CHAPTER 2

PROJECT DESCRIPTION

2.1 Introduction

Most population in Trakanphutphon District was farmers whose work nature involved using and handling pesticide chemicals. The majority of this group received little education and was unaware of the hazards from pesticides. The chemicals were often used incorrectly with out proper cautions and sometimes used in larger quantities and more types than necessary leading to harmful effects on the users. Moreover, the chemicals might remain in the products, be distributed into the environment, and cause harmful effects to others due to their toxicity.

Analysis of cholinesterase enzyme level in blood is a technique used for monitoring tendency of toxicity due to exposure to the chemicals of organophosphate and carbamate classes. The Health Department employed a reactive paper test kit for fieldwork monitoring of the hazards caused by such chemicals. The screening was conducted in the groups of farmers who grew vegetables and watermelon, and had extensively used pesticides. The blood test results for Ban Hee Village, Moo 2 and 3 indicated pesticide contamination in blood of the population at high level that could cause health problems as well as a great deal of other subsequent effects.

The author had, therefore, organized the learning activities by participatory approach for vegetable farmers of Ban Hee, Moo 2 and 3 to raise awareness of the potential problems resulted from incorrect uses of pesticides. After development of the awareness, these farmers would adjust and improve their pesticide handling and practices in order not to cause dangers to the users, to consumers, and to the environment. The farmers would, therefore, have a better quality of life in a long run.

2.2 Objectives

General objectives

1. To decrease the insecticide and pesticide poisoning among farmers in Ban Hee, Moo 2 and 3, Kham-jaroen Sub-district, Trakanphutphon District, Ubonratchathani Province.
2. To lower insecticide and pesticide contamination among the farmer. the surrounding environment, and consumer.

Specific objectives

1. To increase knowledge, awareness of proper insecticide and pesticide uses, practices among farmers in Ban Hee, Moo 2 and 3, Kham-jaroen Sub-district, Trakanphutphon District, Ubonratchathani Province.
2. To change the farmers attitudes and practices to ward insecticide and pesticide uses.
3. To recommend alternative methods of insecticide and pesticides control

4. To involve the farmers in solving the problem and finding solution insecticide and pesticides contamination.

2.3 Approaches, Methods and/or Techniques

This project involved health education and promotion that used participatory learning strategy. The project target group was vegetable farmers in Ban Hee, Moo 2 and 3, Khamjaroen Sub-district, Trakanphutphon District, Ubonratchathani Province. Common dwellings were houses with elevated first floor and tile lining roof. There were a total of 989 households and 7,380 populations in the two villages combined. The majority of the populations were of Northeastern-Thai ethnic and their main occupations were growing rice and vegetables farmers with utilization of water from irrigation canals. Some households grew vegetables for distribution all year round and some alternated vegetable growing with rice farming. The vegetables as well as other agricultural products were commonly distributed at the Trakarnphutphon district market.

Local administration was governed by administrative systems of the Ministry of Interior. The lifestyle in the rural area is no different from that of general Buddhist-Northeastern people. There was mutual relationship among the people and meetings were regularly organized for community discussion.

The investigator used the following criteria in selecting Ban Hee , Moo 2 and 3 for project site

1. Be the area with high levels of chemical contamination in blood from last year screening results.
2. Be the area with vegetable production for the markets within Trakanphutphon District.
3. Be the area with all year round production of vegetables.

This project consisted of 3 phases. Phase 1 Involved situation analysis of the project site and target population. Phase 2 was the health education program for the target group and evaluation of the project was in phase 3. Details of each plan are described in the following section.

2.3.1 **Phase 1:** Situational analysis

Objectives

1. To obtain general data on the target villages.
2. To pre-evaluate knowledge, attitudes and skills of the target group.
3. To obtain the blood test results for the target group of farmers before training.

Implementation period May 2000

Operational procedure

Recruitment of the target group of populations employed the following criteria:

1. Must be vegetable farmers of the target areas.

2. Be farmers who used organophosphate and carbamate pesticides.

This group of farmers was selected to correspond with the annual screening program for chemical contamination in blood, organized by agriculturally occupational health operation and the test kits were only available for screening of those two chemical group. These were the most intensively used pesticides by farmers and could accumulate to the level that is extremely harmful to human health. Recruitment process employed the data on blood test results of the farmers acquired during last year operation of agriculturally occupational health work. Fifty farmers meet the criteria and were recruited for participation in the project.

3. Be willing to participate in the training program by participatory learning.

4. Purveys were conducted for general data and information on knowledge, attitudes, and pesticide practices of the target farmers using the prepared questionnaires and observation by the interview team, which consisted of a total of 5 members from the technical public health staff of Trakanphutphon District Public Health Office and the public health staff of Ban Koong public health center, Khamjaroen Sub-district, who were responsible for the area. The implementation period was during June 2000.

5. Blood tests for chemical contamination levels were conducted on the target farmer population prior to the training session by participatory learning using the fieldwork test kits (with reactive papers) of the Health Department on 10 July 2000. The staff undertaking the blood test were the same group as the interview team members.

2.3.2 Phase 2: Training program by participatory learning, work practices at pilot vegetable sites, and fieldwork observation.

Objectives

1. To promote education on correct and proper uses of pesticides for the farmers.
2. To change the pesticide practice of the vegetable farmers of Ban Hee, Moo 2 and Moo 3, Kham-jaroen Sub-district, Trakarnpuedpol District, Ubonratchathani Province.
3. To evaluate changes in their pesticide practices.

Implementation period August 2000 – March 2001

Operational procedure

1. Revise the training courses including courses to provide pesticide knowledge, attitudes, and practices using participatory learning for the group of farmers in Ban Hee, Moo 2 and Moo 3. Kham-jaroen Sub-district, Trakanphutphon District, Ubonratchathani Province (see Appendix 3).

2. oordinate with the speaker team from:
   - Department of Agriculture, Ubonratchathani University
   - The Agricultural Office of Trakanphutphon District
   - The Public Health Office of Trakanphutphon District

3. oordinate and prepare the training venues.

4. repare invitation letters for the target farmers to attend the training program at scheduled time and date.

5. onduct training programs to provide pesticide knowledge, attitudes, and practices using participatory learning. The participants were divided into 5 groups, each of 10 people. All 5 groups were trained at the same time. Each group would have one main speaker and 4-5 other speakers for advice on any questions and for facilitation with the training equipment such as papers and pencils.

Approach: The participants were divided into 5 groups with 10 members each.

- The trainer was the person to assign discussion topics. The members of each group were allowed to express their opinions under allocated topics and write them down on a paper. A group representative then presented them to the entire meeting
- The speaker team observed and recorded the opinions of each group then summarized at the end of the presentation session. The team might comment on any missing information in each topic and the trainer could review the topic if there was any incorrect opinion.
- There were entertaining activities in combination with learning sessions for the participants to relax and to maintain levels of interest for better learning process.
- The fieldtrip was to illustrate real examples of work. The speaker also allowed the participants to ask questions and explained the answers during the session.

For the speakers and the participants' best convenience as well as availability of the venue, the training program was structured into 3 sessions, each of 2-day duration as follows:

Session 1

Schedule: 2-3 August 2000

Venue: the Community Hall, Ban Hee, Moo 2 and Moo 3, Kham-jaroen Sub-district, Trakanphutphon District, Ubonratchathani Province.

Contents:
- Basic knowledge about types of agricultural chemicals used by the participants.
- Experiences of the participants including knowledge, attitudes, and practice on pesticide applications.
- Summary of methods for correct handling and uses of pesticides.

Speakers:
- Khun Nunta Srikham, the technical public heath officer 5 of Trakanphutphon District Public Health Office and the investigator of this project.
- Khun Terdkoon Pantakarn, the technical public heath officer 5 of Trakanphutphon District Public Health Office.

Session 2

Schedule: 21-22 August 2000

Venue: The Distant Learning Center of Ubonratchathani Province.

Contents: *21 August 2000*

- Herbal plants used for insect control.
- Extraction techniques for margosa.
- Effectiveness and applications of margosa extracts.
- The Royal Development Project for production of pesticide free vegetables.

22 August 2000

- Demonstrating and practicing margosa and citronella extraction.
- Practicing applications of margosa and citronella extracts in the pilot vegetable field.

Speakers: Khun Udomluk Ounjitwattana

Khun Serm Srima

Khun Rattanaporn Promsatta

Khun Pannika Attanon

The Institute for Natural Product Technology Research and Development.

Khun Rakkiet Sanprasert

The Department of Agriculture, Ubonratchathani University.

Session 3 Schedule: 15-16 September 2000

Venue: - The Community Hall, Ban Hee, Moo 2 and Moo 3, Kham-jaroen Sub-district, Trakanphutphon District, Ubonratchathani Province.

- Vegetable fields of the participant farmers.

15 September 2000

Contents: - Alternative chemical-free methods for insect control in vegetable fields.

- Preparation of pilot vegetable areas.

Speakers: From the Agricultural Office of Trakanphutphon District

16 September 2000

Contents: Fieldwork observation of pilot vegetable fields and applications of margosa and citronella extracts for insect control, the Department of Agriculture, Ubonratchathani University.

Speakers: Ajarn Uraiwan Ninpetch, the Department of Agriculture, Ubonratchathani University.

2.3.3 Phase 3: Evaluation

Objectives

1. To evaluate pesticide knowledge, attitudes, and practices of the participants on every 6-month and 1-year interval after training.
2. To evaluate levels of chemical contamination in blood of the participants every 6-month and 1-year interval after training.

Operational procedure

1. Conduct 3 follow-up visits every 2-month interval after training as scheduled in the action plan. The plan of a one-month interval for the follow up visit was aborted due to time constraint of the project team and readiness of the participants. The follow up visits were to reevaluate knowledge and attitudes of the participants as well as to supplement any incorrect practices in every session of group meetings.

First session: 4 November 2000

Second session: 6 January 2001

Third session: 3 March 2001

2. Observe pesticide handling and practice of the participants every 2 months after training (November 2000, January 2001, and March 2001).

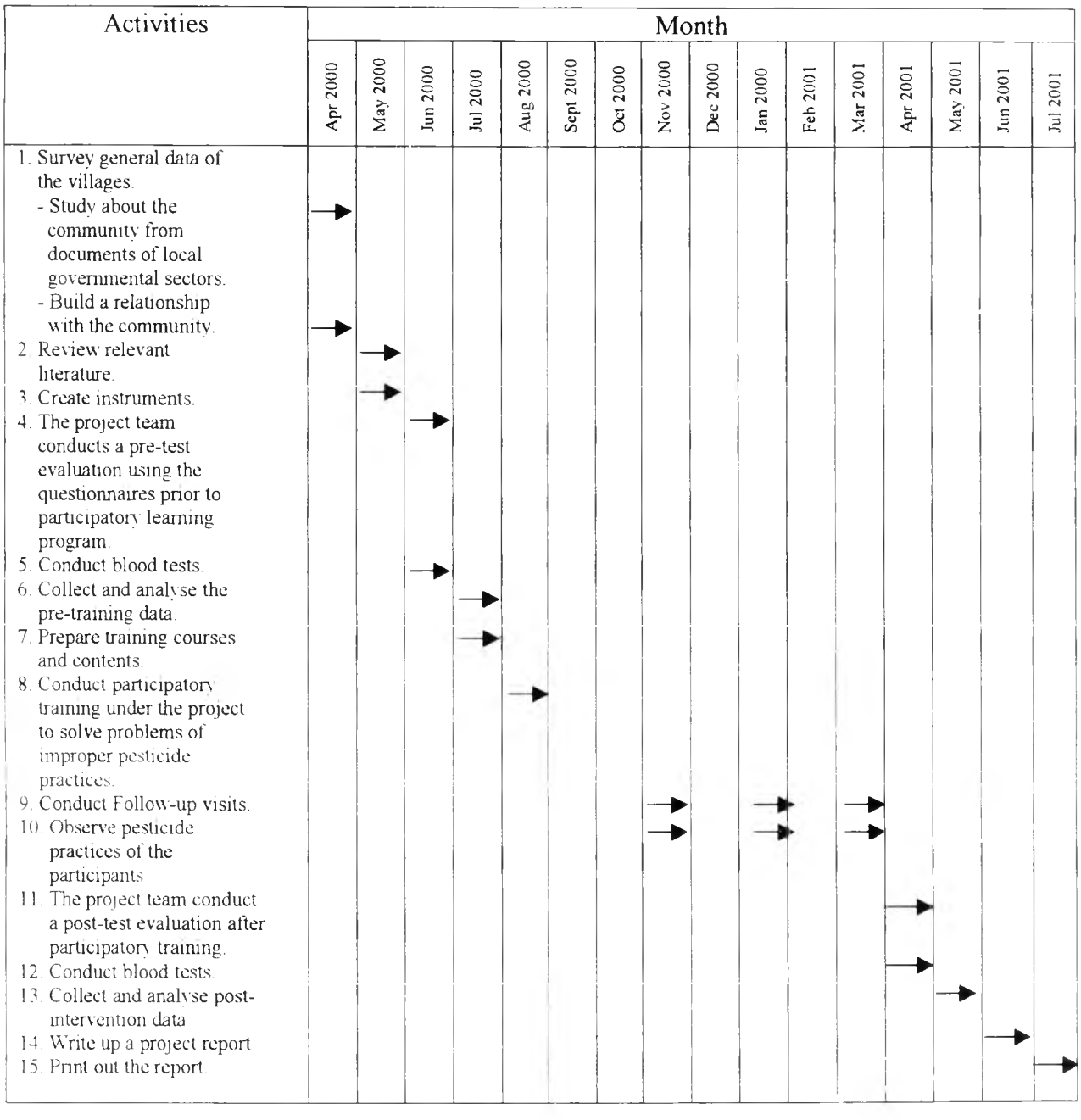
3. Interview the participants and collect post-training data during 18-19 April 2001

4. Conduct blood tests for levels of chemical contamination during 18-19 April 2001, seven months after the training by participatory learning.

2.4 Activity Plan with Time Table

Table 2.1 showed the activity plan with timetable for implementation of this project.

Table 2.1: Work plan



2.5 Limitation

1. The previous plan of 15 -day training duration was aborted, as it would cause several days of the participants and the investigator's continual absence from work. The program was, thus, structured into 3 sessions each with 2-day duration. Three follow up visits each with one-day duration were conducted to evaluate the participants and to add on any incorrect knowledge.

2. In observation of the participants' pesticide practices on site, the observers often visited at different time to the farmers' working hours. Thus more visits were conducted and found some changes in the practices such as placing of signs prohibiting collection of vegetables during chemical spraying period.

3. There were previous conflicts between the participants from Ban Hee Moo 2 and those from Moo 3. This possibly led to some biases in operation of this project in terms of, expressing opinions on certain issues. The author then must be impartial and conscious to prevent assumption that the investigator favored either side.

4. There were in deed no herb products such as margosa and citronella in the villages and they were also rarely available for sale. With the objectives to develop alternative pest control methods using such herbal plants, the investigator so organised a promotion program recommending the farmers to grow margosa and citronella with a support of margosa sprouts from the Agricultural Office of Trakanphutphon District and a support of citronella sprouts from the Department of Agriculture, Ubonratchathani University. Each farmer received 3-4 sprouts of each plant and was

encouraged to reproduce these sprouts for future resources of raw materials necessary for preparation of herbal pest control extracts.

Additional to the raw materials, preparation process of margosa and citronella pest control extracts required boiling pots and distillation equipment, which cost approximately 15,000 Baht. To locally produce herbal extracts in the villages for domestic use, the group of farmers planned to propose for funding support from the Khumjareon Sub-district Management Organisation, Trakanphutphon District, Ubonratchathani Province in the year 2002. This constituted a complete process of herbal extract production to solve problems of unavailability of scarce herbal products, to reduce production costs of vegetable farming, and to minimise potential hazards due to pesticide applications.

5. Observation and interviewing of the participants regarding uses of safety equipment during pesticide practices found that some participants did not prefer wearing protective clothes such as rubber shoes, gloves, or nose-mouth mask. Their reason was that wearing those equipment interfered and cause inconvenience in working. The author then had to explain, advise and convince the farmers to see the toxic effects of pesticide chemicals on health

6. The frequency of the follow up visits was planned to be monthy. However, the actual visits were conducted on every 2-month basis as available times of the investigator and of the farmers were not coincided.

7. Some participants did not give or gave only little opinion during group sessions. The investigator had to encourage them to express more opinions, the group process, then, progressed smoothly.