# CHAPTER III

# PROPOSAL

**Participatory learning program in women: An intervention to reduce The Mortality and Morbidity of DF/DHF in Koksaad village, Surin Province, Thailand**

## 3.1 Introduction

### Background

Dengue fever (DF) is an important global public health problem particularly in the developing and tropical countries. Estimates are that about 2.5-3 billion of the world population is at risk of DF/DHF infection (WHO,1999). In Thailand, dengue haemor-rhagic fever (DHF) has been around for more than 40 year. The first outbreak of DHF was report in Bangkok in 1958. Thirty years after the first outbreak DHF was reported from all over the country. There has been big national DHF outbreak once every two or three years. Every year the number of reported case starts to rise in the monsoon season in the month of May and reaches its peak in June or July. It would then taper off in October. Morbidity rate has been highest in Thai people of 5-9 year

age group, followed by the 10-14, 15+, and 0-4 year age groups respectively. In term of geographical distribution, the highest morbidity rate during the last five years has been reported from the northeast, followed by the north, the central and the southern part of Thailand respectively. DHF control program during the first two decades was focusing on health education and vector control. Chemical spraying to reduce mosquito density was widely practiced in vertical program setting conducted by medical and health workers. During the last decade program integration and multisectoral approach has been applied. Health authorities at central level would provide logistics of needed supply to local health authorities. Meanwhile co-operation between health staff of the Ministry of Public Health and education staff of Ministry of education through school health activities in schools and communities. Interventions include the use of Temephos and granules (Abate) to kill mosquito, larvae, eliminating mosquito-breeding sites, self-protection from mosquito, and chemical spraying or fogging right after the detection of outbreak.

In 1997-1998 there was another massive DHF outbreak. His Majesty the king of Thailand then expressed his much concern about DHF problem. Therefore, the National Dengue Prevention and Control plan (NDPCP) for 1999-2000 was launched by the Ministry of Public Health to celebrate the auspicious occasion of His Majesty the King's 72(sixth cycle) birthday anniversary. This plan is also known as "The King's Project".

In 2000, The highest DHF morbidity rate has been reported from central region, followed by the southern, the northern and the Northeast regions respectively (MOPH, 2000)

Although many ways have been and are still being used to control the vector, The involvement of public in eradication breeding has added an extra dimension to the control programs in the prevention of DF/DHF Community participation programs have been implemented, complementary to and in conjunction with top-down methods, showing better results.

## 3.2 Rationale of Study

3.2.1 Owing to the higher potential incident rate of dengue haemorrhagic fever, each year peak is in the rainy season with the epidemic character every 2 year or 3 years, especially the urbanized area. Cases are often found the whole year round in high-density areas of Aedes Aegypti mosquitoes, while various rural area also find many cases in the rainy season. The consequences of DHF are a heavy burden to the families, effect to the education, income generating, hospital and other family expenses or even cause death earlier.

3.2.2 Even though the DHF knowledge and technology in diagnosis, treatment, including prevention and control are available in both medical

and Public health sectors still DHF is not well controlled. The prevention and control DHF by the government Public health staff are mainly implemented through the specific government policy, the health officers often run projects without or less community participation then cause a lot less co-operation from people. Therefore, as the researcher, the participatory learning concept is conducted through woman group in order to create appropriate tool for community to have role and participation in DHF/DF prevention and control as the experiment. The participatory learning process is emphasized on discussion activity, exchanging knowledge and experiences, the mutual learning is self inducted activities to study and analyze the cause of problems including problem solutions in order to reach the target of sustainable DHF prevention and control.

This study aims to establish whether Participatory learning Program applied in a group of women of a community does lead to a decrease of the morbidity and mortality of DF/DHF in the targeted population. Although the pre-experimental design of this study is unlikely to decrease the overall morbidity and mortality rates of DF/DHF in the whole country; it is expected to help decrease the mortality and morbidity rates to some extend at the village level. It is expected that it will encourage community participation in partly solving their health problems. If this pilot study proves to be successful; it could then be used in other areas of the country.

**Operational definitions**

**The dengue prevention and control behaviors** means sleeping in the nets, eliminating mosquitoes breeding places by cleaning and closing water container, Aedes aegypti mosquito larvae Prevention and elimination by putting abate sand or larvivorous fish, the elimination of adult mosquitoes, the cleaning of houses and their environment.

**Participatory learning Program** means the learning process by discussion and exchanging knowledge and opinion among learners. They can identify their problems, problem cause analyze by considering problem solving concept, practicing and developing problem solving method in order to reach the target as desired.

**Empowerment** means to help people to develop the ability and knowledge to take decisions on matters relating to themselves.

## 3.3 Objective

### 3.3.1 General objective

The general objective is to assess the level of knowledge of DF/DHF and the level of community participation through a participatory learning program applied to a women group in order to reduce the mortality and morbidity of DF/DHF in the community.

### 3.3.2 Specific objectives

- To increase the knowledge and awareness of DF/DHF in women.
- To compare the level of the community participation before and after the program.
- To reduce the larval density in order to decrease the mortality and morbidity of DF/DHF.
- To encourage the women in the community to participate in the control of DF/DHF.

## 3.4 Methodology

### 3.4.1 Study design

The design of this study is a pre-experimental design (one group pre-test and post-test design)

**Research question**

Does education of women, through a participatory learning program, reduce the larval density and the incidence of DF/DHF in the village?

**Study site**

The researcher has chosen Koksaad village, Koksaad subdistrict, district of Prasat, Surin Province, as place for the case study due to the high DHF incidence statistics (in 2000, there were 5 cases)

Koksaad village is situated approximately 45 km from Surin town with total population of 963 people, living in 175 houses. The population consists of 468 males and 495 females, of with 276 are children younger than 15 years old. The general geography is rather flat, low land of sandy soil. Most of the population mainly live on rice farming, with an average annual income is 15,200 bath per family. An asphalt road is linking the village with other communities. There are 2 public water wells and a pond, although most people use a private deep water well. Other infrastructure consists of 90% electricity coverage, one public telephone, one health station and one school about at about one kilometer from the village. 120 families have a radio receiver, whereas 80 houses have a television set.

### 3.4.2 Study population

All together 325 women between 15-60 year old were selected from Koksaad village. The reason that they were selected is that they are mostly engaged in home activities.

### 3.4.3 Instrument

1. Interview questionnaires divided into 3 parts:

Part 1 General data: 10 question about age, gender, marital status, family income, etc.

Part 2 Dengue knowledge questionnaire: this part has 20 questions, with each question having 4 choices. One score will be given for a right answer and zero score for a false one. The maximum total is 20 scores. The mean and standard deviation will used as a tool to classify into 3 groups as following

Score interval = $\bar{X}$ + S.D. (means: good knowledge).

Score interval = $\bar{X} \pm$ S.D. (means: moderate knowledge).

Score interval = $\bar{X}$ – S.D (means: poor knowledge).

Part 3 Dengue related attitude questionnaire is a 3-choice questionnaire by applying the Likert scale attitude test. Only one choice is correct; 7 questions are on the positive side and another 7 questions are on the negative side. Each question has 3 choice levels such as "agree", "uncertain" and "disagree". The maximum score is 42.

Positive statement

| | | | |
|---|---|---|---|
| Agree | = | 3 | score |
| Uncertain | = | 2 | score |
| Disagree | = | 1 | score |

Negative statement

| | | | |
|---|---|---|---|
| Agree | = | 1 | score |
| Uncertain | = | 2 | score |
| Disagree | = | 3 | score |

Attitude evaluation regarding to dengue prevention, mean and standard deviation are used as the tool to classify into the following 3 groups:

Group 1. Having high attitude; score interval is > $\bar{X}$ + S.D.

Group 2. Having moderate attitude; score interval is $\bar{X}$ ± S.D.

Group 3. Having low attitude; score interval is < $\bar{X}$ – S.D.

Part 4 Activity related to dengue prevention and control. This part has 14 questions. while each question provides the following 3 choices: often, sometimes and never. The following scores were given for each answer:

One score for the answer never, two scores for the answer sometimes and three scores for the answer often.

The Mean and Standard Deviation will be used as the tool to classify 3 groups as follows:

Having a high activity, score interval is > $\bar{X}$ + S.D.

Having a moderate activity, score interval is $\bar{X}$ + S.D. and $\bar{X}$ – S.D.

Having a low activity score, interval is < $\bar{X}$ – S.D.

($\bar{X}$ = mean, S.D. = standard deviation)

Part 5. Larval density survey form. The most common survey methodologies employ larval sampling procedures rather than egg or adult collection. The basic sampling unit is the house or premise, which is systematically searched for water-holding containers. Three indices that are commonly used to monitor Aedes Aegypti infestation levels are presented below.

Indices used to assess the level of Aedes Aegypti infestations:

1) House index (HI): the percentage of houses infested with larval and/or pupae.

$$HI = \frac{\text{Number of houses infested} \times 100}{\text{Number of houses inspected}}$$

2) Container index (CI): the percentage of water holding containers infested with larvae or pupae

$$CI = \frac{\text{Number of positive containers} \times 100}{\text{Number of containers inspected}}$$

3) Breteau index (BI): the number of positive containers per 100 houses inspected.

$$BI = \frac{\text{Number of positive containers} \times 100}{\text{Number of houses inspected}}$$

The study used the standard guidelines of the Department of Communicable Disease

Control of the Ministry of Public Health in Thailand as follows:

HI > 10 or BI > 50 was considered to be a high risk for dengue fever.

HI < 1 or BI < 5 meant a low risk for dengue fever.

Part 6 In-depth interviews with key informants, guide used for in-depth interviews

I Information on the household:

- Name of respondents and address.
- Number and ages of persons living in the home.
- Place of origin.

II What are the illnesses that you saw most commonly in children and in your children?

III Cause of illnesses.

IV Dengue fever:

- Have you heard of dengue fever?
- Have you ever had dengue fever?
- Has anyone in the household had dengue fever?
- What was it like?
- How did you know it was dengue fever?
- How do children get dengue fever?
- What did the family do when children got dengue fever?
- Can you prevent dengue fever?
- How?

V Mosquito control:

- What do you use to control mosquitoes in your house?
- What is the best way to control mosquitoes in general?

VI Observation:

- What was the overall condition of the house?
- What about the children?
- Other comments.
- How did the interview go?

**Establishing a quality tool**

1. Create tool by learning from text, related researches and study guidelines from experts in order to specify pattern and contents of questionnaire.
2. Reviewing the creation of the questionnaire by experienced persons for any recommendations and content validity.
3. Testing questionnaires with the population in the community similar to the number of samples.

### 3.4.4 Data collection

1. Applying permission from public health officer and asking the health centre officer and community leader for co-operation in data collection support.

2. Explaining to the interviewee relating to the interview methods, other details, in order to obtain the complete data information.
3. Re-examining the questionnaire data again for any mistakes before processing data analysis.

### 3.4.5 Data analysis

Classification and coding of the answers will take place after all collected data have been checked to be complete. The computer program SPSS will be used for analysis of the data.

## 3.5 Intervention Design

### 3.5.1 Participatory learning Program

Analysis will be done after collecting the baseline data in Koksaad village. The workshop for women will then be designed.

Out of 325 women twelve will be selected from the women leaders, female health workers and housewives for the participatory training workshop (purposive sampling).

**Preparatory phase before starting the participatory training workshops.**

1. Staff preparation by requesting co-operation from 3 staff members from the Provincial Public Health Dept., who have experience in participatory learning management techniques in order to assist the researcher. A team meeting on planning and implementation will take one day. The community leaders will be asked to inform the target population of the workshop curriculum.
2. Preparation and selection of the sample group according to the specified process and number.
3. Performing sample group meeting and pre-testing one week before workshop.
4. Co-ordinating the general training service as food and beverage for facilitator team (participants).
5. Training equipment preparation

   Purchase and collection of training materials such as games, paper, pencils, notebooks and other data collecting tools such as registration forms for trainers, pre- and post training questionnaires, tape recorder and camera.
6. Training place preparation.

   The Koksaad health centre, which is situated in the village itself and which is easy accessible for participants will be used to conduct the training sessions.

Role of facilitator

- The facilitator should not interfere and/or play a leading role, but should support the participants to think critically and act independently.
- To enable every participant to contribute her ideas and to encourage participation in the group activities, but also to develop their confidence, independence, knowledge and understanding. The facilitator will have to work closely with the participants as a co-worker by learning and sharing from each other

Role of assistant facilitators (team member)

- The team members should identify topics, subtopics or a checklist on which to build question, before carrying out the discussions.
- The team members are observers and help to conduct workshop.

**Starting the program**

Schedule for the participatory learning workshop

9.00 hrs. Registration, introduction of objectives, proceedings and agenda.

9.30 hrs. DF/DHF information, brain storming and group work.

12.00 hrs. Lunch.

13.00 hrs. Summarise morning session by facilitator followed by discussion between facilitator and participants.

14.00 hrs. Group work on planning.

16.00 hrs. Reporting and evaluation.

18.00 hrs. End of workshop.

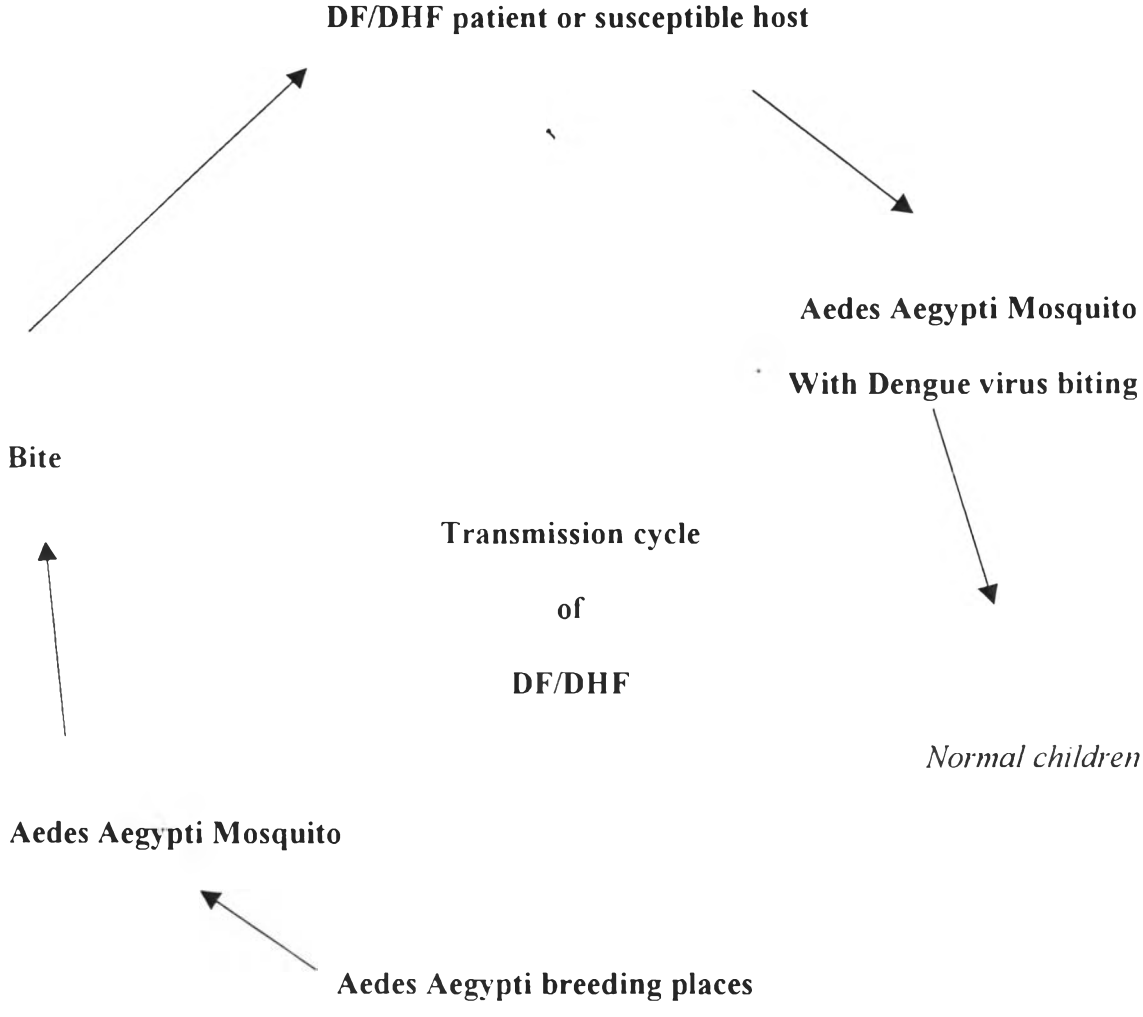
The participatory learning program will be conducted during one workshop. The total number of participants is 12. After the participants are welcomed the facilitator explains the objective and the agenda. Some warming-up exercises will be held to help the participants, in order to get to know each other and to improve the quality of the group work by releasing the tension within the group.

Group rules, e.g. such as being punctual, respecting one's opinion, no opinion judgement, everyone has to express one's opinion, etc., will be mutually set up, to be strictly implemented.

Starting from the experience and knowledge of the participants, the facilitator will then add the missing information as the following sample.

Dengue fever/Dengue haemorrhagic fever (DF/DHF) is a communicable disease caused by a virus transmitted by the Aedes Aegypti mosquito, living in the house and school, often biting during daytime. The mosquito lays her eggs in clear water collected in water containers, such as water jars, flower vases, kitchen ant traps, tyres and plant pots. Transmission occurs after the mosquito has bitten the patient or a susceptible host and then carries virus to bite another person. DF/DHF patients are mainly children less than 15 years of age. The DF/DHF epidemic is often increasing in the rainy season or from May to September each year

**Figure 3.1 Transmission cycle of DF/DHF**




**Sign and symptoms**

Generally, there will be high fever for 2-7 days, a reddish face, poor appetite, depression, muscle pain. Some patients have red spots on arms, legs and the body, whereas some patients have nose bleedings, vomiting with red blood or have black

stool. In severe cases there might be shock, with a cold clammy skin until the patient becomes unconscious if no immediately treatment takes place. This state can cause death to the patient within 24-48 hours.

**Treatment**

Decrease temperature by rubbing the body with wet towel. Paracetamol can be used in case of high fever and the patient should drink often a fruit punch or electrolyte beverage. Aspirin is contra-indicated, since it will increase the chance of bleeding. If the patient feels cold and clammy or complains of stomach pain or if his condition does not improve, he should be referred to a physician as soon as possible.

**Prevention**

The following measures can be taken to prevent DF/HDF:

- bury or eliminate mosquito breeding places, by removing tyres, tins and other materials in which water can collect.
- Completely close water jars; often change the water and put salt or vinegar in ant traps.
- Put lavivorous fish in open water and burn mosquito coils or spray insecticide to kill or reduce the adult mosquitoes.
- Use impregnated bed nets and/or mosquito screening for windows in rooms.

Since a virus causes dengue fever, there is no medicine to cure it. Therefore preventive and not curative measures are important to be saved from DF/DHF.

More than that this disease can reoccur in the same person if they are bitten again by an infected mosquito. In order to protect people from DF/DHF the most simple and effective method is the elimination of all the breeding places of Aedes Aegypti mosquitoes.

Part 2

The facilitator opens the group discussion by stating the problem that this year five children in this community have been suffering from DF/DHF, which is considered as an outbreak condition. The facilitator would like everyone to participate in the problem analysis by dividing participants into 3 groups of each 4 persons. The members in each group select a leader to lead the discussion session and a secretary to record their findings.

The member of each group are discussing freely and independently without interfering from the observing facilitator, only in the necessary cases as the members do not understand the main idea or are not clear about the dengue fever, these can be explained. After all groups finished recording their recording on the prepared charts, all the members can exchange visits and discussion relating to each results. After all the groups return to the main meeting room, the facilitator will question the members for main ideas and understanding. Then adding and concluding as necessary.

The afternoon session will start with a warming-up exercise using a game to prepare and stimulate the participants into the next activity. The facilitators place the results from group discussions in the meeting after which the participants will mutually

prioritize the problem in order to assess the solutions. The participants will then be divided into 3 groups (same group as before) and each group designs a problem solving plan, which will then be proposed to the meeting in order to select the best operational plan for the village. The facilitator assigns tasks according to the operational plan and closes the workshop.

(During the workshop 2 training assistants will take record of group work process in order to evaluate activities as group work, active or passive atmosphere, group problem and solution and general feeling).

**Program monitoring**

The researcher met all participants to assess the action plan in order to find out any problems or any obstacles. During the implementation of the action plan the researcher assisted the participants to overcome the problems. Assistance was provided on a regular basis; i.e. one-week, one-month, six months after the initial workshop.

### 3.5.2 The program evaluation

**1. Evaluating the participatory learning workshop.**

One week after the workshop the facilitator evaluated the participants, who attend the workshop. Evaluation tools used were the pre-test and post-test questionnaires and the observations done by the researcher team during the workshop. The following indicators were used to measure the outcomes:

- The results of both pre- and post-test, made by the participants who attended the workshop, were compared. Emphasis was on the number of participants who recognized dengue fever symptoms; the number of participants who knew how to prevent and control dengue fever and the number of participants who applied the obtained knowledge about dengue fever and its prevention and control in their daily live

**2. Evaluating the educational out-put.**

The pre- and post-test questionnaires, the larval density survey and the number of dengue fever cases reported by the local public health office were used for evaluation.

Three months after the workshop the post-test questionnaire survey (the same one as used for the baseline data) will be repeated in the women group in the village in order to compare the results with the baseline data pre-test questionnaire.

The larval density survey will be done to compare the results of pre-intervention and post-intervention.

In co-operation with the local public health office and the hospital, dengue fever case reports will be checked for new cases reported in the village.

Six months after the workshop the larval density survey will be repeated to identify any change in behavior in the village. If this program will be successful, it is expected that

the incidence of DF/DHF will have decreased. In this phase there will be no need to repeat the post-test questionnaire.

## 3.6 Expected Outcome

It is expected that the participants through their participation will have gained sufficient knowledge about dengue fever and how to prevent and control it. Since they have gained this knowledge themselves it is expected that this knowledge will be actively used in daily live and passed on to their relatives, friends and their community. Consequently it is expected to lead to a decrease of the incidence of DF/DHF in their community.

## 3.7 Ethical Considerations

Before the start of the program the researcher informed all participants about the purpose and the process of the study and about the confidentiality of all the data obtained during the study.

All household interviews were held only with the permission of the participants, who were informed that they did have the right not to answer questions or participate in the discussions, if they felt this might affect their personal integrity. All information

obtained will be used solely, by the researcher, for this research and the privacy of the participants will be fully respected.

**Potential problems and their resolution**

The following are the potential problems that could occur:

1. Choice of participants.

The selection of participants attending the workshop is important, since the success of the outcome depends not only on the right methodology and its implementation but also on the participants.

The participants should be key persons and have good communication skills otherwise they do not have enough standing to encourage or motivate other women to achieve the goal.

2. Dominating participants.

The problem of participants dominating others might occur during the workshops, thus inhibiting the role of other participants. The facilitator should know how to cope with the dominant personalities in the group and, if this happens, find out whether the dominant individual is a designated leader or a competitive or aggressive person. Such a person can either be taken aside and convinced of the importance of the group process, or they can be given separate tasks to keep them busy and allow the group to carry on. If the person concerned is a leader it is necessary to approach them formally or privately early in the planning phase to explain the process and to try to gain their support, that allowing the participant to fully and equally participate will result in personal growth and improvement for all.

## 3.8 Activity Plan

It is tentatively planned that the activity will start in January, 2002 and will be finished in Dec 1, 2002. Below the activity plan is presented in a table.

**Table 3.1 Activity plan (January 2002 - December 2002)**

| Activity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Discussion with MoPH Surin | X | | | | | | | | | | | |
| Literature review | X | | | | | | | | | | | |
| Submit proposal | | X | | | | | | | | | | |
| Program proposal | | | X | | | | | | | | | |
| *- formation of research team* | | | X | | | | | | | | | |
| *- preparation of material* | | | X | | | | | | | | | |
| *- co-ordination with P.H. Dept. &* | | | X | | | | | | | | | |
| *Community leaders.* | | | X | | | | | | | | | |
| *- training of ass. Facilitators* | | | X | | | | | | | | | |
| Pre-test questionnaires | | | | X | | | | | | | | |
| Participatory Learning workshop | | | | X | | | | | | | | |
| Post-test questionnaires | | | | X | | | | | | | | |
| Evaluation | | | | X | X | | X | | | X | | |
| Data analysis | | | | | X | | | | | X | | |
| Report writing | | | | | | | | | | | X | X |
| Conclusion | | | | | | | | | | | | X |

## 3.9 Budget

The budget, which is required to provide the necessary inputs for this study, is shown in the table below. The budget reflects only those financial inputs necessary for the program activities.

**Budget for program activities**

Project: Education of women as a strategy in the control of Dengue fever in Surin

Period: January 2002 - December 2002

**Table 3.2 Estimated expenditure for program activities**

| Budget category | Unit price (Baht) | Units | Duration (days) | Total amount (Baht) |
|---|---|---|---|---|
| **1. Personnel** | | | | **10400** |
| 1.1 researcher | 5,000 | 1 | | 5,000 |
| 1.2 assistant facilitator | 1000 | 3 | | 3,000 |
| 1.3 participants | 200 | 12 | | 2,400 |
| **2. Transport** | | | | **6,800** |
| 2.1 fuel | 100 | 1 | 8 | 800 |
| 2.2 vehicle rent | 750 | 1 | 8 | 6,000 |
| **3. Stationary** | | | | **1,150** |
| 3.1 stationary workshop | 500 | 1 | 2 | 1,000 |
| 3.2 computer diskettes | 30 | 5 | | 150 |
| **4. Dissemination of results** | | | | **1,800** |
| 4.1 meeting to disseminate results | 200 | 5 | | 1,200 |
| 4.2 photocopies | 1 | 600 | | 600 |
| **5. Miscellaneous** | | | | **4,000** |
| 5.1 other supplies (food, etc.) | 3,000 | | | 3,000 |
| 5.2 reserve | 1,000 | | | 1,000 |
| **Total budget :** | | | | **24,150** |

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