (UCS) for public healthcare services, launched by the MoPH, aimed at increasing people's accessibility to healthcare services when needed, with the focus on encouraging people to promote their own health and prevent themselves from developing health problems rather than emphasising curative care services. Still, the public health specialist stressed that the services provided by health centres were going towards the opposite direction.

The head of the health centre suggested that the health scheme is causing more people to seek unnecessary curative services at the health centre since under the scheme they paid cheaply (30 baht or NZD\$1.10) for, or received free, healthcare services. She believed that the health scheme, in fact, degraded people's potential and efforts to care for minor health problems and the health problems that could be resolved without having to take any medications.

Here we have 20 or 30 per day. A big number of patients come to us, especially when they carry free health card. This group of people visits the health centre more often, not less. More than ever, now even having a finger cut by knife they would come to us for a dressing. That's because they have a free health card. An advantage of the card is ensuring people's accessibility to health services, but you see! When faced with some [minor] health problems, they don't need to come to see us, giving you an example, headache because of working hard, or lack of sleep doesn't need to be healed with any medications, having a rest would be enough to take the headache away. (Head of the health centre, interviewed 18/08/05)

The experience of the midwife of the health centre supported those of the head of the health centre (Fieldnote, 2005). She said that often patients came into the health centre aiming at getting the most benefit from the 30 baht which is patients'

contributing payment for a visit. Some clients presented a long list of medications that they wanted to take home with them, of which some medications were requested for future uses, and some were requested on behalf of other family members for their health problems. Some clients were unhappy when she refused to accede to such requests as she thought that they were unreasonable. She then was in trouble as the clients laid a complaint to the higher health authority against her practice. She added that the higher authority often took the patients' side without investigating the reason why patients' requests were dismissed. Therefore, she later gave whatever medications patients asked for to avoid facing trouble.

The public health specialist pointed out that most villagers were attached to the old concept of health centre services, which was the emphasis on curative healthcare services. They had not yet adopted the new concept of health services, which was health promotion and disease prevention. Therefore, when they did not receive the treatment expected, they were upset.

Again in reality, every health centre does the opposite, 70% of the time we [sit in office] provide treatment, and 30% of the time is left for health promotion...If we don't provide treatment, they would say, what the **** the health centre is here for? The people's perception is related to the original major task of health centres in the early establishment. Back then health centre was built [in rural area] to be a place where people could go to see a doctor. But now health centre's role is different. (Public health specialist, interviewed 31/08/06)

The head of the health centre stressed that the rubber farmers' health behaviour and perceptions could possibly change over time if health workers applied a proactive approach. That is, health staff regularly visiting the rubber farmers at their places to discuss health issues. The public health specialist supported the idea. She recommended that a mechanism of giving continuous health education is required, targeted at repeatedly monitoring, and stimulating the behaviour. She believed that the mechanism would gradually lead the mission of health promotion and disease prevention to success.

What we are doing now is constantly giving people health education, information. When we will see favourable outcome, we don't know, we can't expect. It will be changed little by little. It is the problem...I think we

need to repeatedly monitor, and stimulate them; it is a continuous mechanism... (Public health specialist, interviewed 31/08/05)

Nonetheless, the head of the health centre was sceptical about the possibility of bringing the health promotion and disease prevention proposals into to real practice. She said:

It will take time. Proactive approach might help, going to talk to them [rubber farmers] at their place, but again we don't have that sort of time. The work at the office is already overloaded..." (Head of the health centre, interviewed 18/08/05)

The public health specialist declared that the overload of work was caused by a staff shortage, a long-standing problem addressed by the Ministry of Public Health (MoPH) (Bureau of Policy and Strategy, 2005). However, the reason for the staff shortage she gave differs from those cited by the MoPH. She maintained that the staffing problem of the health centre is a result of fictitious staff allocation. She stated that the health centre is supposed to have five health staff members according to the policy of the Primary Care Unit (PCU) establishment. In fact, there were only three health staff working at the health centre. She further explained that in the official organisation chart, there was another health worker allocated to work at the health centre, but in reality, the person was not physically there. She was working somewhere else.

The health centre should have 5 staff, one administrator or the head of the health centre, one public health specialist, and three other health personnel [level 3-6]. At our health centre, we only have 3 health staff...If we had the other two staff we would be able to do more work. In our official organisation chart, there is another health worker, whose name is shown in a place indicating that she working in our health centre, but actually she doesn't work here, she is positioned somewhere else. When people from above look at the number of our staff on paper, they think that we have four staff here...look in the official paper; we are not having a problem with staff shortage. (Public health specialist, interviewed 31/08/06)

Consequently, the overload of work was declared to be one of the main reasons for the health staff of the health centre not being able to carry out health promotion and disease prevention. The public health specialist said:

One of us has to sit tight in the office providing treatment; another one is busy with replying, responding to all urgent requests, hot issues, whatever they are. Then another one has to deal with all unfinished business, doing accounting work, checking medication stock, or what have you. We don't have enough time. Actually, we have established a plan for home visits every afternoon. We plan to do comprehensive visits, going to people's places, talking to them, asking them how their lives are, how the situation of working in rubber fields is, how their kids are, and so forth. Our goal is to visit each family at least once a year...If you ask whether or not we have been doing as we have planned, the answer is NO, or rarely! (Public health specialist, 31/08/06)

In dealing with the staff shortage, the Contracted Unit of Primary Care (CUP) allocated a nurse to the health centre to perform treatment services, but the nurse was directed to be at the health centre only a day or half a day per week, which the head of the health centre pointed out was not enough help. She further disclosed that she had requested more staff support from the CUP, allocating a nurse to work at the health centre, but the request was declined.

If we look at the whole CUP, there are more than enough staff members, but most of the personnel work at the main CUP office. Nurses were rostered to come to help us one day a week. But they sometimes stay only for half a day; in this case we could survive without them anyway. It would make a difference if they stay for the whole day... it [the request to have more staff support] was rejected they [CUP] said they couldn't do as suggested because there is lot of work to do at their end. So they couldn't let their nurses to be with us for a whole day. (Head of the health centre, 18/08/05)

Because of the staff shortage, the maid at the health centre was trained by the health staff to perform basic healthcare services, for example, physical health checks for the students of the schools in the designated area, and wound dressing and removing stitches.

We have our maid helping us with wound dressing. We trained her to do it. We know that it is not in her job description. It is same as when we asked her to help us with the basic health check which we do on school children. (Head of the health centre, interviewed 18/08/05)

This action caused some problems (Fieldnote, 2005). Once, while I was visiting a rubber farmer family, husband and wife, they informed me that they brought their son to the health centre as their son was burned by the hot exhaust pipe of a motorbike. They were not happy with the service because the maid was the one who provided

care to the son. They believed that the maid did not know what she was doing. And they were outraged when their injured son was screaming with pain while the maid was doing the dressing.

In addition, the health staff of the health centre all agreed that a collaborative network is a necessary component of delivering healthcare services effectively (Cohen & Swift, 1999; Rundmo, 1995). Thus, she accounted the lack of quality support and good cooperation with the line of command and support as one of the obstacles to the health staff of the health centre. The public health specialist highlighted that these days she could not expect any good support from the health staff of the district health office due to the change of work culture as a result of a prevailing corrupt system.

The cooperation with the higher authority, district health office has been changed. In the past, they supported our work and supervised us. Since the health system reform has been implemented, they are now acting as collaborator, and informer. How are we going to carry out directed health policies and activities? They don't care. It [the work culture] has been changed. Also the people working at district health office are not the same as they used to be. In the past we worked together as a family...now we can't expect that kind of relationship. Those people are wives of colonels, or generals, or whatever their positions are. So they are allocated at the district health office for the time being. These people [the wives] live their life as a boss, automatically coming together with their husbands' high positions. So they don't care much about the work. We can't expect anything from them... (Public health specialist, 31/08/05)

All health staff members of the health centre concluded that the staff of the District Health Office did not care whether or not the staff of the health centre was able to handle the load of work. They, instead, fixed their consideration on monitoring all the deadlines that the staff of the health centre was required to meet. And when the staff of the health centre failed to meet a deadline, the matter was not handled by the district health officers on a reasonable basis.

At a lunch (Fieldnote, 2005) with the subdistrict health staff I was told that the assistant of the head of the district health office demanded the health centre should pay a fine for failing to meet the deadline to submit a report. The head of the health centre refused to pay, as she had already informed the district health office of the reason for the delay, which was that a health staff member was severely sick, and the

rest of the staff were busy taking care of an urgent Hepatitis A epidemic investigation. The reasons were not listened to by the district health office. The health workers of the health centre were discouraged by the action. They summed up that the district health office lacked sympathy and understanding towards their work overload and the staff's conditions.

They [higher authorities] have got no idea what we encounter. They don't care whether or not we struggle to complete assigned tasks to meet their timeframe. All they care is that when it is a deadline we must submit the report to them. When they send us an urgent letter [urgent assignment], they expect us to rush out to do a particular activity and send them a report and we must not miss the given deadline. (Head of the health centre, interviewed 18/08/05)

As a result, the health staff of the health centre decided that since the district health staff cared more about the deadlines than the quality of the report and the understanding of the health staff's and other people's conditions, they would give what was wanted. Therefore, for example, when the higher health authority directed the health centre to assign each village health volunteer to monitor and eliminate mosquito larvae in their area of responsibility on a weekly basis during the rainy season as an activity to prevent DHF, the head of the health centre asked the village health volunteers to carry out the assignment on a monthly basis. That was because she understood that the village health volunteers had their own business to worry about. Consequently, the rest of the data were made up and completed to meet the deadline and requirements.

They [higher health authorities] requested to have village health volunteers performing the monitoring every week. We understood that village health volunteers have their own things to do too, so it wouldn't be fair to make them do the task weekly. Therefore we asked them to do it on a monthly basis only. As a result, we have to make up the data. For this kind of task, we have to do a lot of making up information. It forces us to do what we don't want to [making up data], it leaves us no other choices. We have to submit the report. (Head of the health centre, 18/08/05)

The head of the health centre further stressed that the higher health authority demanded to see good-looking reports, and refused to see the real situation. And to avoid having trouble, the staff of the health centre did not argue with the health authority.

Among 700 children ages 0-7 years old, around 50 of them have a malnutrition problem...level one or two. In fact, some of them could be ranked in level 3. But we don't report that. Because when we report it, we have problem with the district health office. They don't want to accept that report. We honestly want to report the truth because the kids will get help with food. When we reported it, the report was rejected; because they [the staff of the district health office] don't want to fail the Health for All standards... (Head of the health centre, interviewed 31/08/05)

The head of the health centre disclosed that most heads of health centres remained quiet and did not question the district health officers while having monthly meetings with them. That was because they were worried that they would not receive promotion or would be put into a difficulty at work. The public health specialist mentioned the power held by the head of the district health office.

Anyway, the head of the district health office still holds the authority to assess our work outcome. But government system is the same everywhere. There is always, who is the boss's favourite, who is backing up whom. (The public health specialist, interviewed 31/08/05)

The head of the health centre noted a consequence of the false report. She pointed out that when the real health information was held back, the problem remained unsolved as there would not be any budget allocated to deal with the problem. And that was the other factor delaying the success of health promotion.

At time we reported 10 children with malnutrition, they would allow us to put only two [leaving another 8 unreported]. They only want a good-looking number in the report which makes us work with difficulty. I actually wish to report the truth, what our problems are. Then the problems will have attention, and be solved. When we don't tell what our problems are how can we get any support to deal with them? (Head of the health centre, 18/08/05)

Consistent with previous studies (i.e. Srisuparp, 2003), in discussion about the success of health promotion to rubber farmers, the public health specialist who was responsible for occupational health and safety lacked knowledge about work-related health problems. She admitted that she had unclear knowledge about working-related health problems caused by rubber farming. Therefore, she suggested that it should not be the responsibility of health staff to educate rubber farmers how to rightly conduct the work in the rubber field in order to prevent work-related health problems. Instead, this duty should be under the job description of agricultural officers.

I personally don't think that it is right for health personnel to go to tell rubber farmers how to do their work. It should be the responsibility of the officers of agricultural office. They should call for a meeting, and give some information to the rubber farmers. (Public health specialist, interviewed 31/08/05)

The statement illustrates that to promote health and prevent the rubber farmers from work-related health problems, collaboration between health centres and related agencies is required. Also, the importance of cooperation between the health centre and the respected community leaders suggested by Randolph (1993) was addressed by the head of the health centre.

It depends on community leaders. They tend to listen to their leaders more than they do to us. It needs to be *Tho-Imam* [Muslim religious leader] and *Or-Bor-Tor* [local government office]... we should be aiming at leaders. I mean in the case that leaders are able to convince their team members, or people because people tend to listen to their leader, not to us. (Head of the health centre, interviewed 18/08/05)

She said as the Muslim rubber farmers would go to pray at their mosque five times a day, *Tho-Imam* was in the position to convince the mosque members regarding improving health. However, this strategy might not be successful in the Buddhist community as Buddhists did not go to a temple as often as those of the Muslim group. Here, the religious differences and perceptions of “other” (*Kak-Thai* Muslims and *Thai-Thai* Buddhists) as identified in chapter 4 (in the health behaviour section) were again reinforced in the following quotations.

The downside in the Buddhist community is that Buddhists rarely visit the temple. They are not too attached to religious practice. In the Muslim community, people stick to their religious practice. If we [Buddhists] went to the temple 4 times, 5 times a day we would be starved. [In Muslim group] husbands do nothing but going to pray at the mosque (Head of the health centre, 18/08/05)

The head of the health centre also mentioned that cooperation from the community leaders and the local government body remained fruitless because the leaders were not sufficiently educated (illiterate) and they, themselves, still worked in the rubber fields.

If this group of people [community leaders] remain uneducated, finished only 4th grade of primary school level, tap rubber trees before going to

work in office, I reckon that it would be hard [to obtain cooperation from them]. I strongly think that staff of the local government office should hold a higher qualification. To be a candidate for a local government team, there is no condition in terms of level of education. Thus, people with primary school level could apply to be a candidate, some couldn't even write, or read. They won the election just because their relatives vote for them. Once they become members of the local government team, they are incapable of doing anything. Just be there to fill up the team. (Head of the health centre, interviewed 18/08/05)

The head of the health centre (who is a Buddhist), however, contended that the situation is better in the *Thai* (Buddhist Thais) community.

Thais [Buddhist Thais] try to select proper persons to be the members [of the local government team], not just because candidates are their relatives. It is difficult to bribe our people [Buddhist Thais] for a vote, but it is easy to buy a vote for 200 baht from people here [Muslim community]. (Head of the health centre, 18/08/05)

In discussion about the local government body, the head of the health centre stated that nowadays, the funding to conduct disease prevention and control was allocated to the local government office. Therefore, if the health centre had a plan to carry out any project concerning disease prevention and control, the staff of the health centre needed to request funding from the head of the local government office. And there had been a problem of collaboration between the health centre staff and the local government staff. The head of the health centre expressed the view that the problem occurred because the staff of the local government office did not understand and know their role in health issues. Thus, they often spent the budget allocated for the health concern on something else, mainly on infrastructure programmes.

This local government office has just been established. The officers don't understand our system. They have no ideas what funding we need to run our healthcare services. They don't know what their roles are when there is an epidemic of a disease. We need to tell them, such as telling them how to manage the allocated budget for disease control and prevention. They have got no idea. See! This year I asked for urgent funding to control DHF [Dengue Haemorrhagic Fever]. They agreed on the basis of not giving in terms of money, but petrol used for running the spray machine. We asked for a sum of money, 10,000 baht more or less, but they said they have already allocated the budget [for disease control] on something else, roading, cleaning up water streams. They pay attention more to those things which are their main responsibilities. In fact, they must reserve the budget for the disease control and prevention for us but they don't. That's

because health issues are new to them. (Head of the health centre, interviewed 18/08/05)

Lastly, the public health specialist suggested that to successfully improve the health of the rubber farmers, and others, the attitude of the health workers, constant provision of health information, and knowing what patients needed all played vital parts.

When I talk with patients I always tell them what I know and what I would like them to know. About the use of medication, Antibiotic, for example, I always tell them that they should take all tablets given. I know that the 60 tablets that I have given, they would take them for two days then stop when they feel better. I know that they wouldn't take the tablets as we directed. But we still need to emphasise the importance of finishing the antibiotic course. It is our duty to do the right thing. Telling them the consequences of not completing antibiotic course, the body might become resistant to the antibiotic. After I explain, they would say, other *Mhor* [health staff of the health centre] never tell them about it. Second, the manner, how we treat clients, we are different from lay-midwife. We need to display the differences. (Public health specialist, interviewed 31/08/05)

The public health specialist noted that the health staff could only keep on feeding health information to the rubber farmers, then, it was all up to the rubber farmers to make the decision about whether or not they would adopt the health information into practice. Yet, she predicted that rubber farmers would constantly experience the same health problems if they continued thinking that they could not live without money which made them willing to work unnecessarily hard.

7.5 Summary

Occupational health and safety service at the subdistrict level is integrated into health promotion and disease prevention provided by the staff of the subdistrict health office. The service is focused on the formal work sectors, which are the factories located in the catchment area of the subdistrict health centre. Hence, the work-related health problems in rubber farmers are little known to the health and occupational safety staff and health services provided to the farmers are limited. In addition, because of their limited knowledge of occupational safety and health, the perceptions of the health staff about the work-related health problems in rubber farming are, to some extent, similar to those of rubber farmers, particularly the notion of *Pae* (negative reaction of

one's body to something). And despite the fact that rubber farmers are the largest group of the population living in the designated area of the subdistrict health centre, the health staff, in addition, demonstrated a lack of understanding of the rubber farmers' circumstances. This includes, for example, the health staff's misinterpretation of rubber farmers' hard working behaviour.

The ways to improve the health of rubber farmers and to prevent the rubber farmers from work-related health problems suggested by the health staff include the promotion of rubber farmers' health knowledge, proactive health promotion and disease prevention, and collaboration between the health staff, health authority, local government staff, and the community. However, there are a number of obstacles preventing the health staff from implementing the suggested approaches. The obstacles include the obstacles which the health staff consciously addressed (i.e. lack of health knowledge of, and poor collaboration among, parties involved, poor supervision) and unconsciously expressed (i.e. religious differences and perceptions of "other" [*Kak*- Thai Muslims versus *Thai*- Thai Buddhists], and the health staff's misjudgment of rubber farmers' circumstances and actions).

Chapter 8: Discussion

8.1 Introduction

In the previous chapters, I have demonstrated the differing perceptions of the rubber farmers and the health staff about work exposures and work-related health problems regarding rubber farming. These perceptions direct their decisions on actions to be taken in response to the work exposures and health problems. The formation of the perceptions and the decision making are governed by a number of factors including, for example, family financial status and living conditions, status of employment (self-employed), and inadequate public health security on the side of the rubber farmers, and shortage of staff, insufficient occupational health knowledge, and insufficient support from line of command and support on the side of the health staff. Now, in this chapter, the findings introduced in previous chapters are integrated to establish an overall picture of the findings. Also, the applicability of safety and health models—presented in chapter 2— to enhance the understanding of the occupational safety and health situation of rubber farmers is discussed.

8.2 Discussion

The construction of perceptions of the effects of rubber farming on health of both rubber farmers and health staff, and the effects of these perceptions on the process of decision making to take an action in responses to the health and safety needs of rubber farmers have proved to be complex since there are numerous factors involved (Hale & Hale, 1970). Following the suggestion of Bird and Germain (1986) —it is necessary to identify basic (core) factors underpinning an occurrence of an event—the findings in previous chapters were thoroughly reviewed. The result of the review initially was to highlight two factors which induce the occurrence of the other factors influencing the rubber farmers' and health staff's perceptions of the effects of rubber farming on health and their decisions on action taken to manage health problems. First, the limited knowledge and competencies of occupational safety and health of stakeholders, coupled with their limited knowledge about rubber farmers and, second,

the discrepancies and gap between the national policies and their implementation. Later, when examining the two factors closely, hierarchy of power emerged as a factor underpinning their occurrences. Also, there are other gaps between health policies and practices that influence the delay of improvement in rubber farmers' health. These include the inequity of accessibility to health security and quality health services, and the gap between the Thai Traditional Treatment (TTM) policy and its implementation.

8.2.1 Stakeholders' limitation of knowledge and competencies

Arising from the findings, not only do the health staff and local administrators have insufficient knowledge of occupational safety and health, but they also possess little knowledge of the people for whom they are bound to ensure healthy and safe living.

8.2.1.1 Limited knowledge of, and competencies to deliver, occupational safety and health services

Occupational Safety and Health (OSH) in Thailand has been indicated as a principal concern for over 30 years (WHO, 2007b). At the national level, the Bureau of Occupational and Environmental diseases under the administration of the Department of Disease Control, the Ministry of Public Health is directly responsible for the health of labour forces (Thailand Bureau of Occupational and Environmental Diseases, 2004). At the provincial level, the Regional Disease Control Offices under the administrative system of the Bureau of Occupational and Environmental diseases are responsible for the occupational health of the workforces in their designated area. In Provincial Public Health Offices, there are also occupational health officers. At the subdistrict level, occupational health and safety is one of the tasks of health staff responsible for disease control. The health staff ensure the health and safety of workforces dwelling in their designated areas in collaboration with the staff of the local government office, or *Or-Bor-Tor* (fieldwork, 2005). Ideally, each level of administration, collaboratively with other levels, provides occupational health and safety to workers.

Considering their self-employed status, rubber farmers have no management team comparable to the formal sectors responsible to enforce health and safety policy at

work, position warning signs and safety layouts, and provide safety and health training at work and so forth. Therefore, the responsible parties indicated above, theoretically, work as a team to ensure the health and safety at work of the rubber farmers. Referring to the model of accident causation of Hale and Hale (1970), Figure 2-4 illustrated in Chapter 2, under “Human perception and behaviour” subheading, the parties are counted as the source of “Presented information”. Thus, if the source possesses insufficient knowledge of occupational safety and health or presents no information to the target population, the potential of the obligation declines. For instance, it is unlikely that the public health specialist and the local administrative officer will perform occupational health and safety tasks effectively when they hold limited knowledge of occupational health and safety.

...asking if I have any knowledge about OSH, my answer is NO. I have never done anything relating to OSH...however, I have been given an OSH handbook to guide me what to do. There is everything in the book including Act information. Well! When I don't have to go to do any inspection I wouldn't pay any attention to reading the book, I am too busy...Sometimes, I just pretend that I know about this and that and people seem to believe it that way. [Laugh] but when the person responsible for health and safety of the factory says something, I have got no idea what it is about. That's because the factory's safety representative knows better about the OSH than I do. Like when I went to the factory that manufactures machine parts, the factory safety representative knows a lot about chemical safety standards. I have never heard lots of technical terms that he used. *Or-Bor-Tor* officers [staff of local government office] who went with me thought I know all about those things. They left everything to me, whatever I thought or decided they would accept it. They were only there for sightseeing. In other words, just to make the team look like a multidisciplinary team. There were 4 or 5 persons in the team. Only me, walking around writing this and that down while actually I had no clue about what was I supposed to inspect. Giving you an example, when I saw dust floating around the building, I said, “The dust could be harmful to employees.” But the factory's health and safety representative said, “No it shouldn't be because the size of the particle is too big to get into the human respiratory system”. He said there is a device to measure the particle size. It is unbelievable that it isn't harmful as we could see that the place was so dusty. Anyway, I had to pretend, and said “I see.” (Public health specialist, interviewed 31/08/05)

In discussion of occupational health and safety provided to the rubber farmers, the public health specialist did not think that the duty should be hers. She advised that this responsibility should be accepted by agricultural officers. And since she was unable to comprehend a clear picture of the work-related health in the rubber farming population she did not know what to suggest to the farmers about how to minimise

health problems caused by the work. However, not only the public health specialist, but also the other health representatives of the district health office, and regional disease control as well as local government officers also were unable to understand the overall picture of the occupational safety and health of rubber farmers. The epidemic of Hepatitis A in the rubber farming community in mid July 2005 when the study was taking place illustrates the failure of all parties to register the unique character of farming, combining home and workplace, in which work exposures affect not only those who work, but also affect family members and other inhabitants of the farming area (Cryer, 1995).

Hepatitis A is theoretically documented as ‘faecal-oral’ transmission (Sugaroon & Wiwanikit, 2005), therefore, the community drinking water supplies and household toilets were targeted to be the main causes of the community Hepatitis A outbreak. Samples of water were tested, including water from the wells at the homes of infected persons and the main public wells, the drinking water supplied at the community school, and the community running water. The results showed the contamination of Hepatitis A virus in the water. The measures taken to deal with the epidemic were announced at the community meeting, where in attendance were the chair and member of local administrative office, community key persons (head of villages, religious leaders), representatives of the District Health Office, representatives of the Disease Control Office 12th regional, village health volunteers, and the principal of the local primary school.

Therefore, the health staff encouraged the villagers to drink boiled water, and to stop the habit of sharing glasses and spoons. Information about Hepatitis A had been given to the villagers by announcing through the community speakers, and at some of the infected persons’ households, and at the local primary school. Also, Hepatitis A pamphlets were given to the parents of infected children when they took their children to the health centre to have a blood specimen taken. Furthermore, on a few occasions when the public health specialist attended local social functions, a funeral for example, she would answer villagers’ questions regarding Hepatitis A.

To solve the contamination of the community water supplies, the community village running water was brought to attention. The local administrative team promised to

give the budget for buying chlorine and a water quality testing kit in order to control the quality of the running water while the school was given a proper water treatment appliance by the Contract Unit of Primary Care (CUP). In addition, Lysol, an antiseptic solution, was added in a few household toilets situated close to the bank of the village stream. A few suggestions were given to the community key persons, including restriction on bathing and taking animals for water in the stream, to discontinue using the well water to rinse the mouth before praying at the main mosque, and to bring water bought from private water suppliers to the boil before drinking.

However, at the meeting, no one recognised the practice of defecation of rubber farmers in the rubber field as a potential cause of the Hepatitis A epidemic despite the fact that the result of the survey in this study showed that about 50 % of the rubber farmers defecated in the field while working, straight on the ground or in a dug hole. When it is raining the faeces are likely to wash into the stream and diffuse to the wells located nearby. And that could definitely be a potential way to spread Hepatitis A, and other diseases, including diarrhoea and hook worm.

When the likelihood is not registered by the representatives there is no message passed on to the rubber farmers, thus, the rubber farmers are not made conscious of, and do not perceive the potential harm caused by, defecating on the field ground. Therefore, among other reasons (insufficient knowledge of Hepatitis A, neither latrine nor hand-washing facilities available in the field), they have no intention of changing their behaviour.

I don't do it [defecation] right under the rubber trees [laugh]. And it [excretion] couldn't be as big as a cow patch. I did it myself. I know where it [excretion] is. [I am] unlikely to step on it [laugh]. Only the two of us (husband and wife) work in the field. We don't do it [defecation] along the path. Besides, we do it [defecation] today, tomorrow it would disappear. (TYM, interviewed 16/08/05)

The limited knowledge of health personnel on occupational health and safety accounts for the restricted capabilities of the health personnel to delivery effective services to the rubber farmers and other residents who have the potential to be affected by the rubber farming environment. The result could lead the people to incorrect

understanding and actions. To give an example, when the health personnel claimed that they had educated the villagers about Hepatitis A, most people remained unclear as to what to do to prevent themselves from developing the disease. A rubber farmer said she believed that the refrigerated water was safe because the cold temperature is able to eliminate the virus. A 50-year-old rubber farmer suggested that the children developed Hepatitis A because they drank too much soft drink and consumed excessive amount of snack and confectionary food. Furthermore, when I asked the families which had a family member infected by the virus if they had started to drink boiled water, they said, “Yes” with the condition that the boiled water was for the infected individuals while the others in the family continued to drink untreated water (Fieldnote, 2005).

Moreover, since the health personnel hold limited knowledge of occupational safety and health, the village health volunteers, considered as the respected health representatives by villagers under their supervision, are unlikely to have any opportunity to improve their knowledge of health concerns. As a result, the village health volunteers are unable to deliver helpful occupational health and safety information, or in the worst scenario, pass on confusing health information to the rubber farmers living in their designated areas. The examples of the latter are the explanation of the cause of *Tai* (back pain) stated by PBT, the idea of the usefulness of ammonia in healing a wound, and curing cold stated by PY, and the benefit of acetic/formic acid for polishing and keeping the nails clean addressed by PYD. When these notions are adopted by rubber farmers, it is doubtful that the understanding of the work exposures and actions taken in dealing with particular exposures will be of assistance to their health.

8.2.1.2 Limited knowledge of health personnel about people

1) Failure to comprehend living conditions of the target population

In opposition to the recommendation to consider life priority, living conditions, and ideas of individuals when planning and implementing health activities (Entwistle, Renfrew, Yearley, Forrester, & Lamont, 1998; Naidoo & Wills, 2001; Raeburn & Rootman, 1998), the solution, to stop using the stream, suggested by the health personnel and the other agencies to deal with the Hepatitis A epidemic showed

insufficient understanding of and concern about the situation of the residents. The village stream is a main water supply where people bathe, wash clothes, and take their animals for water. Requiring people to discontinue using the facility without providing them with other options is nonsensical.

Insufficient understanding of the living conditions of their target population also leads the health personnel to misinterpret actions of the target group. For example, when the rubber farmers work endlessly, earning for day-to-day living expenses, the health staff member, as indicated in Chapter 7, interpreted this behaviour as the rubber farmers working unnecessarily hard for the sake of money. According to her interpretation, she believed that providing health information to the rubber farmers would not yield any benefit. This health staff member overlooked the fact that rubber farmers do not have access to financial compensation or have their whole monthly salary transferred to their account when they take sick leave.

2) Inability to understand people of different religion and background

When health personnel do not illustrate sensitivity towards the religious practices of the target group, the health recommendation provided is unlikely to be approved. Again, at the meeting regarding the Hepatitis A epidemic, when the health staff member suggested Muslim residents to prevent Hepatitis A infection by mean of stopping rinsing their mouths before prayer, the advice would not be followed by the Muslim participants because this is a requirement of their religion (Fieldnote, 2005). As demonstrated in Chapter 7, the insensitivity towards any religious group could also be the foundation of prejudice that health personnel developed towards the particular religious group.

The prejudice, as a consequence, easily directs health personnel to unfair judgment on the ability of the group to be in charge of their own health. The same situation also happens when health personnel underestimate the ability of the residents with low levels of education to learn and take control over their own health (Fieldnote, 18/08/05). Making the assumption without willingness to learn more about the people leads the health personnel to identify the target group as the enemy of their own

health. When a health situation is perceived as the victim's own fault, there is a negative signal for preventive efforts (Torell & Bremberg, 1995).

Also, when health personnel disregard the life context of rubber farmers, conflict of interest and poor collaboration between the two parties emerge. According to Guldan (1996) (Figure 2-3: Chapter 2) when there is no collaboration, there is no success of health promotion. In this study, the conflict of interest and the poor collaboration between the rubber farmers and healthcare providers drives the rubber farmers to disregard any health activities recommended by the health personnel. PCH, a rubber farmer and the head of the village health volunteers, and TYM, a rubber farmer and a respected Muslim figure expressed consistent sentiments:

Human beings gather as a group. [It is important to] catch the interest of a group prior to establishing a plan which one is aiming to implement within a group of people. If *Mhor* [healthcare providers] just walk into the village [telling people what to do], it is difficult [to successfully implement any activities]. (PCH, interviewed 18/07/05)

It is like those who make a coffin but they don't use it, while those who don't make it, use it. (TYM, interviewed 08/08/05).

When health recommendations of health personnel are viewed with scepticism by rubber farmers, the rubber farmers decide to take their own health initiative by following the health recommendations of fellow rubber farmers, or accept other measures that are readily available (e.g. *Ya Re*, *Ya Chud*, *Kratom*, and other uncertified remedies) which at times cause more harm than good to their health.

8.2.2 Words and deeds at variance

The perception of the effects of rubber farming on health together with the other factors contributing towards the formation of the perception (Chapter 5 and 6) is the reason behind the decision-action process of dealing with work-related health concerns. Clearly, the understanding of health personnel of the effects of the rubber farming on rubber farmers' health, and their actions performed according to that understanding are two factors which explain why the rubber farmers perceive what they perceive and do what they do. However, it would be unreasonable to place the responsibility entirely on the health personnel, when the difference between national

health policy and practice repeatedly emerges as a significant underlying factor affecting the perceptions and the actions of both rubber farmers and health personnel.

8.2.2.1 The difference between the people-centred/community-based approach policy and practice

Acknowledging the importance of community involvement and the collaboration of all responsible agencies in addressing health needs, establishing a plan and implementing health activities, the Ministry of Public Health introduced the Primary Health Care strategy (PHC) in 1977, during the fourth era of the reform of the Ministry (1972-1987) (Chunjaruporn, 2002). The PHC was adopted following the WHO declaration of Alma Ata as a major health promotion approach for all Thai citizens. The strategy predominantly places “people” and “community” in the centre, while healthcare providers and related agencies work collaboratively to promote people and community participation by empowering them to identify local health needs and causes of health problems, as well as to determine approaches to solving the problems using available local facilities and technologies (Siasiriwattana, 2006). The principle of the PHC continues to be the heart of all following Thai National Health Development Plans, dating until the current 10th National Health Development Plan (2007-2011).

Despite the fact that the PHC has been implemented for over 30 years in Thailand, the people-centred and community-based approach, as revealed from this study, shows no success. If the approach had been successfully implemented the work-related health problems listed by the rubber farmers, the main occupation of the community, would have already been registered. Because none of this happens, the health needs of rubber farmers have not been recognised by the health staff of the health centre. When the health staff hold inadequate knowledge of the target groups, their perception of the effects of rubber farming on health and their action in dealing with rubber farmers’ health needs are likely to be distorted. Therefore, health service given neither meets health situation nor suits the living conditions of rubber farmers. As a result, the rubber farmers construct their perception of health in relation to work based on their limited knowledge of health and work exposures and they are prone to rely more on other sources to manage their work-related health problems.

The following excerpts demonstrate examples of the difference between participatory policy and actual practice. The first one is of a health staff member and the latter is of a health volunteer who is also a rubber farmer.

This year [2005], we have started brainstorming from the community what they want to do for their health. Well! *Chaow-Ban* [lay people] is *Chaow-Ban*. When we want to do something with them, we often need to bait/convince them. If we go to them to ask, “What are your health problems or what are the community health concerns?” they would not be able to tell us. They instead would ask us, “What does *Mhor* [health staff members of the subdistrict health centre] think?” Then we tell them what has been done regarding health issues in their community. We could inform them about health problems of each population group. For example, children might have problem with malnutrition, or health problems found in school age, elderly, fertile age, and problem about NCD in population aged 40 years old and over. It is kind of giving them information. They normally will agree with what we think... then we put the problems into a community health concern list, and make a plan how to solve the problems. (Public health specialist, interviewed 31/08/05)

Basically, the activities were about surveying the houses that have mosquito larvae. And regarding the epidemic of bird flu, we were asked to survey the numbers of birds, chickens, and ducks of the households in my catchment area. We were assigned to go around, giving polio vaccine to the children in the village. Sometimes, the request was an urgent assignment; we needed to be in a hurry to complete it. So after finishing the work in the rubber field we would rush out to complete the assignment. Running around to vaccinate kids with polio vaccine, and doing reports. (PY, interviewed 28/07/05)

The excerpts clearly state that the mission to establish community participation and empowerment in the national health plan tends to be, as Guldan (1996) pointed out, practised in the way of ‘community manipulation’ (p. 694).

The prejudice of health staff towards the ability of lay people to take control over their own health as stated earlier may be part of the breach of practice. However, the prejudice—together with the incomplete understanding of rubber farmers’ health needs and practices, as well as living conditions—demonstrated by the health staff are not entirely the reasons for the contravention of the policy. Rather, the difference between

multi-stakeholder participation policy and practice greatly delays the success of the people-centred/community-based approach.

8.2.2.2 The difference between multi-stakeholder partnership policy and practice

The findings presented in Chapter 7 (Section: ways to improve rubber farmers' health versus obstacles) offer explanations as to why community participation turn into community manipulation. Though the health staff realised that the proactive health promotion is highly recommended for the improvement of health and quality of life of the population living in their designated area, they do not agree on the possibility of bringing the ideal recommendation into real practice for a number of reasons. These include the overload of work due to the shortage of staff. The shortage of health staff appears to be a persistent issue of the Thai health system resulting in an insufficient number of health staff to carry out the existing government health plan (Bureau of Policy and Strategy, 2005). According to the results of this study, the problem worsens when there is a violation of multi-stakeholder participatory policy suggested in the health system's reform and decentralisation of the Ministry of Public Health (Bureau of Policy and Strategy, 2005).

As stated earlier, a number of stakeholders are responsible for ensuring health and safety of rubber farmers (see: subheading 8.2.1.1). Among other stakeholders, the health centre is the core of the operation since its staff is the first line of healthcare providers for the residents. Theoretically, the staff should be able to communicate and work in partnership with other stakeholders including its line of command (the district health officer), and line of technical support (Contracting Unit for Primary Care, local government office, and the regional disease control office). However, the partnership status is unlikely to be achieved. Arising from the findings, consistent with the study of occupational health policies in developing countries by Kamuzora (2006), the health staff of the health centre is rather immobilised since they are not able to implement any health activities without support from the other stakeholders.

As reported in the study regarding Thailand's health reform, by Hughes and Leethongdee (2007), the Contracting Unit for Primary Care has control over the

allocation of resources, including the budget to support local health service units and support health staff (Fieldnote, 2005). As stated by the head of the health centre, the staff shortage of the health centre remains because the Contracting Unit for Primary Care refused her request for more staff allocation. The financial dependency of the health centre on the Contracting Unit for Primary Care could also obstruct the work of the health staff of the health centre if the Contracting Unit for Primary Care does not agree with the health staff's proposals and refuses to allocate financial support.

The head of the health centre further described the situation regarding the local government office participation in local health activities. As part of decentralisation of the Thai government scheme, part of public health funding is distributed through the local government office (Hughes & Leethongdee, 2007). According to the public health specialist, the fund for disease prevention strategies is held by the local government office. As a result, to implement disease prevention in the community, the health staff of the subdistrict health centre has to submit a proposal to apply for the fund. However, the problem of the lack of cooperation between the health centre and the local government occurs when the local government officers often spend the disease prevention budget on other activities. The corruption among the local government officers has been documented (Bureau of Policy and Strategy, 2005), nevertheless, there is no such evidence reported in the rubber farming community where this study took place.

There are also only sluggish signs of a partnership situation between the health staff of the subdistrict health centre and the staff of the district health office. The district health office and its Contracting Unit for Primary Care have control over the yearly budgetary allocation for health services and projects (Fieldnote, 2005).

We follow the policy launched by the Ministry of Public Health. For example, about food safety policy, we would create a project around food issue, what activities we plan to do, how much budget we need. The plan is then submitted to the District Health Office, and once our project is approved we would get the budget and implement the plan. Yes, [we create the plan following the main health policy] and the expenses for each project should not be more than what we would get [from District office], some projects need a bigger budget, but we are given the budget based on the number of persons involved. (Head of the health centre, interviewed 2005)

Before the end of the fiscal year, the health staff of all health centres under the line of command of a District Health Office are called in for a meeting with the district health officers to develop the next year's health plan. The district health plan is then formed and proposed to the contracting unit by the district health officer. The health plan at the district level must be consistent with the plan drafted by its contracting unit, which in turn must be consistent with the national health plan. Those proposed district activities which are not consistent with the plan of the contracting unit would be considered on a case by case basis and it could be a complicated process to obtain budget.

However, when the health centres receive the budget for carrying out public health activities from the contracting unit it is not always indicative of the fair distribution of the budget to the residents of the unit's designated area. The district health office at times directs all health centres under its line of command to perform malfeasant acts in regards to the allocated budget. It was at one lunch time with the health staff of the health centre, when I realised that malfeasant practice takes place. When the health staff of the health centre carried out a directed activity from the Ministry of Public Health to enhance family constitution, the budget allocated for the project was only partially used on the activity. The health staff submitted the remainder, as commanded, to the district health office for building a new seminar room. The health staff spent some budget on distributing stickers with a logo and slogan for the campaign to the people and showed them a piece of paper with information about the campaign and asked the people to sign their names, so that if someone from higher authority came to random check, people would be able to tell them that, "Yep, there was such and such campaign done for them".

The district health officer, in addition, holds the authority to assess the health staff's performance for career promotion. The position pressures the health staff to do as commanded because if they fail to do so, they may face career demotion or other kinds of punishment. The pressure is ruthless when the health staff are forced to meet deadlines with the strain of staff shortage leaving them no choice but to be occupied with paper work, providing treatment to patients at the centre, and accounting half a day or one day of health education as major approach for health promotion, and disease prevention. Also the health staff was under pressure to submit a report with

inaccurate information (Chapter 7: section-Ways to improve rubber farmers' health versus obstacles) when the district officer tried to preserve their own career benefits and prevent their being questioned on their performance by their line of command (the provincial governor).

When the personnel of every level of health authorities try to protect their own benefit, flawed reporting is practised. In 2005 when Hepatitis A hit the rubber farming community, the yearly survey on population health, and basic needs done by the health centre showed that 100% of the households had enough clean water for drinking, and 100% of the households had a lavatory with a septic tank (Subdistrict Health Centre, 2005a). The Hepatitis A outbreak should not have happened if what was reported in the survey was real.

How could the report about the clean water be true when the villagers, as revealed from the survey of this study, drank untreated public running water? Before the epidemic, the health staff were neither concerned about the quality of the village running water that the villagers had been using and drinking, nor were they alerted to the fact that the villagers drank untreated well water. In addition, some households drank the water supplied by some privately owned factories which both district and subdistrict health staff agreed was not processed following hygienic standards. However, no one wanted to get involved since they did not want to put themselves into trouble with the factory owners' allies who hold superior positions to the health authorities in one direction or another. Therefore, the ignorance of the duty to inspect the quality of the water is maintained with the reason being given by health personnel that they had enough on their plates leaving them no time to monitor the factories (Fieldnote, 2005).

Furthermore, the local government officers who are directly responsible for supplying water supply to the community refused to accept their responsibility. When asked by the district health officer during the attempt to deal with the Hepatitis A epidemic, whether or not the community running water was treated, the local government officer said the machine for adding chlorine was broken, and it had not been fixed. Also, he said, he had already informed the villagers that the water was not suitable for

drinking. Therefore, if the villagers drank the water, the consequence was not the responsibility of the local government (Fieldnote, 2005).

Lastly, the Disease Control Office, though they do not hold any authority over the health staff of the subdistrict health centre, have been being passive in offering support regarding disease control to the health staff. Referring to the Hepatitis A epidemic, if the officers of the Disease Control office had taken an active approach in an attempt to prevent a disease which is documented as a consistent health problem of Thailand they would have been able to take much more effective action to prevent the epidemic. From the field observation and attending the meeting regarding the Hepatitis A epidemic it was noted that the disease control officers were as any other health authorities, requiring the health staff of the health centre to serve their demands, and as the public health specialist said, they then go back and write a report and get all the credit for what they did not do (Fieldnote and Fieldwork personal journal, 2005).

The above view, the difference between multi-stakeholder partnership policy and practice, has demonstrated the existence of “rigid bureaucracy” in the healthcare system. Given that this rigid bureaucracy exists, the “hierarchy of power” continues inducing stakeholders to concentrate on their own career and interest preservation, and commit malfeasant acts. Also, when preservation of one’s own career and interest become a main focus of the stakeholder, the written participatory policy is turned into a mandatory relationship causing poor collaboration, and conflict of interests between different levels of stakeholders in actual practice. Given that this circumstance persists, the rubber farmers are left to with cope with their own health situation based on their limited knowledge of health, and restricted by the exigencies of their living conditions (Figure 8-1).

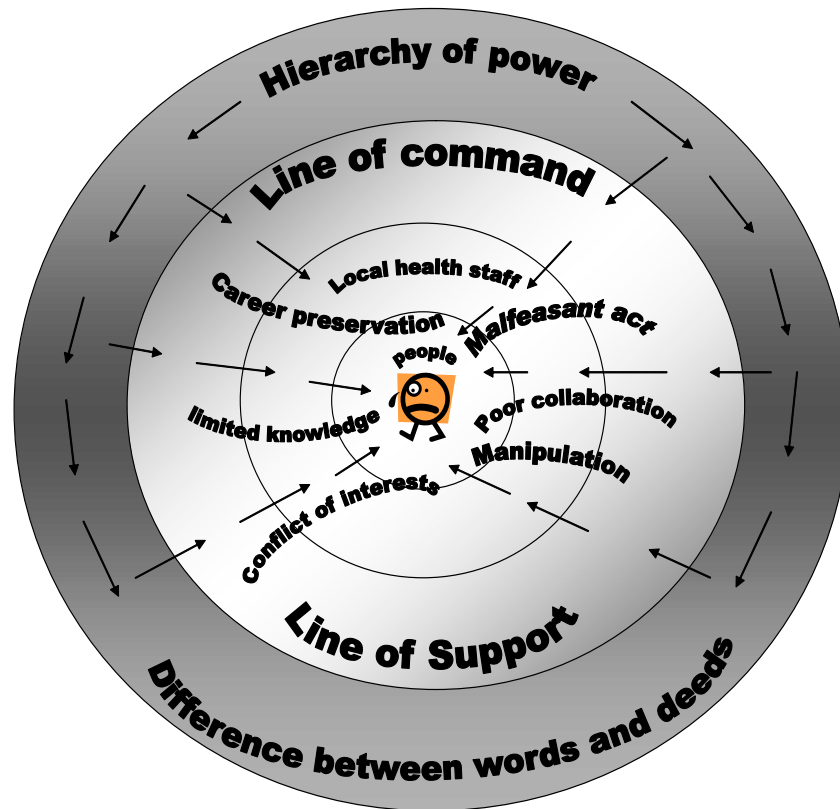


Figure 8-1 Hierarchy of power vs. differences between words and deeds, the enemy of success

8.2.2.3 Inequity of accessibility to health security and quality health services

The inequity in accessibility of health services and quality health care among the Thai population has been registered. Massive numbers of informal workers and their families are particularly deficient in accessibility to health services (Pannarunothai, Patmasiriwat, & Srithamrongsawat, 2004). Being aware of the situation, the Thai government has gradually implemented a series of public health insurance schemes. Before 2001, there were four main health insurance schemes provided to the Thai population. The schemes include the Civil Servants Medical Benefit Scheme (CSMBS), Social Security Scheme (SSS), Low Income Care Scheme (LICS), and Subsidised Voluntary Health Card Scheme (SVHCS). Each scheme was established to serve different groups of the population (Towse, Mills, & Tangcharoensathien, 2004).

The CSMBS is provided to civil servants as part of their fringe benefits to compensate for their low salaries, while the SSS is to protect workers only where both employers and employees contribute 1.5% of their monthly salary to the Social Security Fund. Before 2001, it was compulsory for all private work sectors with more than 10 workers to participate in the SSS (Siasiriwattana, 2006). The LICS is for the low income population, elderly people (60 years old and over) and children under 12 years old and the SVHCS was established mainly to cover rural population under a co-payment system in which each family pays 500 baht (NZD\$ 20) as an annual fee (Hughes & Leethongdee, 2007).

Beginning in 2001, while the CSMBS remains unchanged the SSS expanded its regulation to mandate all private companies with even one employee or self-employed people to participate in the scheme (Siasiriwattana, 2006). Also in 2001, the LICS and the SVHCS were abolished and replaced by the 30 baht Health Card, so-called Universal Coverage Scheme (UCS) (Towse et al., 2004). The 30 baht Health Card is a government subsidised healthcare system with card holders' co-payment of 30 baht (NZD\$1.5) per visit or admission (Hughes & Leethongdee, 2007; Towse et al., 2004). Under this scheme, children under 12 years of age and the elderly, 60 years of age and over, are not required to pay the 30 baht.

The health card was established with the aim of covering people, including informal workers and their families, who were not covered by other schemes, to narrow the gap of the inequity of accessibility to national health security (Pannarunothai et al., 2004; Towse et al., 2004). The funding for CSMBS and UCS is from general tax but with different funding bodies, the Ministry of Finance and National Health Security Office (NHSO), whereas the funding for the SSS is based on tripartite basis (government, employers and employees) with the Social Security Office as its funding body (Siasiriwattana, 2006).

In 2002, 45 million Thai population (out of 62 million) were under the UCS, while 7 million and 10 million were under the SSS and CSMBS respectively (Siasiriwattana, 2006). The UCS or commonly called "30 baht Health Card" is reported to be the major public health security held by the rubber farmers who participated in this study (91.2% out of the 751 rubber farmer respondents).

In relation to the establishment of the UCS, the National Health Security Office (NHSO), an autonomous organisation separate from the Ministry of Public Health, was founded to operate the UCS in late 2002 (Siasiriwattana, 2006; Towse et al., 2004). The NHSO receives capitated health funding for individual population personal health services, including treatment, and personal prevention and health promotion, while the budget for public health programmes remains mainly with the Ministry of Public Health. The fund is then distributed to Contracting Units for Primary Care (CUPs), also based on capitation funding, to provide outpatient comprehensive health services to UCS card holders who have registered with them (Towse et al., 2004). Each contracting unit, in addition, acts as a gatekeeper of referral, referring registered individuals to larger hospitals. The fund for hospitalised care is held at each provincial health office, from which it is allocated to hospitals in connection with the referrals coming from contracting units (Hughes & Leethongdee, 2007).

Generally the contracting unit itself is basically public health sector with all community hospitals and health centres located in its designated area as its primary care networks (Bureau of Policy and Strategy, 2005). Each member of the contracting units receives financial support from its contracting unit, which is also from a capitation-based fund. Moreover, the contracting units are responsible for ensuring staff levels are maintained at a particular number (Hughes & Leethongdee, 2007).

According to the regulations governing the UCS, it is compulsory for card holders to register with the contracting unit (Towse et al., 2004). The registered individuals then can receive care from health centres or a hospital under the contracting unit with which they are registered but to receive care from hospitals outside the network, a referral from the contracting unit is required (Siasiriwattana, 2006). Thus, similar to SSS, choices of care providers of UCS card holders are limited, while those of CSMBS are not restricted. Accordingly, receiving health care from other care providers, except in cases of emergency and accident, the SSS and UCS card holders are responsible for their own health care cost (Towse et al., 2004).

There are also other restrictions for the SSS and UCS beneficiaries. For example, while the CSMBS beneficiaries are entitled to a private bed in a hospital, those with

SSS and UCS are not. However, among the three health insurance schemes, the UCS is the least privileged. CSMBS and SSS beneficiaries are obligated to co-pay only in some circumstances, whereas the UCS beneficiaries pay 30 baht for each visit for health services (Siasiriwattana, 2006). Understanding the differences between the co-payment and restriction of the three health schemes, there is a possibility that the Ministry of Public Health is going to reconsider the UCS scheme, such as removing the co-payment of 30 baht, and being more flexible with choices of care providers (Hughes & Leethongdee, 2007).

Regardless of this possibility, the UCS members still hold the most underprivileged position. CSMBS beneficiaries, like me, the health staff of the health centre, district health office, and disease control office, are entitled to a healthcare benefit that is more flexible than those of the other two schemes. The benefit we receive also covers our spouse and children (limited to three, and aged below 20 years old), and our parents. When we retire from work, we receive a pension and the spouses and we continue to receive the health care benefit as if we are still working. SSS beneficiaries, like one of my sisters, receive a more rigid benefit. The SSS scheme does not cover spouses of beneficiaries. Though it provides child benefit, there is a more restricted policy than those of CSMBS. However, the SSS provides a retirement benefit, unemployment benefit and income compensation while taking sick leave certified by a physician. The latter two provisions do not exist in CSMBS.

Yet, the beneficiaries of SSS and CSMBS are in a higher privileged position in comparison to those of UCS. What I have just stated about the benefits of CSMBS and SSS with either a more flexible or rigid policy, there is none applied to the UCS beneficiaries. After UCS beneficiaries retire from work, they rely on their savings, if they have been able to save any funds while working, they have neither income compensation nor expansion of the benefit to their dependants. When workers with SSS take maternity leave they receive a cash benefit and workers holding CSMBS continue to receive monthly salary. Together with their fellow UCS beneficiaries, the rubber farmers receive nothing.

The situation of the UCS beneficiaries is reported to be worse when the capitation-based funding brings an ambiguity to healthcare providers. The capitated payment

allocated by the government has not met the amount required by the Ministry of Health and the National Health Security Office, 1,396 against 1,510 in 2005, and 1,396 against 1,800 in 2006 (Hughes & Leethongdee, 2007). In addition, the distribution of budget to the practice level (Primary Care Units, e.g. health centre) through the UCS fund holders (Contracting Unit for Primary Care), has also been reported problematic when some contracting units hold the money back for some reason (Hughes & Leethongdee, 2007). The inadequate budget and the restricted power to allocate budget put the health providers in a difficult situation, struggling with providing services that meet the satisfaction of clients.

The UCS was found to be unpopular among rubber farmers and the health staff of the health centre in different ways. Most of the rubber farmers interviewed were sceptical about the quality of care provided under the UCS. Also receiving care under UCS was perceived as complicated.

Going to hospital [using UCS] it is time consuming, with the muscle pain problems I would be only given paracetamol which doesn't help much. Another time, I felt unwell, so I went to the community hospital. I felt sick, but no fever, still eat well, didn't know what was wrong with me. I used the 30 baht card [UCS scheme], I was again only given paracetamol. So why should I have to travel that far just for that. (TYM, interviewed 18/08/05)

Hughes and Leethongdee (2007) contend that the level of the quality of care provided under the UCS is caused by the limited budget allocated for UCS. The medications provided to UCS are limited based on the national drug list and the treatment is provided under a cost-containment framework.

The public health specialist who set up a private practice at her own home in the rubber farming community pointed out that the rubber farmers do not have confidence in the medication provided at the health centre (Fieldnote, 2005). Although she informed her patients who came to her private practice that the medication she prescribed is the same as what is provided at the health centre, the patients do not believe her. During the fieldwork, I observed the situation, and I found that every day after work, the public health specialist had a number of patients. Informally and randomly talking to some of the patients, they said the medication given to them at the

health centre was not as effective as the medication from the private practice. If not coming to the private practice of the public health specialist, the rubber farmers go to private clinics in town or take other remedies for which the services are more expensive. Evidently, receiving more costly treatment and travelling further for the treatment is practised among rubber farmers as long as the treatment shows prompt effect, enabling them to continue working.

Not only the rubber farmers but also the head of the health centre disagrees with the UCS. The head of the health centre expressed her concern at the converse effect of the scheme. As she pointed out, since the UCS has been founded and made available, the number of patients coming in to the health centre has increased. Clients have been seeking treatment and medications under unreasonable circumstances.

We have 20 or 30 [clients] per day. A big number of clients come to us, especially when they carry free health card. This group of people visits the health centre more often, not less. More than ever, now even having a finger cut by knife they would come to us for a dressing. That's because they have a free health card. An advantage of the card is ensuring people's accessibility to health services, but you see! In face having some [minor] health problems, they don't need to come to see us. Giving you an example, headache because of working hard, or lack of sleep doesn't need to be healed with any medications, having a rest would be enough to chase the headache away. (The head of the health centre, interviewed 18/08/05)

The head of the health centre believes that the UCS has sent a wrong message to the Thai population, encouraging them to focus on cure rather than prevention, and promotion of health. The UCS has also been abused when a card holder requests a long list of medications irrelevant to his/her own health problem. When I asked a card holder for reasons of the practice, she explained that the extra request of the medications is for the future use, to avoid paying another 30 baht for the next visit. For the card holder with exemption from the 30 baht co-payment, the extra medications are for family members who would have to contribute 30 baht if coming to receive care. As the midwife of the health centre pointed out, when the request was refused, some clients brought the matter to a superior health authority, who, without any investigation, issued her with a warning from the superior. As a result, she paid no more attention to what was right and wrong practice, but gave whatever clients asked for.

8.2.2.4 The gap of the Thai Traditional Treatment (TTM) policy

Regardless of the development of modern scientific treatment and medicines, Thai traditional treatments (TTM) have survived. The two approaches are alternatively applied to deal with health problems among the Thai population (Chokevivat & Chuthaputti, 2005; Songwathana, 1998). According to Chokevivat and Chuthaputti (2005) the development of the TTM began in the ancient Sukhothai period (over 1000 years ago). The TTM has been regarded and preserved as ‘Thai wisdom’ (Sombat, Piriyanupong, & Ajananarong, 2003). The Thai government began to officially support the use of TTM together with the implementation of the Primary Health Care, enhancing the population to use local resources, dealing with the limited accessibility of the rural population to modern medicine and treatment as well as aiming at lowering the cost spent on modern medication nationwide (Grand, Sri-Ngernyung, & Streefland, 1993).

To promote the utilisation of TTM, the Thai government has enacted the “Thai Traditional Medicines Wisdom Protection and Promotion Act B.E. 2542 (1999)”, followed by publication of manuals for the application of various kinds of TTM, and implementation of various studies to establish quality assurance of TTM (Bureau of Policy and Strategy, 2005). After the enactment of the Acts, the number of registered TTM produced locally for humans gradually increased, from 141 to 444 remedies in 1999, and to 637 in 2001, and there are 97 approved institutes offering Thai massage training courses (Chokevivat & Chuthaputti, 2005).

As mentioned in Chapter 6, the treatment regarded as TTM utilised by the rubber farmers studied are varied, including not only herbal remedies and massage, but also other rituals (e.g. holy water, and spells) according to belief in supernatural power and religious rites. The use of the latter approach has also been reported among other Thai populations of every race, Buddhist Thais, Muslim Thais, Chinese-descent Thais, of different part of the countries, northern, north-eastern, central, and southern (Meka-Apirak, 1994; Rutchu, 1994; Sombat et al., 2003; Songwathana, 1998). The point made here is that while the Ministry of Public Health together with allied agencies (e.g. the National Research Council of Thailand, research teams of various

universities and research institutes) have approved and certified a range of TTM, mainly herbal remedies and massage, they have not yet proposed how the supernatural power and religious rituals are going to be handled.

Arising from this study, also, the coverage of quality and safety of TTM could be problematic when remedies are perceived as individual possessions passed on from generation to generation, and treated as being confidential, the exclusive property of a particular family. As PBT (interviewed 13/06/05) said, “it (the ingredients of the remedies given by *Mhor Ban*- folk healers) is secret”. There are still uncertified remedies widely sold to, and used by, rubber farmers, some of which evidently cause adverse health effects. While this situation remains, and the definition and range of alternative treatments given and applied by lay people are not clearly identified, the campaign of the Ministry of Health to promote the use of TTM might direct lay people to form the erroneous belief that any remedies and treatment they individually perceive as TTM are good for health. The situation deteriorates when there is no regular inspection of remedies and practices carried out at the local level. During the fieldwork of the study, there were various remedies sold freely in the village’s grocery stores, or by mobile sellers (*Ya Re*). This situation of insufficient control of distribution and self-medication with nonstandardised remedies has been reported, for example, in the study of the contribution of herbal medicine promotion dated back in 1988 by Grand et al., (1993). After over 20 years, the situation has persisted.

Lastly, since not only Buddhist Thais apply other means of treatment and remedies, but also Muslims and others, the scholars attempting to produce a definition of TTM should be aware of religious sensitivity. For example, the definition of TTM as “the modes of health care for Thai people based on the principle of Buddhism” summarised by Chokevivat and Chuthaputti (2005), possibly give a wrong impression. The definition of TTM generated the perception that the Ministry of Public Health overlooks the use of TTM in non-Buddhists while it actually does not. The National Research Council of Thailand has also been providing funding for researchers to study TTM application among Muslims (Sombat et al., 2003).

8.3 Applicability of OSH models originated to use in industrial work sectors to explain rubber farmers' OSH situation

This study has revealed that with few modifications, it is feasible to adopt the models, employed to analyse causes of 'loss' at work in industrial settings in western countries, to examine the safety and health situation in Thai informal work sectors, including self-employed rubber farmers. According to the study findings, occupational safety and health (OSH) provided to rubber farmers are integrated in mass community illness prevention and health promotion. Therefore, ideally local health staff working at the subdistrict health centre work together with their lines of command and support, and local government officers (see Chapter 7: Figure 7-1) to ensure the health and safety of rubber farmers by providing safety guidelines, assessing their needs and risks and so forth. These responsibilities are equal to those of management teams in the industrial sector indicated in the ILCI Loss Causation Model (see Chapter 2: Section 2.3.2).

However, it appears that OSH information presented and OSH services provided to rubber farmers remain limited because of local health providers' and related agencies' limited knowledge of and competencies to deliver OSH, and their limited understanding of rubber farmers' living condition and background (Section 8.2.1). When the local health care providers and related agencies form their perception of rubber farmers' health and living conditions based on their limited knowledge and understanding, the health services provided by them are unlikely to meet the actual needs of the target population.

The above situation continues when there are differences between health policies and actual practices as explained earlier in this chapter (Section 8.2.2). Figure 8-2 illustrates that while in the written national health policy people and community are the centre of health services, in actual practice they are not. The health care providers and related agencies focus on their own interests rather than the interests of rubber farmers. The prospect of the health care providers and related agencies to improve their knowledge and skills lessens when they are unable to establish good collaboration and partnership status among themselves (Section 8.2.2.2). The absence of good collaboration between every party involved in providing health services to

community, and their lack of knowledge of rubber farmers could lead to inaccurate report of rubber farmers' health needs (Guldan, 1996). According to Guldan's community health promotion cycle (see Chapter 2: Figure 2-3), the inaccurate statement of health needs reported is the major obstacle of improvement of health policies and practices, and is the cause of budget and resource misallocation. When this circumstance persists the rubber farmers are left with insufficient provision of health and safety advice, guidelines, and services which is what Bird and Germain (1986) addressed in their ILCI loss causation model as 'lack of control'.

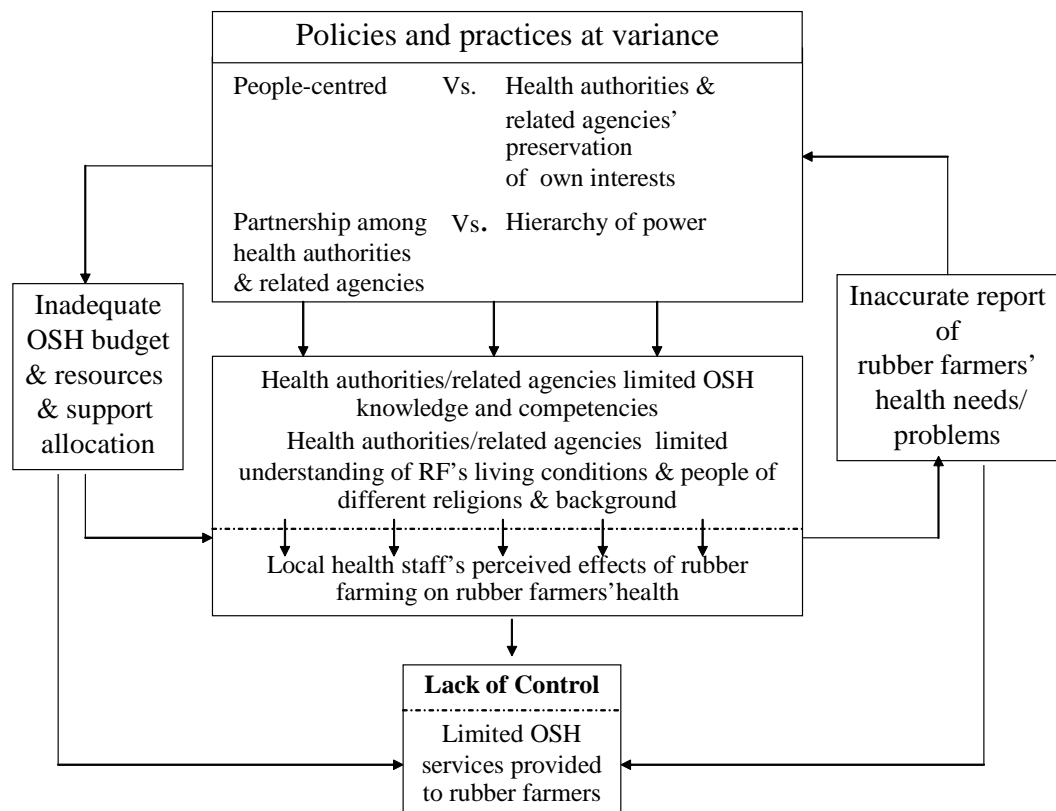


Figure 8-2 Underlying factors of 'lack of control' in rubber farming

The 'lack of control', as demonstrated in Figure 8-3, is one of the major factors contributing to the formation of rubber farmers' perceived effects of rubber farming on health, and their decision on action taken to deal with work hazards and work-related health problems. For example, when rubber farmers do not have knowledge of possible harms of formic acid, they— based on their experience— perceive that the acid is good for their skin. Thus, the rubber farmers continue to contact with the chemical

and are unlikely to wear any personal protective device (see Chapter 5: Section 5.2.2.3).

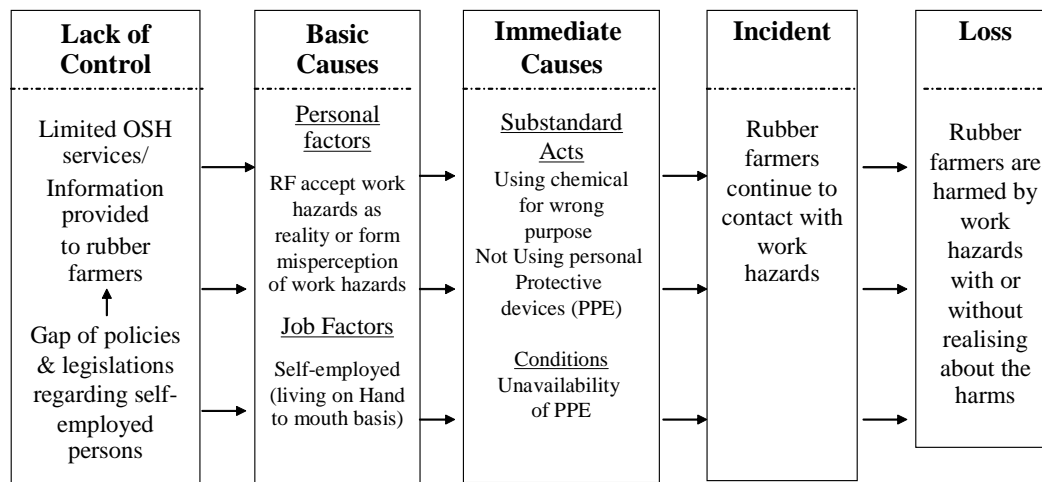


Figure 8-3 Applicability of ILCI loss causation model to explain OSH of rubber farmers

Furthermore, how the decisions and actions regarding OSH of rubber farmers are influenced by the rubber farmers' perceptions of work on health could also be explained using Accident Causation Model by Hale and Hale (1970) (see Chapter 2: Figure 2-4).

Figure 8-4 demonstrates that since there is no appropriate health services and OSH information—or appropriate 'presented information' as referred to the model of accident causation—provided to meets rubber farmers' health needs and living conditions, rubber farmers rely on 'word of mouth' and their own experiences (see Chapter 6, Figure 6-1, and section 6.3.2) to form their perceived effects of work on health and to make decision on treatment. In addition, rubber farmers' limited knowledge of human body and work hazards leads them to hold inaccurate understanding of the work hazards and their effects on health. As a result, rubber farmers are prone to carry out unsafe acts. For instance, the use of ammonia to cure cold, the use of acetic/formic acid to enhance wound healing, and the use of *Kratom* to stimulate ability to work.

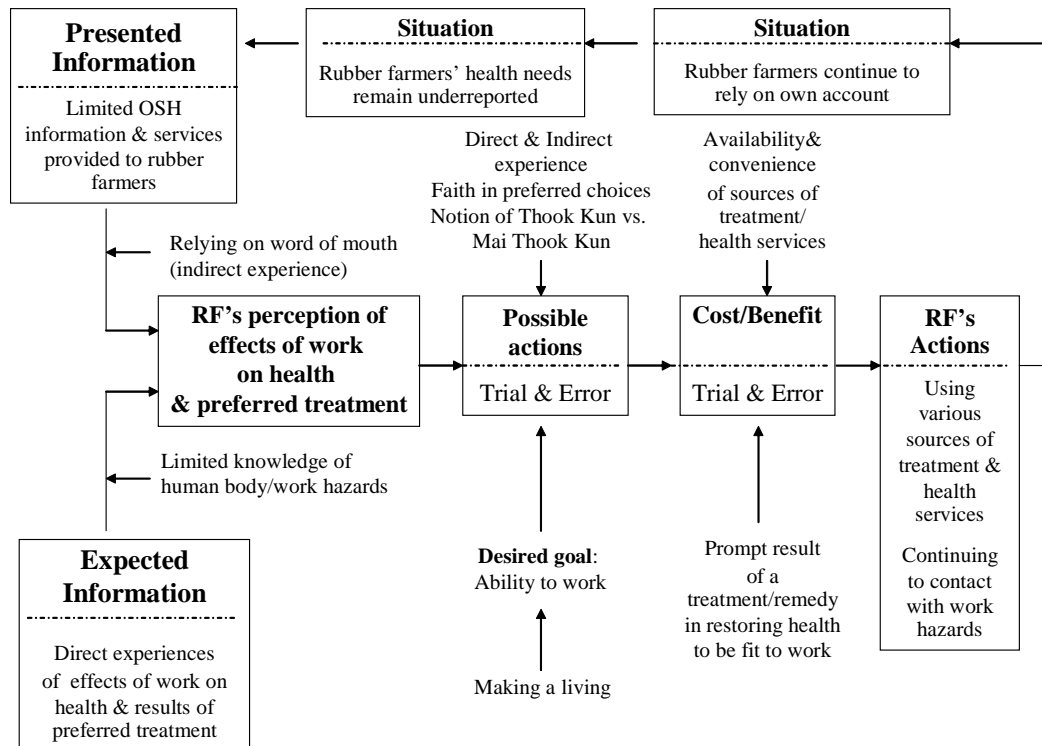


Figure 8-4 Applicability of Accident Causation Model to explain the interaction between rubber farmers' perception and their process of making decision on action taken

To consider 'possible actions', maintaining health for the sake of work, coupled with other factors (e.g. direct & indirect experiences, faith in particular treatment, and the notion of *Thook Kun Vs. Mai Thook Kun*) are the overriding factors of rubber farmers' decisions using 'Trial & Error' to solve health problems (see Chapter 6, Figures 6-1 & 6-4). Then, convenience of access, availability, and prompt result of a treatment are the aspects that rubber farmers taken into account to counterbalance the cost of treatment. As explained in chapter 6: section 6.3.3, regardless of costly expenses, rubber farmers preferred to go to private practice to receive pain relief because the treatment quickly eliminates the pain and could be accessed anytime at rubber farmers' convenience. Given that rubber farmers do not always receive health services provided at local health centre, their record of health problems and needs remains underreported. Consequently, gaps of OSH policies and services continue.

Following recommendation of Cohen and Swift (1999) (see Chapter 2, Figure 2-2), to narrow the gaps of OSH policies, legislations, and services provided to the rubber farmers, influences of each party (shown in Figure 8-5) are crucial. However, before

each party is able to work together and bring about success, good networks, communication and relationship (partnership) within and between each party should be established and strengthened.

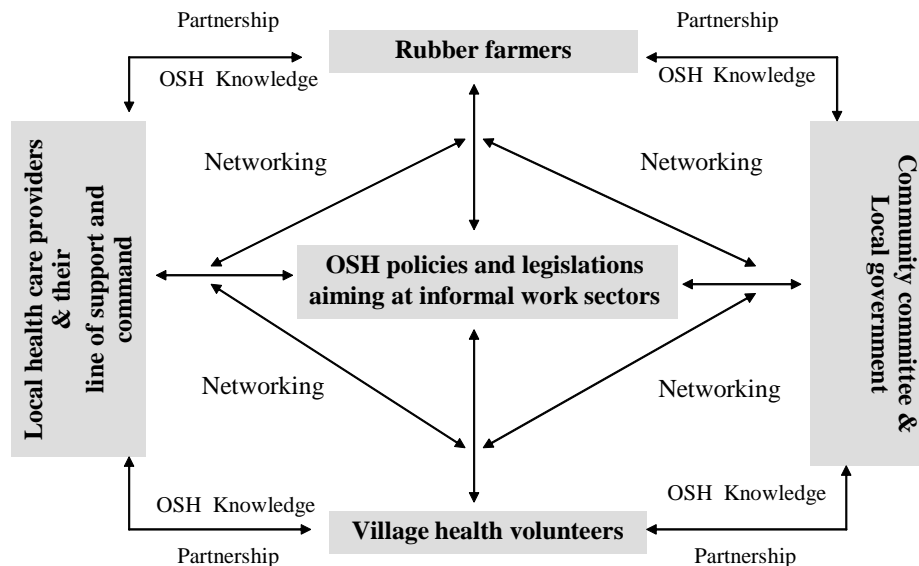


Figure 8-5 Suggested approach to improve OSH provided to rubber farmers

As illustrated in Figure 8-5, the establishment of appropriate OSH policies and legislation, in return, are beneficial to each party involved (e.g. suitable OSH training, appropriate budget and support allocation, and provision of efficient OSH services to target groups).

8.4 Summary

Consistent with the findings of Hale and Hale (1970), the intense identification of potential factors involved in the rubber farmers' and health staff's constructions of perceptions of, and action taken to counter, effects of rubber farming on health demonstrate the complicated interaction between factors identified within and across individual rubber farmers and health staff. Among factors identified, the differences between the national policies and actual practices of individual levels of the healthcare providers and allied organisations-as a result of rigid bureaucratic system-

have emerged to be the basic factors underpinning other factors identified (i.e. manipulating atmosphere instead of good collaboration between superior and subordinate healthcare agencies, and between local health agencies and rubber farmers, the concentration on career preservation and their own interests of individuals of health agencies). Consequently, the rubber farmers, as well as other groups of ordinary people, instead of becoming the core of the health development, as declared by the Ministry of Public Health, are situated at the bottom of the priority list. Given that the series of circumstances outlined in this chapter coupled with the gaps in health policies (i.e. inequality of accessibility to healthcare services and the inefficiency of the Thai Traditional Treatment policy) continue, the rubber farmers are not only being left to cope with their own health and safety, but they are also victims of the system.

Chapter 9: General Summary

*But man is a hardworking and stupid child
Who has turned work into tiresome toil
He has turned the drumstick into a hoe
And instead of spreading over the earth a song of happiness he began to dig
I mean that no one has been able to dig to the rhythm of the sun
And that no one yet has cut an ear of corn with love and grace*

(Presented to Cuban workers in 1964 by Guevara)

9.1 Introduction

In this chapter my aim is to place the study findings into a conclusive statement. Also, in this chapter I present a discussion of the limitations of this study, implications of the study findings, and direction for future research.

9.2 General Summary of the study

9.2.1 Study aims and questions

This study was designed to describe the situation of the occupational safety and health of rubber farmers through examining individual perceptions, a component of personal factors in the ILCI loss causation model (Bird & Germain, 1986), concerning the fact that the workers' perception of the effects of their work on their health directly influences their behaviour at work and the actions they take to deal with occupational injuries, illness and safety (Sofie, 2000). In addition, the health staff of the subdistrict health centre, the first-line-public healthcare providers to the working population dwelling in its designated area, was recruited to express their views on the occupational safety and health of rubber farmers. Identifying the differing perceptions of rubber farmers and health care providers adds value to the study findings, forging a better understanding of rubber farmers' occupational safety and health situation (Slovic, 1987).

Thus, the study was proposed to answer three main questions from the perspectives of rubber farmers and their local healthcare providers. The three questions are, first, what are the perception of work exposures and their effects on health in rubber farming? Second, what are the decisions on responses to the work exposures and the work-related health problems? And third, what are the influencing factors on the construction of the perception and the process of decision making on actions taken to handle work exposure and work-related health problems?

9.2.2 Study method

Ethnographic research methods, underpinned by an interpretative paradigm, were applied to obtain the study information. Unstructured interviews and participant observation, where I adopted the role of observer-as-participant, were the principal means of data collection. Also, a structured interview using a questionnaire was integrated to produce information about general aspects of rubber farmers, including the nature of rubber farming, rubber farmers' household conditions, and a few aspects of rubber farmers' health behaviour and common health problems. During the fieldwork, fieldnotes and a fieldwork personal journal, and examination of existing related document and data sources also accounted as additional ways to gather the study information. Though I initially began with the distribution of the questionnaire, not all methods of the study were conducted in a restricted sequence, but were used interchangeably, depending on the suitability of situations (Hammersley & Atkinson, 1995; O'Reilly, 2005).

The data were collected over a period of six months in a subdistrict located in the south of Thailand where rubber farming is the major occupation. The questionnaire copies were distributed according to quota sampling by me and the village health volunteers who were willing to assist with the procedure and were trained to administer the questionnaire. Throughout the six villages of the subdistrict, out of 964 questionnaire copies, 77.9% were distributed to rubber farmers, and 22.1% were distributed to residents not involved in any kind of rubber industry. The reason for distribution of the questionnaire copies to the latter group is provided in Chapter 3 under the subheading "Respondents, sample size and sampling strategy, and distribution of questionnaire". The Buddhist and Muslim respondents were recruited

in approximately equal numbers. The recruitment of the two main group of religious population was meant to enhance the level of transferability of the study findings.

Unstructured interviews and participant observations were contemporaneously conducted. The informants were recruited based on three sampling methods, namely, purposive, snowball and opportunistic. The informants were three local health staff members of the subdistrict health centre, 28 rubber farmers (14 Muslims, and 14 Buddhists), including rubber farmers who were village health volunteers. Though the interviews and observations were mainly unstructured, they were performed following the aims of the study and evolved over time. They both were begun with descriptive characteristics which later progressed towards focused and selective characteristics in order to gain more insight information. The three types of observation and interview questions were circularly applied. The information obtained was recorded in the forms of tape recording, note taking incorporating fieldnotes, and fieldwork personal journal. The information was recorded, transcribed and translated verbatim, except for the fieldwork personal journal. Fieldnotes were written separately from the fieldwork personal journal to prevent the raw information from being contaminated with my personal thoughts and reflections, recorded in the personal journal. Furthermore, in some situation—with consent from the informants—photographs were used as another way to record information.

The assistance of the health volunteers with distribution of the questionnaire copies enhanced the coverage of a wide range of respondents regarding religions, ages, and genders of all six villages of the subdistrict. The health volunteers were also helpful in helping illiterate respondents to complete the questionnaire. Moreover, a few particular health volunteers offered themselves as my companions, accompanied me to remote areas. However, there was a disadvantage. The presence of the village health volunteers and I both meant that I was treated by respondents as a health staff member, which made some respondents hesitate to give away some information, or otherwise alter the answers to those they thought were expected. Especially the questions which were related to health issues, including health behaviours, work-related health problems, choices of healthcares and the use of public health sectors. This information was later recovered when I had advanced my rapport with the

informants during my long stay in the setting and while I was conducting the unstructured interviews and participant observations.

Furthermore, the opportunity given to the informants—both rubber farmers and health staff members—to speak without restraint about their circumstances facilitated the understanding not only of their perceptions of the effects of rubber farming on health, but also the complex interaction between the perceptions developed and the multifaceted factors' involvement in the decisions and actions regarding the occupational safety and health of rubber farmers. The combination of the methods of data collection and sources of information was indeed beneficial as their specific advantages firmly established the comprehensive nature of the findings from the study.

9.2.3 Conclusion of the study findings

There are five conclusions drawn from this study; **first**, work-related health problems experienced by rubber farmers are both similar to, and different from, those experienced by other kinds of farmers. The similarity of health problems is accorded to the nature of work and work environment they share, a physically demanding and outdoor work environment. The inherent nature of rubber farming, including the unique working hours, particular tasks, and equipment and chemicals used bring about rubber farmers' distinctive work-related health problems.

Second, the study reveals four notions of being healthy and four notions of the effects of work on health as given by the rubber farmers. The notions of being healthy are: being healthy as illness free, being healthy as no requirement for hospitalisation, doctor visit and treatment, being healthy as experiencing only sporadic minor health problems and common health problems in relation to work conditions, and being healthy as being fit to work. The understandings of the effects of work on health include constructive effects, destructive effects, destructive effects but in selective cases and circumstances, and destructive effects which are perceived as not worth worrying about.

The findings from the study clearly illustrate that the perceptions of the health and rubber farming-related health problems of individual rubber farmers are greatly influenced by the interplay of their living and working conditions. The self-employed status, and living on a hand-to-mouth basis with limited public health security do not allow rubber farmers to lose a day of work unnecessarily. The rubber farmers, then, form the notion that living and working are inseparable. Thus, they have involuntarily programmed the effects of work on health as a reality. Given that the undesirable effects happen infrequently and are mostly of minor significance, coupled with periodic exposure and the understanding that the body has developed a level of tolerance to particular exposures, the rubber farmers do not believe the undesirable effects are of importance.

Third, the perception of the effects of work on health formed among rubber farmers powerfully influences their decisions about dealing with work exposures and work-related health problems. Any health action is unlikely to be performed when rubber farmers perceive the effects of work as constructive, or destructive under certain conditions or destructive but not worth worrying about. However, the perception of destructive effects is not indicative of a decision to carry out health promotion or injury-disease prevention for the sake of health. When rubber farmers decide to do something about their health, they mean to maintain health for the sake of work. The focus on maintaining health for the sake of work relates to the interplay of living and working conditions (Chapter 5).

The concentration on maintaining health for the sake of work crucially manipulates the process of making choices to deal with health. Options of treatment/medicine of rubber farmers are many and varied, ranging from biomedical treatment/medicine, prescribed by health professionals or self-prescription, traditional/folk remedies and treatment, certified or uncertified, and supernatural treatment. There is no absolute sequence of options taken to deal with a health problem. Choices of treatment and medicines made rely heavily on what choices enhance the ability to work the most. Reference of fellow rubber farmers (indirect experience/word of mouth) lead rubber farmers to try a particular treatment/medicine.

Through trial and error rubber farmers develop direct experience of the treatment/medicine. If the result is favourable the rubber farmers will have faith in that practice. It is then continually adopted and passed on to fellow rubber farmers. Once the faith in a treatment/medicines/practitioner is established, it is often unshakeable. Conversely, if no good result emerges, then the practice is most likely to be abandoned. Rubber farmers then move on to a new trial and error process. The trial and error process is also driven by perception of the causes of health problems, perception of *Thook Kun* versus *Mai Thook Kun* (one's body reacts positively to the medication/remedy taken versus one's body reacts negatively to the medication/remedy taken), and availability—and level of—convenience to access the treatment/medicine (see Figure 6-4 in Chapter 6).

The perception of the effects of work on health and action taken to maintain health of rubber farmers are crucially based on the determination to make a living. Their knowledge of work exposures and work-related health and choices taken to deal with health primarily relate to their own experience both direct and indirect. Contrary to the finding from the survey questionnaire, rubber farmers, when interviewed and observed, disregarded the treatment/medications provided when using 30 baht (Universal Coverage Scheme: UCS) at public health institutes (health centre, community hospital) as the favourable choice. Rubber farmers indicated lack of confidence in the medications and treatment as well as scepticism about the ability of health care providers.

Fourth, conclusions concerning the health staff of the subdistrict health centre, responsible for providing comprehensive health services (treatment, health promotion, and disease prevention) for all residents living in its designated area. Occupational safety and health is located under the disease prevention scheme, assigned to the public health specialist and the head of the health centre. Despite the fact that rubber farmers are the major population of the community, there is no record indicating how many of them there are, and what the occupational safety and health requirements of the rubber farmers are.

The health staff consider that individual rubber farmers are the main responsible parties with regard to their own health. The limitation of their knowledge about work exposures, low education, religious practice, and financial difficulties of rubber farmers are pointed out by the health staff as factors elevating the occurrence of health problems among rubber farmers and their dependants. To promote the health of rubber farmers, the health staff believe that regular visits and continuous health education are the best approaches. Also, to enhance the success of these actions, good collaboration between health staff and health allies, rubber farmers, community leaders, and local government are critical. However, the health staff admitted that none of those approaches nor good collaboration exist. They, in addition, are not positive about the possibility of transforming the ideal into actual practice. Thus, the rubber farmers are left to manage their situation on their own.

Fifth, in this study I have peeled back the layers of the occupational safety and health situation of rubber farmers. Neither the rubber farmers nor the health staff of the health centre exclusively-individually are the underlying factors of the rubber farmers' determination and struggle to maintain their ability to work, and health staff's struggle and hesitancy to bring the ideal health plan into actual practice. The findings pinpoint that the struggle and hesitancy of the health staff which directly delay the provision of appropriate occupational safety and health services to rubber farmers is greatly influenced by the hierarchy of power at every level of the line of command and support. The preservation of ones' power leads the incorporation of many other undesirable (negative) circumstances, such as manipulative relationship between superiors and subordinates, poor collaboration, conflict of interests, and malfeasant acts.

While each individual authority focuses on self-interest and preservation of one's own career, the words written beautifully in national health plans are not brought into the real practices. And when the differences between words and deeds occur, not only the rubber farmers, but also underprivileged lay people in general, are not the centre of development as declared by the Ministry of Public Health, but the most suppressed victims who are being left to struggle with the pressure of making a living. And that is what is implied in the poem at the beginning of this chapter.

9.3 Implications and future directions

The implications and future directions suggested as results of this study can be divided into two categories, long-term and immediate.

9.3.1 Long-term implications and future directions

The long-term implications and future direction recommended as a result of this study are aimed at dealing with the underlying factor, hierarchy of power, delaying improvement of the occupational health, also perhaps hindering the success of the establishment of other health promotion and disease prevention plans. To deal with the hierarchy of power problem, positive action by government organisations at all levels, policy makers, practitioners and farmers who are affected by the situation is required.

9.3.1.1 Action from public health organisations at all levels

It is crucial for the public health organisations at all levels to acknowledge that the perpetuation of the hierarchy of power, superior-inferior relationship, among individual levels of health authorities is the most influential factor delaying the success of the national health plans and strategies.

There is no requirement to create new health plans and strategies because the excellent-recommended health plans and strategies are already in place. The health plans and strategies illustrated at the national level, including the people-centred/community based practices, cooperation/partnership between health responsible bodies, equity in health security and services, utilisation of Thai Traditional Medicines and many more all have potential to promote health not only for the rubber farmers but also for all workers and the general population of Thailand. How to bring the plans and strategies into actual practices is the situation that needs consideration. This study reveals that without the elimination/minimisation of the preservation of their own power among individual authority levels, there will always be discrepancies between the ideal national health plans/strategies/policies and actual practices. In other words, when there is exercise of power among government agencies, the public demands will always be suffocated (Kamuzora, 2006).

I personally do not have any suggestions of how to minimise and eliminate the custom of hierarchy of power. However, there is a thought presented by Che Guevara to Cuban workers in 1964 (Guevara, 1967) in dealing with hierarchical organisations. Guevara, as the then the Minister of Industry said, when organisations are structured in hierarchical form, there are always centralised leaderships appointed to make decisions. However, all at once the organisations should be profoundly democratic, because it is the only way plans could be genuinely presented to people, discussed, approved and participated in by people to implement the plans (Guevara, 1967).

9.3.1.2 Action from the farmers and other communities who are affected by the situation

Thais learn to associate people with their ranks and statuses at a young age. As a part of intense Thai culture, inferior (age or social rank) people often feel obligated to acknowledge the superiors' supremacy and stay clear from having a disagreement with people in such positions (Mulder, 1996). This culture is strongly embedded and even more intensively practised and safeguarded regarding the high competition for survival in the society. As a result, the minimisation and elimination of the preservation of their own power by people holding authority in various organisations by the authorised people themselves could take much more than a life-time.

Hence, the pressure for changes from those who are affected by the situation is crucial. Here the affected group does not refer only to the rubber farmers, but farmers and underprivileged workers of other kinds. This is because the hierarchy of power has distressed not only occupational safety and health plans and strategies provided to rubber farmers but also such plans and strategies intended for others. One individual farmer would not be able to eradicate this rooted-hindering factor but a movement from all affected individuals together is most likely to bring such concerns to public attention.

It is a challenge for academics, researchers and health promoters who have claimed to be concerned about workers' health to consider a potential approach to advocate for the movement of the farmers affected by the practice of power. It is important to enable individual farmers and communities to discontinue spontaneous acceptance of

the situation, and to recognise and demand for their own needs and rights. The individual farmers and communities must be empowered to realise their tremendous contribution to the improvement of national economic status and that they are entitled to a better public health security scheme equal to those of other groups (SSS, CSMBS in Chapter 8).

9.3.2 Immediate implications and future directions

While waiting for the long-term implications and future directions to become established, a few immediate measures could be introduced to improve the occupational safety and health of the rubber farmers and the situation encountered by the health staff.

9.3.2.1 Community

At the community level, there are a few measures which could be taken meanwhile to improve the situation encountered by the rubber farmers and the health staff.

1) To cope with the shortage of health manpower, village health volunteers remain the most readily applicable resource, but a new approach to maximising their capabilities is required. First, the recognition and practice of partnership status between the health staff of the subdistrict health centre and the village health volunteers should be established and maintained. The notion of health volunteers as subordinate to the health staff should be abolished. Second, the health volunteers' knowledge of health should be enhanced. And that health knowledge should not be restricted to First Aid, treatment of common diseases, and management of essential drugs (Grand, Sri-Ngernyung, & Streefland, 1993). Arising from this study, their knowledge instead should cover much more, starting from the simple human body and functions to causes of common diseases, work exposures and potential effects of work on health.

The benefits of this approach are, first, as everyone has dignity and does not appreciate being order about, the partnership status yields a friendly work atmosphere and increases the willingness of villagers to become part of a health team. The atmosphere will also encourage the village health volunteers to freely express health

interests and needs on behalf of their fellow villagers to the health staff. Second, as in the rubber farming community lay reference is deeply embedded, the village health volunteers who are also rubber farmers respected by fellow rubber farmers could well be a reliable source for the promotion of health knowledge which, in turn, will positively influence the formation of good health perceptions and decisions on action and behaviours to be dealt with as part of health in general, work exposures and work-related health problems.

2) To enhance the completeness of presented health information (Hale & Hale, 1970) to rubber farmers, the interest of rubber farmers should be captured and the information provided should be especially relevant to that interest (Guldan, 1996). This could be promoted through community newsletters, free local newspapers, and radio stations. In New Zealand, the *Central Districts Farmer* newspaper and local newspapers are examples of the channels providing not only the farming situation but other knowledge relevant to farming, including health, and a place where fellow farmers could share experiences and knowledge. When there are media sources with which the rubber farmers develop a feeling of belonging, and a place where in they could discuss interests and relate their situation, the health staff could then take the opportunity to participate and circulate health knowledge, and draw readers' attention to work exposures and their effects on health and how to deal with them (Glendon & McKenna, 1995). However, the information provided should be made simple, in lay terms and complicated figures of statistics should be avoided. Health: Questions and Answers (Q&A) section is the potential approach to capture the health interests of rubber farmers. The media sources established could also be places to advertise local health activities, the national health policies and plans, and human rights relating to the rubber farmers and other villagers.

9.3.2.2 Scholars who are concerned about occupational safety and health/health promotion/disease prevention

First, the scholars, for example nurses/public health lecturers and researchers could begin with conducting research to narrow the gap of health surveillance of informal workers, including farmers in various types of agriculture. And reminded by this study, a survey questionnaire only would not be optimally worthwhile without using other research methods to capture the perceptions of target groups. This resembles the

opinion of Dr. Lovelock of Otago University regarding the plan for New Zealand farmer survey of occupational health in agriculture. Dr. Lovelock emphasises the importance of identifying differences and similarities of farming in each region of New Zealand instead of assuming that what is true of one operation type is true for all (Otago University, 2007).

Second, the scholars could also voluntarily cooperate with local health institutes and rubber farmers in distribution of knowledge and information to meet the needs of rubber farmers. Results of any studies beneficial to rubber farmers should not only be published in academic journals inaccessible by lay people, like rubber farmers, but they should also be published in local media, as indicated earlier, in which the use of academic terms should be avoided.

Third, when training a new generation to become healthcare providers, it is important to introduce the novices to the core wisdom of health services, comprehensively knowing and understanding not only health but also other living circumstances of people and that no one is superior to others. Guevara (1960) emphasised to Cuban medical doctors and health workers:

We [medical doctors and health workers] should go with an investigative zeal and with humble spirit, to learn from the great source of wisdom that is the people. (Guevara, 1960, p. 51)

This concept should be repeatedly presented and integrated throughout the period of training. The summer holiday (March-May) when university students have a few months break from routine classes would be an ideal time for students to live within the community not to teach, but rather to learn how the people live their life, why they do what they do, and what is involved in their decisions on actions, as well as what their actual needs are. This concept needs solidarity in all health-related curricula to maximise the success of new generation of healthcare providers of all levels to eliminate the current practice of superior-inferior relationship between clients and healthcare providers.

9.4 Limitations of the study

First, during the fieldwork, I noticed the importance of searching for the views of other parties referred to by the health staff, including staff of District and Regional Health Offices, Disease Control 12th Region, Local Government Office, Contracting Unit for Primary Care. However, the limitation of time is the main obstacle to expanding the exploration. Therefore, the study limited the opportunity for the staff of the offices to express their perspectives on the occupational health services provided to the rubber farmers, as well as to defend themselves from what they are accountable for in the view of the local health staff and the results of the study.

Second, the questionnaire could be used for, and modified to suit, further research for those wishing to investigate demographic and other general information of other groups of workers/farmers. However, taking into account the presence of a questionnaire administrator whom the respondents relate to healthcare authorities is a potential cause of an atmosphere of suspicion and biased answers.

Third, since the ethnographic research methods were applied, the results of this study are not suitable for being generalised. However, the results are valuable for transferability to further studies with a similar context to this study.

9.5 Summary

In this study, I have presented the fact that both individual rubber farmers and health staff formulate their own perceptions of, and decisions on, actions to be taken to deal with rubber farming work exposures and their effects on health according to their own accounts of compounding factors. The differences between health policies and real practices together with the perpetuation of a hierarchy of power among individual levels of health authorities appear to be the most potent factors underpinning the cycle of perceptions and actions of both rubber farmers and health staff.

To improve the understandings of both the rubber farmers and health personnel concerning occupational safety and health, first, the rubber farmers should be rescued from the tension engendered by their indigent living conditions—which mean that if

they cannot work, their family will have no basic needs (i.e. food, clothes, healthcare) security. Once the living conditions, have reached a level of satisfaction, such as by the introduction of some form of sickness benefit, the rubber farmers would be able to transform the attitude of maintaining health for the sake of work to maintaining health for just the sake of health and be able to work with happiness of fulfilling a duty (Guevara, 1967). For their part, health staff will be able to carry out their responsibilities properly only once they have the reassurance of a partnership status with the line of command and the line of support. This aspiration will be realistic when the gap of inequity of social ranks and powers between authorised agencies and lay people are minimised. The study findings once again prompt a call for a genuine bottom up approach as well as local initiatives for changes in order to improve occupational safety and health services to meet the needs of a particular group of occupations—in this instance, the rubber farmers of Thailand—as recommended by the World Health Organization (WHO, 2005).

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Appendices

Appendix A: Folk terms

Appendix B: Ethics Approval, questionnaire, information sheets, consent forms

Appendix C: Demographic information of questionnaire respondents

Appendix A: Folk terms

<i>Folk terms</i>	<i>Definitions</i>
Ajan	Lecturer, teacher
Amm/ Ya Kun Bood	Ammonia
Anamai	Subdistrict health centre
Beeb or Beeb-Nuad	Kneading an aching muscle with hands-Massage (could be used as a noun or a verb)
Boa Lead	As perceived by informants of the study, Boa Lead is the central of blood circulation, located on the back around waist level
Boa Tau or Tau Boa	Tau = body Boa = light (not heavy), feeling well, no strain on the body Boa Tau or Tau Boa = feeling fine, no strain on the body
Chaow-Ban	Lay people, Villagers.
Coffee-Mix	A little package of instant coffee mixed with whitener and sugar. To drink, dissolve one package of Coffee-Mix with a cup of water.
Ha Chao Kin Kum	Living a hand-to-mouth basis
Joa Thee	God of the land/spirit of land
Kai	Feeling unwell, sick, having fever, having health problems
Kak	Thai Muslims
Kapa	A kind of poisonous snake often found in rubber field.
Karma	A health problem, fungal infection of the nails, causing a painful sensation
Kee Rook	Often feel unwell, not healthy

Khed Khud Yook	Khed Khud Yook is explained by study informant as an acute condition of muscle spasm/sprain. It differs from Khed because Khed is a chronic muscle pain which manifests over time
Khed-Meay	Body ache, muscle pain. Sometimes people say “Khed”, but sometimes they say “Meay”, and sometimes they say “Khed Meay”. All are referred to body ache or muscle pain.
Kla	In southern dialect Kla means “full of energy to perform activities”, but Kla in formal Thai language means brave, or being adventurous.
Kong Sri	A type of rubber farming which rubber farmers are employed to work in a big rubber plantation. The relationship between field’s owner and rubber farmers is employer-employee.
Kratom/Bai Tom	Class 5 substance abuse which has combine effects, including depressant, stimulant and hallucinogen.
Kud	Kud in formal Thai language means Bite. But in this study, the rubber farmers refer Kud to the effects(burning sensation or skin irritation) of acetic/formic acid on human’s skin
La-Mard/ Ma-Yang	Muslim prayer
Lhon	A big plastic container with a lid which could contain up to 20 litre of rubber latex
Loong	A term used in Thailand to call a male who is older than one’s parents
Mae	liquid turns (sets) into solid form or lumpy
Mai Thook Kun	One’s body reacts negatively to the medication/remedy given/taken. It could be used interchangeably with Pae. (Also see, <i>Thook Kun</i> , <i>Thook Rook</i> , <i>Thook Ya</i> and <i>Pae</i>)

Mho-Bat	Rechargeable battery head lamp
Mhon / Katha	Spell, magic words
Mhor	Mhor generally is Medical doctor. But in Thailand, people use the word to address anyone who deals with, or involves in providing healthcare services. Therefore, when rubber farmers say, “Mhor”, they either mean medical doctor, nurse, public health worker, folk healer, or massager. In the research, villager called everyone work in the health centre “Mhor” and that included maid, and computer support staff
Mhor Ban	Folk healer
Mhor Luang	Medical doctors
Mhor Samunprai.	Folk healer who specialises in herbal remedies
Mhor Tum Yaa	Folk midwife
Mod Look	Uterus
Mod Look Long Tum	Misplacement of uterus which is caused by abdominal pressure generated by heavy lifting
Moo Ban	Village
Ngud Mod Look/Thang Mod Look	Ngud = force/push/press Thang = adjust Mod Look = Uterus Ngud Mod Look = to press uterus or to push uterus back into place Thang Mod Look = adjust the position of uterus
Nok Koa	Pet bird with a beautiful singing voice
Norn	Coagulate
Num Peung	Num Peung in formal Thai language means honey. But in some parts of the south of Thailand, it refers to sugar (cane sugar, palm sugar)

Num Som Kha Yang	Acetic acid/formic acid
Num Yang	Rubber latex
Or-Bor-Tor	Local government office/officers/members
Or-Sor-Mor	Village health volunteers
Pae	Negative reaction of one's body caused by susceptibility or sensitivity of one's body to a particular stimulant. And that is: each individual react differently to a stimulant
Pah Num	Mixing acetic/or formic acid with water
Peay	Sores/ulcer on skin/or skin infection caused by insect bites or toxic substances
Phu Yai Ban/Nai Ban	The headman of a village
Pradong Khor	Joint pain (arthritis)
Pud	In general Pud means taking something away, get rid of something, or wiping In this study Pud is referred to a spell performed by Mhor Ban to treat a person who is affected by snake's poison
Rai	A measuring scale of a piece of land in Thailand, 1 Rai is equal to 0.0016 km ²
Ran Num Cha	Open-air cafe selling hot/cold drink and light meals
Saab	Burning sensation
San Nu	Arsenic Acid
Sen	Nerve or nerves
Suan- Jeen	Big rubber plantation owned by a Chinese Thai family
Tai	Generally Tai means kidney. In this study, rubber farmers associate development of a kidney disease (i.e. kidney stone, kidney failure) with low back pain. Thus, they believe that a kidney disease is caused by heavy lifting,

Takong	repeatedly bending body, and hard working. A rectangular aluminium container used in the process of making rubber sheets
Thai	Thai Buddhists
Than-Hin	Carbide headlamp
Thauy Yai Mun	A scorpion-like arachnid
Tho-Imam	Muslim leader (in religious practice)
Thook Kun/ Thook Rook/Thook Ya/	One's body reacts positively to the medication/remedy given/taken
Thor Rong Num Yang	A small iron gutter, stuck through the back of each rubber tree to make a track for the latex to drip into the latex cup
Thor Yang Deed	An iron gutter (<i>Thor Rong Num Yang</i>) springs back and smacks a part of the body
Thowkae	People who own rubber fields, but instead of working in their fields, they hire local rubber farmers to works for them
Thud Yang or Kreed Yang	Tapping rubber trees
Thum-mada	Natural/Routine/Normal. A situation is being accepted as there is no other way to deal with it.
Ya	Medicines, folk remedies
Ya Boran	Ancient folk remedies. It is used interchangeably with Ya Mhor Ban
Ya Luang	Biomedical medicines
Ya Nha Ran/Ya Chud	A combination of different pills sold at grocery shops or drug stores
Ya Pradong	A folk remedy taken to manage joint pain
Ya Re	Folk remedies sold by mobile vendors.
Ya Samunprai.	Herbal remedy(s)

Ya Tom	A pot of boiled/steam remedy. A pot of remedy is a combination of variety kinds of herbs recommended by a folk healer.
Ya Mhor Ban	A remedy given by/made by a folk healer, It is used interchangeably with Ya Boran
Yang	Rubber trees, or rubber products (rubber latex, rubber sheets) depending on context of conversation
Yang Choy	The tapping sites that tapper could not reach without putting an extension stick into the tapping knife, or use a ladder. Yang Choy is done when rubber trees are old and about to be chopped down before rubber farmers replant new rubber trees.
Yang Nha Soong	Upward tapping site where the tapping surface is higher than eye level
Yang Nha Tum	Downward tapping site where the tapping surface lower than eye level
Yang Pan	Rubber Sheets
Yang Wa	Working in a rubber field owned by other people, but the relationship between owner and farmer is not perceived as employer-employee, but partnership
Yiap	Stepping on one's body (back or legs) to relieve muscle pain
Yung	Mosquitoes

Appendix B: Ethics approval, questionnaire, information sheets and Consent forms

Appendix B-1: Ethics approval

Appendix B-2: Questionnaire: English and Thai versions


Appendix B-3: Information sheet: English version

Appendix B-4: Information sheet: Thai version

Appendix B-5: Consent form I: English and Thai version

Appendix B-6: Consent form II: English and Thai version

Appendix B-1: Ethics approval



Massey University

7 April 2005

Miss Piyaporn Boonphadh
Faculty of Nursing
Prince of Songkla University
THAILAND

Dear Piyaporn

Re: HEC: PN Application – 05/14
Health problems, ways to handle health problems and to improve health: The perspectives of workers, their families and health care providers in a rubber cultivation setting, southern Thailand


Thank you for your letter received on 7 April 2005.

On behalf of the Massey University Human Ethics Committee: Palmerston North I am pleased to advise you that the ethics of your application are approved. Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

A reminder to include the following statement on all public documents: *“This project has been reviewed and approved by the Massey University Human Ethics Committee, Palmerston North Application 05/14. If you have any concerns about the ethics of this research, please contact Dr John G O’Neill, Chair, Massey University Campus Human Ethics Committee: PN telephone 06 350 5799 x 8635, email humanethicspn@massey.ac.nz”.*

Yours sincerely



Mr Paul Green, Acting Chair
Massey University Campus Human Ethics Committee: Palmerston North

cc Professor Julie Boddy
School of Health Sciences
PN351

Professor Steve LaGrow
School of Health Sciences
PN351

OFFICE OF THE ASSISTANT
TO THE VICE-CHANCELLOR
(ETHICS & EQUITY)
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 350 5573
F 64 6 350 5622
humanethics@massey.ac.nz
www.massey.ac.nz

Massey University Human Ethics Committee
Accredited by the Health Research Council

To Kaitiaki
ki Pūwhiri

Appendix B-2: Questionnaire

1

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QUESTIONNAIRE

Rubber farmers' Work and Health conditions

The questionnaire consists of five sections and 48 questions in total. It would take around 15-20 minutes to complete the questionnaire.

Section A: Q1-Q7 : Demographic information
 Section B: Q8-Q20 : Work history/Condition/ Environment
 Section C: Q21-Q26 : Household Environment
 Section D: Q27-Q42 : Health Behaviour
 Section E: Q43-Q48 : Health Conditions/Problems

SECTION A: Demographic information

Please write your answers in the blank spaces, or use “√” to indicate your answers in the square boxes.

Q1. Gender ☐ 1. Male ☐ 2. Female

Q2. Body weight _____ kg, Height _____ cm.

Q3. How old are you? _____ Years old

Q4. Religion

☐ 1. Buddhist ☐ 2. Muslim ☐ 3. Christian ☐ 4. Other _____

Q5. Income per month _____ Baht

Q6. Marital Status

☐ 1. Single ☐ 2. Married ☐ 3. Widowed ☐ 4. Divorce

Q7. Education level

☐ 1. Primary School
☐ 2. Junior High School
☐ 3. High School/and equivalence
☐ 4. Bachelor degree
☐ 5. Other (please indicate) _____

2

Q8. Number of family members _____ persons

SECTION B: Work history/ Condition/Environment

Please write your answers in the blank spaces or use “√” to indicate your answers in the square boxes.

Q9. How long have you been working in the rubber plantation? _____ Years

If you do not involve in working in rubber plantation what kind of job are you doing?

Q10. What time do you start and finish the work? From _____ to _____

Q11. How many days do you work per week? _____ Days

Q12. How do you normally go to work?

- ☐ 1. Walking
- ☐ 2. Riding a bicycle
- ☐ 3. Riding a motorbike
- ☐ 4. Driving a car/pickup truck

***** To you who do not involve in rubber plantation work please now go to Q19**

Q13. Do you work in your own rubber plantation?

- ☐ 1. Yes ☐ 2. No

Q14. How many rubber trees do you tap in a working day? _____ Trees

Q15. Before you work in the rubber plantation did you work anywhere else?

- ☐ 1. Yes (please indicate) _____
- ☐ 2. No

Q16. How many of your family members involving in the rubber plantation work? _____

Q17. Whom do you normally work with?

- ☐ 1. Spouse ☐ 2. Parents
- ☐ 3. Daughter/Son ☐ 4. Others (please indicate) _____

3

Q18. Do you have a latrine in the rubber plantation?

☐ 1. Yes

☐ 2. No

If no, what do you normally do when you need to defaecate or urinate?

Q19. Does your work involve any work conditions/activities listed below?
Please use "√" to indicate your answers, "yes" or "no"

Work conditions/activities	(1) Yes	(2) No	(8) Don't know
19.1 Repetitive bending/rotating/raising/twisting movement of			
19.1.1 Elbows.....
19.1.2 Shoulders.....
19.1.3 Wrists.....
19.1.4 Neck.....
19.1.5 Back.....
19.1.6 Waist
19.1.7 Knees.....
19.2 Lifting heavy object			
19.3 Grasping handtools			
19.4 Standing/walking for long period of time			
19.5 Riding/driving any vehicles If yes, please indicate the type of the Vehicle.....			
19.6 Moisture			
19.7 Heat			
19.8 Sunlight			
19.9 Sharp objects			

Q19. Does your work involve any work conditions/activities listed below? **CONTINUE**

Work conditions/activities	(1) Yes	(2) No	(8) Don't know
19.10 Chemical substances If yes, please indicate.....			
19.11 Mosquitoes			
19.12 Snakes			
19.13 Hook worms			
19.14 Emotional tension/discomfort e.g. conflict with co-worker, financial distress			

SECTION C: Household environment

Please write your answers in the blank spaces, or use “√” to indicate your answers in the square boxes

Q20. What is the distance from your house to the nearest rubber plantation? _____ Km

Q21. Is there a toilet available at your house?

☐ 1. Yes ☐ 2. No

Q22. What is the source of drinking water for your family?
(You could mark more than one box)

- ☐ 1. Well
- ☐ 2. Rain water
- ☐ 3. Public water supply
- ☐ 4. Buying it from a water supplier
- ☐ 5. Others (please indicate) _____

5

Q23. Are there any nuisances listed below in and/or around your household?
(You could mark more than one box)

- ☐ 1. Mosquitoes ☐ 2. Flies ☐ 3. Cockroaches
☐ 4. Rats/mice ☐ 5. Snakes ☐ 6. Others
(Please indicate) _____

Q24. What do you do with your household litter?

- ☐ 1. Dump it on the ground around household
☐ 2. Dump it in a hole that has been dug around household
☐ 3. Burn on the ground around household
☐ 4. Burn in a hole that has been dug around household
☐ 5. Others (Please indicate) _____

SECTION D: Health Behaviour

Please write your answer in the blank spaces or use “√” to indicate your answers in the square boxes

Health behaviours	(1) Always	(2) Sometimes	(7) Never
25. You have at least three meals per day			
26. You eat fermented meat/vegetable			
27. You treat water before drinking How (please indicate).....			
28. You cover all water storage containers in/ around household			
29. You clean fresh vegetable before eating them How (please indicate).....			
30. You wash your hand before handling food			
31. You wash your hands immediately after exposure to any chemical substances? (E.g. pesticides, herbicides, chemical substances mixed in rubber latex)?			
32. You wear your shoes when you walk around the house			
33. You have a bath/shower immediately after work			
34. You wash your work outfit after wearing it once			

Health Behaviour	(1) Always	(2) Sometimes	(7) Never
35. You wear the personal protection devices while you work			
37.1Gloves.....
37.2Mask.....
37.3Shoes.....
37.4Others (please indicate).....
36. You wear helmet when you ride a motorbike			
37. You participate in health promoting/disease preventing activities run in your community			

Q38. Do you smoke?

☐ 1. Yes ☐ 2. No

If yes, how long have you been smoking? _____ Years

How many cigarettes do you smoke per day? _____

Q39. Do you drink alcohol?

☐ 1. Yes ☐ 2. No

If yes, how long have you been drinking? _____ Years

How often do you drink? _____

How much do you drink each time? _____

What kind of alcohol do you normally drink? _____

Q40. What do you normally do when you have free time?

SECTION E: Health conditions/problems

Please write your answers in the blank spaces or use “√” to indicate your answer in the boxes

Q41. Have you been suffering from any life threatening condition?

☐ 1. Yes ☐ 2. No

If yes, please indicate _____

Q42. How do you take care of health care expenditure?

(You could mark more than one box)

- ☐ 1. Using a health card supported by the government
- ☐ 2. Using private health insurance
- ☐ 3. Using own money
- ☐ 4. Others (please indicate) _____

Q43. What do you normally do when you have a health problem?

(Please mark three types of activities which you prefer them the most, 1 for your first choice, 2 for your second choice, and 3 for your third choice)

- ☐ 1. Do nothing about it
- ☐ 2. Using folk medicine
- ☐ 3. Consulting folk healer
- ☐ 4. Buying medicine from a grocery shop
- ☐ 5. Buying medicine from a pharmacy shop
- ☐ 6. Going to the sub-district health centre
- ☐ 7. Going to a government hospital (district hospital, provincial hospital)
- ☐ 8. Going to a private health services (hospital, clinic)
- ☐ 9. Others (please indicate) _____

Q44. For the past 12 months, have you or any of your family members been diagnosed with/ or experienced the diseases/health conditions listed in the table?

Diseases/health conditions	Self			Other family's members		
	(1) Yes	(2) No	(8) Don't know	(1) Yes	(2) No	(8) Don't know
44.1 Dengue fever/dengue haemorrhagic fever						
44.2 Anaemia caused by hookworms						
44.3 Snake bite						
44.4 Pesticide poisoning						

Q45. For the past 12 months, have you experienced any health problems listed below?

Health problems	(1) Yes	(2) No	(8) Don't Know	Frequency					
				Nearly everyday	2-4 times/ week	Once a week	2-3 times/ month	Once a month	Less than often
45.1 Eye irritation									
45.2 Headache									
45.3 Nausea/vomiting									
45.4 Cold/flu									
45.5 Breathing difficulty									
45.6 Cough									
45.7 Runny nose									
45.8 Stomach pain									
45.9 Diarrhoea									
45.10 Musculoskeletal pain									
Neck									
Shoulders.....									
Back.....									
Wrists.....									
Knees.....									
Legs.....									
45.11 Skin irritation									
45.12 Skin Rashes									
45.13 Itchy skin									
45.14 Tinea Capitis									
45.15 Tinea Vesicular									
45.16 Stress/feeling blue									
45.17 Sleep disturbance									
45.18 Fatigue/tiredness									
45.19 Accident/injuries Please indicate.....									

Q46. If you have any other health problems which are not covered by the above questions, please write it here.



THANK YOU FOR YOUR COOPERATION

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If you wish to be contacted by the researcher for further information please give your name and contact detail.

Name:

Address:

Phone number:

Appendix B-3: Information sheet: English Version



Massey University
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 350 5668
www.massey.ac.nz

INFORMATION SHEET

Researcher Introduction

I am Piyaporn Boonphadh, a lecture of Faculty of Nursing, Prince of Songkla University, Hadyai, Songkla, Thailand. I am currently studying for a Doctoral degree in Nursing at School of Health Sciences, Massey University, Palmerston North, New Zealand. Conducting research is a requirement to accomplish my doctoral degree. I am undertaking the research intending to capture a snapshot of health problems relating rubber plantation work and the work environment experienced by rubber plantation workers and their families. Also, it is aimed to gain in-depth understanding of how rubber plantation workers and their families perceive and handle health problems, and how they promote their health, as well as how their perception of these is different from those of the health care providers. My contact detail is as follows:

In New Zealand: School of Health Sciences, Massey University, Private Bag 11-222
Palmerston North, New Zealand
Phone: +64-6-3569099 ext 2187, +64-21-1520092
Email: pboonphadh@hotmail.com

In Thailand: Faculty of Nursing, Prince of Songkla University
Hadyai, Songkla, 90112
Phone: +66-9-8669162
Email: pboonphadh@hotmail.com

Project supervisors and contact addresses

Professor Julie Boddy
School of Health Sciences, Massey University,
Private Bag 11-222
Palmerston North, New Zealand
Phone: +64-6-3569099 ext 2541
Email: J.Boddy@massey.ac.nz

Dr. Kittikorn Nilmanat
(Fieldwork Supervisor)
Faculty of Nursing, Prince of Songkla
University, Hadyai, Songkla, THAILAND
Phone: +66-74-286406
Email: kittikorn.n@psu.ac.th

Participant Recruitment

A subdistrict in Hadyai district, Songkla province, Thailand in which their population is the mixture between Buddhists and Muslims, and the major occupation is rubber cultivation, and the subdistrict health centre will be purposively selected to be the study setting. In order to access the potential study setting, a letter requesting permission to conduct the study will be sent to the local authority. Once the local authority agrees to give permission for collecting data, I will visit the health centre and the villages to



personally introduce the study to potential participants and invite them to become participants.

In the first stage of the study, 1000 self-administrated questionnaires will be distributed throughout the six villages. Eight hundred persons aged 15 and over from rubber worker households and 200 persons from households not involved in any kind of rubber industry, but who live in the sub-district will be asked to complete the questionnaire. Within each household, up to three family members aged 15 and over will be recruited to complete questionnaire. Selection will be based on most recent birthday(s).

In the second stage of the study which involves interviewing informants, the potential informants will be separated into two groups, first the people who work in rubber plantation and/or their families. Second group is the health care providers of the health center, and the village health volunteers. The potential informants of the first group will be:

- rubber plantation workers who:
 - aged 15 years old and over
 - experienced working and currently work in rubber plantation
 - are willing to share their time, experiences, and knowledge with me and/or
- rubber plantation workers' families who:
 - aged 15 years old and over
 - lives with the workers
 - who willing to share their time, experiences, and knowledge with me

The potential informants of the second group will be:

- the head of the health centre who is primarily responsible for completing missions directed by higher health authorities;
- the health personnel of the health centre who is assigned by the head of the health centre to take care of occupational safety and health issue. If there is no specific task to take care of the occupational safety and health issue, the health personnel who take care of health promotion and/or disease prevention will be invited to be an informant;
- village health volunteers

In the second phase of the study, the number of informants depends on the richness and saturation of the information. Therefore, I am unable to determine the absolute number of informants at this stage.

Project Procedures

The information gained will be handled and analysed by the researcher. The information then will be written as thesis and articles for publication. The findings of the study will be share at conferences. A summary of the findings will be sent to the head of sub-district health center. It will also be sent to village committees which then could be distributed to

informants. The identifying information gained from you will not be stated at any stage of the study, or in the thesis or any reports, or presentation of the study. I will transcribe all interviews. Your interview transcripts and audiotapes will be maintained securely in a locked cabinet and separately from other information that could identify you. Audiotapes will either be returned to you if you request for them, or destroyed together with other information that identifies you five years after the study has been completed.

Participant involvement

It will take approximately 15-20 minutes for you to complete the questionnaire. Half an hour to an hour interview will be required from those of you who will be interviewed. I will spend at least 3 days per week during a six month period in the villages to observe your activities relating to the study interest and to carrying out interviews both in formal and informal manners. The place and time for the interviews will be arranged with you to ensure your convenience. During the interview, I may ask your permission for recording conversation on tape recorder, or for taking some notes.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study up until the data collection has been completed;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- to ask for the audio tape to be turned off at any time during the interview

Project Contacts

This project has been reviewed and approved by the Massey University Human Ethics Committee, PN Application 05/14 (*insert application number*). If you have any concerns about the conduct of this research, please contact Professor Sylvia V Rumball, Chair, Massey University Campus Human Ethics Committee: Palmerston North, telephone 06 350 5249, email humanethicspn@massey.ac.nz.

Alternatively, you could contact me or the study supervisors at the addresses indicated earlier.

Appendix B-4: Information sheet: Thai version



Massey University
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 350 5668
www.massey.ac.nz

รายละเอียดข้อมูลโครงการวิจัย

ข้อมูลนักวิจัย

ดิฉันนางสาวปิยะภรณ์ บุญพัฒน์ อาจารย์ประจำคณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ หาดใหญ่ สงขลา ปัจจุบันกำลังศึกษาระดับปริญญาเอกสาขาการพยาบาล ณ คณะวิทยาศาสตร์สุขภาพ มหาวิทยาลัยแมสซีย์ ประเทศนิวซีแลนด์ ดิฉันมีความประสงค์ในการดำเนินการวิจัยเพื่อสำรวจภาพรวมของปัญหาสุขภาพที่อาจเกี่ยวเนื่องกับการประกอบอาชีพสวนยางพาราและสิ่งแวดล้อมในการทำงานซึ่งเกิดขึ้นในผู้ประกอบอาชีพสวนยางและครอบครัว นอกจากนี้ดิฉันยังมีวัตถุประสงค์ที่จะเรียนรู้และทำความเข้าใจการรับรู้ปัญหาสุขภาพที่เกิดขึ้นในมุมมอง ความคิดของผู้ประกอบอาชีพสวนยางพาราและของครอบครัว แนวทางที่ผู้ประกอบอาชีพและครอบครัวใช้ในการจัดการกับปัญหาสุขภาพที่เกิดขึ้นและเพื่อการส่งเสริมสุขภาพ รวมทั้งวิเคราะห์ความแตกต่างของการรับรู้ดังกล่าวกับ มุมมองและแนวคิดของบุคลากรทางสุขภาพ

ท่านสามารถติดต่อฉันได้ที่ด้านล่าง

ที่อยู่ในนิวซีแลนด์:

School of Health Sciences, Massey
University, Private Bag 11-222
Palmerston North, New Zealand
โทรศัพท์ : +64-6-3569099 ต่อ 2187
Email: pboonphadh@hotmail.com

ที่อยู่ในประเทศไทย:

คณะพยาบาลศาสตร์
มหาวิทยาลัยสงขลานครินทร์
หาดใหญ่ สงขลา 90112
โทรศัพท์: +66-9-8669162
Email: pboonphadh@hotmail.com

ที่ปรึกษาโครงการวิจัย

ศาสตราจารย์ (Professor) Julie Boddy
School of Health Sciences, Massey University,
Private Bag 11-222
Palmerston North, New Zealand
โทรศัพท์ : + 64-6-3569099 ต่อ 2541
Email: J.Boddy@massey.ac.nz

ดร.กิตติกร นิลมานันต์
(ที่ปรึกษาในประเทศไทย)
คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์
หาดใหญ่ สงขลา 90112
โทรศัพท์: + 66-74-286406
Email: kittikom.n@psu.ac.th



พื้นที่ในการทำวิจัยคือตำบลหนึ่งของอำเภอหาดใหญ่ จังหวัดสงขลาที่มีประชากรทั้งพุทธและมุสลิมและมีอาชีพหลักคือการทำสวนยางพารา ก่อนที่นักวิจัยจะเข้ามาแนะนำตัวและทำวิจัยในพื้นที่นี้ นักวิจัยได้ทำการขออนุญาตหน่วยงานที่เกี่ยวข้องเป็นที่เรียบร้อยแล้ว การวิจัยนี้ได้แบ่งออกเป็นสองขั้นตอน ในขั้นตอนแรกเป็นการสำรวจสุขภาพ ปัญหาสุขภาพและการทำงานและสิ่งแวดล้อมในการทำงานของท่านโดยใช้แบบสอบถามในการเก็บรวบรวมข้อมูล จำนวนทั้งสิ้น 1000 ชุด โดยนักวิจัยจะกระจายแบบสอบถามดังกล่าวใน 6 หมู่บ้านของตำบลที่ท่านอาศัยอยู่ แบบสอบถามจะถูกจัดเป็น 2 กลุ่มหลัก กลุ่มแรกเป็นแบบสอบถามทั้งสิ้น 800 ชุด ท่านอาจเป็นผู้หนึ่งในการตอบแบบสอบถามหากท่านอายุ 15 ปีและมากกว่าและเป็นครอบครัวผู้ประกอบอาชีพสวนยางพารา ในกลุ่มที่ 2 มีแบบสอบถามจำนวน 200 ชุด ท่านอาจถูกขอหรือสุมให้ตอบแบบสอบถามหากท่านมีอายุ 15 ปีและมากกว่าและเป็นครอบครัวที่ไม่มีส่วนเกี่ยวข้องกับการทำสวนยางพาราหรืออุตสาหกรรมใดๆ ที่เกี่ยวข้องยางพารา การสุ่มนั้นใช้วิธีการเลือกจากผู้ที่มีวันเกิดเป็นรายล่าสุด

ขั้นตอนที่สองของการวิจัยเป็นการสัมภาษณ์เชิงลึก ผู้ที่อาจเป็นผู้ให้สัมภาษณ์ แบ่งเป็น 2 กลุ่มหลัก กลุ่มแรกคือผู้ประกอบอาชีพสวนยางพารา มีอายุ 15 ปีและมากกว่า มีประสบการณ์และยังคงประกอบอาชีพสวนยางพารา และ/หรือบุคคลที่เป็นสมาชิกครอบครัวและยังคงอาศัยอยู่กับครอบครัวที่มีอาชีพหลักในการทำสวนยางพาราที่มีอายุ 15 ปีและมากกว่า และเต็มใจในการถ่ายทอดความรู้และประสบการณ์แก่ผู้วิจัย กลุ่มที่สองคือบุคลากรทางสุขภาพของสถานีนามัยยะประจำตำบล ซึ่งประกอบด้วยหัวหน้าสถานีอนามัยประจำตำบล เจ้าหน้าที่อนามัยที่รับผิดชอบงานด้านอาชีวอนามัยหรือด้านการป้องกันโรคและส่งเสริมสุขภาพ และอาสาสมัครสาธารณสุขประจำหมู่บ้าน (อสม.) ในขั้นตอนที่สองของการวิจัยนี้ นักวิจัยไม่สามารถกำหนดจำนวนที่แน่นอนของผู้ให้สัมภาษณ์ได้เนื่องจากการยุติการสัมภาษณ์นั้นขึ้นกับความอิ่มตัวของข้อมูลที่ได้

การจัดการกับข้อมูลและการเก็บรักษาข้อมูล

นักวิจัยจะเป็นผู้วิเคราะห์ข้อมูลที่ได้ แล้วเขียนเป็นวิทยานิพนธ์ บทความทางวิชาการและอาจเผยแพร่ทางสิ่งตีพิมพ์ รวมทั้งนำเสนอในที่ทางวิชาการที่เกี่ยวข้อง นักวิจัยจะส่งรายงานสรุปของผลการวิจัยไปยังสถานีอนามัยและกรรมการหมู่บ้านเพื่อเผยแพร่ข้อมูลไปยังสมาชิกหมู่บ้านต่อไป ข้อมูลที่กล่าวถึงตัวท่านจะไม่ถูกนำเสนอทั้งในวิทยานิพนธ์และรายงานในรูปแบบต่างๆ นักวิจัยจะเป็นผู้ถอดเทปบันทึกการสัมภาษณ์ บันทึกการสัมภาษณ์และเทปบันทึกการสัมภาษณ์จะถูกเก็บรักษาไว้ในที่ปลอดภัยและเก็บแยกจากข้อมูลที่กล่าวถึงตัวท่าน นักวิจัยจะส่งเทปบันทึกการสัมภาษณ์คืนท่านหากท่านต้องการ หรือหากท่านไม่ต้องการ ได้เทปคืน นักวิจัยจะดำเนินการทำลายพร้อมเอกสารอื่นๆ ที่กล่าวถึงตัวท่าน ภายใน 5 ปี หลังจากการวิจัยเสร็จสมบูรณ์

การมีส่วนร่วมของผู้เข้าร่วมวิจัย

ใช้เวลาประมาณ 15-20 นาทีในการตอบแบบสอบถาม และ ครึ่งถึงหนึ่งชั่วโมงในการสัมภาษณ์ผู้ให้สัมภาษณ์ นอกจากนี้นักวิจัยจะใช้เวลาประมาณ 3 วันต่อสัปดาห์ เป็นเวลาต่อเนื่อง 6 เดือนในการเข้ามาสังเกต (ทั้งแบบ

เป็นทางการและไม่เป็นทางการ) กิจกรรมประจำวันและกิจกรรมการทำงาน (ที่เกี่ยวข้องกับวัตถุประสงค์การวิจัย) ของสมาชิกในหมู่บ้าน เวลาและสถานที่ในการสัมภาษณ์ขึ้นอยู่กับความสะดวกของท่านในระหว่างการสัมภาษณ์ นักวิจัยอาจขออนุญาตท่านในการบันทึกเทปหรือบันทึกช่วยการเขียน

สิทธิของผู้เข้าร่วมโครงการวิจัย

ท่านสามารถปฏิเสธการเชิญเข้าร่วมโครงการวิจัย และหากท่านตัดสินใจเข้าร่วม สิทธิของท่านมีดังนี้

- ปฏิเสธการตอบคำถามใดๆ
- ถอนตัวท่านจากการวิจัย ได้ทุกช่วงเวลาก่อนการสัมภาษณ์เสร็จสมบูรณ์
- ถามคำถามเกี่ยวกับการวิจัยได้ตลอดระยะเวลาของการมีส่วนร่วม
- ได้รับความมั่นใจและเข้าใจว่าชื่อของท่านจะไม่ถูกกล่าวถึงนอกจากท่านอนุญาต
- สามารถเข้าถึงรายงานสรุปของผลการวิจัย
- สามารถขอให้นักวิจัยหยุดการบันทึกเสียงหรือภาพได้ทุกขณะในระหว่างการสัมภาษณ์

บุคคลที่ท่านสามารถติดต่อเกี่ยวกับการวิจัยนี้

การวิจัยนี้ได้รับการตรวจสอบจากคณะกรรมการจริยธรรมของมหาวิทยาลัยแมสซีย์ PN Application 05/14. หากท่านมีข้อสงสัยหรือต้องการข้อมูลเพิ่มเติมเกี่ยวกับการวิจัยนี้ กรุณาติดต่อ ศาสตราจารย์ (Prof.) Sylvia V Rumball ประธานคณะกรรมการจริยธรรมของมหาวิทยาลัยแมสซีย์ (Massey University Campus Human Ethics Committee) พาลเมอร์สตัน นอร์ท (Palmerston North), โทรศัพท์ 06-350 5249, email: humanethicspn@massey.ac.nz นอกจากนี้ท่านสามารถติดต่อนักวิจัยหรือที่ปรึกษาโครงการวิจัยตามที่อยู่ข้างต้น

Appendix B-5: Consent form I: English and Thai Versions



Massey University
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 350 5668
www.massey.ac.nz

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me.

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being audio taped.

I wish/do not wish to have my tapes returned to me.

I agree/do not agree to allow you to observe my daily life activities.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: _____ Date: _____

Full Name - printed _____





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ปัญหาสุขภาพ แนวทางการจัดการกับปัญหาสุขภาพและส่งเสริมสุขภาพ: การรับรู้ของผู้ประกอบอาชีพสวนยางพารา
และครอบครัว และบุคลากรทางสุขภาพในชุมชนสวนยางพาราใน ภาคใต้ของไทย

ใบยินยอมการเข้าร่วมโครงการวิจัย

ใบยินยอมการเข้าร่วมโครงการวิจัยนี้จะถูกเก็บรักษาไว้เป็นเวลา 5 ปี

ข้าพเจ้าได้อ่านและได้รับการอธิบายเกี่ยวกับรายละเอียดของการศึกษาวิจัยนี้

คำถามของข้าพเจ้าที่มีเกี่ยวกับการศึกษาวิจัยนี้ได้รับการตอบอย่างเป็นที่พอใจและข้าพเจ้ารับทราบว่าข้าพเจ้าสามารถ

ถามคำถามอื่นๆเกี่ยวกับการวิจัยนี้ได้ตลอดเวลา

ข้าพเจ้ายินยอม/ ไม่ยินยอมให้บันทึกการสัมภาษณ์

ข้าพเจ้ามี ความประสงค์/ ไม่มีความประสงค์ ให้ผู้วิจัยส่งมอบบันทึกการสัมภาษณ์ให้ข้าพเจ้า

ข้าพเจ้ายินยอม/ ไม่ยินยอมให้ผู้วิจัยส่งผลกระทบต่อชีวิตประจำวันของข้าพเจ้า

ข้าพเจ้ายินยอมเข้าร่วมการวิจัยนี้ภายใต้เงื่อนไขที่ระบุไว้ในรายละเอียดข้อมูลการวิจัย

ลายเซ็น:

วันที่:

ชื่อ สกุล - ตัวบรรจง



Appendix B-6: Consent form II-English and Thai versions



Massey University
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

SCHOOL OF HEALTH SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 350 5668
www.massey.ac.nz

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me.

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to have my pictures placed in the thesis and its publications and official archives.

Signature: _____ Date: _____

Full Name - printed _____



To Kōwhiri
Ki Pūhoroa



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SCHOOL OF HEALTH SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 350 5668
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ปัญหาสุขภาพ แนวทางการจัดการกับปัญหาสุขภาพและส่งเสริมสุขภาพ: การรับรู้ของผู้ประกอบอาชีพสวนยางพารา
และครอบครัว และบุคลากรทางสุขภาพในชุมชนสวนยางพาราใน ภาคใต้ของไทย

ใบยินยอมการเข้าร่วมโครงการวิจัย

ใบยินยอมการเข้าร่วม โครงการวิจัยนี้จะถูกเก็บรักษาไว้เป็นเวลา 5 ปี

ข้าพเจ้าได้อ่านและได้รับการอธิบายเกี่ยวกับรายละเอียดของการศึกษาวิจัยนี้

คำถามของข้าพเจ้าที่มีเกี่ยวกับการศึกษาวิจัยนี้ได้รับการตอบอย่างเป็นที่พอใจและข้าพเจ้ารับทราบว่าข้าพเจ้าสามารถ

ถามคำถามอื่นๆเกี่ยวกับการวิจัยนี้ได้ตลอดเวลา

ข้าพเจ้า ยินยอม / ไม่ยินยอม ให้นำเสนอรูปภาพของข้าพเจ้าและรูปภาพที่เกี่ยวข้องกับข้าพเจ้าในวิทยานิพนธ์และ

บทความวิจัยเพื่อการตีพิมพ์และเผยแพร่ รวมทั้งเพิ่มประวัติที่เป็นทางการต่างๆ

ข้าพเจ้ายินยอมเข้าร่วมการวิจัยนี้ภายใต้เงื่อนไขที่ระบุไว้ในรายละเอียดข้อมูลการวิจัย

ลายเซ็น:

วันที่:

ชื่อ สกุล - ตัวบรรจง



Appendix C: Demographic information of questionnaire respondents

Table C-1: Proportion of Overall Respondents by Groups (Rubber Farmers (RF) and Non-Rubber Farmers (NRF))

Table C-2: Demographic Characteristics of Rubber Farmers (RF) and Non-Rubber Farmers (NRF)

Table C-3: Demographic Characteristics of Buddhist Rubber Farmers (BRF) and Muslim Rubber Farmers (MRF)

Table C-1 Proportion of Overall Respondents by Groups (Rubber Farmers [RF] and Non-Rubber Farmers [NRF])

Group of respondents	Frequency	%
RF	751	78
NRF	213	22
Total	964	100

Table C-2 Demographic Characteristics of Rubber Farmers (RF) and Non-Rubber Farmers (NRF)

Variables	RF			NRF			t	p
	N	M	SD	N	M	SD		
Age	740	41	10.91	208	38	12.16	3.581	.000
Income	676	7099	7655	188	9138	7655	-4.753	.000
	N		%	N		%	χ^2	p
Gender							3.86	.04
- Male	334		45	78		43		
- Female	417		55	135		57		
Marital status							14.87	.000
- Married	647		86	158		75		
- Not married	103		14	53		25		
Level of education							40.60	.000
- Primary school	484		65	88		30		
- Junior high school	152		21	57		28		
- High school and above	107		14	63		42		
Religion							19.83	.000
- Buddhist	380		51%	80		38		
- Muslim	369		49%	129		60		
- Christ	-		-	4		2		

Table C-3 Demographic Characteristics of Buddhist Rubber Farmers (BRF) and Muslim Rubber Farmers (MRF)

Variables	BRF			MRF			t	p
	N	M	SD	N	M	SD		
Age	372	41	10.98	366	41	10.86	-.065	.94
Income	341	7077	7121	355	7121	4652	-.065	.89
	N		%	N		%	χ^2	p
Gender							.89	.34
- Male	162		43	171		46		
- Female	218		57	198		54		
Marital status							5.76	.01
- Married	315		17	330		11		
- Not married	64		83	39		89		
Level of education							3.99	.13
- Primary school	257		69	226		62		
- Junior high school	71		19	80		22		
- High school and above	47		12	60		16		

