Report of Round 2 Survey (2001)

Kanchanaburi Project

Institute for Population and Social Research

Mahidol University

Supported by The Wellcome Trust

March 2003

Report of Round 2 Survey (2001)

Kanchanaburi Project

Institute for Population and Social Research

Mahidol University

Supported by The Wellcome Trust

June 2003

no. 1-2/03

IPSR Publication No. 275

ISBN 974-05-0285-7

Report of Round 2 Survey (2001)

Cataloging-in Publication Data

Report of Round 2 Survey (2001) / editor, Philip Guest, Sureeporn Punpuing. - - 1st ed. - - Nakhonpathom : Kanchanaburi Project, Institute for Population and Social Research, Mahidol University. 2003

p. 163 (IPSR Publication/Institute for Population and Social Research, Mahidol University : no. 275)

ISBN 974-05-0285-7

1. Kanchanaburi - - Social aspect - - Research. 2. Demographic transition - - Thailand - - Kanchanaburi - - Research. I. Guest, Philip, ed. II. Sureeporn Punpuing, ed. III. Mahidol University. Institute for Population and Social Research. Kanchanaburi Project. IV. Series

HB850.5.T5 R425 2003

Published in June, 2003, 1,000 copies

Published by: Institute for Population and Social Research
Mahidol University, Salaya Campus
Nakhonpathom 73170
Thailand
Tel: (662) 441-9666 (662) 441-0201 ext. 115
Fax: (662) 441-9333
E-mail : directpr@mahidol.ac.th.
web site : www.ipsr.mahidol.ac.th

Foreword

The Kanchanaburi Project, supported by the Wellcome Trust of the United Kingdom, is a research project of the Institute for Population and Social Research, Mahidol University. The objectives are to study population change in the field site area in conjunction with changes in the economic, social and physical environment. This includes the effects of government and non-government community development projects. A database on population, economic and social information for Kanchanaburi province has been established. Operations research will also be implemented to increase the quality of life of the residents of the area.

The report of Round 2 survey (2001) is one of the studies under the Kanchanaburi project. The report analyses data on demographic, economic, social and health status of population in the field site. This includes an analysis of changes that occurred over the first two rounds of data collection.

The Institute for Population and Social Research expects that the results will be utilised for future operation research that lead to the formulation of policy and community development plans in Kanchanaburi province. This also may lead to sustainable development that improves the quality of life of the area. It is expected that this report would serve as a catalyst for other kinds of studies concerning community and social development undertaken by government and non-government organizations at the provincial and national levels.

Associate Professor Bencha Yoddumnern-Attig

Director

Acknowledgement

We would like to express our sincere appreciation and thanks to various organisations and individuals who provided support to this project. First and foremost, the population in our study area, including village headmen, community leaders, local government officers and community members for their help and cooperation with the research team during the data collection period.

Our thanks also go to the research and academic service office of the Rajabhat Institute, Kanchanaburi, the co-research team, who worked together with IPSR in supervisor and interviewer selection process, training, monitoring and evaluating the fieldwork.

We are indebted to the project advisor Associate Professor Bencha Yoddumnern-Attig, Professor Pramote Prasartkul, and Associate Professor Chanya Setaput as well as several IPSR faculty members for their valuable criticism, comments and suggestions.

We are thankful to Ms. Jirakit Boonchaiwatthana, the researcher who assisted in preparing this report. Ms. Malee Sanphuvan, the field station manager, supervisors, for both the social and physical survey, interviewers and Ms. Achala Masmalai, a PhD student who help evaluate data quality.

Our gratitude goes to Ms. Auraphan Hanchangsith and the staff in the IPSR director's office, especially, Ms. Juthakarn Atithananun, Ms. Somying Suwannawat, and Mr. Somchai Sapyodkaew for essential logistic support, accounting, typing and designing the cover.

Lastly, we express deep gratitude to the Wellcome Trust of the United Kingdom who supports this project.

Research Team

June, 2003

Abstract

Report of Round 2 Survey (2001)

Institute for Population and Social Research, Mahidol University

The Kanchanaburi Project is a demographic surveillance survey project that is area-based. The population in the study area from the Round 1 (2000) are followed up in order to record changes in their demographic, social, economic and health status characteristics. The population in Round 2 (2001) differs from that of the first round because of births, deaths, in-migration and out-migration that occurred in the study areas during July 1st, 2000 –June 30th, 2001.

The Kanchanaburi project study area comprises 100 villages/census blocks selected from five strata; urban/semi-urban, rice, plantation, uplands and mixed economy. There are 20 villages/census blocks in each stratum. Three sets of data collection instruments: community, household and individual are used in the annual enumeration of the field site communities. The round 2 enumeration was conducted during July 1st, - August 15th, 2001.

The enumeration listed 12,657 households in the study area with a population of 46,029 (22,197 males and 23,832 females). Compared to the first round, the number of households increased by 9 percent, and the population increased by 8 percent. It was also found that there were more males than females in every strata except for the uplands stratum. The age structure of population was similar to that of the first round, with the proportion of children higher than the proportion of the population in the labour force ages and the elderly in the uplands strata. In the urban/semi-urban area, the proportion elderly was the highest.

The occupational pattern displayed in the two rounds were similar. The majority of population were in agriculture, which the highest proportion in the uplands (75 percent), and lowest proportion in the urban/semi-urban areas (15 percent). In all strata the proportion unemployed for both males and females declined in the second round compared to the first round.

About 82 percent of population in the study area were non-migrants. The out-migration, and in-migration rates from each village/census blocks were 10 percent and 8 percent respectively. It is important to note that this rate include migration

within the field site study. The in-migration of population in the second round was about two times higher than that of the first round in very strata except for the urban/semi-urban area.

Fertility and family planning patterns did not change between Round 1 (2000) and Round 2 (2001). The total fertility rate remained at 2.1, and age-specific-fertility rates stayed the same, with the lowest rates for ages 15-19, and the highest rates at ages 20-24. Female sterilisation was the most popular contraceptive method, followed by pills and injection.

Colds were the most common sickness reported (60 percent) during July 1st, 2000 – June 30th, 2001. The next most frequently reported problems were blood pressure, and gastroenteropathy. Consumption of addictive substances such as cigarettes, beer, liquor and tonic drinks was low. Except for cigarettes, less s than 10 percent of the population consumed these substances. Although proportions of the population that consumed addictive substances reduced from Round 1 (2000), the proportion of those who consumed energy beverages increased.

Mortality levels in the Round 2 (2001) was lower than that of the Round 1 (2000) in every strata, and the mortality patterns were similar to that found in the general Thai population. Males had higher mortality than females, and the mortality pattern had a J-shape. Main causes of deaths were sickness, accidents, murder and suicide. Only five percent of deaths were not registered, which was lower than that of the first round.

The majority of the population did not join community development groups. The level was particularly low in the urban/semi-urban areas. For the opinion on gender roles and development, the majority thought that males played more important roles in development than did females in every strata. The five most urgent problems in the community were roads, drugs, piped water, electricity and telephone systems.

Contents

List of tables

List of figures

1. Introduction

With support from the Wellcome Trust of the United Kingdom, the Kanchanaburi Project commenced in January 2000. The primary objective of the project is to monitor population change within a field site in Kanchanaburi province. Changes in population are linked to changes in social, economic and environmental conditions in the province. The effects of government as well as non-government projects on the villagers living in the field site are also analysed. Databases at both the macro and micro levels have been developed to meet the objectives of the project.

Kanchanaburi is a large province located in the western part of Thailand. The province shares a long border with Myanmar and contains a variety of ethnic groups and migrants, both documented and undocumented, from Myanmar. The province is also close to Bangkok and is the location of many industries. In addition, the province is an important producer of plantation crops and is one of the major tourist destinations in Thailand. The selection of the 100 field site communities was structured to reflect this diversity in social, economic and ecological conditions found in the province.

The Kanchanaburi project is based on the principle of demographic surveillance. An annual census follows the changes of population in the field site. The field site is comprised of 100 villages/census blocks, and is divided into five strata, urban/semi-urban, rice, plantation, uplands, and mix economy stratum. Each stratum consists of 20 villages or census blocks.

A central component of the project is the annual enumeration of all households in the field site communities. The first enumeration, undertaken in 2000, is referred to as the baseline survey and the basic results of this enumeration have been published. The annual enumeration of households is conducted during the middle of each year. The enumeration consists of two main components. In the first component, data on fertility, mortality, and migration is collected. This data is collected annually. The second component includes questions related to social, economic, health and environmental issues. The issues included in the enumeration in this component may change each year in order to maintain the survey instrument at an acceptable size and to respond to the changing social and policy context. This report describes the population of the field site as enumerated in the 2001 round of data collection.

The report describes the study areas, data collection process, methodology, and basic results. The research methodology is discussed in chapter two, which includes definitions, selection of study areas, data collection instruments, fieldwork and data quality. Chapter three deals with the Geographical Information System (GIS), especially the location of households and villages in this study. Chapters 4-10 present the analysis of data at the household and individual levels. Chapter four describes general characteristics of the population. Chapter five presents economic activities, chapter six analyzes migration, chapter seven examines fertility and family planning, the health status of the population is discussed in chapter eight, chapter nine explores mortality, and chapter ten describes community participation in development.

2. Design and Methodology

2.1 Concepts and definitions

This project has as its main aim the establishment of a field research and training centre dedicated to the monitoring of population change and the evaluation of the effects of intervention-based research. The study units are 100 villages/census blocks distributed throughout Kanchanaburi province.

The Institute for Population and Social Research (IPSR) annually collects data using a population census for every household and individual aged 15 years and over in each village/block in the study area. The data collected includes population, economic, social and health related information. For data collection and comparative purposes each household from which data are collected is given a unique code.

For the Round 2 (2001) census, interviewers matched households and each individual to household in the Round 1 (2000) by using the household listing from Round 1 (2000). Each individual in this household listing has their own code called the "Individual Code". Interviewers first recorded all members of the household from the Round 1 (2000) listing and then added to the Round 2 (2001) listing the new members who had moved into the household after July 1st 2000.

2.2 Definition of household

The Round 2 (2001) employs the same definition of household and individual as in Round 1 (2000). Distinctions are made between "new" and "old" households for the Round 2 (2001). The definitions of households are as follows:

A *one-person household* refers to a person who provides for his/her own food and other essentials of living.

Multi-person households are those in which a group of two or more persons who make mutual arrangements for the common provisioning of food and other essentials of living. These persons may either be related or unrelated by blood, marriage or adoption.

A *group household* refers to a household comprised of a group of unrelated persons who live together and share lodging and regulations. This group of persons may share or may not share food or living arrangements in the form of an institutional group household. In this census, group households include temples, prisons or welfare homes.

An old household refers to a household that:

1. Was recorded in Round 1 (2000) and in Round 2 (2001) remains in the same house and household;

2. A household where the household head who was recorded in Round 1 (2000) died, or moved to stay permanently outside the village. Another member of the original household had become the new household head;

3. Was recorded in Round 1 (2000) but subsequently separated into two or more households. In this census, the household that has the same household head in the first round is the “Old household”.

A New household is a household that was established after Round 1 (2000) or household that was not interviewed in Round 1 (2000) because of the following reasons:

1. A household which is newly settled;

2. A household that was separated from the old household for any reason e.g. marriage;

3. A household that was not recorded in the first round census because they may not have been home during the census because they were visiting relatives in other villages or had migrated to work outside the village and the household’s head of this household is not the household’s head of a household that was interviewed in Round 1 (2000); and

4. The old house (the same number) from which all persons had moved out and all new members have moved in (e.g. new rental)

A household where all members had moved out is household that was interviewed in Round 1 (2000) but in Round 2 (2001) all members had moved to live outside the village. This type of household was recorded in the form as “ Moved out all household”.

2.3 Household membership

Household membership refers to anyone who resides in a particular household (sharing food, living arrangements, etc. in the same household) for at least one month continuously beginning from the day that data collection began on July 1st , 2000 until June 30th, 2001.

2.4 Study area and village selection

The villages for the Kanchanaburi project was selected using a stratified systematic design. The primary selection units for rural areas were villages and for urban areas were census blocks.

The data for selection were collected from the Kanchanaburi provincial offices of various ministries concerning the amount of agricultural land in each village, the amount of wet rice crops grown, the amount of plantation crops grown (cassava and sugar cane), and the number of adult workers employed in industry and the population.

The study area of 100 villages/census blocks was divided into five strata, which were categorised according to the main occupation of the population and land use patterns. These strata are: 1) urban/semi-urban (industrialised), 2) rice producing, 3) plantations, 4) uplands areas, and 5) mixed economy. The characteristics of each of these strata include the following.

The Urban/Semi-urban (industrialized) strata covers the population living in municipal areas. The latter have been categorized into census blocks by the

National Statistical Office (NSO). This strata also covers villages that have a significant proportion of their labour force employed in industries.

The Rice strata villages are those located in lowland areas where the main occupation is rice cultivation.

The Plantation strata comprises villages that are also located in lowland areas, and where the major occupation of the local people is cultivating cassava or sugar cane.

The Uplands strata contains villages located in the three uplands districts, which are Saiyoke, Thongpapham and Sakhaburi districts.

The Mixed Economy strata contains villages that could not be classified into the other categories as mentioned above.

2.5 Method of data collection

The method used for data collection was structured interviews and entailed the use of three sets of questionnaires: village, household and individual.

The Village questionnaire consisted of six parts: general village data, agriculture, occupation, infrastructure and transportation, environmental problems, and health.

The Household questionnaire consisted of four sections: basic data on the household's occupants, household characteristics, land use and chemical use, and mortality.

The Individual questionnaire was used for respondents aged 15 and over. It consisted of five sections: personal data, migration, fertility, health, and community development.

2.6 Questionnaire pre-testing

All three questionnaires were pre-tested in Kanchanaburi villages that were located outside of the study area. Three rounds of pre-testing were undertaken as follows: Round 1: 21st – 23rd March, 2001 in one village, Round 2: 4th – 5th May, 2001 in one village, and Round 3: 25th – 27th June, 2001 in three villages. Before and after each pre-test round, a meeting was held among the research working group in order to obtain suggestions and recommendations for questionnaire revision. At the same time, a manual for collecting data for all of the questionnaires was prepared. Thereafter, data collection started on July 1st, 2001 and ended on August 15th, 2001 (46 days in total).

2.7 Data collection team

For Round 2 (2001), The Institute for Population and Social Research collaborated with a local education Institute "The Research Center - Kanchanaburi Rajabhat Institute" in all activities, including the selection of supervisors and interviewers, questionnaire pretesting, training of supervisors and interviewers, monitoring and checking of questionnaire. Priority in the selection of interviewers was given to local residents of Kanchanaburi.

Ten teams were responsible for collecting the data. On average, each team consisted of one field supervisor and six interviewers, with the number depending

upon the number of villages and area to be covered. Each team arrived in the first village on June 30th, 2001 and began data collection on July 1st, 2001.

The process of training field supervisors was divided into two steps. The first step entailed recruiting and training field supervisors by mapping sample villages and listing households over a two-week period from 21st –31st May, 2001. In the second step from 18th – 30th June, 2001, the interviewers were trained, and concepts and definitions of each question in the questionnaires were explained. The interviewers learned about interviewing techniques and praticed interviewing.

2.8 Data collection

Updated village mapping

Village mapping in Round 2 (2001) was updated from village mapping in the Round 1 (2000) and data from the GIS survey as follows;

1. The village headman and other community leaders were asked to determine if there had been any changes in village boundaries over the previous year. The village boundaries were then identified and a map was drawn covering details of roads in and out of the village, railways and waterways (rivers, canals, reservoirs) and these details were added in the map that was used in the first round.

2. Also noted were the positions of key village centers (e.g., temple, school, health centre, shops, headman's house). If there were any changes in households (new or moved out) these were added to the map that was used in the first round.

3. On the map, each household or group of households was allocated a number and the name of the household head was noted.

4. On the map notations were also made concerning what households might be difficult to interview.

Updated listing

An updated listing from the listing used in Round 1 (2000) and the data from the GIS survey was obtained first with the assistance of the village headman. Thereafter, this list was updated through interviews with the household heads, with special attention being given to confirming for each household how many people aged 15 and over resided in a household. Any household that was not recorded in Round 1 (2000) because they might not have been at home during the census was checked again to see is there was any person now resident. For new houses, the house registration number was obtained and recorded. The house was then visited.

Data collection process

Village questionnaire. Field supervisors obtained village data through group interviews with village headmen, village committee members, members of Tambol (subdistrict) Administrative Organisations, monks, teachers or women's group members. At least 3 members from the community were interviewed. They began by introducing the background of the Kanchanaburi project and asking for their consent.

Household questionnaire and Individual questionnaire. Interviewers obtained household data by interviewing household heads, and individual data by

interviewing individuals aged 15 and over. They began by providing respondents with background information about the Kanchanaburi project, why their information was important, and asked them for their consent. Field supervisors assisted interviewers in explaining the objectives of the Kanchanaburi project. If interviewers could not obtained at the first or second visit, a household was visited a third time. After three visits, if consent could not be obtained for the interviews, the household was recorded as a non-response.

2.9 Response rate and time of interview

A community census approach was employed in collecting data from both the households and individuals (persons aged 15 years and over). The first step was for the supervisor to obtain the number of eligible households from the headman. This was used as the target number of households to be interviewed. Once a household was interviewed, the number of eligible respondents was identified. These respondents were then interviewed.

Interviewers recorded the reason for non-response and this information was used to analyse the response rate. There were 15,897 eligible households in the sampled communities, and of these 12,657 were interviewed. This results in a response rate of 80 percent. From the households interviewed, there were 32,224 eligible individuals, of whom 29,023 cases were interviewed. Therefore, the response rate for individuals is 90 percent (see Table A2.1 in the Appendix).

The time spent for household interviews ranged from two minutes to one hour and ten minutes with the amount of time depending upon the difficulty of the interview. The average time spent on a household interview was 11 minutes. The amount of time required varied by the number of residents in the household. The

time required for interviewing was also longer when the respondent was not the head of the household. Individual interviews ranged from two to fifty minutes. The average time spent on individual interviews was 9 minutes (see Table A2.1 in the Appendix).

Reasons most frequently cited for non-response among individuals were busy working (71 percent) and sick/old/handicapped (18 percent) and refusal to be interviewed (10 percent). For non-response among households, 30 percent was due to a closed or empty house or nobody at home during the time of interview. Fifteen percent resulted from the members of household only residing temporarily, 39 percent resulted from all household members having moved outside the village, seven percent resulted from busy working, seven percent was due to other reasons, and only two percent of non-response among households was because of refusal to be interviewed (see Table A2.2 in the Appendix).

2.10 Data quality

In order to evaluate the quality of data, the opinions of interviewers were recorded at the end of each household and individual interview. These opinions included the interview setting, presence of a third person or persons, interview involvement of a third person, co-operation and reaction of interviewee, and interviewer's view of the overall quality of data (see Table A2.3 in the Appendix).

Overall, opinions were similar for both questionnaires. Three out of four interviewers thought that the quality of data was good in general, with one of five reporting very good quality. Only five percent of interviewers thought the data were of average quality.

About one-half thought that the setting for the interview was private and quiet (51 percent for household interviews and 45 percent of individual interviews). A noisy, but private setting, was reported for a further 45 percent of household interviews and 50 percent of individual interviews. Only for four percent of interviews with households and five percent of interviews with individuals did the interviewers report that the setting was not private and that this affected the interview. However, less than one percent reported that they had to stop the interview due to the setting.

Having a third party present during the interview was common. During the household interview, 48 percent of interviews were completed in the absence of a third party. Forty four percent of interviews had a third party present all through the interview. And one out of ten had a third party present at some stage of the interview. However, that person(s) were mainly other household members (74 percent). Others present included neighbours and friends (31 percent). More than half (51 percent) of third parties present at interviews caused no interruption. Only one-quarter of third parties present at interviews were reported to have interrupted at some time during the interviews.

During the individual interviews, 42 percent of interviews were completed in the absence of a third party. Almost half (49 percent) of interviews had a third party present through out the interview, and nine percent had a third party present at some stage of the interview. About 83 percent were household members, 27 percent were neighbours, and 13 percent were other persons (there could be more than one third party present at the time of interview). Fifty-four percent of interviews were not interrupted by third parties, and only 24 percent of interviews were interrupted at some time during the interviews.

Almost all of respondents provided good to excellent co-operation. In less than one percent of interviews was it reported that co-operation was poor, while in three percent of interviews the interviewer reported moderate co-operation.

Ninety percent of respondents were reported to have enjoyed the interview. One of ten was reported to be neutral about the interview. Only one percent was reported to be unhappy about the interview on some questions.

The most sensitive topics in the household questionnaire were related to household characteristics and debts (25 respondents). Only four respondents refused to answer those questions.

In conclusion, it could be said that the quality of data is good to very good. This is due, in part, to three pre-tests of the questionnaire. The lengthy recruitment process, as well as detailed training sessions for supervisors and interviewers, were other reasons contributing to good data quality.

3. Geographic Information System

3.1 Concepts and definitions

A Geographic Information System (GIS) is a computer-based system for data collection, entry, data overlaying, data management and spatial data analysis and evaluation that relies on information referenced to the global positioning system.

"Spatial Data" refers to descriptive data features related to natural phenomena and human activities on the earth surface that can be measured across space. "Map Scale" is the relationship between distance on a map and actual distance on the earth and is expressed as a ratio of the relationship between the distance on the map and real topography of distance on the earth.

3.2 Kanchanaburi project spatial data characteristics

Spatial data features of the Kanchanaburi project were designed by the GIS research team that collected the spatial data. There are two types of spatial information collected in this project, namely: (1) Spatial data based on the grid of all households in the villages and urban/semi urban communities in the study areas. The project also collected the grid position of the health center and health services and other places such as the Tambon Organization Administration (TOA) office, temple, and elementary schools in the study area and areas adjacent to the study area., amd; (2) Aerial photographs on a scale 1: 50000 that cover all the areas of the Kanchanaburi project.

3.3 Spatial data of the Geographic Information System (GIS)

For the GIS created for the project the structure of the spatial data is as follows:. (1) Vector data. This is data entered in a grid form and includes point and line data as well as polygon data that refer to the grid position system, and (2) Raster data entered as grid channels and pixels as well as picture elements. A grid channel can be referenced by column and row categories along with a value index or value label on a map.

For the vector data, the Kanchanaburi project requested spatial data files from a variety of sources. The spatial information files consist of the physical and administrative data from the Department of Environmental Quality Promotion, Ministry of Science - Technology and Environment and land classification data from the Department of Land Development, Ministry of Agriculture and Cooperatives. The spatial data files were saved in the ArcInfo program with a scale 1:50000. The urban/semi urban data of Kanchanaburi was also saved in this format but at a scale of 1: 4000. This data come from the Department of Town and Country Planning, Ministry of Interior. In addition the Kanchanaburi project has grid data of all households in the study area and for other selected features. Raster data is represented through aerial photographs of all villages and urban/semi urban communities in the field site. The data can be combined for spatial data analysis.

3.4 Data collection through taking Grid Positions

For spatial data collection the project started by taking grid positions using the measurement method of Universal Transverse Mercator (UTM) system. Data

collection staff were divided into five teams, each with two interviewers. Each team noted the grid values of all house locations in their assigned areas using the Global Positioning Tool (GPS). All grid position values correspond to house numbers and household identification numbers used in the main project database. Data collection methods using the grid position consist of the steps listed below.

Preparation of the tools to take the Grid Position

The GPS tool used for grid position work in the project was the Garmin GPS 12 Map. This machine is of high quality and easily obtains signals from orbiting satellites, which provide the grid position value. In addition to showing grid position of the houses and all other selected locations, the instrument also shows place and time location. This machine saves all grid data to memory. The memory capacity is about 500 points. Therefore, after finishing each village the interviewer would transfer all data from the GPS tool to a computer.

Interviewer training for geographic data collection

Ten staff were trained in geographic data collection between 23-25 April 2001. The training objective was to understand grid position taking methods, geographic information system concepts and operating procedures of opening the machine and receiving the signal of the satellite, reading all functions on the computer main menu, taking and reading grid position and data saving and transfer.

The 2000 household listing

The household listing of Round 1 (2000) of data collection is referred to as the listing base of the village or community used for grid position taking. The

household listing consists of household ID, household number and household head name. There are additional information details of the household listing such as two columns of grid values that consist of a X position (East position) and a Y position (North position). The staff member would note these geographic data on the columns.

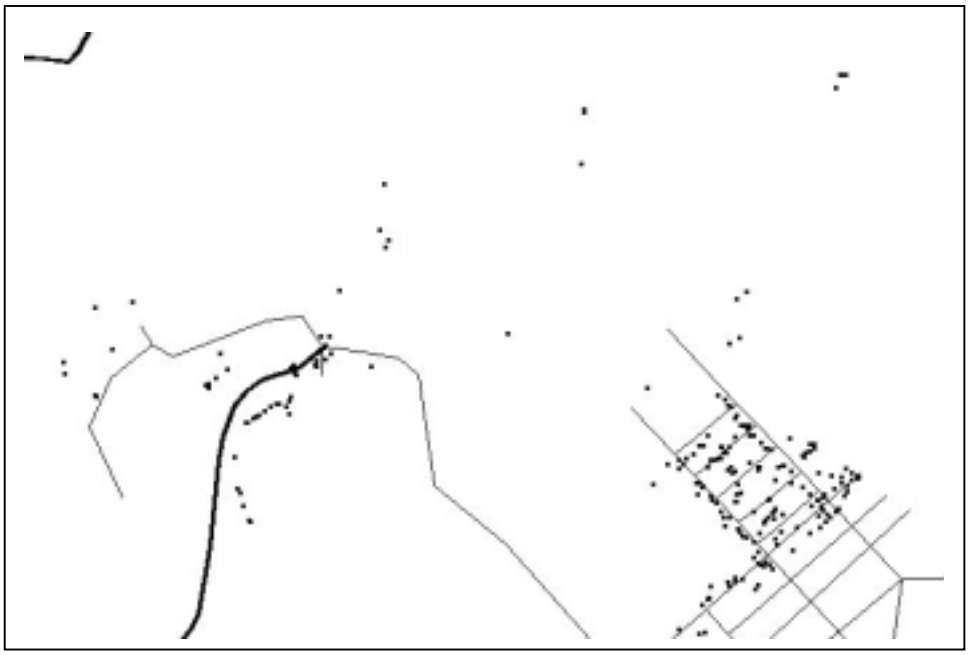
Data saving

Data saving in the Garmin GPS 12 Map is a data management system to allow data to be used for subsequent data processing. Modification and transfer of digital data to spatial data is undertaken to manage the data system for efficiency, convenience, timeliness and accuracy.

3.5 Data entry and evaluation

Data collection commenced on 26 April 2001 and was completed on June 17th, 2001 and therefore involved one month and twenty-one days of data collection. The spatial data entered is the digital data entry of the grid position. The grid position values consist of the North position and the East position values. Both North and East position values have seven digits, for example the digital values of Ban Kao Buk in Srisavat district are 1444827 North and 9915436 East. The data entry transfers all data from the Garmin GPS 12 Map to save in the MapSource program used in the computer.

The AV Garmin program computes grid data into latitude and longitude data. All houses and selected locations are displayed by the ArcView program. (see Figure 3.1)



- House/Place Location

Village Road

Canal

Figure 3.1 Grid value computed as vector data as point feature

3.6 Data check and rectification methods

The household listing from Round 1 (2000) was used to link each household member's name in the listing and the household identified through grid position.

The Round 2 (2001) survey documented changes in households that had occurred between rounds 1 and 2. After a check of the spatial data listing with Round 2 (2001) household data listing several errors were located. Errors were corrected through linking the 2001 household listing and the spatial data.

3.7 Geographical and household data links

There are two objectives of linking spatial and household data. Firstly, this provides information on the household number on the survey and the administrative household number. The household and spatial data can then be linked. This linkage allows analysis of demographic and social/economic data obtained from the annual census with the spatial data that has been collected. Secondly, to produce maps at the village level that shows special information details such as location of each house. These maps can subsequently be used in planning and executing the annual census of households.

3.8 Aerial photographs

Aerial photographs were entered into the GIS system in order to obtain information that allows the analysis of physical features and demographic social/economic data. In addition the physical features of village maps can be overlaid on the aerial photographs. The aerial photograph is provided a grid position. A total of 122 images, each at a scale of 1:50000, were used. These images covered all of the study area. Three steps were used for image data entry and data management.

First, an image scanner was employed in data entry. All scanned aerial photographs were entered into the computer. Second, images entered into the computer were rectified on a grid system with the same scale of 1:50000 as used in the base map. The method of image rectification followed the grid system of the Royal Thai Survey Department's topography map. Finally, photo rectification was undertaken. Photographs came from the Royal Thai Survey Department. The photographs are taken with an automatic camera and each photo overlaps with surrounding photos by about 60 percent. The Kanchanaburi project has 100 villages and urban/semi-urban communities. The 122 aerial photographs that cover the study area overlap when put on position values. (see Figure 3.2)

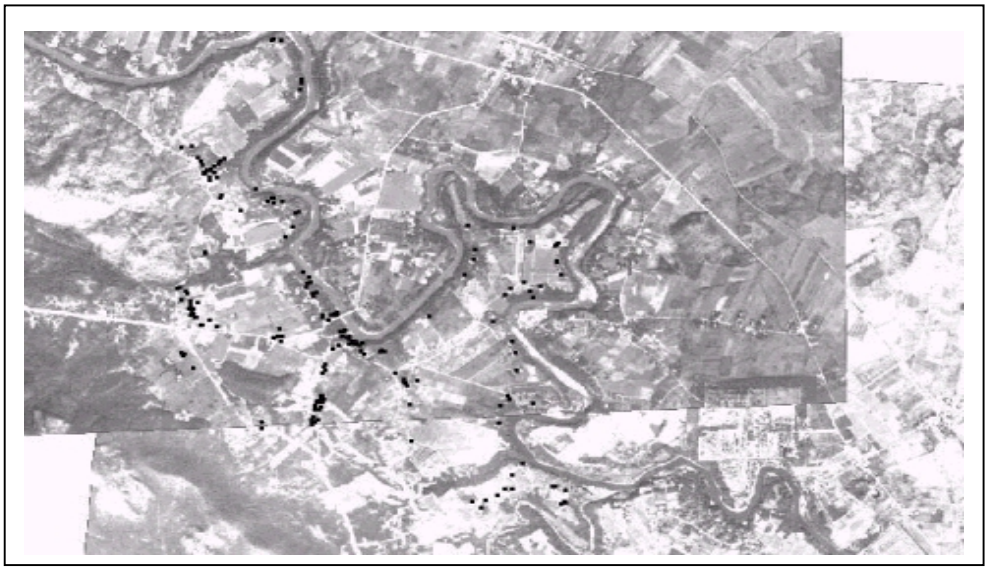


Figure 3.2 Aerial photograph overlap to show house and other point locations

Therefore it was necessary to rectify many aerial photographs to cover all study villages and urban/semi-urban communities. The images needed to be positioned in order that data, especially physical data such as rivers, roads, forests, mountains, and crop areas are connected correctly across images. Computer processing using the Erdas Imagine program rectified these problems. The program allowed the research team to connect the roads, rivers and other topography features on the images. (see Figure 3.3)

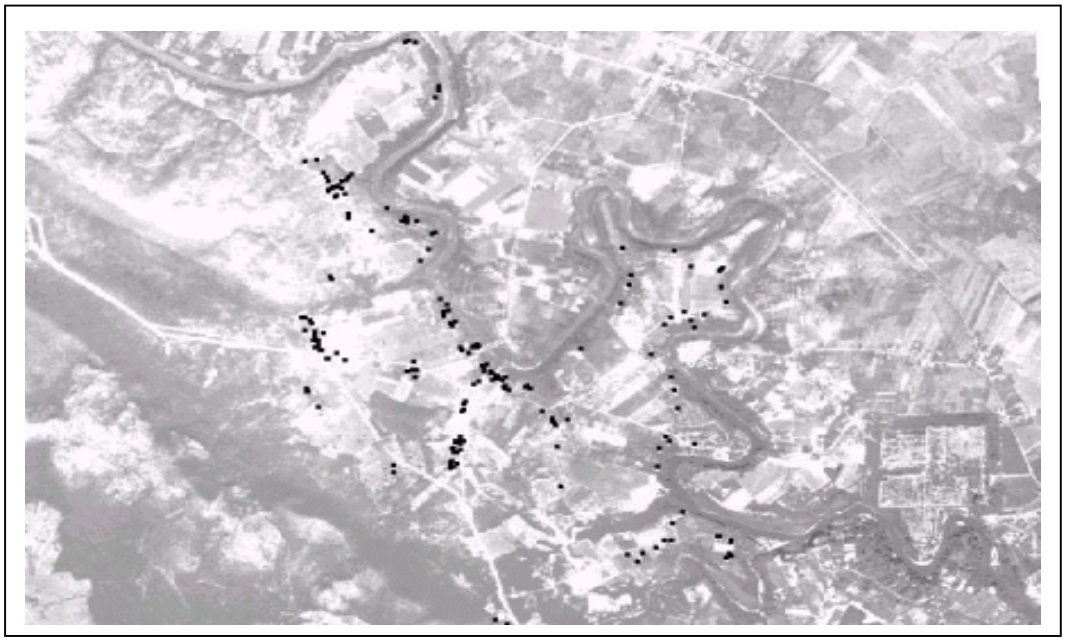


Figure 3.3 Aerial photograph rectified to show house and other point locations

3.9 Summary

The Kanchanaburi project implemented a Geographic Information System (GIS) to integrate secondary data and spatial survey data. Secondary data includes maps from a variety of sources. One map on a scale 1:50000 was obtained from the Department of Environmental Quality Promotion and displays physical and administration data. Another map at the same 1:50000 scale was obtained from the Land Development Department. It displays land use data. A third map, at a scale of 1:4000 was obtained from the Department of Town and Country Planning. It displays information about the urban/semi-urban areas of Kanchanaburi province. All the data from the maps are incorporated into the GIS system.

The spatial survey data is field spatial data. Using GPS, the research team located and logged the positions of all houses, health centers, tambon organization administration offices and other selected locations (temples, schools, hospitals, parks and dams). In addition, the Kanchanaburi GIS team entered aerial photographs that cover all villages and urban/semi-urban places of the area study. Information on the aerial photographs can be used for village boundary demarcation and to analyse patterns of transport, forest, water use, agriculture, and settlement/housing.

4. General Characteristics of the Population

The general characteristics of the population that will be discussed in this chapter consist of: 1) Population size; 2) Sex ratio; 3) Age-sex structures; 4) Median age; and 5) Dependency ratio. :

4.1 Population

The population living in the field site communities consisted of 46,029 household members, of whom 22,197 were male and 23,832 were female. Twenty-seven percent of the population resided in the upland strata while 21 percent each lived in the urban/semi-urban and mixed economy strata. Approximately 16 and 15 percent of the population lived in the rice and plantation strata respectively (see Table 4.1 and Figure 4.1).

Table 4.1 Number of population by sex and strata, Round 2 (2001)

Strata	Male	Female	Total	Household
Urban / Semi-urban	4,594	5,203	9,797	2,776
Rice	3,437	3,911	7,348	1,969
Plantation	3,429	3,650	7,079	1,968
Uplands	6,225	6,093	12,318	3,328
Mixed Economy	4,512	4,975	9,487	2,616
Total	22,197	23,832	46,029	12,657

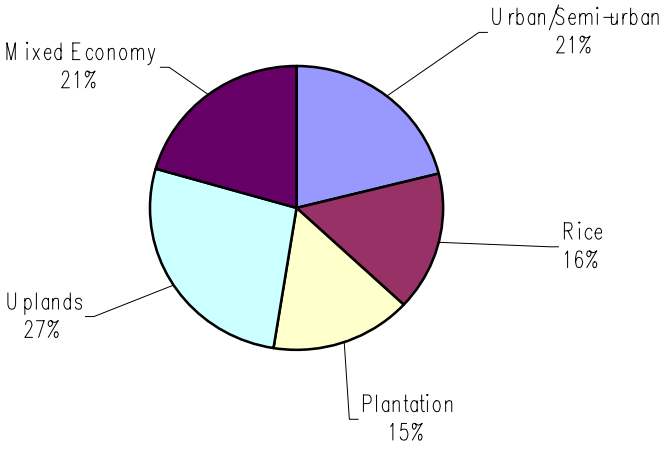


Figure 4.1 Population distribution by strata, Round 2 (2001)

The number of households enumerated in Round 2 (2001) was 12,657, compared to 11,612 households in Round 1 (2000). The number of enumerated households increased by nine percent between the two rounds. The number of enumerated household members in Round 2 (2001) were 46,029 compared to 42,614 in 2000, or an eight percent increase. One possible reason for the increase in number of enumerated households might come from the difference in the completeness of enumeration between these two rounds. Migration to the study areas was possibly another reason for this difference.

From Round 1 (2000) to Round 2 (2001), it was found that both the number of households and population increased in every strata. The increase in population was generally greater for males than females. The area with the highest percentage change in population was the uplands strata (13.3 percent), while the rice strata had the lowest percentage change in population (2.1 percent). Table 4.2 shows the population distribution and percentage change for each strata during 2000-2001.

Table 4.2 Number of households, population and percent change in population by sex and strata, Round 1 (2000) – Round 2 (2001)

	Urban / Semi-urban	Rice	Plantation	Uplands	Mixed Economy	Total
Household						
Round 1 (2000)	*2,580*	*1,888*	*1,845*	*2,939*	*2,360*	*11,612*
Round 2 (2001)	**2,776**	**1,969**	**1,968**	**3,328**	**2,616**	**12,657**
Percent change	8.0	4.3	6.7	13.2	10.9	9.0
Population						
Round 1 (2000)	*9,198*	*7,196*	*6,706*	*10,868*	*8,646*	*42,614*
Round 2 (2001)	**9,797**	**7,348**	**7,079**	**12,318**	**9,487**	**46,029**
Percent change	6.5	2.1	5.6	13.3	9.7	8.0
Male						
Round 1 (2000)	*4,249*	*3,362*	*3,251*	*5,445*	*4,071*	*20,378*
Round 2 (2001)	**4,594**	**3,437**	**3,429**	**6,225**	**4,512**	**22,197**
Percent change	8.1	2.2	5.5	14.3	10.8	8.9
Female						
Round 1 (2000)	*4,949*	*3,834*	*3,455*	*5,423*	*4,575*	*22,236*
Round 2 (2001)	**5,203**	**3,911**	**3,650**	**6,093**	**4,975**	**23,832**
Percent change	5.1	2.0	5.6	12.4	8.7	7.2

4.2 Sex ratio

The sex ratio is defined as a number of males per 100 females. Overall, there were more females than males in every stratum, except for the uplands (see Table 4.3) In the urban/semi-urban strata, there were more males than females in the age groups below 15 years, 85-89 years, and age group 95 years and over. In the rice strata, there were more females than males in every age group, except for the age groups 10-14 and 70-74 years. There were fewer males than females at older ages (older than 75 years). In the plantation strata, there were more males than females in the age groups 5-9, 15-19, 35-39, and 60-69 years. At older ages there were

more than females than males, indicating that females tend to live longer than males. In the mixed economy strata, there were more females than males, except in the age groups 5- 9 years, 55-59, 85-94, and 100 years and over.

The sex ratio pattern in Round 2 (2001) was similar to Round 1 (2000), where there were more females than males, except in the uplands area. A similar pattern was also found for each age group (see Table 4.3).

Table 4.3 Sex ratio by age group and strata, Round 1 (2000) – Round 2 (2001)

Age group	Urban /Semi-urban		Rice		Plantation		Uplands		Mixed Economy	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
0-4	*115.4*	**125.5**	*93.7*	**98.0**	*114.7*	**102.5**	*104.1*	**103.2**	*98.6*	**105.3**
5-9	*105.9*	**110.1**	*94.6*	**93.9**	*110.6*	**113.4**	*116.6*	**108.7**	*95.8*	**103.8**
10-14	*110.1*	**103.5**	*97.1*	**101.1**	*102.7*	**96.3**	*101.7*	**111.3**	*101.6*	**96.2**
15-19	*90.8*	**100.0**	*112.7*	**94.9**	*94.4*	**105.0**	*104.5*	**101.4**	*81.0*	**84.6**
20-24	*72.9*	**82.7**	*94.4*	**87.1**	*79.0*	**82.9**	*84.9*	**83.6**	*82.4*	**84.4**
25-29	*86.6*	**79.6**	*82.5*	**85.7**	*92.7*	**86.9**	*89.2*	**85.9**	*86.4*	**85.2**
30-34	*77.1*	**81.8**	*84.1*	**92.5**	*85.4*	**87.8**	*89.6*	**102.5**	*77.3*	**88.5**
35-39	*89.3*	**86.0**	*79.0*	**77.3**	*100.0*	**102.9**	*94.9*	**92.1**	*98.2*	**96.9**
40-44	*72.1*	**74.8**	*78.6*	**83.2**	*86.6*	**82.2**	*101.5*	**110.0**	*83.0*	**76.0**
45-49	*78.8*	**83.5**	*81.0*	**79.5**	*101.6*	**95.8**	*107.9*	**113.3**	*72.5*	**82.4**
50-54	*77.1*	**87.0**	*80.3*	**90.4**	*80.1*	**87.0**	*99.1*	**97.5**	*97.1*	**87.9**
55-59	*81.5*	**67.2**	*66.3*	**62.6**	*75.4*	**75.4**	*101.8*	**110.7**	*110.8*	**109.1**
60-64	*71.4*	**81.5**	*88.7*	**91.2**	*103.5*	**103.5**	*108.8*	**118.2**	*74.5*	**84.8**
65-69	*66.9*	**66.7**	*84.6*	**86.9**	*105.2*	**109.3**	*92.4*	**96.7**	*92.9*	**92.6**
70-74	*96.5*	**97.8**	*107.5*	**111.2**	*62.9*	**62.7**	*117.8*	**120.2**	*80.9*	**76.8**
75-79	*37.8*	**44.8**	*78.3*	**75.0**	*57.5*	**78.4**	*103.0*	**102.2**	*75.4*	**69.2**
80-84	*86.1*	**83.8**	*59.1*	**44.7**	*52.4*	**55.0**	*66.7*	**63.0**	*93.5*	**79.4**
85-89	*107.1*	**73.7**	*60.0*	**70.0**	*33.3*	**42.9**	*60.0*	**42.9**	*118.2*	**120.0**
90-94	*14.3*	**33.3**	*66.7*	**30.0**	*33.3*	**100.0**	*0.0*	**150.0**	*60.0*	**250.0**
95-99	*200.0*	**200.0**	*100.0*	**50.0**	*0.0*	**25.0**	-	**-**	*50.0*	**50.0**
100+	*0.0*	**100.0**	-	**50.0**	*50.0*	**20.0**	*200.0*	**50.0**	-	**120.0**
Total	*85.8*	**88.3**	*87.7*	**87.9**	*94.0*	**93.9**	*100.3*	**102.2**	*89.0*	**90.7**

4.3 Age structure

Figures 4.2 - 4.6 show the population pyramid of the five strata in Round 2 (2001). The data show that the urban/semi-urban strata had a higher proportion of "older" or "aging" population than the other strata. The uplands area had a younger population than other strata, while the rice, plantation and mixed economy strata had more "working age" population than other areas.

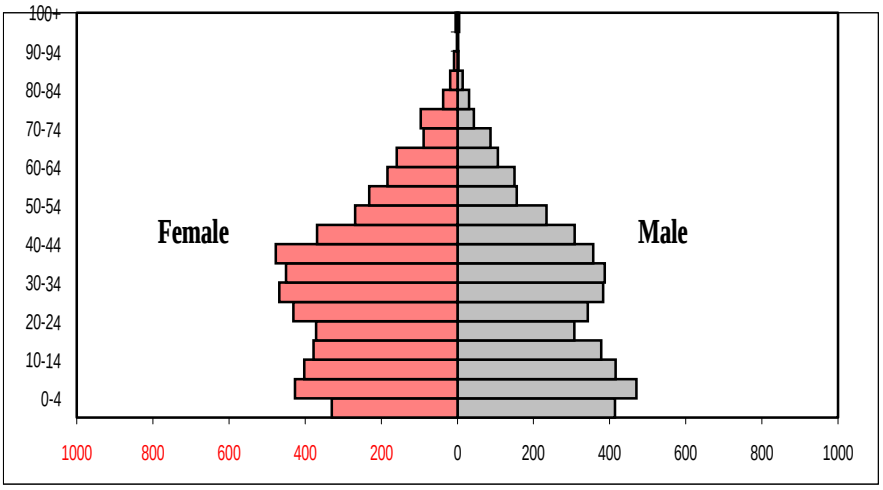


Figure 4.2 Population pyramid : urban/semi-urban strata, Round 2 (2001)

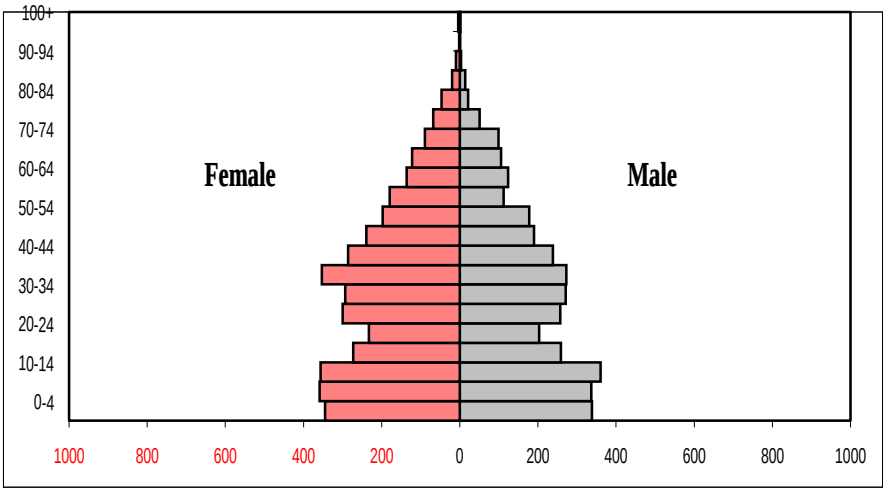


Figure 4.3 Population pyramid : rice strata, Round 2 (2001)

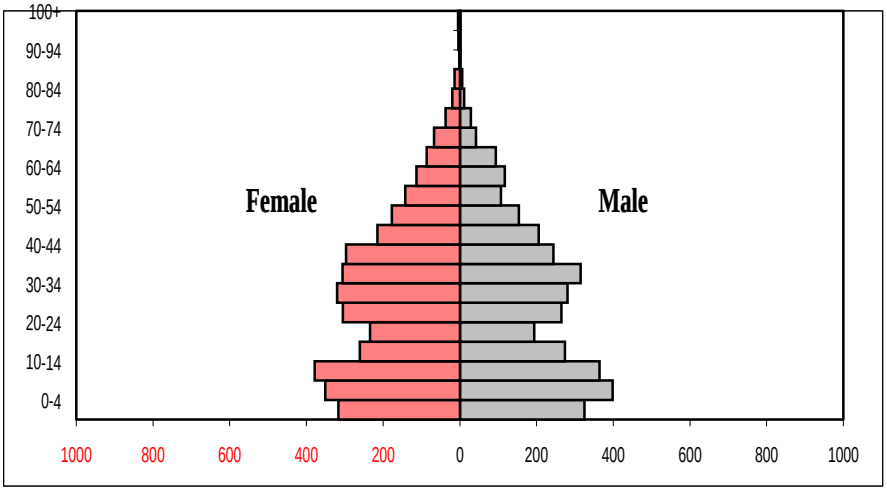


Figure 4.4 Population pyramid : plantation strata, Round 2 (2001)

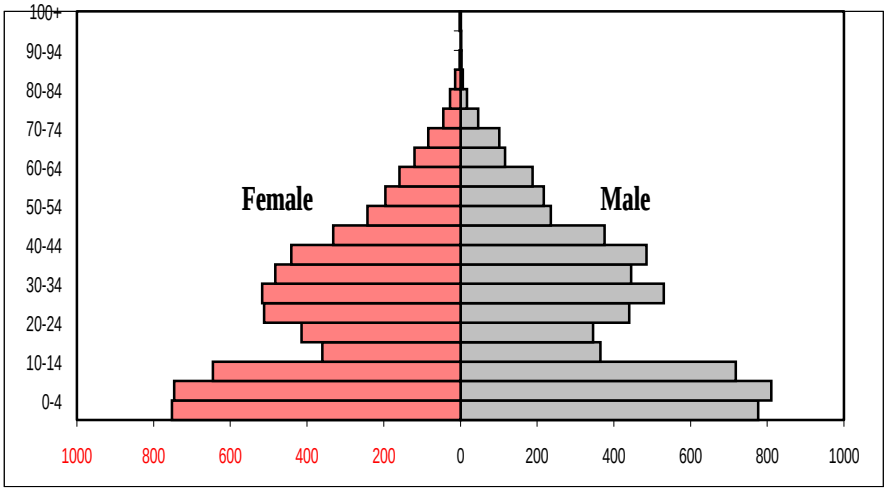


Figure 4.5 Population pyramid : uplands strata, Round 2 (2001)

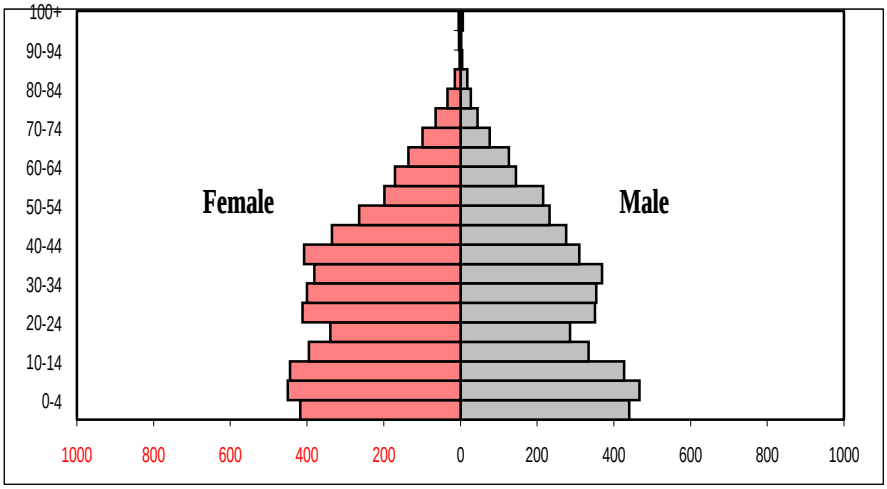


Figure 4.6 Population pyramid : mixed economy strata, Round 2 (2001)

The age structures of the strata are compared in terms of three broad age groups, which identify the population below labour force ages (below age 15), persons in the working ages (15-59), and persons above the working ages (60 and above). It was found that on average, the population in the study areas were concentrated in the working ages (60 percent). The uplands area had the highest proportion in the younger age groups (36 percent) and the lowest proportion at working ages (56 percent). The urban/semi-urban strata had the lowest proportion of young population (25 percent) and the highest proportion at working ages (64 percent). The area with the highest proportion of the population at older ages was the rice strata, where 13 percent of the population was aged 60 years and over.

Table 4.4 shows the population distribution of the three broad age groups for Round 1 (2000) and Round 2 (2001). Similar age structures are observed in the two years and across strata. The uplands had the highest proportion of younger age group; urban/semi-urban had the highest proportion in working ages, while the highest proportions at older ages was found in the rice strata.

Table 4.4 Median age and percentage distribution of population by age group and strata, Round 1 (2000) – Round 2 (2001)

Strata	0-14		15-59		60+		Median age	
	2000	2001	2000	2001	2000	2001	2000	2001
Urban/Semi-urban	*24.5*	25.1	*65.2*	64.3	*10.3*	10.6	*31.0*	31.0
Rice	*28.7*	28.5	*59.0*	59.0	*12.3*	12.5	*30.0*	30.0
Plantation	*30.3*	30.1	*60.5*	60.7	*9.2*	9.2	*28.0*	28.0
Uplands	*36.1*	36.1	*56.6*	56.3	*7.3*	7.6	*26.0*	26.0
Mixed Economy	*28.5*	27.9	*61.2*	61.8	*10.3*	10.3	*30.0*	29.0
Total	*29.9*	29.9	*60.4*	60.2	*9.7*	9.8	*29.0*	29.0

4.4 Median age

The median age is the age that divides a population into two numerically equal groups; that is, half the people are younger than this age and half are older. The median age is an index of the aging of population. Overall, the median age of the population in the field sites is 29. The uplands strata had the lowest median age (26 years), while the urban/ semi-urban had the highest median age (31 years).

The median age for Round 1 (2000) and Round 2 (2001) was almost the same, except in the mixed economy strata (see Table 4.4).

4.5 Dependency ratio

The dependency ratio is defined as the ratio of people who are at economically dependent ages (under age 15 and 60 and over) to the people who are in labor force ages (15-64 years). The dependency ratio is dependent on population structure. If a population has a high proportion of younger and older population it will have a high dependency ratio.

Table 4.5 and Figure 4.7 shows the total dependency ratio, young dependency ratio and old age dependency ratio. The uplands strata had the highest dependency ratio, while the urban/semi-urban strata had the lowest dependency ratio. This means that in the uplands area, every 100 working age population had to take care of about 64 younger population and 13 older population. On the other hand, only 39 younger age and 17 older age population were dependent on 100 working age population in the urban/semi-urban strata. This is because the urban /semi-urban strata had the lowest proportion of population younger than 15 years.

A similar pattern of dependency ratio was found for both rounds of the survey. For example, the uplands strata had the highest dependency ratio in both Round 1 (2000) and Round 2 (2001). The highest rate of old dependency ratio was found in the rice strata. (Table 4.5)

Table 4.5 Total dependency ratio, young dependency ratio and old dependency ratio by strata, Round 1 (2000) – Round 2 (2001).

Strata	Total Dependency Ratio		Young Dependency Ratio		Old Dependency Ratio	
	2000	2001	2000	2001	2000	2001
Urban/Semi-urban	*53.4*	55.6	*37.5*	39.0	*15.8*	16.5
Rice	*69.6*	69.5	*48.7*	48.3	*20.9*	21.2
Plantation	*65.2*	64.7	*50.1*	49.6	*15.1*	15.1
Uplands	*76.8*	77.6	*63.8*	64.1	*13.0*	13.4
Mixed Economy	*63.3*	61.9	*46.5*	45.2	*16.8*	16.7
Total	*65.6*	66.0	*49.5*	49.7	*16.1*	16.3

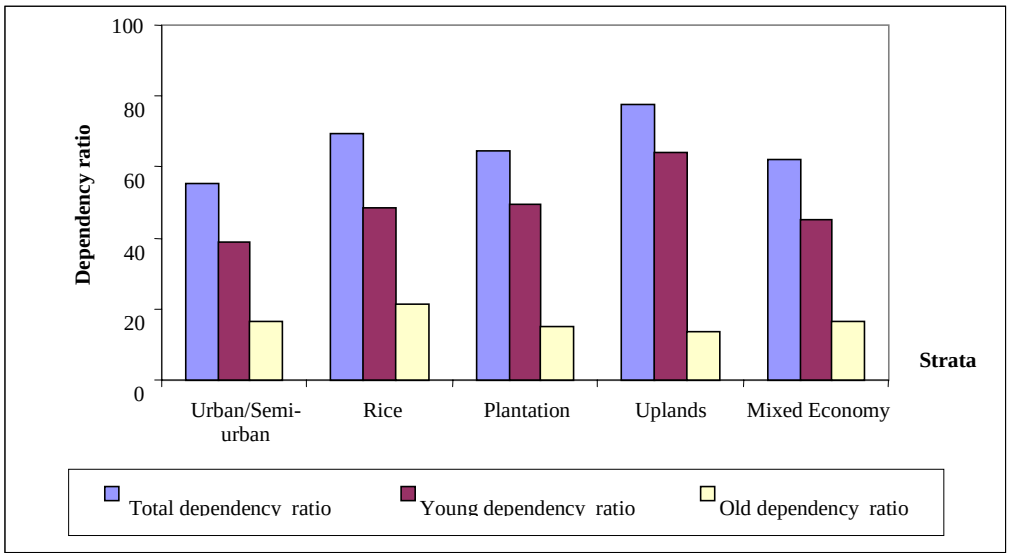


Figure 4.7 Dependency ratio, young dependency ratio, and old dependency ratio by strata, Round 2 (2001)

4.6 Summary

The census enumerated 46,029 household members in the field site communities. Among those, the highest proportion were found in the uplands strata (27 percent), while plantation contained the lowest proportion, or only 15 percent of the total population. The population increased between the two censuses. As in Round 1 (2000), it was found that in Round 2 (2001) there were more females than males in every strata except in the uplands strata. The urban/semi-urban strata had the highest proportion of older population, while the uplands strata had the highest proportion in younger and older age groups, resulting in the lowest median age and highest dependency ratio.

5. Economic Activity

Economic activity in this study refers to the occupation of those persons in the labour force. Occupations are categorized as agriculture, transportation and communication, professional, administrative and clerical, craft and labour, and sales and services. The economic activity data was obtained from males and females aged 15 and above.

Table 5.1 shows that agriculture was the main economic activity of both males and females. The percent engaged in this occupation was highest in the uplands (75 percent of males and 62 percent of females) and lowest in the urban/semi-urban strata (15 percent of males and 13 percent of females). Substantial proportions of the residents of the urban/semi-urban strata were engaged in craft and labour occupations, and sales occupations, with males more likely to report they worked in craft and labour occupations (23 percent) and females more likely than males to report involvement in sales (20 percent). It is remarkable that the proportion of males not participating in the labour force was highest in the urban/semi-urban strata (12 percent) and for females was highest in the uplands strata (28.6 percent).

Table 5.1 Percentage distribution of main economic activity by strata and sex: population aged 15 and above

Occupation	Urban/ Semi-urban	Rice	Plantation	Uplands	Mixed Economic	Total
Male						
Not in labour force	12.0	10.0	6.9	5.6	9.4	8.7
Professional	7.7	1.4	1.3	2.4	3.6	3.5
Administrative and clerical	5.4	0.8	1.1	4.0	6.2	3.8
Sales	15.1	3.4	2.8	2.8	5.0	6.0
Services	7.0	1.9	1.6	2.3	2.6	3.2
Agriculture	15.3	61.4	72.0	74.7	52.7	54.6
Transportation and communication	6.0	2.7	2.2	1.6	2.9	3.1
Craft and labour	22.6	11.7	7.4	3.7	11.5	11.3
Other occupation	0.3	0.1	0.0	0.1	0.1	0.1
Student	8.7	6.5	4.6	2.9	5.9	5.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	3,294	2,402	2,342	3,920	3,178	15,136
Female						
Not in labour force	27.8	21.4	18.6	28.6	22.7	24.4
Professional	9.2	1.4	1.0	2.1	2.3	3.5
Administrative and clerical	5.5	1.0	1.0	2.0	3.0	2.7
Sales	20.3	5.6	5.3	6.3	8.5	9.8
Services	5.7	0.8	2.1	1.2	2.3	2.6
Agriculture	12.9	52.2	61.8	55.0	45.7	43.6
Transportation and communication	0.2	0.1	0. 1	-	0.1	0.1
Craft and labour	10.2	10.4	5.6	1.7	8.9	7.3
Other occupation	0.2	0.1	-	0.0	-	0.1
Student	7.9	7.1	4.5	3.1	6.6	5.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	4,044	2,851	2,604	3,950	3,663	17,112

Comparison of Round 1 (2000) and Round 2 (2001) data show that levels of participation in the labour force increased slightly for males and remained basically unchanged for females (see Table 5.2)

Table 5.2 Percentage distribution of main economic activity by strata and sex among population aged 15 and above: Round 1 (2000) and Round 2 (2001)

Economic activities	Urban/ Semi-urban		Rice		Plantation		Uplands		Mixed Economic		Total	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Male												
Not in labour force	13.4	12.0	11.9	10.0	7.8	6.9	7.4	5.6	10.7	9.4	10.1	8.7
Professional	8.0	7.7	1.1	1.4	1.1	1.3	2.6	2.4	3.5	3.6	3.5	3.5
Administrative and clerical	5.1	5.4	1.0	0.8	1.6	1.1	4.7	4.0	4.8	6.2	3.7	3.8
Sales	15.5	15.1	3.1	3.4	2.8	2.8	2.9	2.8	5.2	5.0	6.1	6.0
Services	7.3	7.0	1.1	1.9	1.8	1.6	2.3	2.3	2.9	2.6	3.3	3.2
Agriculture	13.1	15.3	63.4	61.4	71.0	72.0	69.4	74.7	48.8	52.7	52.0	54.6
Transportation and communication	6.3	6.0	2.2	2.7	2.3	2.2	1.9	1.6	4.4	2.9	3.5	3.1
Craft and labour	21.6	22.6	8.9	11.7	7.4	7.4	5.4	3.7	12.8	11.5	11.4	11.3
Other occupation	0.1	0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Student	9.5	8.7	7.1	6.5	4.1	4.6	3.3	2.9	6.7	5.9	6.2	5.6
Unknown	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3,074	3,294	2,359	2,402	2,193	2,342	3,418	3,920	2,851	3,178	13,895	15,136

Table 5.2 (Continued)

Economic activities	Urban/ Semi-urban		Rice		Plantation		Uplands		Mixed Economic		Total	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Female												
Not in labour force	26.5	27.8	20.6	21.4	20.5	18.6	29.1	28.6	22.8	22.7	24.3	24.4
Professional	9.9	9.2	1.5	1.4	1.0	1.0	2.8	2.1	2.0	2.3	3.9	3.5
Administrative and clerical	4.6	5.5	0.8	1.0	1.1	1.0	2.3	2.0	3.0	3.0	2.6	2.7
Sales	20.1	20.3	5.1	5.6	4.3	5.3	7.3	6.3	7.9	8.5	9.7	9.8
Services	6.0	5.7	0.9	0.8	1.9	2.1	1.5	1.2	2.7	2.3	2.8	2.6
Agriculture	12.5	12.9	55.2	52.2	60.9	61.8	51.7	55.0	44.0	45.7	42.6	43.6
Transportation and communication	0.3	0.2	0.1	0.1	0.1	0.1	0.0	-	0.1	0.1	0.1	0.1
Craft and labour	10.3	10.2	8.8	10.4	5.4	5.6	2.1	1.7	9.7	8.9	7.3	7.3
Other occupation	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Student	9.7	7.9	7.0	7.1	4.8	4.5	3.1	3.1	7.5	6.6	6.6	5.8
Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3,883	4,044	2,781	2,851	2,482	2,604	3,535	3,950	3,339	3,663	16,020	17,112

6. Migration

Migration is defined as movement in or out of the village of current residence during the 12 months prior to the census. It is important to note that this analysis includes migration within and out of field site communities and also the movement of entire households. A minimum of one month of residence is required for a person to be defined as a usual resident of the household. The period of migration is between July 1st, 2000 and June 30th, 2001. Migration information is obtained from the household questionnaire. In Round 2 (2001) the list of family members from Round 1 (2000) was updated. Therefore if a family member who was listed in Round 1 (2000) had moved out from the household, he/she is defined as an out-migrant. On the other hand, if a new family member moved into the current household, he/she will be defined as an in-migrant. Those who remained in the household for both censuses are non-migrants. Persons belonging to new households and who had not been enumerated as usual residents in Round 1 (2000) but who are usual residents in Round 2 (2001) were defined as in-migrants.

In-migration and out-migration rates were calculated from number of in-migrants or out-migrants per 100 population at the time of census. As Round 1 (2000) could only identify in-migration (see 2000 baseline report), this report includes only a comparison of in-migration between Round 1 (2000) and Round 2 (2001).

More than 80 percent of the field site population were non-migrants, with an in-migration rate of eight and an out-migration rate of ten per hundred population, which results in a net out-migration rate of two per hundred population.

Both in-migration and out-migration rates, nine and twelve respectively, were highest in the uplands stratum, with the net out-migration rates of the uplands being three per hundred. In the rice stratum, the in-migration rate was six, while the out-migration rate was eight, which were the lowest rates of the five study strata (see Table 6.1 and Figure 6.1). The urban/semi-urban area had the high in-migration rate (9), this suggests that the urban/semi-urban stratum remains an attractive place for in-migrants. This was also found in Round 1 (2000) (Institute for Population and Social Research, 2001). The urban/semi-urban strata was a destination of not only those who seek non-agricultural work, but also students. The reasons that there is a large number of migrants into the uplands stratum may be due to an availability of land in this remote area of the province. And part of this area is on the border of Thailand-Myanmar, therefore, it is also a destination of migrants from Myanmar, where there is lower levels of economic development than that in Thailand.

6.1 In-migration

The in-migration rate recorded the Round 2 (2001) was higher than that of the Round 1 (2000) by about two times in every strata except for the urban/semi-urban stratum. The migration rate in the urban/semi-urban increased two points (from 7 to 9), but increased from 2 to 6 in the rice stratum, 4 to 8 in the plantation, 4 to 9 in the uplands, and 3 to 8 in the mixed economy stratum (see Figure 6.2). The increase between the two rounds is not unexpected in that in Round 1 (2000) there was no attempt to measure temporary in-migrants and also there were greater efforts in Round 2 (2001) to locate households that were newly formed in the period between Round 1 (2000) and Round 2 (2001).

The proportion of male in-migrants was higher than that of female in-migrants in every strata. The largest difference in male and female in-migration rates was in the rice and mixed economy strata. When the in-migrants are distributed by age and sex, it was found that in the uplands stratum, where the in-migration rate was the highest, approximately 21 and 18 percent of the population age 20-24 were male and female in-migrants respectively. This rate was more or less the same as that of the mixed economy stratum, where about 20 and 18 percent of population age 20-24 were male and female in-migrants respectively. In the rice stratum, where in-migration was the lowest, about 15 percent of male and female in-migrants were in age group 20-24 (see Table 6.2).

Approximately 66, 59, 58, 43 and 42 percent of in-migrants in urban/semi-urban, uplands, mixed economy, rice and plantation strata respectively, migrated from within Kanchanaburi. The next largest proportion came from other provinces in the Central region. The proportion of in-migrants from Bangkok was the highest in the rice stratum (18 percent), and lowest in the urban/semi-urban stratum (six percent). The proportion of in-migrants from the Northeast region was the highest in the plantation (nine percent), and lowest in the urban/semi-urban, and rice strata (four percent). In every study area only small proportions of in-migrants were from the North and South regions of Thailand. The uplands stratum has a special characteristic, with about seven percent of in-migrants originating from abroad, while there was no international in-migrants in other strata, except for the rice and mixed economy strata. However, only 0.5 percent of in-migrants were international in-migrants in these two strata (see Table 6.3). The majority of the international in-migrants came across the border from Myanmar.

Comparing place of origin for the in-migrants between Round 1(2000) and Round 2 (2001), indicates similar patterns of place of origin, with more than half of the movement within Kanchanaburi province. Furthermore, both censuses found that the plantation stratum remains a major destination for migrants from other provinces in the Central and Northeast regions. This is largely seasonal in-migration. There is a high demand for laborers during the cane-cutting period of December to March. When there is not enough labor from Kanchanaburi province, workers from other provinces are recruited.

6.2 Out-migration

The level of male out-migration was higher than that of female out-migration in every strata except for the urban/semi-urban strata. The largest difference in out-migration rates occurred in the uplands stratum. When out-migrants are distributed by age and sex, it was found that in the uplands stratum, where the in-migration rate is the highest, approximately 27 and 25 percent of population age 15-19 were male and female out-migrants respectively. The next highest proportion were found among the population aged 15-19 in the plantation stratum, with a rate of about 20 percent for both male and female out-migrants (see Table 6.2).

In the rice stratum, where out-migration is the lowest, approximately 23 and 17 percent of male and female out-migrants were in the age group 20-24 respectively. In the urban/semi-urban area, about 21 percent of males and 24 percent of female in age group 20-24 were out-migrants (see Table 6.2).

Approximately 48, 42, 40, 34 and 33 percent of out-migrants in the uplands, mixed economy, plantation, rice and urban/semi-urban strata respectively

migrated within Kanchanaburi. Other provinces in the Central region were major destinations of out-migrants in every study area, particularly for rice strata migrants, where about 30 percent of migrants moved to other Central region provinces. The proportion of out-migrants to Bangkok was highest in the plantation stratum (19 percent), and lowest in the urban/semi-urban stratum (11 percent). The proportion of out-migrants to the Northeast region was highest in the mixed economy (four percent), and there were small proportions of out-migrants to the North and the South. Nine percent of migrants from the uplands moved to foreign countries, mainly Myanmar, while about two percent of out-migrants in the mixed economy strata moved to foreign countries (see Table 6.3).

6.3 Summary

In general, the out-migration rate was higher than the in-migration rate. The overall net out-migration rate was two per hundred population. The in-migration rate from the Round 2 (2001) was higher than that of the Round 1 (2000) in every study area. The majority of the population (more than 80 percent) in the field site study did not migrate during the period July 1st, 2000 - June 30th, 2001.

Both the in-migration and out-migration rates were the highest in the uplands stratum (9 percent and 12 percent respectively). In the mixed economy stratum, there was little population change from migration, with the net out-migration of one percent the lowest rate of the five study strata.

Males were more migratory than females, and the proportion of migrants at ages 15-29 was the highest compared with those of other age groups. This probably is related to migration for education and work. The urban/semi-urban stratum was an important destination for education and for non-agricultural work in

Kanchanaburi province. Education and job opportunities encourage adolescents and young adults to migrate in and out for study and work.

In the field site study, both in-migration and out-migration was mainly short-distance migration, particularly within Kanchanaburi province, and between Kanchanaburi and other provinces in the Central region and Bangkok. Kanchanaburi is a province in the Central region, and the travel between some districts of Kanchanaburi and some provinces in the Central region or Bangkok can be undertaken within a few hours. Migration between Kanchanaburi province and the Northeast, North and South regions seems to mainly be a result of the in-migration and out - migration (probably return migration) of migrant workers. Moreover, it is likely that the international migration is also short-distance migration between uplands area of Kanchanaburi province and the country on the other side of the border, Myanmar.

Table 6.1 Percentage distribution by migration status: Round 1 (2000) – Round 2 (2001)

Migration	Urban/ Semi urban	Rice	Plantation	Uplands	Mixed Economy	Total
Out migration to other villages	10.6	7.8	9.7	12.4	8.9	10.2
In migration from other villages	8.6	5.7	8.0	9.4	7.9	8.1
No migration	80.8	86.4	82.2	78.2	83.2	81.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	11,125	8,151	8,021	14,346	10,605	52,248

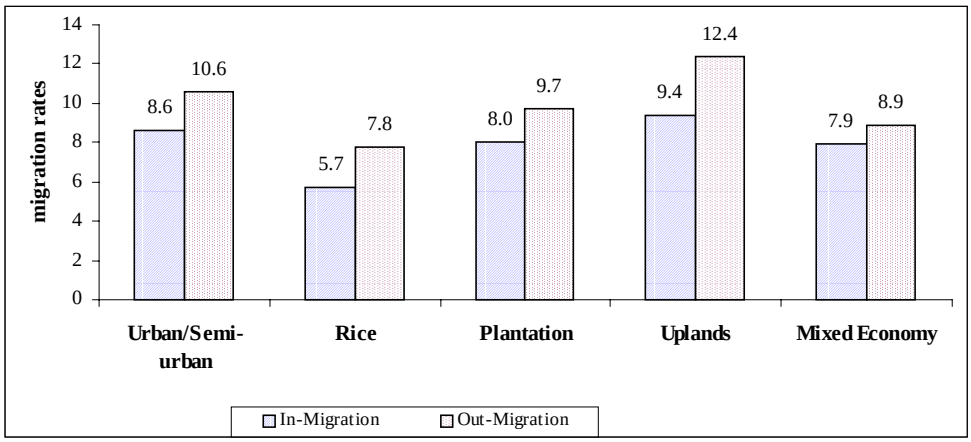


Figure 6.1: In-migration and out-migration rates, Round 2 (2001)

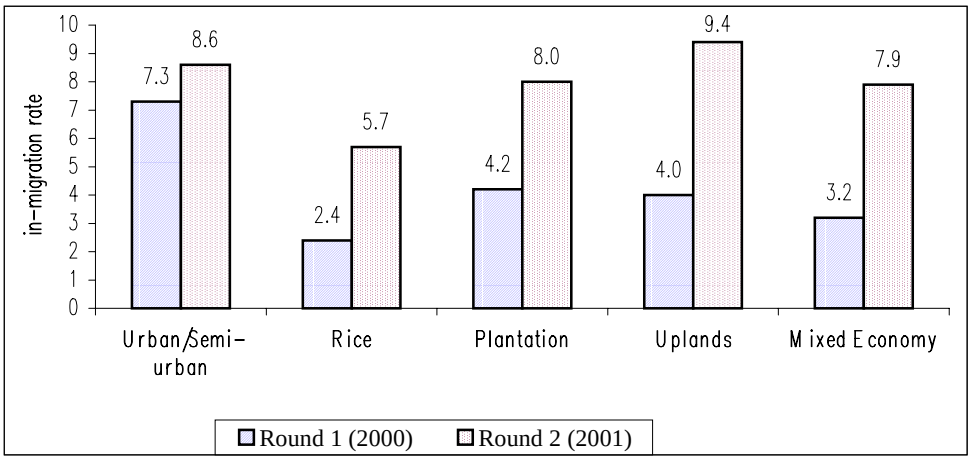


Figure 6.2: In-migration rate: Round 1 (2000) and Round 2 (2001)

Table 6.2 Percent migrants: July 1st, 2000- June 30th, 2001 by strata, sex and age

Age group	Urban/Semi-urban		Rice		Plantation		Uplands		Mixed Economy	
	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration
Male										
0-9	8.7	7.6	5.5	6.1	8.1	8.2	7.3	10.7	7.5	6.5
10-14	7.8	8.5	2.6	4.9	4.1	5.8	6.5	11.5	4.8	8.8
15-19	9.2	15.8	5.2	19.0	11.3	20.2	12.9	27.1	10.7	15.5
20-24	15.5	21.3	15.2	22.7	15.7	21.4	21.2	23.9	19.8	20.1
25-29	14.2	18.5	12.9	12.3	15.6	17.1	14.6	19.9	16.3	13.0
30-34	8.7	12.9	8.6	11.1	8.4	11.2	15.7	12.2	9.6	13.1
35-39	8.9	11.6	5.9	4.9	9.4	8.8	9.0	13.7	7.2	9.6
40-44	7.3	6.3	6.6	6.6	4.9	7.9	7.5	8.4	5.6	10.2
45-49	9.0	4.3	4.0	4.0	5.8	8.5	6.9	8.6	8.9	4.5
50-54	7.0	7.4	4.9	2.7	6.6	5.4	5.9	7.5	4.8	6.4
55-59	2.4	6.0	2.6	3.5	4.5	3.6	6.6	8.3	1.8	5.3
60+	4.2	3.3	2.1	2.3	3.9	2.6	7.4	6.6	3.6	4.1
unknown	-	50.0	25.0	-	-	100.0	-	68.8	8.3	25.0
Total	**8.9**	**10.6**	**6.3**	**8.4**	**8.4**	**10.4**	**9.8**	**13.2**	**8.5**	**9.6**

Table 6.2 Continued

Age group	Urban/Semi-urban		Rice		Plantation		Uplands		Mixed Economy	
	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration
Female										
0-9	8.4	8.3	5.6	7.7	7.5	7.8	8.7	9.1	7.8	8.1
10-14	6.3	7.9	3.8	7.6	5.6	6.3	6.7	13.3	4.1	7.8
15-19	12.0	23.6	6.7	18.8	12.7	20.4	16.1	24.9	11.6	15.8
20-24	17.3	24.3	15.2	16.5	13.4	18.4	17.9	20.0	17.5	14.7
25-29	12.2	14.0	10.1	8.9	12.2	13.0	10.5	12.6	12.4	10.0
30-34	8.4	13.1	3.9	10.5	7.9	8.5	8.4	9.8	7.5	9.7
35-39	7.6	7.3	4.6	3.8	6.4	5.5	6.6	9.0	4.4	5.7
40-44	6.5	4.8	3.0	2.7	5.3	5.6	6.4	9.0	4.8	4.8
45-49	5.1	6.3	2.5	2.5	7.0	5.7	4.9	8.2	4.0	4.0
50-54	7.0	5.6	3.5	3.0	5.9	4.3	6.8	5.7	4.3	4.6
55-59	4.3	1.7	1.6	1.1	2.7	2.7	4.9	5.4	4.7	6.2
60+	2.7	3.5	1.6	1.6	3.0	5.6	6.4	7.0	3.1	3.6
Unknown	-	43.5	-	23.1	-	57.1	-	78.6	-	44.4
Total	**8.3**	**10.6**	**5.2**	**7.3**	**7.7**	**9.1**	**9.0**	**11.6**	**7.4**	**8.2**

Table 6.3 Percentage distribution of destination and origin place of migration by strata

	Urban/Semi-urban		Rice		Plantation		Uplands		Mixed Economy	
Region	in-migration	out-migration	in-migration	out-migration	in-migration	out-migration	In-migration	out-migration	in-migration	out-migration
Kanchanaburi	66.1	33.3	42.8	34.2	42.0	39.7	58.7	47.5	57.9	41.8
Bangkok	6.3	11.0	18.4	17.9	9.6	18.8	7.0	11.2	9.8	15.3
Central	19.5	16.0	26.6	29.9	34.1	26.4	16.2	13.3	23.8	20.9
Northeast	4.1	1.4	4.1	3.8	9.1	2.7	5.1	2.3	5.7	4.1
North	2.3	0.9	3.0	1.9	3.7	1.9	4.7	1.6	1.2	2.2
South	1.6	1.1	3.2	2.7	1.4	0.6	1.5	1.1	1.2	1.4
Foreign	0.0	0.2	0.4	0.2	0.0	-	6.7	9.2	0.5	2.1
Unknown	0.1	36.1	1.5	9.6	0.0	9.9	0.1	13.9	0.0	12.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	954	1,178	467	638	546	781	1,350	1,782	841	943

7. Fertility and Family Planning

7.1 Fertility

The Kanchanaburi Project is a demographic surveillance study rather than a longitudinal or cohort study. The former is a study of the population in a defined area, whilst the latter is the study of defined population regardless of area. Therefore, the population in the second round is not exactly the same population as in the first round. Nevertheless, they reside in the same study area. This section will analyse fertility changes in the study area during this one-year period.

As mentioned in the previous chapter, a large number of people moved in and out of the study areas during this one-year period. As the majority of migrants were of working age, they were also in the reproductive ages, and this affects fertility.

Overall, fertility changed little during the period. The total fertility rate (TFR) was 2.1 in both periods and the fertility pattern as measured by age-specific fertility rates remained the same for the two years. The fertility rate was low at the beginning of reproductive ages (15 – 19), rose rapidly and reached the highest level for ages 20 – 24 years, then started to decline till reaching a low at the end of reproductive life (ages 45 – 49). Although, there were some changes in fertility amongst strata, TFR remained highest in the uplands strata.

Between the two census rounds, there was also no change in completed fertility. Unlike period fertility, which is measured by the total fertility rate, completed fertility is the mean number of children ever born to women who had completed fertility (aged 50 years old). It was found that women who had completed fertility had an average of 3.0 live births or children ever born. Women in the uplands experienced the highest fertility, followed by women in the plantation strata. Women in urban/semi-urban areas had the lowest fertility, whilst the fertility level of women in the rice and mixed economy strata were intermediate (see Table 7.1).

Table 7.1 Mean number of children ever born (CEB), children still living (CL), and child deaths (CD) by strata, Round 1 (2000) – Round 2 (2001)

Strata	Round 1 (2000)			Round 2 (2001)		
	CEB	CL	CD	CEB	CL	CD
Urban/Semi-urban	2.20	2.13	0.07	2.12	2.00	0.12
Rice	3.03	2.97	0.06	2.61	2.43	0.17
Plantation	3.88	3.61	0.27	3.53	3.34	0.19
Uplands	4.36	3.57	0.76	4.02	3.50	0.52
Mixed Economy	2.17	1.98	0.19	2.88	2.52	0.37
All	2.99	2.73	0.26	3.00	2.71	0.29

It could be seen from the above table that not all live births were alive at the time of the census. The number of children still living was 2.7 in all areas. Hence, the average number of child deaths was 0.3. However, the range among strata of mean number of child deaths during 2000 to 2001 was between 0.06 and 0.76.

Women who resided in upland areas experienced the highest number of child deaths (between 0.5 and 0.8). This high infant and child mortality rate may be associated with high fertility in upland areas. It should be noted that the mean number of living children in upland areas was not different from plantation areas (see Table 7.1), although fertility in plantation areas was lower than upland areas, however. This was due to the fact that child mortality was higher in the upland areas.

7.2 Family planning

Knowledge of family planning was very high in study areas, especially amongst married women (Guest, 2001). Therefore, a question on contraceptive knowledge was not included in the second round. However, the contraceptive practice of each women was recorded using Laing's Calendar (Laing, 1985). The Calendar records monthly reproductive activities such as gestation, pregnancy, results of pregnancy (live birth, still birth, miscarriage, or induced abortion), post-partum amenorrhoea, contraceptive use, and reasons for not using contraception.

Levels and trends of contraception

The contraceptive prevalence rate (CPR) was measured as the percent of currently married women in reproductive ages, who were using any contraceptive method. It was found that for all study areas, CPR increased from 74 percent in 2000 to 77 percent in 2001. The increasing level of contraception was observed in every stratum, with the rank order of strata on levels of contraceptive use remaining unchanged between the two rounds of data collection. Contraceptive use was lowest amongst women in uplands areas and highest in plantation and mixed economy areas. Contraceptive levels were similar for women in urban/semi-urban and rice areas (see Table 7.2).

Table 7.2 Percent of currently married women in reproductive ages (15 – 49) who are using contraceptive method by strata and survey round

Round	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy	All
Round 1 (2000)	74.9	74.3	78.7	64.3	80.2	73.5
Round 2 (2001)	78.5	77.2	81.0	69.3	81.1	76.6

Contraceptive use pattern

The pattern of contraceptive use in this study refers to contraceptive prevalence rates by methods of contraception or by age group. It was found that the pattern had not changed during the past year. Female sterilisation remained the most popular method (used by one-third of current users). The next most popular method was the pill, followed by injection (see Table 7.3). These three methods accounted for 89 percent of all users.

The contraceptive prevalence rate was lowest amongst women aged 15 – 19 years old (65 percent). The rate increased as age increased, reaching a peak at ages 35 – 39 years (84 percent), thereafter the rate declined (see Table 7.3).

It can be seen from the above table that methods of contraception were different amongst different age groups. This was due to the different objectives of users. Younger users accepted contraception as a means of birth spacing or postponement of pregnancy, therefore they mainly use temporary methods, such as pill or injection. Older users seek contraception in order to stop childbearing, they therefore use permanent methods such as female sterilisation (see Figure 7.1)

In conclusion, fertility and family planning in the study areas changed little between Round 1 (2000) and Round 2 (2001), since the time was too short to observe any substantial changes. Women in the uplands areas had the highest fertility and at the same time had the lowest contraceptive prevalence rate compared to women in other areas.

Table 7.3 Percent of currently married women in reproductive aged (15 – 49) who are using contraception by contraceptive method and age group, Round 2 (2001)

Methods	Age group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-59	
Female sterilisation	0.0	4.9	13.0	25.4	35.8	43.0	44.3	27.5
Male sterilisation	0.0	0.1	0.4	1.3	1.8	3.5	7.7	2.3
Implant	0.6	1.2	2.2	3.1	2.5	2.1	0.5	2.0
Injection	23.4	25.3	23.4	21.6	19.0	11.6	5.0	18.0
IUD	0.3	0.5	1.4	1.3	1.5	1.7	1.3	1.3
Pill	38.4	35.0	31.4	23.4	19.7	14.8	9.4	22.6
Condom	0.6	0.3	1.1	1.7	1.4	1.1	1.0	1.2
Withdrawal	0.0	0.1	0.5	0.8	0.3	0.1	0.0	0.3
Safe period	0.6	0.5	0.8	0.6	1.0	0.5	0.7	0.7
Others	0.6	0.7	0.4	0.8	0.5	0.9	1.0	0.7
CPR	**64.5**	**68.8**	**74.5**	**80.1**	**83.5**	**79.4**	**71.1**	**76.6**

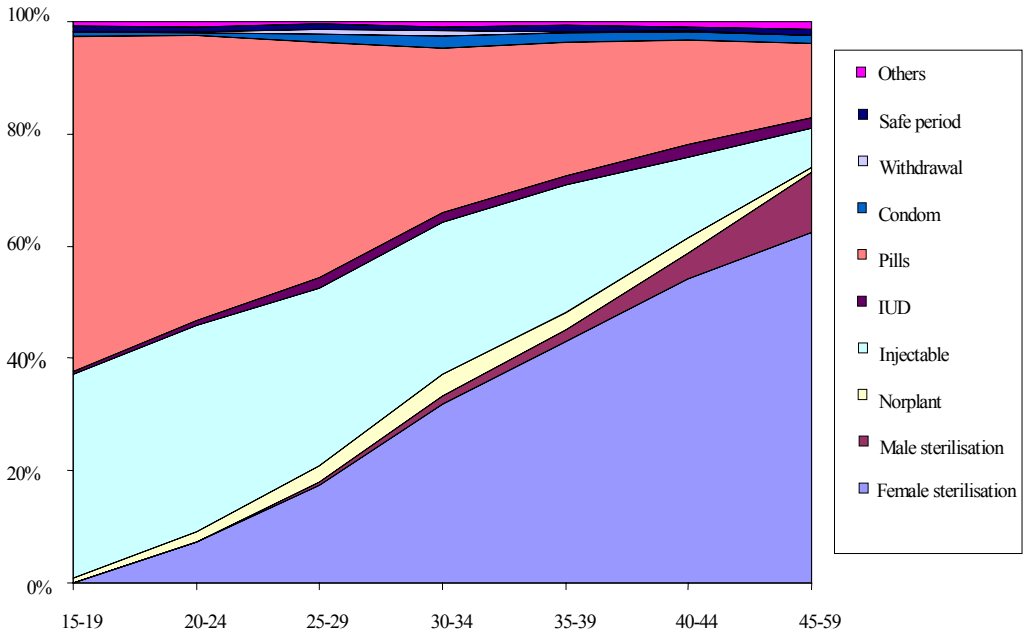


Figure 7.1 Percent of currently married women in reproductive aged (15 – 49) who are using contraception by method and age group

8. Health Status

Health status is an indicator of quality of life of a population as health reflects the socio-economic and demographic status of a population in both the short and long term.

This chapter presents patterns of illnesses, pathways to care and decision making in seeking health service, and health risk behaviour of the population living in the Kanchanaburi field site communities. The results are based on the second round census (2002) and covers the male and female populations aged 15-70.

8.1 Morbidity

Morbidity in this report means any self-reported illness that occurred in the year prior to the census (July 1st, 2000 – June 30th, 2001). The respondents were asked to report any illness that was serious enough that they could not work as usual. Data from the survey revealed that two-thirds of the population reported that they were ill according to this definition. The percentages reporting illness by strata are: rice (79 percent), uplands (57 percent), urban/semi-urban and plantation (69 percent) and mixed economy (66 percent) (see Table 8.1).

Table 8.1 Percentage distribution of reported illness within the last year by strata and sex

Illness	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Total					
Exhibited	68.7	79.0	68.7	57.3	66.2
Did not exhibit	31.3	21.0	31.3	42.7	33.8
Number	6,097	4,746	4,600	7,334	6,246
Female					
Exhibited	73.6	84.8	74.8	61.1	73.0
Did not exhibit	26.4	15.2	25.2	38.9	27.0
Number	3,523	2,659	2,480	3,768	3,452
Male					
Exhibited	62.0	71.5	61.5	53.2	57.8
Did not exhibit	38.0	28.5	38.5	46.8	42.2
Number	2,574	2,087	2,120	3,566	2,794

The survey showed that eight in ten of the female population in the rice strata compared to three in four in the urban/semi-urban, plantation strata and mixed economy strata reported that they were sick during the past year. Two-thirds of the female population in uplands reported that they suffered from an illness during the previous year. Among the male population, the percentage of those who reported any illness by areas were: rice (72 percent), urban/semi-urban and plantation (62 percent), uplands (53 percent) and mixed economy (53 percent).

8.2 Reported illnesses

The three most common illnesses found within the study population were colds, gastroenteropathy and high/low blood pressure (the number of reported cases range from 1,000-6,000). The other 12 most common illnesses include malaria, influenza, cataract, thyroid, heart disease, diabetes, cancer, allergy, reproductive tract infection, bone pain, headache/migraine and asthma (the number of reported cases reported range from 100-999).

The prevalence of colds was highest among people residing in the rice strata (52 percent), and the lowest prevalence was found in the uplands area (39 percent). The second most common illness was low/high blood pressure. The prevalence ranges from 8-12 percent in every area. The rice strata showed the highest prevalence while people living in the uplands strata had the lowest prevalence. The other common illnesses of gastroenteropathy was reported as similar levels in each strata (see Figure 8.1)

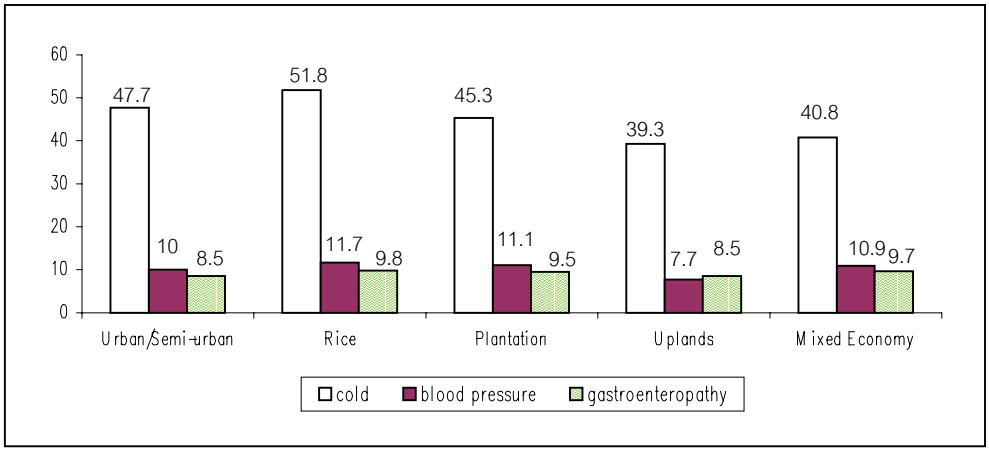


Figure 8.1 Percent of respondents reporting illness in the last year by three most commonly illnesses and strata

8.3 Health behavior affecting health status

The census explored health behavior that could affect the health status of the study population. Health behavior covered food consumption, drinking behavior, sleeping habits, working lifestyles and recreation including practices in protecting themselves from worms when walking in muddy or dirty areas.

Food consumption and drinking behavior

Eating spicy food was common among the population in every area, especially those who lived in plantation areas (47 percent), rice strata (46 percent) and mixed economy strata (43 percent), while the population in the urban/semi-urban strata showed the lowest proportion reporting eating spicy food (30 percent). It was found that only two or three percent in every study area consumed uncooked food. Taking food at a regular time contributes to good health. The survey data revealed

that 54 percent of the population living in the urban/semi-urban strata ate their meals at a regular time, compared to 65 percent in the mixed economy, and 76 percent of those residing in the uplands area. Over 90 percent of persons in all areas were aware of the importance of drinking only clean water (see Table 8.2).

Sleeping habits and recreation

People are more likely to be at risk of malaria if they do not sleep under a mosquito net or in a screened room. The study showed that almost all of the people in every study area protected themselves from malaria by sleeping under a net or in a screened room.

Twenty one percent of the population in the plantation strata and 20 percent in the mixed economy strata did not have enough time for recreation due to their working conditions. This compares to 15 percent in the rice strata, urban/semi-urban and uplands strata (see Table 8.2).

Preventive measures for worms

This study found that 90 percent of the total population was aware that they could be infected by worms if they did not wear shoes on when walking in muddy or dirty areas (see Table 8.2).

Table 8.2 Percent of respondents reporting specified health behavior by strata

Health Behavior	Urban/Semi -urban	Rice	Plantation	Uplands	Mixed Economy
Food consumption and drinking behavior					
Eating spicy food	36.7	45.6	46.7	43.2	43.0
Eating uncooked food	1.6	2.8	3.3	2.7	3.3
Having meals at a regular time	54.2	63.3	70.2	79.4	65.2
Drink only clean water	94.8	92.0	94.8	92.5	92.7
Sleeping and recreation behavior					
Sleep under mosquito net/in screened room	92.5	95.3	95.4	95.5	94.2
Taking sleeping pills	1.8	1.6	2.8	1.4	2.5
Work hard and take less rest	13.8	15.1	20.9	14.4	20.4
Preventive measure from worms					
Wearing shoes when walking in wet or dirty areas	90.1	89.4	90.2	93.4	91.8

8.4 Consumption risk behavior

Frequency of consumption of products such as cigarettes, alcohol, beer, energy beverages, and pain relievers are considered in this study as consumption risk behavior.

Smoking

The highest rate of smoking was among the uplands population (50 percent) and the lowest rate was among the urban/semi-urban strata (21 percent). Among smokers, most used cigarettes on a daily basis, with those in the uplands strata smoking most frequently (47 percent) (see Table 8.3)

Beer

One third of the population in all strata reported that they engaged in beer consumption. The highest rate of often or daily consumption was among people living in the urban/semi-urban strata (7 percent) (see Table 8.3).

Alcohol

The majority of respondents never drank liquor, with the highest level of consumption in the mixed economy strata. For drinkers of liquor, people living in the uplands strata were the most likely to rarely drink, while the highest level of frequent consumption reported was among people living in the urban/semi-urban strata (see Table 8.3).

Herbal liquor

About 23 percent of people living in the mixed economic strata consumed herbal liquor, with 9 percent reporting that they often or daily drank this kind of liquor.

Energy beverages

One out of four of the population in all study areas reported that they consumed energy beverages, which typically contain high levels of caffeine. Persons living in the rice strata were the most likely to consume energy drinks and those living in the urban/semi-urban areas were the least likely to consume these drinks (see Table 8.3).

Pain relievers

The majority of the population in all field sites strata reported that they never consumed pain relievers. However, among those who reported consumption of pain relievers, it was found that the percentage reporting frequent (often/daily) use was higher than the percentage reporting infrequent use. The highest frequency of use was for persons living in the urban/semi-urban strata.

Table 8.3 Percentage distribution of consumption risk behavior by strata

Consumption behavior	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Cigarettes					
Never	79.3	74.4	69.9	49.9	75.2
Infrequently (rarely)	2.0	1.7	1.5	3.2	2.3
Frequently (often/daily)	18.6	23.9	28.6	46.9	29.6
Beer					
Never	68.9	67.2	68.0	69.6	67.3
Infrequently (rarely)	24.0	27.5	27.6	27.9	27.2
Frequently (often/daily)	7.1	5.3	4.3	2.5	5.5
Alcohol	72.8	71.7	70.3	67.3	70.5
Never					
Infrequently (rarely)	18.2	19.2	20.4	25.1	19.9
Frequently (often/daily)	9.1	9.1	9.3	7.5	9.6
Herbal liquor					
Never	93.2	90.5	90.0	90.3	77.5
Infrequently (rarely)	5.1	7.9	8.1	7.2	13.9
Frequently (often/daily)	1.6	1.6	1.9	2.5	8.5

Table 8.3 (Continued)

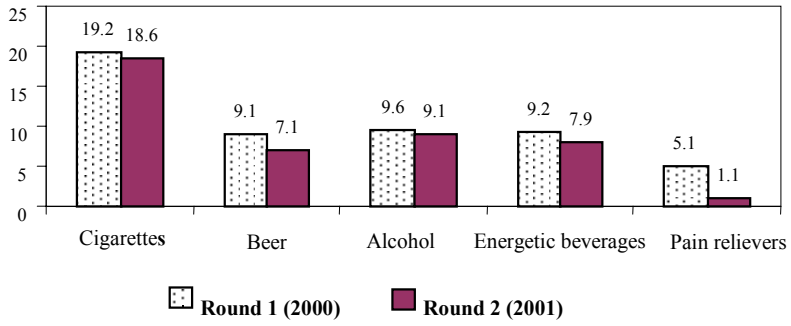
Consumption behavior	Urban/Semi -urban	Rice	Plantation	Uplands	Mixed Economy
Energy beverages					
Never	78.9	73.3	75.9	78.4	77.5
Infrequently (rarely)	13.2	17.4	15.3	8.2	13.9
Frequently (often/daily)	7.9	9.3	8.8	3.4	8.5
Pain Relievers					
Never	98.7	97.4	95.7	98.2	97.6
Infrequently (rarely)	0.2	0.1	0.4	0.4	0.3
Frequently (often/daily)	1.1	2.5	3.9	1.3	2.0

8.5 Comparison of consumption risk behavior between Round 1 (2000) and Round 2 (2001)

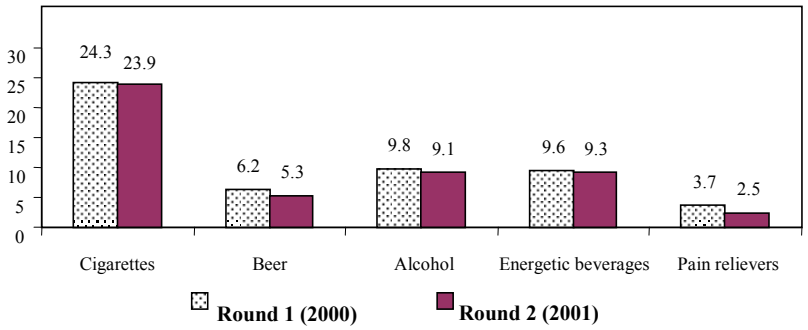
It was found that almost all indicators of consumption risk behavior decreased slightly between Round 1 (2000) and Round 2 (2001). From Figure 8.2, it can be seen that the percent smoking decreased in every strata except the mixed economic strata, where there was an increase from 26 percent to 30 percent. The percent drinking beer decreased in all strata except the uplands strata, where there was a slight increase. There was little change over time in the level of consumption of beer.

There were small changes from 2000 to 2001 in the percent consuming energy drinks, with an increase from 8 to 9 percent in the plantation and the mixed economic strata and small decreases in the urban/semi-urban and the rice strata. The percent consuming pain relievers decreased in all study areas, especially, for the urban/semi-urban strata.

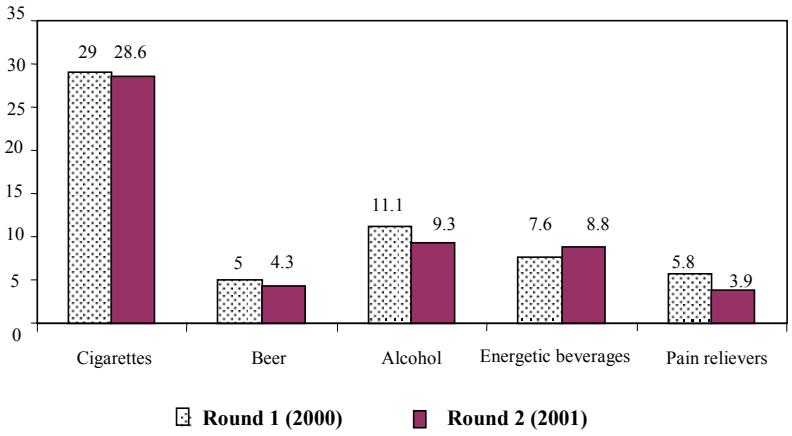
Urban/Semi-urban



Rice



Plantation



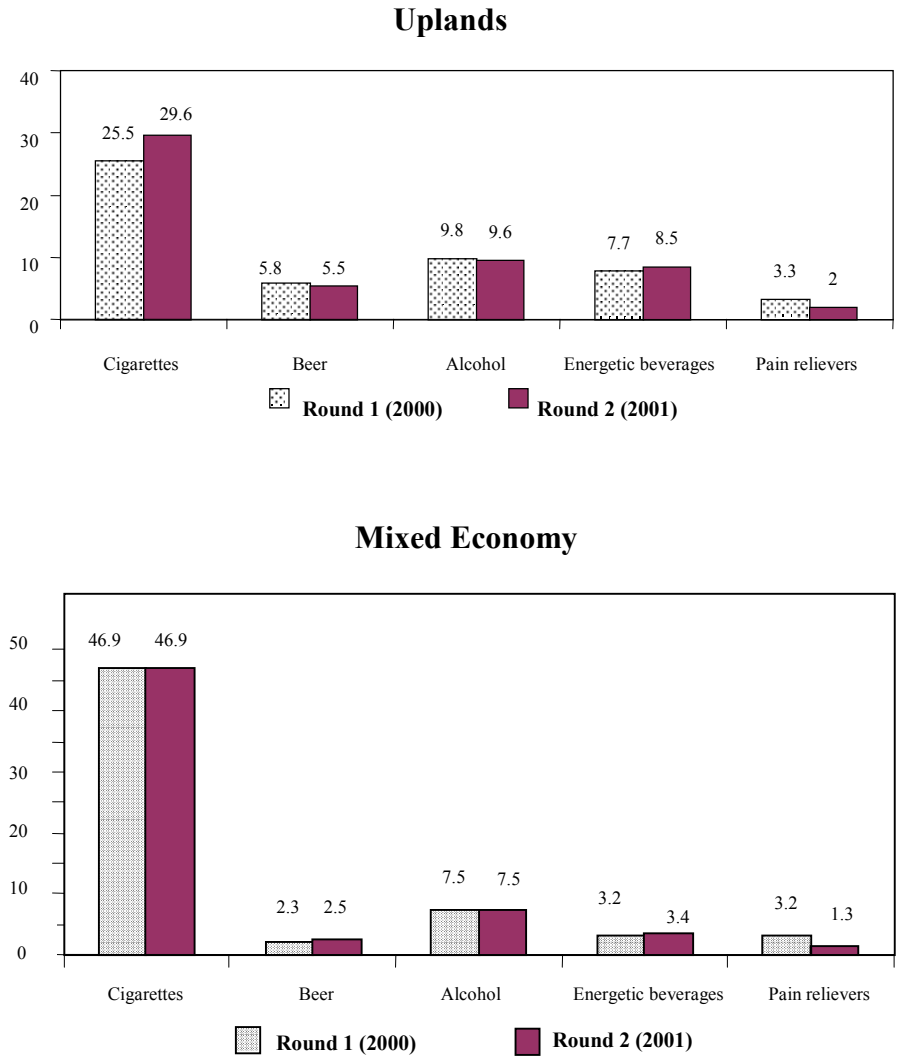


Figure 8.2 Percent of respondents consuming specified substances in previous year; Round 1 (2000) and Round 2 (2001)

8.6 Summary

Seventy percent of the adult population in the field site reported that they suffered from an illness in the 12 months before the census. The three most commonly reported illness were; colds, hypertension and gastroenteropathy. In addition, other diseases including malaria, heart disease, diabetes, allergy, influenza, eye diseases, thyroid, cancer, RTIs, urinary tract infections, pain in bones and joints, headache and migraine and asthma were reported.

Significant proportions in all study areas ate spicy food, with the highest levels in the rice and plantation strata. The proportion reporting eating at a regular time was highest in the uplands strata. Levels of consumption of raw food were low in all areas. The consumption of sleeping pills and lack of rest was highest among the population residing in the plantation and mixed economy strata.

The level and frequency of smoking was highest in the upland strata, while the level and frequency of consumption of alcoholic drinks was highest in the urban/semi-urban strata. The use of pain relievers was most common among the population in the plantation strata.

Between Round 1 (2000) and Round 2 (2001) there was a slight decrease in levels of consumption risk behavior. The one exception was in the consumption of energy drinks, which increased among the population of the plantation, uplands and mixed economic strata.

9. Mortality

General Information

For the Kanchanaburi Project Round 2 (2001), there were 12,657 enumerated households. Two hundred and sixty-four of these households had at least one member who died during the 12-month period prior to the census (July 1st, 2000 – June 30th, 2001). Of this total, 261 households had one member die, while two deaths were recorded in each of 3 households. There were no more than two deaths per household. Thus, the total number of deaths enumerated was 267.

9.1 Mortality levels and patterns

For the 267 deaths in the 12-month period prior to the census, 171 (64 percent) were males and 96 (36 percent) were females. The male death rate was 8 per thousand while the female death rate was 4 per thousand. For both sexes combined, the crude death rate was 5 per thousand.

Table 9.1 Number of deaths and death rates by age and sex, Round 2 (2001)

Age	Number of Deaths		Death Rate (per thousand)	
	Male	Female	Male	Female
0	4	2	9.4	5.0
1-4	5	0	2.7	0.0
5-9	0	1	0.0	0.4
10-14	0	2	0.0	0.9
15-19	6	1	3.7	0.6
20-24	4	2	3.0	1.3
25-29	14	4	8.4	2.0
30-34	9	3	4.9	1.5
35-39	9	1	5.0	0.5
40-44	2	4	1.2	2.1
45-49	14	5	10.3	3.4
50-54	11	6	10.6	5.2
55-59	12	5	14.9	5.3
60-64	20	7	27.6	9.2
65-69	7	8	12.8	12.8
70-74	18	8	44.4	18.7
75-79	15	10	70.1	32.2
80-84	9	11	84.1	66.7
85-89	6	7	103.4	85.4
90+	6	9	240.0	225.0
Unknown	–	–	–	–
Total	171	96	7.7	4.0
	267		5.3	

The mortality pattern, as indicated by age-sex specific death rates, is similar to that found in the general population of Thailand, showing a J-shaped pattern. This means that infant mortality (under-one mortality) is high. Mortality then gradually decreases until the 10 – 14 year age group, which has the lowest mortality rate. Then mortality gradually increases with those persons aged 15 –34 year having increasing rates of mortality, which then further accelerates in the older age groups.

Both males and females had the same mortality pattern. The mortality level for females was lower than for males in almost all age groups. However, within the study population, mortality rates of females aged below one year and those of elderly females were higher than for males.

In addition, the mortality pattern is not smooth. Rather, it fluctuates across age groups. The cause of this fluctuation is due to the small population size for each age group. As a result, either increasing or decreasing number of deaths in these age groups can markedly affect the mortality rates. (see Table 9.1 and Figure 9.1)

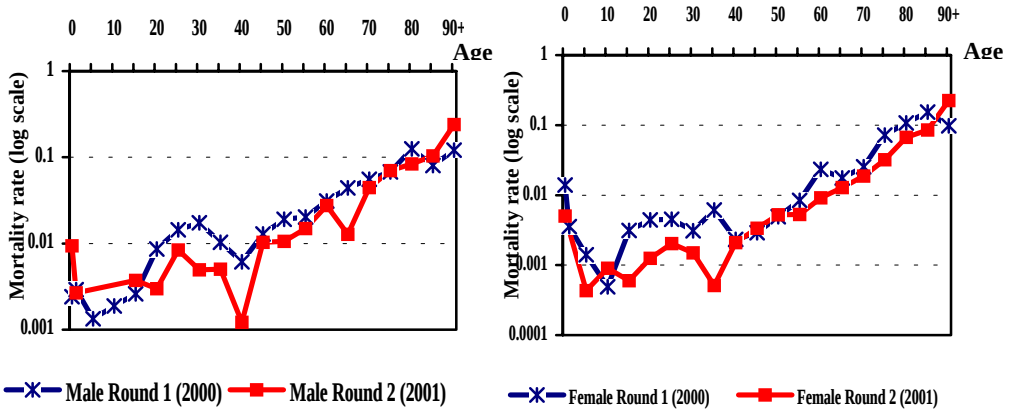


Figure 9.1 Age-sex specific death rates, the Round 1 (2000) and Round 2 (2001)

9.2 Mortality by strata

Classifying by strata within the study area reveals two different mortality levels. The mortality rates for plantation, uplands and mixed economy strata are about 4 – 6 per thousand while mortality rates for rice and urban/semi-urban strata are 10 and 8 per thousand respectively. It is seen that mortality rates for rice and urban/semi-urban strata are clearly higher than the other three strata.

When comparing between the Round 1 (2000) and Round 2 (2001), the mortality of each strata for the Round 2 (2001) is lower than those in the Round 1 (2000). (see Table 9.2 and Figure 9.2).

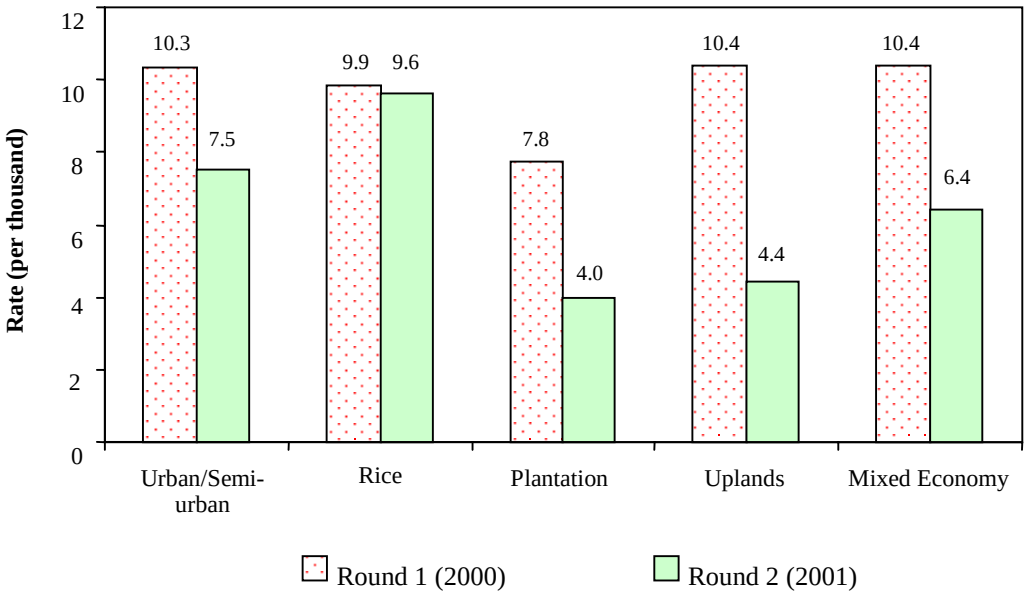


Figure 9.2 Death rates of the field site population by strata, Round 1 (2000) and Round 2 (2001)

Table 9.2 Age-sex specific death rates of the field site population by strata, the Round 2 (2001)

Age	Urban/Semi-urban		Rice		Plantation		Uplands		Mixed Economy	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0	0.0	0.0	0.0	16.9	0.0	0.0	12.7	6.7	27.0	0.0
1-4	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	2.7	0.0
5-9	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0
10-14	0.0	0.0	0.0	2.8	0.0	0.0	0.0	1.5	0.0	0.0
15-19	7.2	0.0	7.7	0.0	3.6	3.8	2.7	0.0	0.0	0.0
20-24	10.0	0.0	4.8	4.2	0.0	0.0	0.0	2.5	3.5	0.0
25-29	14.9	0.0	7.6	6.6	7.6	3.3	2.3	1.9	14.0	0.0
30-34	10.6	6.3	11.0	0.0	7.1	3.1	0.0	0.0	2.9	0.0
35-39	3.2	0.0	7.4	0.0	3.2	0.0	4.5	2.1	8.0	0.0
40-44	0.0	3.4	8.4	3.4	0.0	0.0	0.0	2.3	0.0	2.5
45-49	14.4	9.3	15.7	8.4	4.9	0.0	10.5	0.0	10.8	3.0
50-54	6.4	11.3	11.2	0.0	6.5	11.3	21.3	4.1	8.5	3.8
55-59	0.0	0.0	18.2	16.5	18.7	0.0	13.6	5.2	23.3	5.1
60-64	16.7	35.4	24.2	14.6	8.5	0.0	37.2	6.3	47.9	0.0
65-69	21.3	11.8	9.3	33.3	21.7	0.0	8.6	8.3	7.9	14.8
70-74	83.3	29.9	71.4	22.7	0.0	14.9	29.7	23.8	51.9	10.1
75-79	66.7	27.0	98.0	14.7	71.4	81.1	43.5	44.4	93.0	46.9
80-84	83.3	100.0	190.5	85.1	0.0	50.0	58.8	37.0	111.1	90.9
85-89	333.3	285.7	71.4	50.0	166.7	71.4	166.7	0.0	0.0	62.5
90+	0.0	285.7	750.0	166.7	0.0	142.9	166.7	250.0	285.7	428.6
Crude death rate	**8.7**	**6.3**	**12.5**	**7.1**	**4.7**	**3.3**	**6.1**	**2.6**	**9.7**	**3.4**
	7.5		**9.6**		**4.0**		**4.4**		**6.4**	

The male mortality was higher than that of females in every stratum. For Round 2 (2001), the sex differential of mortality rate was 1.4 – 6.3 per thousand. This difference is lower than that of Round 1 (2000) which was 2.3 – 9.6 per thousand (see Figure 9.3).

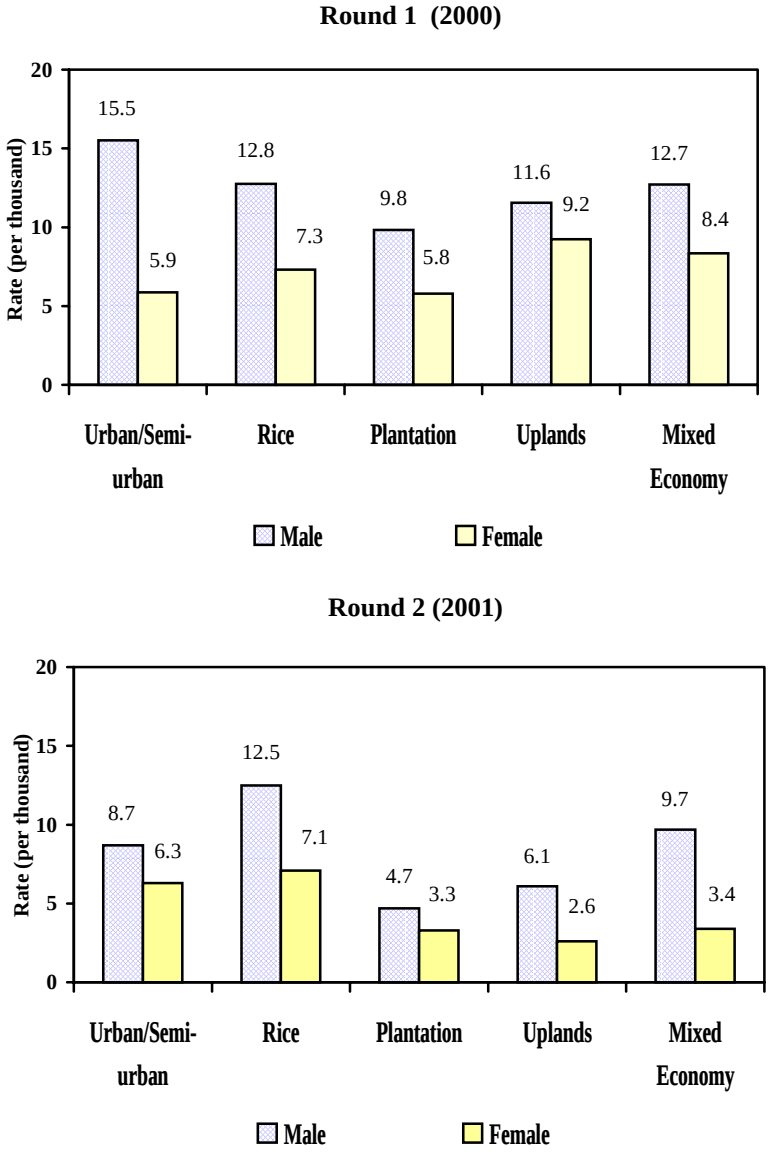


Figure 9.3 Death rates by sex and strata, Round 1 (2000) and Round 2 (2001)

9.3 Causes of deaths and death registration

For Round 2 (2001), the causes of death in the questionnaire were substantially different from Round 1 (2000), although deaths were classified into five similar major groups in both censuses. These five major groups were sickness, accident, homicide, suicide and other causes. It can be seen that 'senility' cause of deaths used in Round 1 (2000) was combined with the 'sickness' cause of deaths in Round 2 (2001). Moreover, 'homicide' and 'suicide' that are different causes of deaths in the Round 2 (2001) census were combined as a single cause of death in Round 1 (2000).

According to the new five major groups of causes of death, sickness and accidents were the two major causes among the 267 deaths that occurred within the one year before the Round 2 (2001). The highest proportion of deaths, or 73 percent (274 cases), occurred due to sickness. The second cause was accidents (13 percent). Deaths caused by homicide and suicide was only 2 percent of all deaths. The remaining 12 percent left were attributed to other causes of deaths. (see Figure 9.4)

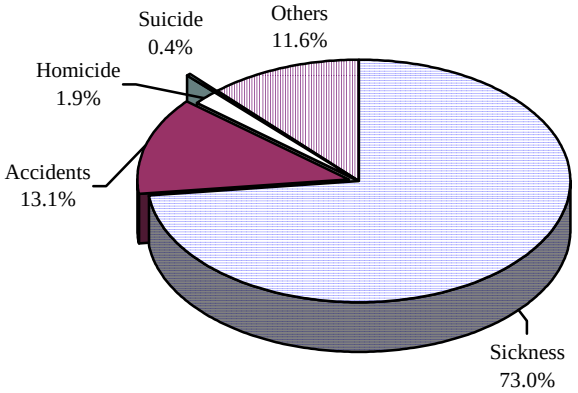


Figure 9.4 Percentage distribution of deaths by cause of death, Round 2 (2001)

Analysis of causes of death by strata show a similar pattern of cause of deaths in each strata. Sickness remained as the major cause, followed by accidents. Deaths by homicide and suicide were few (less than 2 percent) except for the rice strata, where deaths by homicide accounted for six percent of deaths.

In order to compare the pattern of causes of deaths between Round 1 (2000) and Round 2 (2001), deaths from sickness and senility in Round 1 (2000) as well as deaths from homicide and suicide in the Round 2 (2001) were combined. Moreover, the other causes of deaths are excluded. The pattern of causes of deaths by strata in the Round 2 (2001) is similar to the Round 1 (2000). (see Figure 9.5)

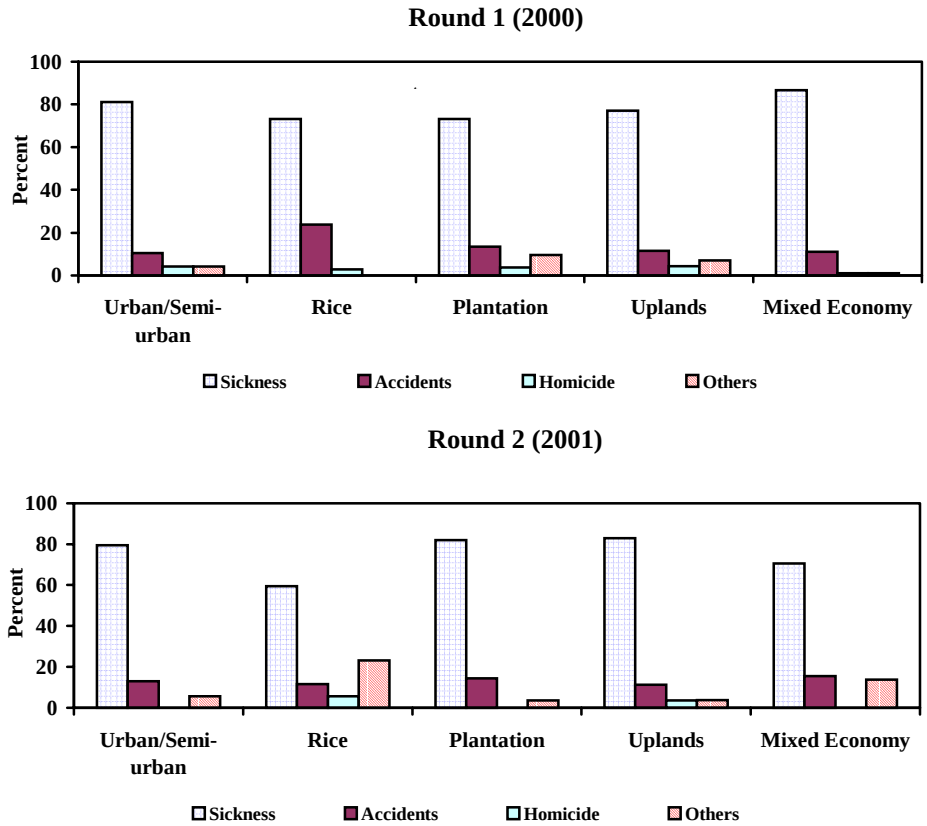


Figure 9.5 Causes of death by strata, Round 1 (2000) and Round 2 (2001)

The analysis also explored the extent to which 267 deaths were registered. Results showed that almost all deaths (95 percent) were registered. This figure is higher than the 91 percent death registration in Round 1 (2000).

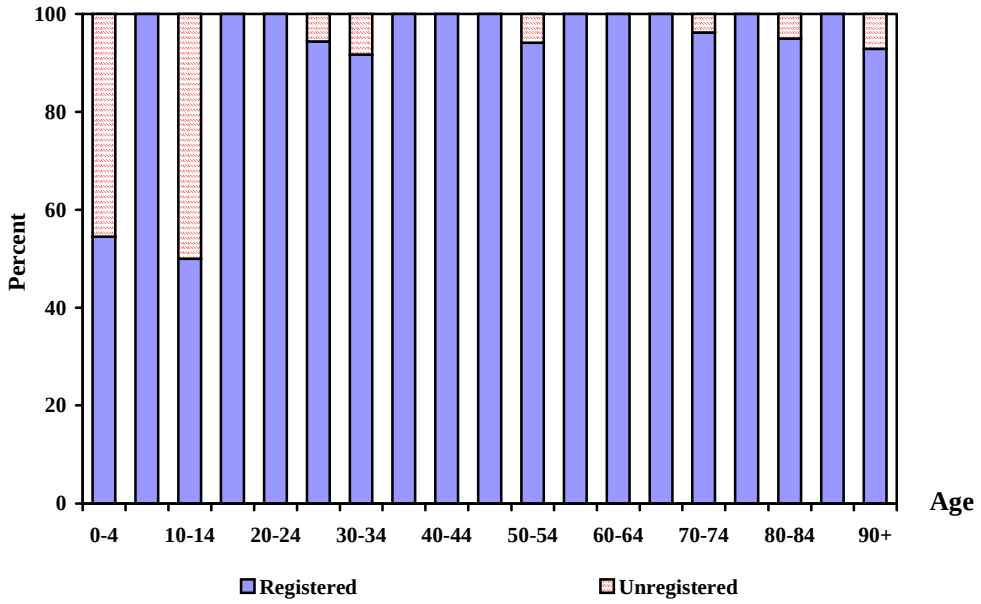


Figure 9.6 Percentage distribution of deaths by death registration and age, Round 2 (2001)

In Round 2 (2001), the highest proportion of unregistered deaths was infant and child deaths, which was also found for Round 1 (2000). The proportion of both registered and unregistered deaths is shown in Figure 9.6. For five percent of unregistered deaths the reasons for not registering could not be determined.

9.4 Summary

The mortality level of the Round 2 (2001) census was lower than that of Round 1 (2000). It was also lower than that of the general population. Though the mortality level was lower, the mortality pattern was similar to that of the general population. In the Round 2 (2001) census, there were 267 deaths, giving a crude mortality rate of 5 per thousand compared to 6 to 7 per thousand for the general Thai population. The male mortality rate was higher than the female rate. The mortality rates were similar among strata, except in the case of urban/semi-urban strata, where the mortality rate was higher than in other strata.

Moreover, the mortality distributions by age and sex were similar to mortality patterns found within the general population in that both male and female mortality patterns were J-shaped. Female mortality was lower than that of male in almost all age groups. There were a few age groups where female mortality was higher than that of males. The cause of this difference was due to the small population size for these age groups. As a result, either increasing or decreasing the number of deaths in these age groups can markedly affect the estimated mortality rates. In addition, mortality rates for all ages, for both males and females, for Round 2 (2001) were lower than those in Round 1 (2000).

More than 70 percent of deaths were caused by sickness and accidents. There were few deaths that were caused by homicide and suicide. Almost all deaths were registered. The proportion of deaths registered for Round 2 (2001) was higher than that of Round 1(2000).

10. Community Development

This chapter details aspects of community participation in development, using data from the individual questionnaires for the analysis. The population (aged 15-59) were asked to give their opinions about problems of group management and the relationship between gender roles and community participation. Respondents were also asked to identify the most important problem in organising community groups for development.

10.1 Community group membership

Data from the survey revealed that the population living in the rice strata exhibited the highest level of community group membership (41 percent), followed by the population residing in the plantation strata. The population in the urban/semi-urban strata showed the lowest participation in community groups (8 percent). A slightly different membership pattern was found among the population living in the mixed economy and uplands strata (see Table 10.1)

Table 10.1 Percentage distribution of population by membership and strata

Membership	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Yes	7.5	40.6	36.0	19.6	26.1
No	92.5	59.4	64.0	80.4	73.9
Number	5,250	3,944	4,022	6,488	5,378

10.2 Community group establishment

Community members and the government played important roles in establishing community groups. The data revealed that population in the rice strata displayed the highest proportion who participated in community groups established by community members alone (64 percent), compared to the lowest proportion in the mixed economy strata (38 percent). The population living in the uplands strata had the highest proportion belonging to community groups that were established by the government and community members (53 percent); whilst those in the rice strata exhibited the lowest proportion (28 percent). A tripartite cooperation between community members, the government and NGOs in establishing community groups was rarely reported, with the highest proportion in the mixed economy strata (3 percent). This percentage was similar to the role of NGOs in assisting community members to establish clubs/groups in the urban/semi-urban strata (see Table 10.2).

Table 10.2 Percent of respondents stating source of community group establishment: by strata

Group Establishment	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
By government	15.9	7.7	8.7	3.3	9.2
By community members	44.1	63.8	39.7	41.4	38.1
By government and community members	34.5	28.4	51.1	53.0	48.1
By NGOs	3.4	0.1	-	1.6	1.4
By government/ community members/NGOs	2.1	0.1	0.6	0.7	3.2
Number	383	1,407	1,426	1,228	1,386

10.3 Opinion toward community group management

Among those stating problems of community group management, reasons of mismanagement and lack of participation among the group members were mentioned as the most important problems in managing community groups. About 73 percent of the population living in the rice strata were not satisfied with the management compared to 33 percent of the population in urban/semi-urban strata, who displayed the lowest proportion of the same opinion. There were only slight differences among strata in the reasons given for lack of group participation (see Table 10.3).

Table 10.3 Percent of respondents citing problem of group management by reason of community group management problems by strata

Reason	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Inadequate management skills	33.3	73.3	44.4	57.1	42.4
Group activities	-	-	18.5	4.8	3.0
Interest	8.3	-	3.7	-	9.1
Inadequate financial support	8.3	6.7	-	14.3	12.1
Inadequate group participation	16.7	20.0	14.8	19.0	18.2
No profit	-	-	3.7	-	3.0
Inadequate group participation	16.7	20.0	14.8	19.0	18.2

Table 10.3 (Continued)

Reason	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
No profit	-	-	3.7	-	3.0
Do not like the way the group activities were implemented	25.0	-	14.8	-	12.1
Too many activities	8.3	-	-	4.8	-
Number	12	15	27	21	33

10.4 Difficulties in handling group activities

Of those persons who indicated a concern for lack of participation in community groups, respondents in all strata shared a similar opinion that a lack of group participation hampered the management of community groups. About 50 percent of the population living in the urban/semi-urban strata stated this problem, with lower proportions in the rice strata, mixed economy strata, uplands and plantation strata respectively. Other problems in managing community groups included a lack of budget, lack of knowledge and skills, no regular activities, inadequate understanding of the group objectives, irregular loan repayments and marketing problems (see Table 10.4).

Table 10.4 Percent of respondents citing problems of group participation by type of difficulty and strata

Difficulty	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
No participation from group members	51.1	47.1	26.6	32.1	44.0
Inadequate budget	9.3	15.3	14.5	18.6	11.2
No support from leaders	2.3	-	2.4	1.4	-
Lack of experience and knowledge	9.3	3.5	13.7	11.4	7.8
Irregular activities	11.6	8.2	18.5	6.4	15.5
No clear understanding of objectives	2.3	5.9	15.3	4.3	12.9
Marketing problems	4.7	2.4	0.8	15.7	4.3
Lack of systematic management	-	2.4	2.4	3.6	3.4
Members do not return loans on schedule	9.3	10.6	2.4	4.3	0.9
Members do not trust the leader	2.3	4.7	3.2	1.4	-
Other	4.7	-	-	0.7	-
Number	43	85	124	140	116

10.5 Gender roles and community development

The population in all strata agreed that men have greater roles in community development than did women. More than half of the population living in the plantation strata (58 percent) believed that men had greater roles in community development than did women while 45 percent of the population in urban/semi-urban strata thought so. The population in the uplands strata had the highest proportion with the opinion that men and women played equal roles in community development. The highest proportion of respondents stating that women played a greater role in community development was found in the urban/semi-urban strata (see Table 10.5).

Table 10.5 Percentage distribution of gender-based participation in community development by strata

Community participation	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Men play more important role	44.6	54.4	58.1	46.8	53.0
Women play more important role	20.7	16.1	12.2	12.2	13.2
Equal	34.7	29.5	29.7	41.0	33.8
Number	4,584	3,690	3,705	5,531	4,967

10.6 Perceived important community problems

According to respondents, the five most important community problems that needed to be urgently solved were roads, drugs, running water, electricity and telephones. Road repair was the most urgent priority need in all the study areas (61 percent for uplands strata, 56 percent for plantation strata, 51 percent in mixed economy strata and 35 percent for rice strata). Running water supply was perceived as the most important problem amongst the urban/semi-urban population (36 percent). Problems relating to drugs were the most severe in the rice strata (31 percent) followed by the plantation strata (16 percent) and urban/semi-urban strata (12 percent); while the mixed economy and upland strata had the lowest-level of this problem (11 percent and 9 percent respectively). Improvement of electricity was found to be the highest priority among the population living in upland strata with the lowest proportion for the rice strata. There was only a slight difference in the other three study areas in how the problem of electricity was prioritized (18 percent for rice strata, 16 percent for plantation strata and 14 percent for mixed economy strata); and the lowest level of need was found in the uplands strata (see Table10.6)

Table 10.6 Percent of respondents citing the most five most commonly mentioned community problems by strata

Community participation	Urban/Semi-urban	Rice	Plantation	Uplands	Mixed Economy
Road	32.8	35.4	56.0	61.4	50.7
Running water	35.6	12.7	7.4	2.6	16.1
Electricity	10.0	3.7	4.7	22.0	8.3
Telephone	9.9	17.6	15.7	4.6	14.3
Drug problem	11.7	30.6	16.2	9.4	10.5

10.7 Summary

The majority of the population did not join any community groups. This was particularly the case amongst the population in the urban/semi-urban strata, where only 7 percent were members of at least one community club/group. Among those in community groups, the highest proportion who stated that the groups they were members of received support from the government to establish the groups was found in the urban/semi-urban strata, whilst the population in uplands strata and mixed economy strata displayed the lowest proportion. Most group members living in the rice strata stated that community members supported each other to form the community groups, with the lowest proportion stating that community members established community groups by themselves found in the mixed economy area. It is notable that the proportion of group members who stated that their community groups were established with assistance between government, NGOs and community members was very low. The population in the rice strata were not satisfied with the management of their groups while the population in urban/semi-urban strata were more satisfied.

The majority of population in all strata stated that men played a greater role in community groups than did women. This opinion was found to be highest in the plantation strata followed by rice strata, mixed economy, uplands and urban/semi-urban strata respectively. There were five main problems cited by respondents that they felt urgently needed improvement; chief amongst these was road repair followed by drug problems. The highest proportion of the population in the rice strata reported these problems; while the population in the urban/semi-urban strata considered running water supply as the most serious problem to be improved. The population in the rice strata considered that telephone provision was an important

problem in their community, whilst problems related to electricity were seen as an important problem among a significant proportion of the population living in the uplands strata.

11. Summary

The same methodology for enumeration of households and household members was employed in Round 2 (2001) as in Round 1 (2000). The household listing from Round 1 (2000) was the basis for the follow up of residents in Round 2 (2001). The Round 1 (2000) household listing was updated for changes in household status that occurred between July 1st, 2000 and June 30th, 2001 including household members who were born, died, migrated in/out, and who were temporary residents.

Data collection at the household and individual levels was undertaken through face-to-face interviews, and data at the community level was obtained through community leaders' group interviews. There were 10 data collection teams, and each team consisted of a supervisor and six interviewers, with a total of 60 interviewers and 10 supervisors. The data collection period was July 1st, 2001 – August 15th, 2001.

The supervisor and interviewers had at least a bachelors degree, and the majority were local residents of Kanchanaburi province. The supervisors were intensively trained for two weeks, and took a month for preparation for the fieldwork. The interviewers were also trained for two weeks. During the fieldwork, the researchers visited and randomly edited the questionnaires for completeness, accuracy, and consistency. The interviewers and supervisors edited their questionnaires daily. The editing was performed again after the data was sent to the office. Coding and data entry were undertaken during August 27th - December 30th, 2001. The interviewers evaluated quality of data as good to very good.

The interview completion rate for household rate was 80 percent. There were 15,897 eligible households, and 12,657 households were interviewed. For the individual questionnaire, there were 32,224 eligible respondents, and 29,023 respondents were interviewed. The response rate was 90 percent.

Having a third party present during the interview was common. During the household interview, 48 percent of interviews were completed in the absence of a third party. Forty four percent of interviews had a third party present all through the interview. And one out of ten had a third party present at some stage of the interview. However, that person(s) were mainly other household members (74 percent). Others present included neighbours and friends (31 percent). More than half (51 percent) of third parties present at interviews were reported to have caused no interruption. Only one-quarter of third parties present at interviews were reported to have interrupted at some time during the interviews.

During the individual interviews, 42 percent of interviews were completed in the absence of a third party. Almost half (49 percent) of interviews had a third party present through out the interview, and nine percent had a third party present at some stage of the interview. About 83 percent were household members, 27 percent were neighbours, and 13 percent were other persons (there could be more than one other person present at the time of interview). Fifty-four percent of them caused no interruption, and only 24 percent were reported to have interrupted at sometime during the interviews.

Average interviewing time for a household was 11 minutes with a range from 2 minutes to 1 hour and 10 minutes. The average interviewing time for an individual was 9 minutes with a range from 2 to 50 minutes.

The population in Round 2 (2001) was 46,029, of which 22,197 were males and 23,832 were females. The population increased from 42,614 persons in Round 1 (2000), or about 8 percent. The rate of increase was highest in the uplands (10 percent), and lowest in the rice strata (2.1 percent). The enumerated households in Round 2 (2001) was 12,657, which increased from 11,612 households in Round 1 (2000), or about 9 percent.

Females outnumbered males in every strata, except the uplands. Dependency ratios were highest in the uplands and lowest in the urban/semi-urban strata. The dependency ratios were the same for both rounds of the census.

The majority of the population worked in agriculture, especially in the uplands (62 percent for males), and the plantation strata (62 percent for females), followed by the rice, mixed economy and urban/semi-urban strata. This pattern was the same as that in Round 1 (2000), but the proportion unemployed declined in all study areas.

Approximately 82 percent of the population did not migrate between Round 1 and Round 2. Ten and eight percent of population were out-migrants and in-migrants respectively, with a net out-migration of 2 per 100 population. The Uplands strata experienced the highest, while the plantation experienced the lowest, in-migration and out-migration rates. Migration rates for males were higher than those of females. The majority of migrants were in age group 15-29, and moved within Kanchanaburi province. These patterns were the same as those observed in Round 1 (2000).

Round 2 (2001) in-migration levels were about two times higher than that of Round 1 (2000) in all study areas except for the urban/semi-urban. The in-

migration rate in the urban/semi-urban increased only 2 percentage points (from 7 percent to 9 percent). In the rice strata, the in-migration rate increased from 2 to 6 percent, from 4 to 8 percent in the plantation strata, from 4 to 9 percent in uplands, and 3 to 8 percent in the mixed economy strata.

Fertility patterns were similar to those observed in Round 1 (2000). The Total Fertility Rate remained at 2.1, and the uplands had the highest fertility level. The patterns of age-specific-fertility-rate (ASFR) were the same as the previous year, being the lowest at age 15-19, then rapidly increasing for age group 20-24, and then gradually declining with increasing age of women.

Contraceptive prevalence was 77 percent, a slight increase from the 74 percent recorded in Round 1 (2000). Female sterilisation remained the most popular method, followed by the pill and injection. About 89 percent of currently contracepting women used these three methods.

Approximately 2 in 3 respondents reported that they were sick or not well during the period July 1st, 2000 - June 30th, 2001. The level was highest in the rice strata (79 percent), followed by urban/semi-urban, plantation, mixed economy and uplands. The first three ranking of reported sicknesses were cold, blood pressure and gastroenteropathy. The proportion of respondents that reported having a cold was highest in the rice strata (52 percent) and lowest in the uplands (39 percent).

Consumption of raw meat occurred, although this was not a regular practice, only being reported by about 3 percent of respondents in all study areas. Less than half of respondents liked spicy food, while about 79 percent had regular meals, and drank only clean water.

Consumption of additive substances such as cigarettes, beer, liquor and tonic drinks was not common, with less than 10 percent of respondents in all study areas reporting consumption of these substances. The exception was the uplands strata where 47 percent of respondents smoked regularly. With the exception of tonic drinks, the proportion consuming additive substances declined.

A total of 267 persons -- 171 males and 96 females -- died during the period July 1st, 2000 – June 30th, 2001. The crude death rate was 5 per 1000, being 7 for males, and 4 for females. The crude death rates were about 4-6 per 1000 in urban/semi-urban, plantation, uplands and mixed economy, with the rate highest in the rice strata (10 per 1000). The crude death rate in Round 2 (2001) was lower than that of Round 1 (2000).

Mortality levels and patterns were similar to those found in Round 1 (2000), and the general Thai population. For instance, males had higher mortality than females and the mortality pattern had a J-shape. Most causes of deaths were sickness and accidents. There were two percent who were murdered and committed suicide. About 6 percent of deaths in the rice strata were a result of murder.

Among respondents age 15 and over, the highest proportion of those who joined community development groups was in the rice strata (41 percent), while the lowest proportion was in the urban/semi-urban strata (8 percent). In all study areas, people belong to development groups formed by communities more than those formed by co-operation between the community and government agencies, and development groups established by only government or non-government agencies.

In all study areas, the majority of development groups members reported that the main problem was lack of participation of members, followed by lack of budget, lack of knowledge and experience among the members, no regular activities, members did not know objectives of the groups, and did not pay dues regularly.

Respondents in all study areas indicated that the improvement of roads was the most urgent problem, especially in the uplands. Drug addiction was another significant problem, which was cited most frequently in the rice strata. Respondents in the urban/semi-urban strata reported that they needed development of water pipelines, while respondents in the rice strata wanted the telephone system to be improved.

Most respondents in all areas thought that males had more roles in development than females. The highest proportion citing males was found in the plantation strata, followed by rice, mixed economy, uplands and urban/semi-urban strata.

Appendix

Table A2.1 Number, response rate, and average time for interviews (in minutes) by questionnaire

Questionnaire	Number eligible	Number of interviews	Response rate	Average time interview
Household	15,897	12,657	79.6	11.3
Individual	32,224	29,024	90.1	8.5

Table A2.2 Number and percentage distribution of interview non response by reason and type of questionnaire

Reason	Household		Individual	
	Number	Percent	Number	Percent
Refused to be interviewed	58	1.8	304	9.5
Busy working	224	6.9	2,268	70.9
Sick/old/handicap	22	0.7	587	18.3
Household move	1,270	39.2	-	-
No permanent residents	479	14.8	-	-
Vacant/deserted home	975	30.1	-	-
Other	212	6.5	24	0.8
Do not know/no answer	-	-	18	0.6
Total	3,240	100.0	3,201	100.0

Table A2.3 Percentage distribution, and number of respondents by question and questionnaire

Question	Questionnaire	
	Household	Individual
What was the place where the interview was held like?		
Free from disturbances/ very private	50.8	44.8
There was some disturbance, but it did not affect the interview.	44.8	50.4
There was a disturbance and it affected the interview.	4.1	4.5
There was a lot of disturbance and the interview had to be stopped often/it is spoiled the atmosphere	0.2	0.2
Do not know / no answer	0.0	0.1
Total	100.0	100.0
(Number)	(12,657)	(29,023)
Was there anyone else present during the interview?		
Yes, all the time.	43.5	48.7
Yes, sometimes.	8.5	9.0
No, not at all.	48.0	42.2
Do not know / no answer	0.0	0.1
Total	100.0	100.0
(Number)	(12,657)	(29,023)
If there was another person in this interview, who was it? (Can answer more than one person)		
Other family members	74.3	82.5
Friend	6.9	6.0
Neighbor	33.4	26.6
Interpreter	3.8	3.8
Others (relatives, other interviewers, etc.)	3.0	2.8

Table A2.3 Continued

Question	Questionnaire	
	Household	Individual
Did such persons answer or give opinions for the respondent?		
Yes, a lot.	2.1	2.0
Yes, sometimes.	27.5	23.8
Yes, a little.	19.0	19.5
Not at all.	51.3	54.0
Do not know / no answer	0.2	0.7
Total	100.0	100.0
(Number)	(6,584)	(16,773)
How much cooperation did the respondent give during the interview?		
Very good	32.0	30.8
Good	65.5	65.6
Average	2.3	3.2
Little	0.2	0.3
Do not know / no answer	0.0	0.1
Total	100.0	100.0
(Number)	(12,657)	(29,023)
How did the respondent behave during the interview?		
Enjoyed answering	91.5	90.2
Indifferent	8.1	9.5
Reluctant to answer some questions.	0.2	0.2
Showed dissatisfaction of some questions.	0.0	0.1
Showed dissatisfaction of all questions.	0.0	0.1
Total	100.0	100.0
(Number)	(12,657)	(29,023)

Table A2.3 Continued

Question	Questionnaire	
	Household	Individual
In general, what was the quality of the data obtained from this interview like?		
Very good	20.8	19.6
Good	75.0	75.0
Satisfied	4.1	5.2
Not good	0.1	0.1
Do not know / no answer	0.0	0.1
Total	100.0	100.0
(Number)	(12,657)	(29,023)

Kanchanaburi Project

Round 2 (Year 2001)

Institute for Population and Social Research, Mahidol University

In collaboration with

Ratchapat Institute Kanchanaburi

Household Questionnaire

Household ID ……
District ___ ___
Sub-district ___ ___
Village ___ ___
Household No. ___ ___ ____

Name of head of household ……..……...
Name of respondent ……..……
House No. ……. Village No.……. Village name …….. Sub-district……..……..…
District…….…….…….. Kanchanaburi Province
Household type 1. Old 2. New
Location 1. Municipality 2. Rural area

Result of 1st interview 1. Yes 2. No 3. Incomplete Next appointment : Date…Time…….
Result of 2nd interview 1. Yes 2. No 3. Incomplete Next appointment : Date…Time…….
Result of 3rd interview 1. Yes 2. No because…….

D/M/Y of 1st interview D/M/Y of 2nd interview D/M/Y of 3rd interview
Start at ……..… Start at ……..… Start at ……..…
End at ……. End at ……. End at …….
Total time……..…minutes Total time……..… minutes Total time……..…… minutes

Name of Interviewer ……..……..……..……
Name of Field Supervisor ……...……..…… D/M/Y……..……
Name of Editor…….. D/M/Y …….....
Name of Coder…….…….. D/M/Y……. ……..

Interviewer: Please observe the house characteristics

House characteristics

1. What type is the house?

    1. Single House
    2. Twin-house
    3. Block/Shop House
    4. Condominium
    5. Rental room inside a house/building
    6. Wooden rowed house/Boat house/mobile car
    7. Other (specify)…….…...……

2. What is the material of the roof ?

    1. Cepack
    2. Tile
    3. Zinc Plate
    4. Lamparata cylindrica/elephant grass/nipa palm leaf/teak leaf
    5. Bamboo
    6. Cement
    7. Used material
    8. Other (specify)…….……..

3. What is the material of the house walls?

    1. Concrete/Brick/Stone
    2. Tile
    3. Zinc plate
    4. Lamparata cylindrica/elephant grass/nipa palm leaf/teak leaf
    5. Bamboo
    6. Wood
    7. Half cement and wood
    8. Used material
    9. Other (specify)…….……..

Part 1 : Basic Information on Household Occupants

1.1 No.	**1.2** Individual No. in last Household No.	**1.3 First/Last Name**	**1.4** Resident status	**1.5 Date of birth**			**1.6 Age (years)**	1.7 Sex 1.Male 2.Female
				Day	Month	Year		
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								

Code for 1.4 : Resident status

1. Old member and still live here from 1st July 2000
2. Old member but moved away from 1st July 2000
3. Old member and died
4. New member and live here
5. Temporarily lived here more than one month
6. Temporarily live here more than one month and died
7. New member and still live here

1.8 Relationship with head of household (see codes)	**1.9 Order No. of Father In household (If not have fill 0)**	**1.10 Order No. of Mother in household (If not have fill 0)**	**1.11 Marital status (see codes)**	**1.12 Education level (The highest level of education) (specify) ……**	**1.13 Occupation (Ask only persons aged 4 and over)** (explain in detail o job descriptions, characteristic and type of job)

Code for 1.8 : Relationship with head of household

1. Head of household	6. Son/ daughter	11. Daughter in law	16. Friend
2 Spouse	7. Sibling	12. Nephew/niece	17. Lodger
3. Father	8. Grand child	13. Great grand child	18. Employee
4. Mother	9. Brother/ sister	14. Grand father/grand mother	19. Other (specify) ……
5. Father/mother in law	10. Son in law	15. Relative	

Code for 1.11: Marital status

1. Married 2. Divorced 3. Separated 4. Widowed 5. Single

1.1 No.	1.3 First/Last Name	(Q 1.14-1.15) Ask for person who answer 4,5,6 or 7 in Q 1.4			
		1.14 When did the person move into the household? (Month… Year.…)		**1.15** Before living here, where did this person live? 0. Just born/live here since delivery 1. In this village (Fill previous ID) 2. In this Sub-district 3. Other (specify District…… Province……...…)	
		Month	Year	Place	District and Province
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

(Q 1.16-1.18) Ask only the person who was an old member of this household but moved away (Answered 2 or 5 in Q 1.4) (Including old and new household member)					1.19 Does the person have difficulty in carrying out normal daily activities 1. Yes(continue to Q 1.20) 2. No	1.20 Cause of difficulties in carring out normal daily activities (record only one cause) (see codes)
1.16 If the person did not live here, when did the person move away? (Month… Year….)		1.17 Where does the person live? 1. In this village (Fill ID which received in new Household) 2. In this Sub-district 3. Other (specify District…….. Province……)		1.18 Where is the person's house located? 1. Municipality 2. Rural area		
Month	Year	Place	District and province			

Code for 1.20 Cause of self-care difficulties

1. Congenital disability
2. Accident in a house/housing area
3. Traffic accident
4. Work accident
5. Sickness
6. Old age
7. Other(specify) ……
8. Unknown cause

Part 2: Mortality (Interviewer: Please check name list of household. If there is no one who died, please skip to part 3)

2.1 Did any person in Q 1.4 receive code 3 or 6 ?

1. Yes ↓ 2. No **(skip to part 3)**

2.2 First/Last Name	**2.3 No. (on page 2)**	**2.4** D/M/Y of death			**2.5** age (years) when the person died	**2.6** Sex 1.Male 2. Female	**2.7** Cause of death (see codes)	**2.8** Specify the or cause of this person death (i.e. Cholera, car accident, suicide)	**2.9** Place of death 1. Government hospital 2. Private hospital 3. Health center 4. Clinic 5. Home 6. On road 7. Other (specify) …	**2.10** Did you register the death ? 1. Yes 2. No
		Day	Month	Year						
1.										
2.										
3.										

Code for 2.7 Cause of death

1. Sickness
2. Accident
3. Homicide
4. Suicide
5. Other (specify) ……

Part 3: Household characteristics

3.1 Does this household have electricity?

1. Yes 2. No

3.1.1 What type of electricity?

1. Public electricity
2. Village electricity
3. Own household electricity i.e. Solar cell, Batteries

3.2 What kind of fuel is used in daily use? ***(Please rank from maximum to minimum used.)***

a. Fire Rank ……..
b. Charcoal Rank ……..
c. Gas Rank ……..
d. Electricity Rank ……..
e. Other (specify ……) Rank ……..

3.3 Does ithe household have the tap water?

1. Yes
2. No

3.4 What is the source of ***drinking water*** in this household? ***(can answer more than one source)***

a. Rain water c. Natural source e. Under ground water
b. Tap water d. Shallow Well f. Purchase drinking water

3.5 What is the source of ***water for household use*** ? ***(can answer more than one source)***

a. Rain water c. Natural source e. Under ground water
b. Tap water d. Shallow Well f. Purchase drinking water

3.6 Does this household have it's ***own toilet***?

1.Yes 2. No

↓

3.6.1 What is the type of toilet?

1. Flush toilet (western type)
2. Squat type (with septic tank)
3. Squat type (without septic tank)
4. Open pit (latrine)
5. Open fill/river/bush
6. Other (specify) ……..

3.7 **<u>From 1st July 2000 till now</u>**, Did the household have any debt (100 Baht and over, in any form)

1. Yes 2. No

↓

Source of debt	**Value (Baht)**
a. Relative	
b. Neighbor/Friend /Friend in office (workplace)	
c. Employer/House owner/Money lender	
d. Store or shop	
e. Cooperative/ saving group	
f. Village fund	
g. Bank of Agriculture and cooperative	
h. Other Bank	
i. Government organization (i.e. pawnshop, cooperative in organization)	
j. Financial institution (i.e. private pawnshop, financial firm)	
k. Other (specify)……..	

3.8 Does your family ***own*** these items? If so, how many of each? (Please read to respondent all items)

Item	Number (If none fill -)
1. Colour T.V.	
2. VDO/VCD/DVD/Karaoke Player	
3. Sattellite disk	
4. Audio Equipment Stereo	
5. Mobile phone	
6. Telephone	
7. Pager	
8. Computer	
9. Pump Water machine/Electricity machine	
10. Air conditioner	
11. Sewing machine	
12. Washing machine	
13. Microwave	
14. Refrigerator	
15. Boat (use motor)	
16. Bicycle	
17. Motorcycle	
18. Tuk tuk	
19. Local truck	
20. Car	
21. Pick up/Van	
22. Bus/ coach	
23. Tractor/Harvest Tractor/Trashing machine/Ploughing machine	
24. Other (specify)…….……..	

Note : Do not record black/white T.V., radio, rice-cooker, iron, electric fan, electric-pot

Part 4: Land use and chemical use

Interviewer:	**'Land use for agriculture' could be on owned land or rented land**

4.1 **From 1st July 2000 till now** Did this household use the land for agriculture ? (Both for selling and consuming) What was the cost annually for fertilizer, chemicals, pesticide etc.

1. Yes 2. No

↓

Land use pattern	Cost (Baht)		
	Chemical fertilizer	Organic fertilizer	Chemical
a. Rice farming			
├ Rice field where paddy seedlings are transplanted			
├ Rice field where paddy seedlings are not transplanted			
└ Uplands Rice			
b. Sugarcane			
c. Cassava			
d. Corn			
e. Vegetables			
f. Fruit orchard			
g. Mixed field (Integrated farm)			
h. Tree (i.e. teak, eucalyptus)(specify) ……..			
i. Aquatic animals (specify) ……..			
j. Other animal raising (specify) ……			
k. Other (specify) ……..			

The opinion of interviewer

♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠

Interviewer: After ending this interview, please answer these questions frankly.

1. What was the place where the interview was held like?
   1. Free from disturbances.
   2. There was some disturbance, but it did not affect the interview.
   3. There was a disturbance and it affected the interview.
   4. There was a lot of disturbances and the interview had to be stopped often /it is spoiled the atmosphere.

2. Were there anyone else present during the interview?
   1. Yes, all the time.
   2. Yes, sometimes.
   3. No. (go to Q.5)

3. If there was another person in this interview, who was it? (Can answer more than one person)
   1. Other family members
   2. Friend
   3. Neighbor
   4. Others (specify)…….

4. Did such person answer or give opinions for the respondent?
   1. Yes, a lot.
   2. Yes, sometimes.
   3. Yes, a little.
   4. No.

5. How much cooperation did the respondent give during the interview ?
   1. Very good
   2. Good
   3. Average
   4. Little

6. How did the respondent behave during the interview?
   1. Enjoyed answering
   2. Indifferent
   3. Reluctant to answer some questions. (Specify part/number) ……
   4. Showed dissatisfaction with some questions. (Specify part/number) ……

7. In general, what was the quality of the data obtained from this interview like?
   1. Very good
   2. Good
   3. Satisfied
   4. Not good, because ……

Kanchanaburi Project

Round 2 (Year 2001)

Institute for Population and Social Research, Mahidol University

In collaboration with

Ratchapat Institute Kanchanaburi

Individual Questionnaire

For Respondents aged 15 and over

Individual ID ……..

District ___ ___

Sub District ___ ___

Village ___ ___

Household No. ___ ___ ___

Individual No. ___ ___

Name of respondent …….

Name of head of household …….

House No ……. Village's No. …….. Village name ……. Sub-district ……..…

District …….. Kanchanaburi Province ……..

Location 1. Municipality 2. Rural area

Results of 1st interview 1. Yes 2. No 3. Incomplete Next appointment: Date……..time……..

Results of 2nd interview 1. Yes 2. No 3. Incomplete Next appointment: Date……..time……..

Results of 3rd interview 1. Yes 2. No Because……

Date of 1st interview	Date of 2nd interview	Date of 3rd interview
Start at ……..……	Start at ……..……	Start at ……..
End at ……..	End at ……..	End at ……..
Total time…… minutes	Total time…… minutes	Total time…… minutes

Name of Interviewer ……..……..……..……..……

Name of Field Supervisor ……..…….. D/M/Y ……..……..……

Name of Editor ……..……..……. D/M/Y ……..……..……

Name of Coder ……..……..……. D/M/Y ……..……..……

Part 1 : Personal Data

1.1 What is your birthday?

Day..... Month..... Year.....

1.2 How old are you?

Age in years ..... Year

1.3 Sex of respondent

1. Male 2. Female

1.4 What is your marital status?

1. Married → 1.4.1.1 Date of last marriage (specify)…or when age…Years
   1.4.1.2 Did you register? 1. Yes 2. No
2. Divorced → 1.4.2.1 Date of last divorce (specify)
   Date…….Month…….Year…. Or when age……Years
3. Separated
4. Widowed
5. Single

1.5 What is your (completed) education level? How long did it take to finish?

Educational level ……..

Completed education in years …… or at age ……

1.6 What is the main language in your household? **(can answer more than one item)**

a. Central-Thai	g. Moslem (Yavi)	m. Loa-Supanburi	s. Yao
b. Northeastern-Thai	h. Lao-soung	n. Yuan/Lao-Yuan	t. Khamu
c. Northern-Thai	i. Loa-puan	o. Karen	u. Khamae
d. Southern-Thai	j. Loa-nok/Lao-Vientian	p. Karang/Pagakayor	v. Chinese
e. Lawa-Thai	k. Lao-Kang	q. Burmese	w. English
f. Bhuthai	l. Central-Lao	r. Mon	x. Others(Specify)…

1.7 Are you working?

1. Working 2. Looking for a job 3. Student 4. Housewife 5. Do not work

1.7.1 What type of work do you do?

Main job ……..……...…….. Minor job ……...……

1.7.2 What is your income? (include all income from all jobs)

. Annual income……. Baht

. Do not have income because…….

(record in 1.7.3 when cannot separate your income from the household)

1.7.3 Your income included in household income …….. Baht

1.7.4 Reason for not working (Please Specify) ……

Part 2 : Migration

Interviewer: **The following are questions to *ask everyone***

Migration History

2.1 Where is your birthplace?

1. In this village **(fill Individual ID)**
2. In this District
3. Others (Please specify District ……. Province …… Country ……..)

2.2 At the time when you were born, was your birthplace located in?

1. Municipality
2. Sanitary district
3. Rural area

2.3 ***From 1st July 2000 till now,*** Did you ever ***move to stay somewhere else for one month or more?***

1. Yes (Continue 2.3.1)
2. No (Go to part 3)

Have you ever stayed elsewhere during July 2000 till now? (Ask for person who answer "yes")

2.3.1 Month	**2.3.2** 1. Village…… 2. Municipality 3. Bangkok	**2.3.3** Sub-district	**2.3.4** District	**2.3.5** Province	**2.3.6** Country
July 2000					
August 2000					
September 2000					
October 2000					
November 2000					
December 2000					
January 2001					
February 2001					
March 2001					
April 2001					
May 2001					
June 2001					
July 2001					
August 2001					

Code for 2.3.7 Person stayed with:

1. Alone
2. Spouse
3. Father
4. Mother
5. Father/mother in law
6. Son/daughter
7. Sibling
8. Children of the child
9. Sister/brother
10. Son-in-law
11. Daughter-in-law
12. Niece/nephew
13. Great-grandchildren
14. Grandmother/grandfather
15. Relative
16. friend
17. Lodger
18. Employee
19. Other (Please specify)……

2.3.7 **Person(s)** you stayed with (can be more than one person) (see codes)	**2.3.8** **Reason for moving out there** (Only main reason) (see codes)	**2.3.9** What **major activities**? (Record job characteristics) 0 Unemployed (Go to 2..3.11)	**2.3.10** **Money/items** brought back or sent back (record if the value is more than 100 Baht)	**2.3.11** **Reason for moving in here** (Only main reason) (see codes)

Code for 2.3.8 Reason for moving there and 2.3.11 Reason for moving in here

1. looking for a jobg
2. Seasonal work
3. Work
4. Finished work/work over
5. Want to change a job
6. Military service
7. End of Military service
8. Ordered move
9. Extend branch
10. Ordained
11. Study
12. Receive medical treatment
13. Visit friend
14. Visit relative
15. Vacation
16. In prison
17. Join spouse
18. Join parents
19. Delivery
20. Child care/elderly care
21. Do housework
22. Individual/family problem
23. Set up new family
24. Stay with parents home
25. Return home
26. Economic problem
27. More civilization
28. Other (Please specify)……

Part 3: Fertility

interviewer: **The following are questions to ask only married women aged 15-50**

3.1 At this moment, how many of your living children stay with you? (specify No. of male, No. of female)

Total number ……..…… (person)

Male ……..…….. (person)

Female ……...…….……... (person)

3.2 At this moment, how many of your living children stay elsewhere? (specify No. of male, No. of female)

Total number ……..…… (person)

Male ……..…….. (person)

Female ……...…….……... (person)

3.3 How many of your children ever born have died? (specify No. of male, No. of female)

Total number ……..…… (person)

Male ……..…….. (person)

Female ……...…….……... (person)

Interviewer: Please record the total number of children in 3.1, 3.2 and 3.3 in the box and then continue to ask Q 3.4)

Total number ……..…… (person)

Male ……..…….. (person)

Female ……...…….…… (person)

3.4 Your children ever born were……. ; male ……(person) ; and female …….. (person).
Is that right?
(If **"yes"** continue to next question. If **"no"** please return to Q 3.1)

3.5 Do you want to have more children? If **"still want"** how many children and what sex do you prefer?.
If **"do not want"** please fill 0 in each gap and if do not select sex of children fill 7 in b and c)

a. Total number ….……..(person)

b. Male ….……..(person)

c. Female ….……..(person)

Interviewer: **The following questions numbered 3.6, 3.7 and 3.8 ask all women.**

3.6 Do you know what " Ideal number of children" means? **(Please read only, do not explain)**

1. Yes 2. No

↓

3.7 How many children is your ideal ? (specify No. of male and No. of female)

a. Total number …..……... (person)

b. Male …….…….…….. (person)

c. Female ……...…….……... (person)

(If do not want any children fill 0, if do not select sex of children fill 7 in b and c.)

3.8 Suppose you are rich and able to take care of more children. How many children do you wish to have?

(specify No. of male and No. of female)

a. Total number …..……... (person)

b. Male …….…….…….. (person)

c. Female …...…….……... (person)

(If do not want, fill 0, do not select sex, fill 7 in b. and c.)

39. History of pregnancy and contraceptive use in each month (The following are questions to ask woman aged 15-49)

Interviewer: Note ***single women who do not use contraceptive method or have not been pregnant.*** Please ask for the month of amenorrhoea (during 1st January 1999 till now). If have amenorrhoea, please fill Am in these months and fill NS (No sexual contact) in others)

For other persons, please ask for pregnancy and contraceptive use history during January 1999 till now and fill in abbreviation in the table for each month

Guidelines and abbreviations

1. Terminated pregnancy

(Ask for the result of pregnancy during January 1999 till now)

Record the result in the table as follows:

LB = Live Birth

SB = Still Birth (the gestation age was 7 months and over)

FL = Fetal Loss (Including spontaneous abortion and induced abortion)

2. Time of pregnancy

(Ask for gestation age when delivered and focus on the 1st month of pregnancy and replete with this question " Did you get pregnancy in (month)…?)

Fill G (Gestation) in the month during the gestation time (If had pregnancy before Jan 2000 please record the 1st month of pregnancy in question 3.11)

Except the 1st month or fertilizable month fill G and folly by ( )

3. Contraceptive method in fertile month

(Check for the first month of pregnancy G( ) and ask with this question " did you use the contraceptive method in the first month of pregnancy?"

If "yes", please fill an abbreviation in the parentheses.

If "no", please ask for the reason for non-use contraceptive method and fill an abbreviation in the Parentheses.

4. Postpartum amenorrhoea (Amenorrhoea : Am)

(After termination of pregnancy (LB or SB or A), please ask with this question "how many months did have amenorrhoea?)

Fill Am( ) in the month of amennorrhoea and then erase 1 month

If has postpartum amenorrhoea only one month, do not fill Am ( )

5. Contraceptive use

Please start from the last month which is blank or has Am ( ) and ask that "did you use the contraceptive method in this month?" If "yes", please ask the time of using this method. Please make sure that this method was used continuously more than 2 months. If did not use continuously for 2 months, ask for the intention to continue use for 2 months.

Please ask for the blank month or Am ( )

If changed method or discontinued between months, please fill the abbreviation of method used at the end of the month.

Abbreviation for contraceptive method

(1) L = Ligation
(2) V = Vasectomy
(3) Imp = Subdermal Implant
(4) I = Injection
(5) IUD = Intra Uterine Device
(6) P = Pill
(7) C = Condom
(8) W = Withdrawal
(9) R = Rhythm
(10) VM = Vaginal Methods
(11) IA = Induced Abortion
(12) Ab = Abstinence
(13) R + W = Rhythm & Withdrawal
(14) R + C = Rhythm & Condom
(15) C + W = Condom & Withdrawal

} Make sure that both are used at the same time

O = Other (Please note below the table)

6. Reason for not using contraceptive method

Please asking for the reason in each blank month, if it has more than one, please ask for the main reason

For the month with Am ( ), Please fill – in the parentheses Am (-)

Abbreviation for do not use the contraceptive method

(70) Am (-) = Amenorrhoea and do not use contraceptive method
(81) U = Unable (Including natural sterile and unexpected to have children
(82) NS = No sexual contact
(83) D = Desire pregnancy
(84) B = Breastfeeding
(85) SE = Side effect (afraid)
(86) DM = Dislike method
X = Others reasons (Please note below the table)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1999												
2000												
2001												

X: Other reason (specify) ……

Interviewer: **Please check the table and make sure there is no blank box. After that please ask for the contraceptive which was used in January 1999. If respondent used contraceptive method, please continue to Q 3.10. If did not use, skip to part 4.**

3.10 If yes, Please ask " When did you start to use the method which you used in January 1999?" (Make sure that

did not terminate or was pregnant. If yes, ask for the last month started to use and did not terminate or became pregnant.

Contraceptive method .....

Start in Month ..... Year .....

3.11 If pregnanted before January 1999, when did you become pregnant?

Month ..... Year .....

Part 4: Health

4.1 **<u>From 1st July 2000until now.</u> Did you feel sick and have to absent yourself from work or could not do normal activities of daily life?**

(Including chronic disease)

1. Yes

2. No

4.1.1 **Sickness/ Discomfort/Accident**	**4.1.2** **Methods of treatment (see codes)**	**4.1.3** **Main reason for choosing treatment/not received any treatment** (see codes)	**4.1.4** **Decision for treatment in Q 4.1.2** 1. Makie own decision 2. Join with others 3. Did not participate in making decision
a) Sickness that can be identified by disease. (Note all disease)			
1……	1……	1……	1……
2……	2……	2……	2……
3……	3……	3……	3……
4……	4……	4……	4……
5……	5……	5……	5……
b) Sickness that is indicated by signs/symptoms (Note: for the sickness which cannot be identified by disease)			
1……	1……	1……	1……
2……	2……	2……	2……
3……	3……	3……	3……
4……	4……	4……	4……
5……	5……	5……	5……

c) Sickness from accident)			
1……	1……	1……	1……
2……	2……	2……	2……
3……	3……	3……	3……
4……	4……	4……	4……
5……	5……	5……	5……

Code for 4.1.2

95. No treatment
1. Go to government hospital in Bangkok
2. Go to government hospital
3. Go to private hospital /clinic
4. Go to health center
5. Go to drug store
6. Visit mobile drug merchant/all types of drug (i.e. potted drug/bolus drug)
7. Visit traditional doctor/a herbalist/a witch doctor
8. Go to grocery which sell drugs
9. Selfcare (i.e. exercise/have good food)
10. Other (specify)……

Code for 4.1.3

1. Mild sickness
2. Cheap
3. Convenient/near a house
4. Severe sickness
5. Get well by do not take
6. Congenital chronic disease
7. Result of past deeds cannot cure
8. No money
9. Suggestion from persons who used to sick
10. Do not want anybody to know
11. Sick from deformities not infected
12. Get social welfare (including all heath cards)
13. Effective treatment
14. Believe/ Resp
15. Free treatment
16. Buy drug for self-treatment
17. High quality of drug
18. Other (specify) ……

4.1.5 Reasons for not being sick

Reason	1. yes (without a leading question)	2. Yes (ask leading question)	3. No
a. Healthy	1	2	3
b. do not work hard	1	2	3
c. do not drink alcohol	1	2	3
d. do not smoke	1	2	3
e. Self-care	1	2	3
f. Good nutrition	1	2	3
g. Good exercise	1	2	3
h. do not stress/tension	1	2	3

4.2 Do you ***always do*** these activities in your daily life and you think it is ***usual*** for you?

(Read all items for respondents)

a. eat spicy food 1. Yes 2. No

b. Raw food/or half-cooking food (not including fresh vegetable) 1. Yes 2. No

c. Sleep under mosquito net 1. Yes 2. No

d. Have regular meal 1. Yes 2. No

e. Drinking clean water 1. Yes 2. No

f. Wearing shoes when walking in swamps 1. Yes 2. No

g. Depend on sleeping drug 1. Yes 2. No

h. Working hard and less rest 1. Yes 2. No

4.3 At this moment, Do you have these? ***(ask leading question) for all items and if answer yes. How often do you use?***

Item	**Do you use it?** 1. Yes 2. No	**How often?** (see codes)
a. Cigarettes		
b. Beer		
c. Liquor		
d. Traditional Liquor		
e. Stimulant drinks		
f. Drug for pain killers (Nacrotic drug)		

Codes for "*How often?*": 1. Once a week 2. Twice a week 3. Three times a week 4. Four times a week 5. Five times a week 6. Six times a week 7. Everyday 8. Seldom

Part 5: Community development

Interviewer : **The following are questions to *ask everyone aged 15-59***

5.1 At this moment, Are you a member of any group/club?

1. Yes
2. No

5.2 Member of groups that you have joined …… groups (See group/club definitions in code book)

5.3 What is an important group that you regularly participate in (only one group)
Group's name…….

5.4 What is the main activity of your group in Q 5.3 ?
Activity (specify only main activity)……

5.5 Does the group in Q 5.3 implement its main activities in this village?

1. Yes
2. No

5.6 Place for main activity

1. **at sub-district**
2. **at district**
3. **at provincial level (Kanchanaburi)**
4. **Collaborated with other province**
5. **Others (specify)……**

5.7 How was the group in Q 5.3 established? (Answer one reason)

1. Set up by government organization
2. Community members
3. Set up by joining with government organization and community members
4. Set up by non-government organization
5. Set up by collaboration with government organization/non-government organization/ and community members
6. Do not know

5.8 Are you satisfied to be a member of the group in Q 5.3?

1. Yes.
2. No. Because (Specify only one main reason) .....

5.9 Does the group in Q 5.3 have any problem/constraint in administration?

1. Yes 2. No (Go to Q 5.14-5.16)

5.10. What is the main cause of problems? (specify only one problem)

1. Lack of collaboration among members in group/clup
2. Lack of funds
3. No support from village leader
4. Members lack of knowledge and experience to work
5. Village members do not see importance of this group and do not cooperate
6. No regular activities for groups members to join and learn from each others
7. Members do not understand the objectives and goals of a grpup
8. Other (specify) ……..

5.11. Reasons for **not being** a member of a group/club (can answer more than one reason)

a. Lack of information for making decision for membership
b. Neighbor is not a member
c. Too busy
d. Lack of experience in development
e. Do not want to work in a group
f. Not important person (do not get respect from neighbors)
g. Not interested in community development
h. Other (specify) ……..

5.12 Do you want to be a member of a group/club in this village?

1. Yes → 5.13 Group's name (specify only one group) ……
2. No
3. Not sure
4. Do not know what are the groups in this village. **Continue to Q 5.14-5.16**

5.14. From the past till now, who do you think has had an active role in developing the well-being of people in this village?

1. Men
2. Women
3. Same
4. No idea

5.15. Does this village have an urgent issue to solve or to develop?

1. Yes 2. No

5.16 What is an urgent issue to solve or to develop? (only one answer)

1. Road	8. Telephone
2. Source of natural water	9. Drainage ditch system
3. Land	10. Garbage
4. Income generating projects	11. Mosquito
5. Narcotic drug	12. insecurity
6. Tap water	13. Immigrant
7. Electricity	14. Others (specify) ……

The opinion of the interviewer

♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠

Interviewer: After ending this interview, please answer these questions frankly.

1. What was the place where the interview was held like?
   1. There was free from disturbances
   2. There was some disturbance, but it did not affect the interview
   3. There was a disturbance and it affect the interview
   4. There was a lot of disturbance and the interview had to be stopped often/it is spoiled the atmosphere

2. Was there anyone else present during the interview?
   1. Yes, all the time
   2. Yes, sometimes
   3. No (go to Q 5)

3. If there was another person in this interview, who was it? (can answer more than one person)
   1. Other family members
   2. Friend
   3. Neighbor
   4. Others (specify)…….

4. Did such person answer or give opinions for the respondent?
   1. Yes, a lot
   2. Yes, sometimes
   3. Yes, little
   4. No

5. How much cooperation did the respondent give during the interview?
   1. Very good
   2. Good
   3. Average
   4. Little

6. How did the respondent behave during the interview?
   1. Enjoyed answering
   2. Indifferent
   3. Reluctant to answer some questions.
      (Specify part/number) ……...
   4. Showed dissatisfaction with some questions.
      (Specify part/number) ……...

7. In general, what was the quality of the data obtained from this interview like?
   1. Very good
   2. Good
   3. Satisfactory
   4. Not good

Kanchanaburi Project

Round 2 (Year 2001)

Institute for Population and Social Research, Mahidol University

In collaboration with

Ratchapat Institute Kanchanaburi

Village Survey Form

Village No. ……
District ___ ___
Sub-district ___ ___
Village ___ ___

Village No…….. ……Village name…… Sub-district…….……
District ……..…….…….. Kanchanaburi Province

Date of interview ……...
Starting at……..…….. Ending at…….
Total time ……..……...……

Name of Interviewer ……..……..……...……..……
Name of Field Supervisor……..…….. D/M/Y ……...……..…..…..…….
Name of Editor…… D/M/Y……..
Name of Coder…… D/M/Y……..

Opinion of interviewer ……...……
……...……
……..
……..
……
……

Village information is collected in a group interview which includes not less than 3 persons

Village Data

Name of respondents	Position	Age (years)	Sex
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Village information is collected in a group interview, if the data is incomplete, please try to complete

Information issue	Name of respondents
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

Part 1: General Data

1.1 Where is the village located? (Can answer more than one item)

1. Plain low-land
2. Highland/plateau
3. A ridge of mountain/A slope of mountain
4. Hill side/A ravine
5. Near the river
6. Edge of reservoir

1.2 What is the settlement pattern?

1. Along the road/river
2. Scatter
3. Cluster
4. Other (specify) ……

1.3 How many households are there in this village?

……households

1.4 How many people are there in this village?

Total…….. persons Male…….. persons Female…… persons

> **Interviewer:** Factory in the village means that a factory that produces, makes or repair goods and was conducted by a person or group at only one place. This factory can produce more than one product.

1.5 Is there any factory in this village?

1. Yes ↓

1.5.1 No. of Factories ……

1.5.2 Specify name and type of factory

1. …….
2. …….
3. …….

2. No ↓

1.5.3 How far is the nearest factory from this village? ….

…….Kilometers

1.5.4 Specify name and type of factory

1. …….
2. …….
3. …….

Part 2: Agriculture

2.1 Where is the source of water for agriculture? *(can answer more than one item)*

a. Irrigated canal
b. Well No. of well……
c. Brook/ Canal /River (specify)……
……
d. Swamp
e. Weir
f. Rain
g. Other (specify)……

2.2 Compare the quantity of natural water this year to last year ?

1. Decreased
2. Increased
3. Same
4. Do not know
5. No source of natural water

2.3 What is the area of land in this village? ……. Rai
For agricultural use (including for commercial use and consumption) ……..… Rai

2.4 Which crops do most households plant in this village and what is the percentage of the total agricultural land ?

1. Rice farming (continue to question 2.5 – 2.6)
   - Rice field where paddy seedlings are transplanted ….…… Percent
   - Rice field where paddy seedlings are not transplanted ……. Percent
   - Upland Rice ……. Percent
2. Crop farming Percent…… (Continue to question 2.7 – 2.8)
3. Vegetable garden Percent…… (Continue to question 2..9-2.10)
4. Fruit orchard Percent…… (Continue to question 2.11 – 2.12)
5. Tree (i.e. Teak, Eucalyptus) (specify) ……..…… Percent……
6. Other (specify) …… Percent ……..

1. <u>In the case of rice farming</u> (For rice grown on owned land or rented land . This land could be located inside or outside this village)

2.5 **In the past year**, How many times per year do most households grow rice ?

1. Once a year
2. Twice a year
3. Three times
4. Four times
5. Other (specify)……
8. No rice growing

2.6 **From 1st July 2000 till now**, How much rice did most households produce ? (Kilograms per rai)

……Kilograms per rai 8. No rice growing

2. In the case of crop farming (For crops grown on owned land or rented land., the land could be located inside and outside the village.)

2.7 **From 1st July 2000 till now** What type of crops did most households in this village grow?

Rank 1st ……..
Rank 2nd ……..
Rank 3rd ……..

2.8 **From 1st July 2000 till now** **What volume of** crops did most households produce? (Rank 1st in Q. 2.7)

…… Kilograms per rai 8. No crop growing

3. In the case of vegetable garden (For vegetables grown on owned land or rented land. This land could be located inside or outside the village, excluding vegetable garden in the household area or the field.)

2.9 **From 1st July 2000 till now** What type of vegetables did most households in this village grow?

Rank 1st…….
Rank 2nd…….
Rank 3rd…….

2.10 **From 1st July 2000 till now What volume of** vegetable products did most households produce? (Rank 1st in Q.2.9) …… Kilograms per rai 8. No vegetable gardening

4. In case of orchards (For fruit grown on owned land or rented land. The land could be located inside or outside the village, excluding fruit garden growing in the household area or the field.)

2.11 **From 1st July 2000 till now** What type of fruit did most households in this village grow?

Rank 1st ……..
Rank 2nd … …….
Rank 3rd . ……..

2.12 **From 1st July 2000 till now What volume of** orchard products did most households produce? (Rank 1st in Q. 2.11)
…… Kilograms per rai 8. No fruit orchard

2.13 **From 1st July 2000 till now** Except for the above agriculture activities. Did most household do other agricultural activitiies ?

1. Yes 2. No

2.13.1 What other agriculture did they do ? (Can answer more than one item)

a. Cow raising
b. buffalo raising
c. pig raising
d. chicken raising
e. fish raising
f. prawn raising
g. frog raising
h. Other (specify)……

Part 3: Occupation

3.1 How many occupations are there in this village ? And what is the percentage of the total population work?

a. Occupation 1…….. percent …….

b. Occupation 2…….. percent …….

c. Occupation 3…….. percent …….

d. Occupation 4…….. percent …….

e. Occupation 5…….. percent …….

Part 4: Infrastructure and Transportation

4.1 Does this village have a public telephone?

1. Yes No.of telephones…….. 2. No
No.of working telephones.……

4.2 Do households in this village have telephones?

1. Yes No.of telephone(s)…… 2. No

4.3 Do people in this village have mobile/cellular telephones?

1. Yes No.of mobile telephone(s)……. 2. No

4.4 Does this village have a broadcasting tower?

1. Yes 2. No

4.5 Does this village have radios for communication?

1. Yes No.of radios for communication …… 2. No

4.6 Do residents of this village communicate through the internet? (Not including use of Internet elsewhere)

1. Yes 2. No 3. Do not know

4.7 What type of main road do people use for travelling within the village?

1. Soil
2. Laterite
3. Asphalt
4. Concrete

4.8 What type of main road do people use for travelling outside the village to the District?

1. Soil
2. Laterite
3. Asphalt
4. Concrete

4.9 **From 1st July 2000 till now** Did the road in this village have a flood problem (that caused people inconvenience when they traveled to the district center)?

1. Yes (Specify months problem occurred)…… 2. No

4.10 Does this village have a bus route?

1. Yes
2. No

4.10.1 How often does the bus pass this village? …….. Rounds/day

4.10.2 How long is each bus round? *(Specify in time such as every 30 minutes)*

……

4.10.3 **(If no)** How far is this village from the place where the bus route is located?

…… Kilometer(s)

Part 5: Environment

Interviewer: Ask for events which occurred from 1st July 2000 till now

5.1 Did residents of this village get sick from agricultural chemicals (i.e. fertilizer, insecticide, herbicide) or industrial course?

1. Yes ↓ 2. No

Disease/signs and symptoms	Cause	No. of patient
1.		
2.		
3.		
4.		
5.		

5.2 Does this village have pollution problems (namely water pollution, air pollution) from factories (Including inside and outside this village) or chemicals (i.e. fertilizer, insecticides, herbicides)?

1. Yes (Specify the problem and severity and cause)……
   ……...
2. No

5.3 Does this village face decreasing soil quality from agriculture chemicals or factories?

1. Yes (Specify problem and cause)……..……
   …….
2. No

5.4 Does this village have other environmental problems?

1. Yes (specify)…….....……
   ……..
2. No

5.5 Does the daily life of people in this village depend on natural forest ? (i.e. cut wood for build a house/firewood, seeking young bamboo and mushrooms)

1. Yes (specify activity)..……..……
2. No

5.6 **<u>From 1st July 2000 till now</u>** Did the village face any natural disaster?

1. Yes (specify) ……..……..……
2. No

Part 6 : Health

6.1 **From 1st July 2000 till now.** What type of disease made people sick in this village?

Specify disease ……

Contributors

Amara	Soonthorndhada
Anchalee	Varanrat
Philip	Guest
Pattama	Wapatthanapong
Pramote	Prasartkul
Rossarin	Gray
Sirinan	Kittisuksathit
Sureeporn	Punpuing
Thirapong	Santhipop
Varachai	Thongthai
Yupin	Vorasiriamorn

Editor

Philip	Guest
Sureeporn	Punpuing

Report of Baseline Survey (2001)

Cataloging in Publication Data

Report of baseline survey (2001)/ editors, Philip Guest, Sureeporn Punpuing. First published----Nakhonpathom: Kanchanaburi Project, Institute for Population and Social Research, 2003

ISBN 974-05-0194-1

Kanchanaburi—Social—Research. 2. Demographic Transition –Thailand—Kanchanaburi—Research. 3. Provincial Development Plan formulation —Research. I. Philip Guest, Editor. II. Sureeporn Punpuing, Editor. III. Mahidol university, Institute for Population and Social Research. Kanchanaburi Project. IV. Title: Report of Baseline Survey Round 2 (2001)

HB850.5.

First Published	March, 2003
Number	1,000 copies
Published by	Institute for Population and Social Research Mahidol University, Salaya Campus Nakhonpathom 73170 Thailand Tel: (662) 441-9666 (662) 441-0201-4 ext.115 Fax: (662) 441-9333 E-mail: directpr@mahidol.ac.th Homepage: http://www.ipsr.mahidol.ac.th or http://www.population.mahidol.ac.th

Baseline Survey Team Round 2 (2001)

Consultants

Bencha	Yoddumnern-Attig
Chanya	Sethaput
Pramote	Prasartkul

Team Leader

Varachai	Thongthai

Researchers

Sureeporn	Punpuing
Jirakit	Boonchaiwatthana
Yupin	Varasiri-amon
Somsak	Nakhalajarn

Research Assistants

Paramaporn	Meesuwan
Thanyalak	Rujipak
Yoawalak	Jietranai
Wannee	Huthaphae

Supervisors

Chaibhat	Chauchavalit
Chalum	Bumlungsuk
Narinee	Kanchanamas
Niphon	Daravuthimaprakorn
Nuchanath	Wongjumpa
Pakavadee	Karukanon
Pailin	Somthap
Panya	Thongkui
Surinporn	Sri-in
Sukhuntha	Chaiyaphum
Thanattha	Heanklua

Logistics

Aurapan	Hunchangsith
Chutakan	Atitananan

Contributors

Amara	Soonthorndhada
Anchalee	Varanrat
Philip	Guest
Pattama	Wapatthanapong
Pramote	Prasartkul
Rossarin	Gray
Sirinan	Kittisuksathit
Sureeporn	Punpuing
Thirapong	Santhipop
Varachai	Thongthai
Yupin	Vorasiriamorn

Editor

Philip	Guest
Sureeporn	Punpuing