PARTICIPATORY RURAL APPRAISAL APPROACH FOR MANAGING AND SOLVING DIARRHEA IN NONG VILLAGE, ROI-ET PROVINCE

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ABSTRACT

This study aims to improve awareness and perceive of diarrhea prevention and control of the villagers through a participatory rural appraisal (PRA) including setting up the action plan, implementation, monitoring and evaluation. The project were carried out at Nong Kung Village, Rol-Et Province between May and September 2000. Thirty-five subjects were selected as the PRA participants, which divided into two groups. The first group was the community base organization group comprising four subgroups; village health volunteers, housewives, food sellers and village committee. The second group was health workers, who had responsibilities for communicable disease control. The reviewing of secondary data, a focus group discussion, an observation and the interviewing were used for collecting data.

The result of PRA indicated that poor household sanitation, unclean food and poor personal hygiene are the major causes of diarrhea in their village. The action plan were developed for prevention and control diarrhea by PRA participants. process assisted the participants on developing the strategies of diarrhea prevention and control. The action plans for diarrhea prevention and control were introduced and described the plan to the villagers by organizing the meeting in the community. The villagers interested and likelihood of acceptance of the intervention. Then, the villagers implemented the action plans for diarrhea prevention and control. The monitoring and evaluation by following the guideline and timeframe were done by PRA participants.

The formative and summative evaluation were employed for assessment the project. The evaluation result indicated that PRA technique encouraged the community to manage the diarrhea problem regarding accessing the* diarrhea situation, set up the action plan, implementation, monitoring and evaluation. However, the health personnel should follow up in community regularly for stimulating and supporting until the villagers able to solve the problems by themselves.

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ABBREVIATIONS

PRA	=	Participatory Rural Appraisal
WHO	=	World Health Orgamization
UNICEF	=	United Nations International Children's Emergency Fund
VHVS	=	Village Health Volunteers
CBO	=	Community Based Organization
CPHCC	=	Community Primary Health Care Center
PCMO	=	Provincial Chief Medical Office
DHO	=	District Health Office
DHCC	=	District Health Cooperating Committee
MOPH	=	Ministry of Public Health
PHO	=	Provincial Health Office
ORS	=	Oral Rehydration Salt
PHC	=	Primary Health Care
ORT	=	Oral Rehydration Therapy
FGD	=	Focus Group Discussion
TAO	=	Tambon Administrative Organization
RSC	=	Rectal Swab Culture

CHAPTER I

INTRODUCTION

Even though, at present, Thailand has growth in medical care and public heath, which is very successful in the control and care of the various kinds of serious communicable diseases, diarrhea remains an important public health problem. The number of cases keeps increasing every year. It is a serious disease that could occur among all groups of people and it shares the highest rank among diseases in epidemiological surveillance reports. It is the second ranked of mortality rates in the infected infant group and in the children under 5 years of age group. Reports provided by the Epidemiological Department, Ministry of Public Health show that the morbidity rate of diarrhea has increased rapidly and continuously from 1,284.66/100,000 population in 1990 to 1,412.99, 1,690.67, 1,724.19/100,000 population in 1992, 1994, and 1997, respectively. (Tharathip Thamnawapharit, 1998).

Diarrheal disease, known medically as a common illness among children, is a major cause of children's death in the world. Of these deaths, 99.6% occur in the Third World (Booth et al, 1982). Diarrhea is still a common preventable health problem in developing countries. It is documented that infections from viruses, bacteria and parasites in contaminated food and water are the main causes of diarrhea. Other risk

factors include malnutrition, low body resistance, poor gastrointestinal absorption, poor personal hygiene, environmental and sanitation problems, unhygienic food preparation, improper sewage disposal, improper use of latrines, discontinuation of breast feeding and unhygienic bottle- feeding of infants and young children (Sungkom Jongpiputvanich, 1991).

The Ministry of Public Health has issued targets for the prevention and control of diarrhea in the Public Health Development Plan of the 8th National Economic and Social Development Plan (1997-2001). The target is to decrease the morbidity rate of diarrhea in all age groups to not more than 1,000 /100,000 population. (Public Health Association of Thailand, 1999).

The report from the epidemiological surveillance of Roi-Et Provincial Health Office found that the morbidity rate of diarrhea in Chaturapukphiman District in 1998 was 2.7 times higher than targeted in the 8th Plan and there was one dead case. For 1999 (data between January-September 1999), the morbidity rate of diarrhea was 2.2 times higher than targeted and there was one dead case in Nong Kung Village. Therefore, diarrhea is the most serious health problem of Chaturapukphiman District, especially at Nong Kung Village and it must be solved urgently and appropriately.

The health workers in Chaturapukphiman District from the district health office, health centers and hospital have done prevention and control activities using various methods including providing education on prevention and control, both in the hospital and in the communities. Moreover, surveillance also has been done by disease

diagnosis and informing about the situation to people continually. However, these methods could not reduced the morbidity rate of diarrhea.

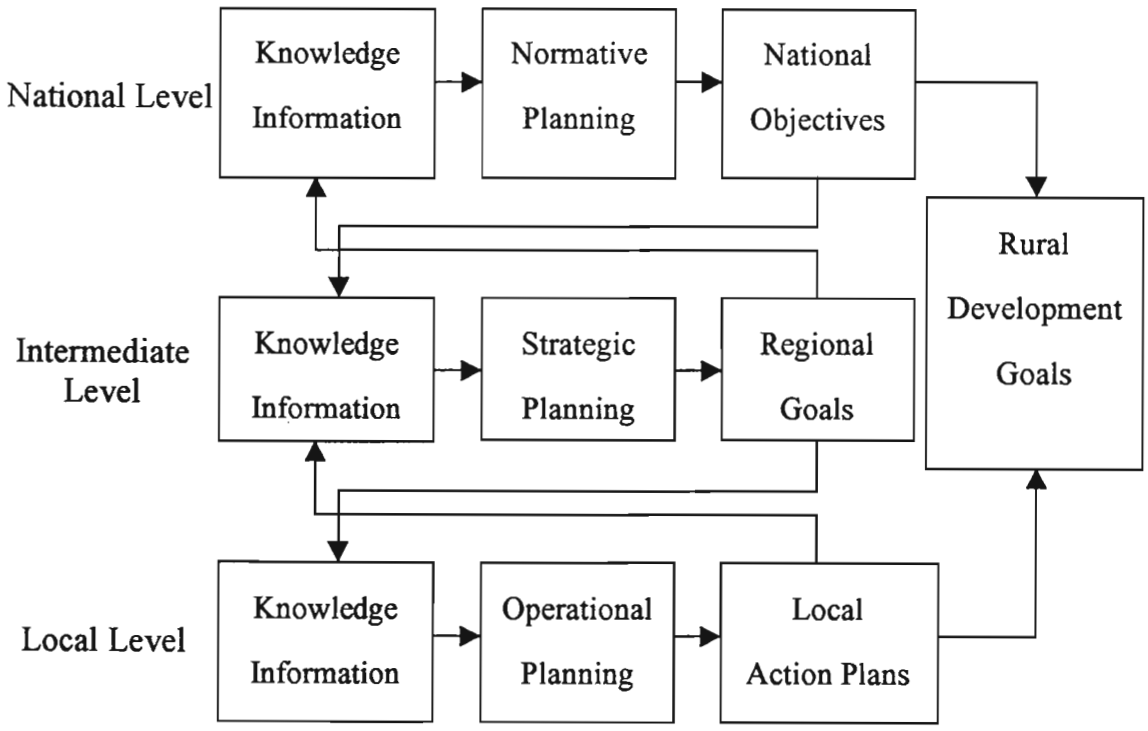
Based on experience of the researcher, diarrhea prevention and control activities were done only by officials. People had less participation, only receiving services from the health workers. Therefore, the researcher is interested to develop a process for managing and solving the diarrhea problem in Nong Kung Village by people's participation.

In general, the need for community participation in community development activities is now well recognized. The word "community" denotes a social entity, organized in some sense, however loose and informal, and with some sense of identity – not just the inhabitants of a locality (UNICEF, 1982).

The definition of community includes the following major themes: (a) sense of geographic place or of functioning boundaries, (b) sharing a history and self-identity, (c) realization of common interests, (d) enjoying interdependence and stable interaction among its members including a willingness to engage in a measure of self-government, (e) utilizing such institutionalized social arrangements as markets, temples, schools, welfare, law and police, levels of prestige, and patterns of citizen behavior, (f) engaging in stable social interactions according to shared expectations and going commitments to specific norms, values, attitudes, aspirations, world-views, traditions, or patterns of culture, (g) showing a willingness to use recognized ways of settling conflicts which arise among members of the community (Chetkov-Yanoov, 1986).

Historically, community development activities were sanctioned and sponsored by government-linked bodies. Even development efforts implemented by voluntary or private organizations tended to have funding channels from public authorities. Paradoxically, though development is thought to be a grass roots or bottom-up undertaking, it is very clearly shaped by top-down decision (Letwin, 1986). If we are planning on sustainable social development changes in any community, the flow information for planning, implementing and evaluating actions must be a *two-way process*, neither solely " top-down" or solely "bottom-up" but a marriage of the two (Figure 1.1) (Krasae Chanawongse, 1995).

Figure 1.1 : Flow of Integrated Planning Process



A WHO report emphasized that "in the old ideology", involvement was conceptualized too often as an effort on the part of individuals set vertically. This kind of involvement prescribed passive acceptance of services and provision of support in cash or kind, in giving money for a pump, digging a well for water supply, or laying bricks for a health center or a school. The new type of involvement requires identification with the movement, which grows only out of involvement in thinking, planning, deciding, acting and evaluating, focused on one purpose, namely socio-economic development, of which health is only one part – a major part nonetheless. Indeed it, is a mental process as well as a physical one (WHO, 1978). For many years, as a key component of its basic service strategy, UNICEF has promoted and supported community participation in the areas of education, health, nutrition, and water supply and sanitation in underprivileged rural and urban settings.

In Thailand, according to the concepts of PHC, the PHC worker should be people within the community whose functions and participation are bases up on a voluntary basis. The potentials of human resources that exist in the community are fully recognized and mobilized. "In fact, we are developing a grass-root primary health care work force comprising the Village Health Volunteers (VHVs) who will promote rural health and other development efforts through organized community activities" (MOPH, 1975).

Participatory Rural Appraisal (PRA) is considered one of the popular and effective approaches to gathering information in rural areas. PRA is based on village experiences where communities effectively manage their natural resources.

PRA is a methodology of learning about rural life and environment from the rural people. It requires researchers/field workers to act as facilitators to help local people conduct their own analysis, plan and take action accordingly.

PRA based on the principle that local people are creative and capable and can do their own investigations, analysis, and planning. (NepalNet Key Development Sector, 2001).

The AIDS Education Project introduced PRA is an approach for community participation and a process to let people participate in analysis of the community situation, problem identification by exchanging ideas carrying, learning from each other, and finding solutions together.

The moderator is a key person for doing PRA process by encouraging participants to discuss information based on respect and equity. There are 4 important principles as follows:

1). Believe in people's potential.

2). Pay importance to knowledge that has occurred from experience.

3). Focus on gaining community power for solving problems.

4). Promote people to be actors and have major roles in doing activities.

PRA can be applied to solving problems in the community. The principles and process of PRA are very appropriate for use in Thai society and culture. The techniques of PRA could also be applied to any issues, relevant to each problem, the needs of each

community, and each target group (AIDS Education Project, Chiang-Mai University, 1997).

Jennifer Rietbergen (Riebergen-Mc Cracken, 1998) suggested that PRA is an approach (and a family of methodologies) for shared learning between local people and outsiders to enable development practitioners, government officials, and local people to plan appropriate interventions together. PRA: key principles are composed of:

- Participation: local people serve as partners in data collection and analysis
- Flexibility: not a standardized methodology but depends on purpose, resources, skills, time
- Teamwork: outsiders and insiders, men and women, mix of disciplines
- Optimal ignorance: cost and time efficient, but ample opportunity for analysis and planning
- Systematic: for validity and reliability, partly stratified sampling, cross-checking

PRA was more successful in the level of attitude and acceptance among HIV/AIDS patients of a PRA trained group of village health volunteers than among an untrained group in Amnartcharoen Province (Kanlayanee Suvetevin, 1998).

Therefore, PRA is one alternative for promoting community awareness and participation in the management and solution of health problems in the community.

The researcher is a worker in a local area and is responsible for disease prevention and control, and is therefore interested to use PRA as an important strategy for managing and solving diarrhea at Nong Kung Village, by collaboration of community based organizations and health workers in problem analysis based on existing practices management.

The next step is to work together to identify appropriate method for planning, implementing, monitoring and evaluating that do not conflict with the life of the community. Thus, "Participatory Rural Appraisal (PRA)" has been introduced to fulfill this need.

CHAPTER II

PROJECT DESCRIPTION

2.1 Background and Rationale

The diarrhea problem in Roi-Et Province is severe. Especially in Chaturapukphiman District, it is the highest ranked among diseases in epidemiological surveillance report. The morbidity rate keeps increasing every year, as shown in Table 2.1.

Table 2.1 : Cases and Morbidity Rate per 100,000 Population with Diarrhea by Year, Chaturapukphiman District, Roi-Et Province

Year	Population	Cases	Morbidity rate
1991	78,256	1,548	1,978.12
1992	79,409	1,604	2,019.92
1993	80,027	1,621	2,025.57
1994	81,275	1,644	2,022.76
1995	82,241	1,806	2,195.98
1996	83,789	1,868	2,229.41
1997	84,687	1,993	2,535.37
1998	85,751	2,369	2,762.65
1999	86,698	1,729	1,994.28

Source: Chaturapukphiman District Health Office, 1991-1999

Note: 1999 (Data between January and September)

The data from Table 1 show that diarrhea in Chaturapukphiman District is very serious, especially in 1998, when the morbidity rate was 2,762.65/100,000 population, which was the highest rate in Roi-Et Province, and there was one dead case (the mortality rate was 1.17/100,000 population).

The situation in 1999 (data: between 1st January and 30th September 1999) shows that there were 1,729 cases with the morbidity rate being 1,994.28/100,000 population and there was one dead case with the mortality rate being 1.15/100,000 population. (Chaturapukphiman District Health Office, 1999)

In Nong Kung Village, Moo 8, Hua Chang Sub-District, there was one village with a crisis in diarrhea; the morbidity rate for diarrhea was the highest in Chaturapukphiman District. In 1998, it was 3,259/100,000 population, and in 1999 (data between 1st January and 30th September 1999) there were 17 cases with a morbidity rate of 2,595.42/100,000 population, and there was one dead case with a mortality rate of 152.67/100,000 population (Chaturapukphiman District Health Office, 1999). Therefore, diarrhea is an important problem in Nong Kung Village.

The two main dangers of diarrhea are death and malnutrition. Death from acute diarrhea most often results from loss of a large amount of water and salt from the body. This loss is called dehydration. Diarrhea is worse and often more common in persons with malnutrition and death can occur if not receive treatment in a certain time, especially children. Children's normal development and growth may be undermined.

Physical, mental and intelligence development are inappropriate. They will have reduced learning skills and may be infected easily with disease. (WHO, 1993).

In respect of the economic effects, diarrhea provides both direct and indirect negative impacts on the economy. The study done by Haranwiwatthanakul reported that the average expense on diarrhea treatment in Children's Hospital between 1,309-1330 Baht/case/time or 183-186 Baht/case/day, so the government spend a lot for the treatment of diarrhea. (Tharathip Thamnawapharit, 1998).

The health workers in Chaturapukphiman District, from district health office, health center and hospital have carried out prevention, control and surveillance activities using various methods and are providing education on prevention and control both in the hospital and in the communities. Moreover, surveillance also has been done by disease diagnosis and informing the people about the continually. However, these methods could not reduce the morbidity rate of diarrhea. Based on the experience of the researcher, these activities were done by officials. People had less participation, only receiving services from health workers.

The WHO. (referenced in Phadungkiat Uthokseanee, 1994) defined community involvement in health development as a process that is a collaboration between government and community in terms of planning and implementing health services in order to create self-reliance and social control in health care. People's participation means people volunteer for collaboration in solving the health problems of the

community raising resources and providing suggestions requires for creating people's participation.

In the meeting of the WHO at Broini in 1985, 2 recommended methods were:

1. Creating awareness and understanding of health and public health problems.
2. Ensuring that people access to information and knowledge of public health services and programs.

An important aspect of community participation is that people should be aware of their problems and aware of participation in problem solving by themselves, in which people have the opportunity to develop their own capabilities. It is in the community to maximize the benefits, and people have a sense of ownership, leading to sustainable development.

It is also a way to promote democracy, by allowing people to have freedom in decision-making, which consists of 4 steps- preparation, planning, implementation, and monitoring and evaluation (Somnoa Wangwan, 1997).

Some distinct reasons for a participatory approach in health development are: 1) participation leads to sense of responsibility, 2) more will be accomplished with participation, 3) participation makes services more cost- effective, 4) participation is a catalyst for further development (Van Der Putten, 1996).

The WHO (WHO, 1993) recommended measures to prevent of diarrhea. An important part of the health worker's job is to help prevent diarrhea by convincing and helping community members to adopt and maintain certain preventive practices. These preventive practices are:

- breast-feeding
- improved weaning
- use of plenty of water for hygiene and clean water for drinking
- hand-washing
- use of latrines
- proper disposal of the stools of young children

The health worker can teach, encourage, and set a good example to influence community members to adopt these preventive practices.

Breast-feeding

- Mothers should give only breast milk to their babies for the first 4-6 months and then continue breast-feeding up to 2 years of age or beyond, while giving other foods.
- A new mother should be taught how to hold the baby for breast-feeding and how to place the nipple in the baby's mouth. This is best done by a female health worker or another woman who has successfully breast-fed her own children.

- To breast–feed most effectively, mothers should start breast–feeding as soon as possible after the baby is born and not give their babies other fluids, such as milk formula, during the first 4-6 months of life.

Improved weaning practices

- Clean, nutritious weaning foods should be introduced when a child is about 4-6 months old. Initially, soft mashed foods are best.
- A child's diet should become increasingly varied and should include: the staple food of the community (usually a cereal or root); beans or peas; some animal food, for example, milk products, eggs, or meat; and green leafy vegetables or orange vegetables.
- Drinks are better given with a cup or spoon than with a bottle.
- Family members should wash their hands before preparing weaning food, and before feeding a baby.
- Food should be prepared in clean water before it is eaten.
- Uncooked food should be washed in clean water before it is eaten.
- Cooked food should be eaten while it is still hot; previously prepared food should be thoroughly reheated before being eaten.
- Foods that are being kept should be covered and, if possible, refrigerated.

Use of plenty of water for hygiene and clean water for drinking

- Use the most readily available water for personal and domestic hygiene.
- Water for drinking should be collected from the cleanest available source.

- Water sources should be protected by water keeping animals away; locating latrines more than 10 metres away from the source, and downhill; and digging drainage ditches uphill from the source to channel storm-water away.
- Water should be collected and stored in clean, covered containers. It should be taken from the storage container with a clean, long-handled dipper.
- Water used for making food or drinks for young children should be boiled.

Hand-washing

All family members should wash their hands well :

- After cleaning up feces, and after disposing of a child's stool
- After defecation
- Before preparing food
- Before eating
- Before feeding

An adult or older sibling should wash the hands of young children.

Use of latrines

- All families should have a clean and functioning latrine. The latrine should be used by all family members who are old enough to use it.
- The latrine should be kept clean by regular washing of dirty surfaces.
- If there is no latrine, family members should defecate at a distance from the house, paths, or areas where children play, and at least 10 metres from the

water supply, avoid going barefoot to defecate, and not allow a child to visit the defecation area alone.

Proper disposal of the stools of young children

- The stool of a young child or baby should be collected quickly, wrapped in a leaf or newspaper, and buried or put into the latrine.
- A young child should be helped to defecate into an easily cleaned container. The stool should then be put into a latrine and the container washed out. Alternatively. The child can defecate onto a surface such as a newspaper or large leaf, and this can be input into a latrine.
- A child who has defecated should be cleaned promptly, and the child's hands should be washed. The person who has cleaned the child should also wash his or her hands thoroughly.

What health workers can do to support preventive practices?

1) Use good educational techniques. Whenever health workers have an opportunity, they should educate family members about prevention of diarrhea. Opportunities may occur when mothers come for prenatal care or to have their children immunized. Health workers should create other opportunities, such as group educational sessions or home visits to mothers.
2) Set a good example. Health workers should always "practice what they preach" about prevention. What a person does always send a more powerful message than what he or she says.

3) Participate in community projects to improve preventive practices. In cooperation with existing community groups, health workers can use their knowledge of ways to prevent diarrhea to help plan useful projects. Some examples of projects that could be carried out with limited community resources, and that would significantly benefit many community members, include buying soap in bulk for the community, improving water sources, designating and supporting someone to build family latrines, and gardening to produce better and cheaper ingredients for weaning food.
4) Tell community members where the clean water sources are and how to improve the water source. Some of the sources of water in a community can probably be improved by taking simple measures.

Community members may want to make improvements to water sources if health workers can tell them exactly what should be done:

1) Build a fence or well around the water source to keep animals way.
2) Dig drainage ditches uphill from an open well to prevent storm-water from flowing into it
3) Do not allow washing in the water source, do not allow children to play in or around the water source.
4) Do not locate latrines uphill from, or within 10 metres of the water source.
5) Install a simple pulley device and bucket to make it easier to raise water from a well.

The recommendations of WHO (WHO, 1993) for prevention of diarrhea are likely appropriate methods for managing and solving diarrhea in the village. The researcher in the position of health academic in Chaturapukphiman District Health Office take a major role in planning, evaluation including responsibility on prevention and communicable disease control. A review of the literature shows that PRA is considered one of the popular and effective approaches to gather information in rural areas.

As was found in the literature review, community participation is the main concept of PRA. Chambers (1992) has defined PRA as an approach and methods for learning about rural life and conditions from, with and by rural people. He further stated that PRA extends into analysis, planning and action.

Therefore, the researcher was interested to conduct PRA for promoting community awareness and participation in managing and solving diarrhea in Nong Kung Village. There are three issues, including the following (1) To access community perceptions about sanitation and environment, and personal hygiene that risk causing of diarrhea, (2) To identify the existing practices on diarrhea prevention and control and (3) To explain the practices in managing and solving diarrhea through PRA, i.e. planning, implementation, monitoring and evaluation.

The operational in developed planning by collaboration of CBO and health workers in discussing sanitation and environment, health behaviors that risk causing diarrhea, and participatory situation analysis based on existing practices of diarrhea.

Then the participants identify the appropriate ways for planning, implementing, monitoring and evaluating that do not conflict with the life of the community. This will bring about a decrease in the severe diarrhea problem, which is sustainable and efficiently managed.

2.2 Goals and Objectives

2.2.1 Goals

To decrease diarrhea morbidity in Nong Kung Village by using the participatory rural appraisal approach.

2.2.2 Objectives

General Objective

To develop the strategies plan of diarrhea in term of prevention, outbreak control and primary care.

Specific Objectives

1. To explore the diarrhea situation in Nong Kung Village, such as: perceptions of diarrhea, environment and sanitation and personal hygiene that risk causing diarrhea.
2. To identify the existing practices and recommendations for managing and solving the problem of diarrhea through participatory rural appraisal.

2.3 Approach, Methods and Techniques

This project applied action research by using the participatory rural appraisal approach for managing and solving the problem of diarrhea at the village level.

Study Site

Nong Kung Village, Moo 8, Hua Chang Sub-District, Chaturapukphiman District, Roi-Et Province.

Community Selection

Purposive sampling was applied for the selection of Nong Kung village by studying secondary data in terms of the highest morbidity rate of diarrhea in 1998 and 1999. There was also one dead case in 1999.

Population

There were 655 villagers and 137 household in this village.

PRA Participants

The participants were Community Based Organization (CBO.) and health workers.

1. The Community Based Organization group consists of four sub-groups:
   - Village Health Volunteer group 7 persons
   - Housewives group 7 persons
   - Food seller group 7 persons

- Village Committee group 7 persons

2. Health Worker group
   - Health workers from hospital and district health office responsible for communicable disease control 7 persons

Total 35 persons

Detail of the inclusive criteria

1) Able to provide concerning data.
2) Able to play a major role or act as a key person for development of the participatory management and solution of the diarrhea problem.
3) Resident of the village who has been living there for more than 3 years.

Reasons for selection the of CBO representatives

1. **Community Based Organization.** Generally the CBO plays an important role in managing and solving any problems in the community. They were community representatives who would work in the process of PRA.
   1.1 Village Health Volunteer. This group plays a major role in implementing PHC. at the village level.
   1.2 Housewives Group. The housewife is a key person who responsible family health and cooking.
   1.3 Food Sellers. This group is important in case of cooking contaminated food for selling in both village and school.
   1.4 Village Committee. The Village Committee is a key body responsible for village development in all areas of health problems.

2. **Health Workers.** There were 7 persons selected for this project. This group was responsible for implementing prevention and disease control activities in Nong Kung Village according to the policy and plan from both the hospital and the district health office of Chaturapukphiman District, Roi-Et Province.

2.4 Procedure

This project consists of 5 phases as the following:

Phase 1 : Preparation

- Coordination with all persons involved
- Phasing of activities (main activities, supplementary activities)
- Preparation of question guidelines / Issues on diarrhea
- Preparation of the project team (introduction and training)
- Community preparation (introduction and selection of the participant)
- Preparation of equipment and supplies
- Studying the secondary data (Background general information, demographic, economic, educational)

Phase 2 : Participatory Rural Appraisal process

This phase consists of 2 steps are:

First step

1) Individual introduction of all participants

2) Creation of friendly atmosphere (games)

Second step: Situation Analysis of Diarrhea

1) Participatory survey of the sanitation and environment situation, food sanitation, personal hygiene
2) Participants shared their ideas and experiences regarding diarrhea
3) Small group discussion/ Group work on diarrhea
   - Perceptions of diarrhea: cause, severity, health seeking
   - Problem analysis of the existing practices related to diarrhea
   - Identification of the appropriate practices for diarrhea prevention, outbreak control and primary care
   - Recommendations

Phase 3 : Planning

Collaborative setting up of plan to cover 3 main issues: prevention activities, outbreak control activities and primary care activities, that identifies clearly objectives, target, tactics, duration, resources and responsible persons.

- Group 1: Prevention plan on diarrhea
- Group 2: Outbreak Control plan on diarrhea
- Group 3: Primary care plan on diarrhea

Phase 4 : Implementation

- Collaborative work follow operational planned and assigned responsibilities
- Support and help to each other group in all activities.

Phase 5 : Monitoring and evaluation

- Participation monitoring and evaluation follows the guidelines and time frame

Data Collection and methods

This study attempted to generate quantitative findings and qualitative descriptive information by employing three techniques, as follows:

1. Observation was employed for both quantitative and qualitative data about sanitation and environment, behavior.
2. Focus group discussions were utilized for getting detailed qualitative information from the participants.
3. Informal interviews were employed with observation technique for getting the sanitation and environment information, behavior of the people. This technique used to be affiliated with observation technique.

Detail of data collection

The focus group discussion technique was used for all groups of samples. There were 5 group, each having member 7 members. Each group conduct focus group discussions for exploring perception on diarrhea, the existing practices of diarrhea prevention outbreak control and primary care.

After completing all 5 focus group discussions, the results of each group were presented to all the groups, and then the brain storming technique was used to get information based on the appropriate practices for managing and solving of diarrhea.

Then all participants have to think together and search for guidelines for managing problems and summarize them to be an ideas of the village, which include three operational plans - prevention, outbreak control and primary care.

Issues for conducting focus group discussion of each group are varied as follows:

1. **Village Health Volunteers Group.** Issues for discussion are involved with prevention of diarrhea, i.e. health education, sanitation and environment management, which affected the occurrence of diarrhea, and community participation in disease control, as well as primary care in the community, such as services in the CPHCC or treatment with ORS.
2. **Housewives Group.** Major issues for discussion are involved with health care for family members and prevention practices i.e. food sanitation in the family, primary health care using ORS.
3. **Food Sellers Group.** They discuss prevention, especially cooking methods and selling food in the village and school, as well as the quality of food that is imported for sale in village.
4. **Village Committee Group.** The issues for discussion of this group are supporting each group to do activities in the village by facilitating and monitoring.
5. Health Workers Group. Issues are the services system of prevention, disease control, treatment and surveillance at community level.

Detail of data collection, Table 2.2

Table 2.2 : Data collection /Instruments/Source of data

Data collection	Data Needed	Instruments	Sources of data
Observation, Informal interview	• Sanitation and environment • Food sanitation • Personal hygiene	Observation, informal interview Guidelines	Family members in Nong Kung Village
Focus Group Discussion	Situation of diarrhea • Existing practices of diarrhea • Perceptions of diarrhea • Recommendations of the appropriate practices for managing and solving diarrhea	Guidelines for FGD	Participants

Table 2.3 : Timetable

Activities	Period
1. Reviewing literature, the scope of title for Study	• Sep. – Nov.1999
2. Consulting (advisor, co-advisor)	• Sep.1999, Jan, Apr, Aug, Dec.2000, Mar. 2001
3. Preparing proposal and improvement	• Dec.1999 - Jan.2000
4. Proposal presentation	• Feb. 2000
5. Proposal revision	• Feb.2000
6. Preparation	• Mar.2000
7. PRA exercise/ intervention program	• Mar - Sep.2000
8. Analysis	• Jun, Sep.2000
9. Progress report	• Jun, Sep 2000
10. Project evaluation	• Oct.2000-Mar.2001
11. Conclusion	• Apr.2001
12. Thesis writing	• Apr.2001
13. Thesis presentation	• May.2001

Budget

Total budget 32,150 baht

Intervention Program

The intervention program was carried out through active contacts (personal contacts, official contacts, and group meeting etc.) with the participants and other key persons in the community. The community education and participation program was carried out after the project team had built up rapport with the people in the community. Two main activities were purposed.

1) Community preparation. This activity consisted in setting up participants meetings.
2) PRA process. Before starting the intervention program, the project team conducted a meeting with a focus on orientating the village committee to understand the methods of and the benefits of this project approach.

During the operational of this project, the project team were conducted several time until the participants understood participatory developments project. Also, group discussions were employed in the PRA process for health education program, with an emphasis on the knowledge about the cause and the effect of diarrhea including the method of prevention, outbreak control and primary care. As follows:

Problem identification

Group discussion on the identification and analysis of diarrhea problem including problems in the village, were performed.

- Presentation of previous implementation for prevention and controlling of diarrhea are assigned of all groups. An then conducted focus group discussion one time per group in the main issues; perceive of diarrhea,

existing practices of diarrhea's problem solving and recommendation, identifying appropriate practices for managing and solving of diarrhea in the future.

- The project team concluded data gained from small group discussion on the epidemic trend of diarrhea.

Planning activities.

Diarrhea solving was implemented by members of the PRA identifying clearly objectives, targets, tactics, duration, resources and responsible persons, and divided into three groups of 11-12 persons to set up the intervention plan, to cover three mains issues:

- Group 1: Prevention plan for diarrhea
- Group 2: Outbreak control plan for diarrhea
- Group 3: Primary care plan for diarrhea

Implementation

The participants of the PRA described the plan to people in the community by meeting and asked them for their cooperation by having one family members to participate in the meeting. The community's interest and likelihood of acceptance of the intervention were also determined.

Monitoring and evaluation

The PRA participants up a monthly meeting schedule to assess how the study was progressing. The results of this intervention program were reported, especially the

problems which had to solve in order to improve the program; these were lessons learned from experience.

In the PRA process for managing and solving diarrhea, group participation must be undertaken at all phases. However, several additional activities need to be carried out at each phase. In particular, the project team provided the participants with techniques for motivating other target mothers and community leaders to cooperate in program implementation, and techniques for transferring knowledge about diarrhea prevention and creating awareness of diarrhea problems among the neighbors and in the village as a whole. These activities are essential, but their implementation needs time.

During the operational period, monitoring and evaluating were undertaken from time to time employing group discussion in order to evaluate the effectiveness of the program and community participation.

The intervention program emphasized the provision of knowledge concerning the causes of diarrhea and improving environmental sanitation practices and hygienic practices, such as preparation and cooking of food, hand-washing, methods of food keeping, and the appropriate primary care.

The project team played the role of stimulators to create an awareness of diarrhea problems.

2.5 Data Analysis

Data analysis for quantitative data, such as demographics, educational level by using descriptive in statistic. Qualitative data used content analysis. Cross-check data collected from interviews with observations, focus group discussions by using triangulation technique. Data analysis was divided into four parts, as follows:

Part 1 : General information

Part 2 : Situation analysis of diarrhea such as: perceptions of diarrhea, environment and sanitation and personal hygiene that risk causing diarrhea

Part 3 : Existing practices and recommendations for managing and solving diarrhea

Part 4 : Practices for managing and solving problems of diarrhea in Nong Kung Village through the PRA process. (Planning, implementation, monitoring and evaluation)

2.6 Results

Part 1 : General information

1.1) Background, social characteristics

Nong Kung village was established in 1923 by a group of 4–5 families moving from Hua Chang village, Chaturapukphiman District. Because of rich of the richness of water sources and other natural resources, their major occupation was agriculture. They were farmers. Most of team have their own land for growing rice. This is because they

have no time to do it themselves. Besides, there are plenty of food during and shortly after the rain season, such as fish, vegetables, etc. from which they can earn some income from selling the excess of vegetables and fish in the nearby market.

Shelter is mostly built in the same style. That is, there will be a single floor with ventilation underneath. The roof is covered with corrugated iron and usually built close together so that it is easy to visit each other. This is said to be an unique housing style of the Northeast granary is built to store uncooked rice after the harvest season. Concerning family ties and power structure within the community, it can be seen that people like to live peacefully with unrestrictive rules of daily life.

The families mostly are small single families, including father, mother and one or two children. Women mostly work as housewives and take part in decision making in the family. Some will set up a group to work together cooperatively, which is known as 'mother's club' to earn some incomes for their families, such as a clothe-weaving clothes a group.

Men usually work in the field during the growing season and after the rainy and harvesting seasons they normally go to other places to earn some income for the family.

Typically, children grow and learn how to live following the Northeast lifestyle with natural resources available in the community. Children go to a child development center to prepare themselves for further primary school.

The elderly group is respected by all people in the village, based on their experiences, especially activities that are related to customary, cultural and religious ceremonies or celebrations. People in Nong Kung Village are Buddhist. There is one temple with at least five monks that is the center for performing such customary, cultural and religious ceremonies or celebrations, according to their beliefs and the ways of living.

However, some cultural activities clearly appear to be risks for diarrhea. For example, most adult people like to eat raw meat, or raw fish, which is locally known as "Koy". This kind of food is available in some large ceremonies such as wedding ceremonies, such as at a wedding ceremony, funeral ceremony, and other special occasions.

The community relationship is said to be excellent, with easy living according to their style. Groups or small organizations are set up to work together within the village and are organizations, both formal and informal. Of course, disagreements arise in nearly every organization, however, big or unsolved arguments have not appeared here.

Relationships with other people in other communities was also involved, particularly juvenile sport competitions, New Year ceremony, as well as the economical connection for exchanging community products, especially agricultural products, in the form of marketing and community exhibition, such as an agricultural trade fair.

Ideally, the local governmental organization is said to be the center of connection between communities in collaborative work to improve their communities, such as local environmental development or other cultural activities, like wedding ceremony, Buddhist Lent, and so on. During the Buddhist Lent period (of three months), there is a traditional singing contest that is locally called "saraphunya" and which has its own unique style of singing.

Governmental workers will work for community development under their authorities and related works for example, the community developer will work mainly on community improvement, the agronomist will work to improve the quality of agricultural products and to deal with agricultural problems for local farmers.

Besides that, district education officers will encourage and motivate local people to further their study to higher levels, as much as is possible. If they cannot pursue their study in secondary or high school, vocational education will be organized for them after the growing season.

Health worker development, including health promotion, health care, prevention and control of disease and other health care services will be the full responsibility of Chaturapukphiman Hospital, a district hospital. Health workers will visit people in the village from time to time for promoting and educating people about disease prevention and providing primary health care, such as vaccinations, in order to prevent and protect people from disease.

1.2) Demographics

From the census survey in March 2000, a population of 655 in Nong Kung Village was estimated. There were 301 males (45.95%) and 354 females (54.05%) as shown in Table 2.4.

Table 2.4 : The proportion of population in Nong Kung Village in 2000 Classified by age group.

Age (years)	Population					
	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
0-4	33	5.04	40	6.11	73	11.15
5-9	30	4.58	42	6.41	72	10.99
10-14	34	5.19	37	5.65	71	10.84
15-19	37	5.65	40	6.11	77	11.76
20-24	37	5.65	46	7.02	83	12.67
25-29	36	5.49	39	5.96	75	11.45
30-34	29	4.42	32	4.89	61	9.31
35-39	19	2.90	24	3.67	43	6.57
40-44	14	2.13	18	2.75	32	4.88
45-49	8	1.22	12	1.83	20	3.05
50-54	7	1.08	6	0.91	13	1.99
55-59	6	0.92	7	1.07	13	1.99
60-64	3	0.46	6	0.91	9	1.37
65-69	4	0.61	3	0.46	7	1.07
70-74	3	0.46	1	0.15	4	0.61
75+	1	0.15	1	0.15	2	0.30
Total	**301**	**45.95**	**354**	**54.05**	**655**	**100**

The data in Table 4 indicate that the population structure of Nong Kung Village is quite similar to the population structure in Thailand. That is, there were a lot of children and adolescents.

1.3) Economic aspect

As the main occupation of people in Nong Kung Village is farmer (54%), peoples' incomes are said the be low, mostly varying between 1,000– 1,700 Baht per month and only 4% have incomes of 3,000 Baht per month. Most people do not have a side, or alternative, job to do after the growing season except for the mother's club which set up the group for weaving clothes. There is a governmental subsidized fund for village development for 87 households (67%) and a funeral fund for all households.

1.4) Educational level

Consideration is made of people who already have access to education system (aged from 7 years). The majority of people in Nong Kung Village were in primary school (87.18%), only 1.65% were university or college graduated, 3.3 % were vocational graduates and 7.69% were high school graduated. However, 0.18% were illiterate program (see Table 2.5).

Table 2.5 : Educational levels of people in Nong Kung Village from 7 years old.

Education Levels	Males	Percent	Females	Percent	Total	Percent
Illiteracy	-	-	1	0.33	1	0.18
Primary School	221	89.48	225	85.28	476	87.18
High School	16	6.48	26	8.70	42	7.69
Vocational Study	5	2.02	13	4.35	18	3.30
University or Collage	5	2.02	4	1.34	9	1.65
Total	**247**	**100**	**299**	**100**	**546**	**100**

Source: The census survey in March 2000.

Part 2 : Situation analysis of diarrhea

2.1) Perceptions of diarrhea

Data were collected from discussion with five target groups, including the village health volunteers group, the housewives, food seller group, village committees group, and health worker group. Description was mainly based on their knowledge on diarrhea, and can be divided into 3 parts, as follows:

- Definition of diarrhea
- Assessment of the severity of diarrhea
- Causes of diarrhea

Definition of diarrhea

Diarrhea is locally known as "acute watery stools". This term refers to diarrhea that begins acutely and involves the passage of frequent loose or watery stools without visible red blood. Vomiting and fever may be present. Acute watery diarrhea normally causes dehydration and when food intake is reduced, it contributes to malnutrition.

During the discussion, one of the participants stated that "when a diarrhea epidemic occurred last year, an old women died by eliminating stools with a strong smell and presence of fever".

Another participant stated that " he would be dead if he had not been sent to the hospital in time, since he could not make himself to go to the toilet after he had bowel movements lasting for several hours".

From this discussion, people in Nong Kung seem likely to see that the most threatened diarrhea is since others could be treated more easily. For instance, some people could be recovery from watery diarrhea without any treatments involved. although diarrheal disease is usually less harmful, it can cause discomfort, reduced working ability and a burden on family income.

The health worker group could clearly define the term "diarrhea" as "the passage of three or more loose or watery stools in a 24-hour period or even a detection of diarrhea with visible red blood in the stools".

Assessment of the severity of diarrhea

All PRA participants in Nong Kung Village had different opinions on the assessment of the severity of diarrhea, mostly depending on their experiences, which can be categorized into 3 degrees:

- Mild diarrhea: any diarrheal episodes in which these are 2 or more stools in a 24-hour period without any other accompanying symptoms. The patient seems likely to be healthy and has no signs of dehydration. In young children, they can drink, eat and play normally. This kind of diarrhea is seen to be quite normal in the community.
- Moderate diarrhea: the presence of two or more loose or watery stools accompanied by fever, vomiting, visible red blood in the stools. In young children, they will cry vigorously and are unable to drink owing to lethargy. Children need to be referred to the hospital and the ORS solution should be given.
- Severe diarrhea: this refers to the passage of frequent loose or watery stools which lasts several hours or days accompanied by fever, vomiting, fatigue, abdominal cramps. With this condition, the patient needs to be admitted to hospital immediately.

Causes of diarrhea

Among the community based organization studied, all participants in PRA gave several related causes of diarrhea based on their experiences and beliefs, including:

1) Eating left over food without re-heating or improper cooking improper cooking

2) Eating unwashed fruits and vegetables
3) Consuming some sour fruits, such as raw mango, tamarind and star gooseberry.
4) Eating some kind of food that is mixed with raw ingredients such as "som-tum" (papaya salad) that is made/eaten with uncooked marinated fish.
5) Medicine
6) Unclean food and body intolerance to some kinds of food. Some people can eat a lot of sour fruits or spicy food and suffer no signs of diarrhea, but some cannot.
7) Changes in body growth, especially in children when they start to sit, crawl and walk, which is locally called "zu".
8) Poor environmental sanitation such as waste disposal methods, particularly in the rainy season and summer, when the number of flies and other vectors increases.
9) Drinking unclean water.
10) Improper food preparation such as poor personal hygiene, not washing hands.

Health seeking of diarrhea

In rural society, since mothers take all the decision-making within the family, decision making for treatment will depend on the mother rather than the father. In some families, both the father and the mother will take part in decision making together, This will be the same for making decisions on the treatment of diarrhea.

That is, if one of the family members gets diarrhea, the mother will wait to see how the health conditions change. The decision will be made if the health condition gets worse, such as having passed loose or watery stools more than 4-5 times, or if the diarrhea lasts for several hours, if there are no signs of any other symptoms such as fever, vomiting and so on, she will not take the child for further treatment. When diarrheal disease occurs in the village, the local public health center and community hospital will be the first choice for them. Alternatively, a private clinic or traditional treatment will be considered.

However, treatment of diarrhea with modern medication is more favored than traditional medicine due to effective treatment of modern medication, which is faster than traditional ones. Nevertheless, for other chronic or unknown causes of diseases, villager prefer to have traditional therapy as well as modern treatment.

2.2) Environment and Sanitation

Use of latrines / Stool disposal

The collected data showed that there were 136 sanitary latrines used in Nong Kung Village (99.27% of households). Where one is not available, people will share the latrine with their relatives. Concerning latrine using, most people usually access to latrines except when working in the field, when the feces will be buried after defecation. Stools of young children that are especially likely to contain diarrheal pathogens will be collected soon after defecation and disposed of in a latrine or buried. However, failure of child stool disposal can also occur because some people usually clean or wash children bump after defecation to the ground without burying it.

Use of plenty of water for hygiene and clean water for drinking

One hundred and eleven households access adequate supply of water during the year for drinking and preparing food (81.02%) by collecting and storing rainwater in big water vats or large cement tanks. However, in the dry season, a defacing of water supply will occur in some households due to lack of water containers to collect and store rainwater in the rainy season. Some will use water from a water lorry that is available in the village. Some will buy bottled water for drinking but for personal and domestic hygiene they will use groundwater from the water pump in each household.

Most people in Nong Kung Village drink water that is collected in the rainy season without boiling or improving the quality of the water as using water from a natural well.

Choices of food consumption

Most housewives buy fresh food from shops or stalls, of which there are about eight shops in the village. Sometimes they will go to the fresh market to buy fresh fruits, vegetables, meat, chicken, eggs, fish etc.

They will pay attention to the quantity and price of food when buying it, rather than anything else. Seventy-eight households will select foods that have labels on them due to what they are informed by community health providers and other media. The traditional food is "som tum" which is available in food shops in the village.

Food preparation

Every household has its own kitchen to prepare food for family members. When preparing food, chopping board, pots, frying pan, knives and handled ladle will be used. Normally, they will put the chopping board on the kitchen floor or on newspaper covering the kitchen floor and start cooking food nearby where they preparing some other ingredients. However, an apron will not be used when preparing food at all. Groundwater will be used for domestic purposes and food sanitation. Food typically will be cooked before eating but for some kinds of food, especially meat, it will traditionally be eaten raw.

Food storage and dietary habits

Traditionally, the meal pattern of people in Nong Kung Village is to eat three times a day; breakfast, lunch and dinner. However, some families will not cook their own lunch but will buy lunch it from food shop in the village. Some families will prepare breakfast and lunch at the same time in the morning but they may not reheat it before eating it at lunch time. Some households have a cupboard to keep food in during the day. For some, where that is not available they will use a food cover or dish to cover food. As a result, some food may be spoiled.

Cleaning of kitchenware, etc.

After preparing food and after a meal, used dishes and other used kitchenware will be stored for cleaning at once in the evening. People will use detergent for cleaning kitchenware rather than dishwashing liquid and rinse once with groundwater. Some wet dishes will then be used immediately and others will be left to dry.

Personal hygiene

Concerning hand washing behavior before and after using the toilet, people usually wash their hands with no soap because they assume that their hands did not come into contact with feces. Thus, hand washing with soap is out of their concern. Some people do not wash their hands before preparing food and eating food which they normally eat with their hands.

For bodily hygiene, people take a bath twice a day in summer but only once in winter. They brush their teeth once or twice a day but with the wrong tooth brushing method.

The project team set up the Pre-Checklist of diarrhea prevention for observation and interviewed the family members by participants. The data, by percentage shown that less than 50% comprised 10 items, such as having proper waste water, having a garbage bin with cover in kitchen and housing area, and cleanness and tidiness of the kitchen, The data are shown in Table 2.6.

Table 2.6 : Prevention of Diarrhea from Pre - Checklist

Items	Results (n=128)	
	Number	Percent
1. Using only registered flavoring and coloring agents	76	59.38
2. Having food cabinet or food cover	98	76.56
3. Having and using sanitary cooking and eating utensils	23	17.97*
4. Three steps of washing utensils	63	49.22*
5. Cleanliness and tidiness of kitchen	21	16.40*
6. Having clean drinking water	94	73.44
7. Having a garbage bin with cover in the kitchen and housing area	19	14.84*
8. Sanitary water for consumption	96	75.00
9. Having and using sanitary latrine	128	100
10. Having proper waste water disposal	12	9.38*
11. Hand washing		
- After defecation	46	35.94*
- After cleaning someone who has defecated and after disposing of child stool	51	39.84*
- Before preparing food	54	42.19*
- Before eating	42	32.81
- Before feeding a child	35	27.34*

Source: Pre –Checklist Diarrhea Prevention (Oct. 2000)

Part 3: Existing practices and recommendations for managing and solving diarrhea

3.1) Experience in diarrhea prevention of the participants

1.1 The health worker who takes responsibility for community communicable disease control suggested that the diarrhea problem studied by the project team was a serious problem that needed to be solved immediately. This is because Nong Kung Village was said to be an epidemic area of diarrhea last year, which caused quite a serious situation for him and the village health volunteer team to provide intervention in order to solve the problem. That is because the district health center took its part to deal with the problem, while the local community had no or less chance to work with them. In addition, he suggested that in the future, health worker and community should have more opportunity participating more than ever before.

1.2 The head of the village who represented the village committees group pointed out that as he is the head of the village, he was always concerned about causes of diarrhea in his village through the previous diarrheal episode. The intervention that he could be make is to facilitate the referral of patients to the hospital because he has his own car. Furthermore, he would facilitate and work cooperatively worked with community health providers by informing people about the epidemic of the disease and helping community health providers to work with people in the village on their visiting and rehabilitation follow up.

However, he stated that the role and responsibility of the village leader committee group and village health volunteers group need to be more clearly delineated.

1.3 The village health volunteers, stated that their responsibility was mainly to advise people to keep the kitchen and house clean, prepare food in a safe and sanitary way and give advice on community sanitation. However, failure could be seen as they lack the time and need to take responsibility for their families. In the future; however, if they have a better work plan to work with community health providers, they are pleased to devote their time to deal with this problem.

1.4 The housewives, said that in the past, they had never been trained about how to prepare food hygienically, but they cook traditionally. Therefore, people should be motivated to have clean and safe food preparation and storage, throughout a clean house, safe water supply and community sanitation.

1.5 The food sellers, she said that as she had been selling "som tum" and noodle (kuay tiew) for four years. She assumed that food was clean and safe enough for customers. This is because she always boiled fermented fish, and cleaned the mortar and pestle before cooking it. However, there were a lot of flies and she could never get rid of them. Therefore, she would like to gain knowledge on how to manage and get rid of flies when she is cooking and selling food in order to prevent and control the epidemic of diarrhea.

3.2) Existing practices

3.2.1 Village health volunteers group

Although the village health volunteers group knows about the occurrence of diarrhea in the village and know who would be suffering from, it, they may not be able to use their knowledge and training to deal with such a situation independently. This is because they may not be sure of their authorization and responsibility as a village health volunteer since the role and responsibility have not been clearly set out. For example, passing on messages gained from community health providers was done via village publicity. They could find it difficult to assessing people's understanding about any given message.

Some village health volunteers may not get job satisfaction because they have to work in different places to earn some family income. However, they always facilitate aid to community health providers to work with people on improving their environmental sanitation, encouraging them to use latrines, promoting safe food preparation, managing sewage and waste disposal, throughout dealing with disease vectors. In addition, village health volunteers participate mainly in community development campaigns in order to improve community sanitation and have better health by organizing, announcing, persuading and encouraging people to be concerned about their health and their living environment. On the occurrence of a diarrhea epidemic in the village, they work cooperatively with community health providers to visit the patients, seeking the sources and causes of disease, cleaning the patients house and their neighbor's house in order to control the spread of disease. They sometimes help community health providers in collecting specimens, such as food drinking water

etc. for laboratory testing. However, they are still unsure about curious on their role and responsibility. In a village, some village health volunteers may not even know that there was a diarrhea outbreak, because of the team work of the village health volunteers failed, unclear roles and responsibilities, failure of intervention planning, lack of knowledge, and lower confidence.

3.2.2 Housewives group

Based on the traditional lifestyle, people consume fresh food vegetables and other ingredients from the food shops available in the village, except for some families who are able to seek food natural sources, such as fish from rivers, etc. Fish, meat, pork and chicken are always cooked before eating. However, some kinds of Northeast foods such as "koy", which is made from meat mixed with blood, are consumed raw. People are likely to eat many foods, most notably fish, raw vegetables and fruits without peeling or washing them. These kinds of foods are often contaminated with diarrhea bacteria.

Besides, most mothers who take full responsibility for the household's food preparation, do not wash their hands or use an incorrect hand washing technique before preparing food. Sometimes when the mother is suffering from diarrhea, she still cooks for the family.

Breakfast and dinner are always cooked and eaten immediately after cooking, but not lunch. This is because the mother will cook a big breakfast and keep leftovers for lunch in the cupboard and do not reheat it before eating.

There are rubbish containers for domestic waste, however, flies and other insects still swarm around the rubbish in the bins. This could lead to the possibility of disease transmission.

Dishes and other kitchen utensils are collected after eating for washing once in the evening after dinner with detergent and finished 1-2 times with clean water.

Then they are left to them dry before putting them into the cupboard. During the drying period, flies and other insects could swarmed over them.

Previous problems raised by the mother's group were mainly concerning lack of knowledge about food hygiene and they also stated that training courses and health education were needed.

3.2.3 Food sellers group

In the previous food preparation, food storage and food selling pattern, it can be seen that food sellers purchased fresh foods from the district market or from street food-vendors. Several foods such as meat, chicken, fish, fish balls, eggs, vegetables and fruits are always available. However, seafood is seldom available. There are 5 "som-tum" shops, 2 noodle shops, 1 grocery and 1 street fish ball vendor operating in the village.

The participants said that "som-tum" and fish balls are the main causes of diarrhea

Food preparation

1) Som-tum: before making som-tum, food sellers did not wash their hands because there were crowds of customers wanting to buy it. They think that it might be a waste of their time to wash their hands every time when making it. An apron was not put on when selling or cooking food. The main ingredient for making som-tum is fermented fish. All shops said that they boiled it but did not reheat it when using it in the following day(s).

   The mortar and pestle were washed once in the morning before cooking and did not wash them again during day, but washed them once again in the evening after selling had finished.

2) Fish ball selling: the seller buys fish balls from the market but the sauce is home made. Boiling, steaming and frying are the methods of fish ball preparation before selling during the day without re-heating. If fish balls are not sold out in one day, they will keep them under in the refrigeration for sell over the following days.

Of course, they will be reheated before sale. To prepare the sauce, hot water will be used to dissolve sugar, salt and these are mixed with chili. This sauce will be cooked again after selling all of the fish ball. The rest will be kept under the refrigeration.

Food storage

Some foods, such as meat, fish, vegetables, and fruits that could not be sold during the day will be leftover under refrigeration. In case of electricity problem

occurring, an ice pack will be used, instead. According to the ways of Northeast living, an apron will not be used more will hands washed when selling food. This is because food seller want to serve customers as quickly as they possibly can. The material used for food container is plastic bag sealing with a rubber band for take away food.

3.2.4 Village Committee group

- Village leader committees did not support and facilitate prevention and controlling of diarrhea since their position is unclear.
- The village committee worked with VHVs in informing people in the community about some health issues. Furthermore, health development campaigns, such as community environmental cleaning, safe water storage techniques and so on, as well as helping the health worker team to search for causes of disease and to visit people on the occurrence of disease.
- They tried to find support funding in terms of resources and funding limitations.
- They have the opportunity to take part in providing the PHC Program, which is a budget from the government of 7,500 Baht per village per year.

3.2.5 Health worker group

Diarrhea prevention

Following up the prevention and control monthly plan, ongoing health education is initially provided and village health volunteers are trained. Health workers work together with other community organizations to improve supply, sanitation, and food safety practices. For example, on special occasions, namely a wedding ceremony,

religious activities and other cultural ceremonies, health workers are invited to participate in such activities. Here, informal health education on food safety and hygienic eating behavior are performed.

However, such activities sometimes can fail due to an increase in other health problems that need to be done both within and outside the workplace.

Diarrhea Control and Surveillance

An adequate disease surveillance system facilitates the early detection of a diarrhea outbreak, especially when daily records are maintained of diarrhea cases seen in health facilities and by health workers in the community.

A diarrhea outbreak should be suspected if a patient develops severe diarrhea or dies from acute watery diarrhea, or if there is a sudden increase in the daily number of patients with acute watery diarrhea, especially patients who pass the " rice water stools typical of diarrhea".

When such changes in the pattern of diarrhea occur, a weekly report should be done to report the numbers of new cases and deaths since the last report and the cumulative totals for the current year. Information on the age distribution of cases and the number admitted in CPHCC a also desirable and sent simultaneously

The health team works together in the affected community by carrying out health education, environment sanitation, stool and environment specimens, including

suspected foods, drinking and domestic water used, for submission to a bacteriology laboratory; and the person who has contacted with disease by rectal swap culture. Disease surveillance is continually conducted until the disease disappears.

However, control and surveillance of diarrhea in Nong Kung Village in the past is said be difficult due to lack of community participation. This might be because of less team working capacity and community cooperation.

3.3) Recommendations for diarrhea prevention and control

3.3.1 Village Health Volunteers Group

Prevention of diarrhea

Planning of diarrhea prevention and control should be made with other community organizations working together. Village health volunteers should work mainly on community sanitation, health education and being a model for other people. Monthly meetings should be held except in the growing season, when a three-month period meeting should be provided.

- Should work with community health providers in continually providing printed information, brochures for people.
- Display boards and posters should be available at the CPHCC
- If the epidemic occurs in the growing season, community health providers should hold a meeting to give knowledge about it at night because people will work in the field during the day.

- Village health volunteers will encourage people in the village to have rubbish bins and provide information about how to dispose of domestic and other waste.
- The village fund should be concerned, because some households do not have any water container to store rainwater for the dry season.
- The government should regulate the quality of bottled water. If the quality does not meet the standard, it should not be marketed.
- Training courses about breast-feeding and young children stool disposal should be set up for mothers.

Outbreak Control

Village health volunteers suggested that community participation in preventing and controlling the outbreak should be administrated. To do so, community and related local organizations must first be prepared. Not only attention to training and supervision on crucial good management should be identified, but implementation management as well as the roles and responsibilities should be clearly set out. This might help village health volunteers implement or take action more confidently during the outbreak and beforehand.

Implementation of health education

Village health volunteers implemented some educational activities that aim to increase knowledge of diarrheal diseases in the target population. To do so, village health volunteers should be able to:

- Take responsibility for board displays in the CPHCC or other outlets, and the village broadcast.
- Attend a training course on preventing diarrhea, such as safe storage of water, how to make ORS solution and so on, to support individual self-confidence, to boost confidence in the process, and to identify principal problems faced by the community and analyze the causes and effects of the problem.
- Encourage people to cook food or reheat it thoroughly, and eat it while it is still hot even when eating in the field in the growing and harvesting seasons.
- Take responsibility for generating awareness of the problem of diarrheal disease, the severity and special risk to young children, and the link with contaminated water, especially the mothers' group or the guardian of a child. For instance, mothers should not allow children to crawl or play on the ground alone in order to prevent the child picking up something and putting it into his mouth.
- Besides, mothers should wash children's hands and teach them how to wash their hands before eating or touching food, and after finishing wing toilet.
- Transform the results of the problem analysis into a community health development plan which is supported by governmental finding of 7,500 Bath per village per year.

Primary care of diarrhea

In order to respond quickly to an epidemic of diarrhea and to prevent deaths from the disease, village health volunteers must:

- Have access to adequate quantities of essential supplies, particularly, ORS.
- Be able to demonstrate how to prepare and give the ORS. In case of unavailability of packaged ORS, making the ORS at home should be taught.

3.3.2 Housewives Group

- Every family should provide adequate rubbish bins for the separation of wet and dry rubbish. In addition, appropriate domestic waste disposal techniques, such as sewage drainage ditches, land fill, incineration and burying, should be applied. This could avoid the from swarming of flies and other insects.
- Campaign program to promote and encourage people not to eat raw foods and take more concern about their health conditions.
- Need for training and a food sanitation hygiene training course.
- Basic care preparation by the housewives group. When a member of the family is suffering from diarrhea, the mother will seek medicine from the CPHCC, such as packaged ORS, antibiotics and traditional therapy using of herbal medicine. In severe cases, referral to the closest hospital or clinic will be required.
- Appropriate basic care for patients with diarrhea. Adequate packaged ORS and antibiotics should be available at the CPHCC.
- Health team should teach and demonstrate how to make home fluid for mothers.

3.3.3 Food Sellers Group

- Should take more concern about food safety and cleanliness by washing hands thoroughly before touching food.
- Health education on hygienic food preparation, including cleanliness of dishes and kitchen utensils should be provided.
- Apron and cooking cap should be at all times when cooking and selling food.
- Only fresh and clean food should be sold.
- Correct waste disposal should be done daily to avoid bad smell and the swarming of flies.
- Separate foods before storing them . For example, fish and vegetables should not be stored in the same place.
- Hygienic food preparation contest should be run and prizes should be awarded.
- Assessment of food shop sanitation should be done continually and suggestion for better sanitation should be made.

3.3.4 Village Committee group

- Should be the leader in collaborating work with the health workers team in proceeding health issues, particularly health educational activities and health campaigns.
- On the occurrence of an outbreak, the village committee should take a part of health workers team, and their roles and responsibility must be set out clearly.

- Health programs should be incorporated by the CBO. and other related organizations, such as local government.
- Encourage households to provide rubbish bins and learn how to dispose of rubbish.

3.3.5 Health Workers Group

A call for a coordinating committee, reinforced by senior members from relevant departments and organizations to ensure full collaboration among the involved sectors and the rapid execution of control activities, an inter ministerial committee or special force, with appropriate decision–making authority should be formed to carry out the coordinating functions in preventing and controlling of diarrhea.

If a diarrhea outbreak occurs or threatens a community or area where the peripheral health services are inadequate or have no experience in controlling the disease, a mobile team may need to be formed and be trained to:

- Provide on-the-spot training in case management for health worker staff;
- Supervise appropriate environmental sanitary measures and disinfection;
- Carry out health education activities and disseminate information to the public to prevent panic;
- Arrange for an epidemiological study to establish, if possible, the mode of transmission involved in the outbreak.
- Collect stool and environmental specimens, including suspected foods, for submission to a laboratory (Rectal Swab Culture)

- Provide the required emergency logistical support, such as delivery of supplies, to health facilities and laboratories.

The members of the health mobile team – who may be otherwise employed in public health services, hospitals or elsewhere should be brought together for briefing on emergency activities, their individual responsibilities, the locations of other supplies, and the situations in which the health services would be needed.

The provision of essential supplies and equipment should be maintained to meet needs during the epidemic. If appropriate facilities, supplies and trained staff are not available, temporary facilities can be established.

Health workers stated the presentation of appropriate patterns in preventing and controlling diarrhea in the community in the past were reasonable but some areas must be improved, and take more concern about on. They are:

- Community participation, roles and responsibilities should be clearly addressed. The Environment sanitary and disease prevention sector of Chaturapukphiman Hospital should be the center of work collaboration and dissemination.
- Community mobilization: a process by which the community defines their own problems, decides which are higher priority, and organizes itself to address the priority problems, such as the history, geography, demographics, existing structures, and socio-economic activities of the community, should be reinforced. To help communities form a community organizational

structure to diagnose and analyze problems, give them a participatory model to identify principal problems faced by the community, including problems faced by different sectors of the community.

They then analyze the causes and effects of the problems to transform the results of the problem analysis into a community development plan. However, health worker assist neighborhoods with each stage of this process to increase the likelihood of success and incorporation of the project.

Part 4 : Practices for managing and solving problems of diarrhea through the PRA process.

4.1) Planning

The project team presented all principal group discussion results from each group to all PRA members. Then how members of PRA were randomly and divided into three groups of 11-12 persons to identify how the diarrhea problem is managed in the community, as described in the following:

Prevention of diarrhea

Health education and health promotion on improvements in the water supply, environmental sanitation, defecation excreta, waste and sewage disposal, and vector control are seen to be the best methods for preventing a diarrhea epidemic, both in areas not yet affected and in areas where there is seasonal recurrence of the disease. Furthermore, a food safety contest, personal health, hygiene and behavioral changes,

particularly eating uncooked food, are also chosen. Because diarrhea can be an acute public health problem, with the potential to spread quickly and cause many deaths, special attention must be given to surveillance and control.

Outbreak control

The community should fully establish control of diarrheal disease programs by training health staff, diarrhea surveillance system, rehydration and other treatment supplies in health facilities and ongoing health education activities. Collaboration of health workers and CBO is important to improve the water supply, sanitation, and food safety practices. When a diarrhea outbreak occurs, these activities need to be reinforced and applied to the control of diarrhea. If measures to control diarrhea and other types of disease are not yet established, efforts must be made to implement them.

Health workers should report the first suspected cases of diarrhea on their territory as quickly as possible. Laboratory confirmation should be obtained at the earliest opportunity.

Health authorities in the community where diarrhea is confirmed to be present should make a weekly report containing, as a minimum, the numbers of new cases and deaths since the last report and the cumulative totals for the current year. Once the presence of diarrhea in an area has been confirmed, it is not necessary to confirm all subsequent cases. Monitoring of an epidemic should, however, include laboratory confirmation of a small proportion of cases on a continuing basis.

Primary care of diarrhea

Care in drinking and eating habits, safe disposal of excreta, and personal cleanliness are the most effective ways for individuals to reduce the risk of diarrhea. This is because most diarrhea infections are mild; patients may have no symptoms or only mild diarrhea. In a minority of cases, however, there is rapid onset of severe watery diarrhea and vomiting, resulting in the loss of large amounts of fluid and electrolytes from the body. Patients become thirsty, stop urinating, and quickly become weak and dehydrate. Patients with severe diarrhea often complain of cramps in the stomach, arms, or legs. Patients must be treated as soon as possible, to reduce the risk of shock. For this reason, all patients with diarrhea should seek treatment from a trained health worker. The provision of packaged ORS solution and how to give it to those affected by diarrhea should be supplied. In additional, during epidemics, when there are many cases but few health workers, grouping diarrhea patients in a single center can facilitate treatment, and also help to reduce environmental contamination.

Detail of planning for prevention, outbreak control and primary care, see Table 2.7, Table 2.8 and Table 2.9.

Table 2.7 : Operational Plan for Diarrhea Prevention

Series	Activities	Objective	Targets	Period	Budget	Respon -sibility
1	Developing community organizations' knowledge and networking by: 1) providing training course on diarrhea for VHVs, housewives, food seller group by emphasizing causes of disease, severity assessment, prevention, outbreak control, environmental sanitation, personal hygiene, use of latrine	To give more information for these groups of people in order for them to transmit it to their relatives, colleague's and friends	- 8 VHVs, - 15 housewives - 7 food sellers (Total 40 persons)	3 days in Apr.2000	PHC budget of the village	Health worker, CBO

Table 2.7 : Operational Plan for Diarrhea Prevention (cont.)

Series	Activities	Objective	Targets	Period	Budget	Respon -sibility
2	Improvement, Development 2.1 Food sanitation - Cleanliness kitchen contest - Food preparation, food storage methods, dish washing techniques and hand washing	Improvement and develop-ment of food sanitation	All households (137 households)	April 2000	PHC budget of the village, Hua-chang TAO	CBO in Nong Kung Village
3	Improvement of the physical environment 3.1 Garbage disposal - Providing 24 public rubbish bins for domestic waste within the community	To encourage people to know and manage garbage disposal appropriately	All households	April 2000	PHC budget for public rubbish bins	CBO in Nong Kung Village

Table 2.7 : Operational Plan for Diarrhea Prevention (cont.)

Series	Activities	Objective	Targets	Period	Budget	Respon -sibility
	- Providing rubbish bin for each household 3.2 Sewage disposal - Providing sewage draining for each household to avoid risk area of diarrhea 3.3 Animal stool disposal 3.4 Vectors (fly, rat, cock roach)	Proper sewage, animal stool disposal	All households	From Apr. to Sept. 2000.	All families	Family membe r, CBO
4	Health education activities - mouth to mouth -VHVs in CPHCC	To increase knowledge on diarrhea and awareness of it	Family members	From Apr.to Sept. 2000	No expense	VHVs, housew ives, food seller, CBO

Table 2.8 : Operational Plan for Outbreak Control

Series	Activities	Objectives	Targets	Period	Budget	Respon -sibility
1	1.1 Setting up village disease control committee consisting of - coordinating committee - environment committee - health education committee 1.2 If the epidemic occurs must: - coordinate with all groups - cases follow up. - basic treatment - RSC - investigation - share data from day to day	To increase the effective -ness of out break control of diarrhea	Family members	From Apr. 2000 onwards	Supporting the material for disease control from the hospital	CBO, Family Membe rs, health worker

Table 2.9 : Operational Plan for Primary Care

Series	Activities	Objectives	Targets	Period	Budget	Respon -sibility
1	- Improving the ORT Corner in CPHCC - Preparing ORS for use In the family - diarrhea patient records of VHVs in CPHCC.	To improve the effective -ness of primary care by increasing awareness of using ORS	All households	From Apr. 2000 onwards	PHC budget of the village	VHVs, CBO

4.2) Implementation

Having finished setting the operational plan, the CBO and Nong Kung Village implemented planned activities as follows:

Training and Refresher Course on Diarrhea

Activities for development of community knowledge and networking: before diarrhea appears in a community, promoting sanitary disposal of human waste, provision of safe water, and safe practices in handling food. The course is of two day's duration. . The training cause outline is shown in Table 2.10.

Table 2.10 : Diarrhea training course

Day 1.

Time	Activities/Subjects
AM.	- Registration/ preparations for training - The diarrhea situation in Nong Kung Village - Rationale of the course/ the importance of community participation - Definition, severity of diarrhea
PM.	- The experience for diarrhea control in the village - Physical environment improvement - Food hygiene improvement

Day 2.

Time	Activities/Subjects
AM.	- Personal hygiene - Group meeting
PM.	- Presentation of the results from the group meeting - Assignment of responsibilities

Hygienic Kitchen Contest

The community based organization in Nong Kung Village presented a contest for the hygienic kitchen, setting the following criteria:

- Physical environment of the household, especially the kitchen
- Equipment cleaning

- Food preparation and cooking
- Food storage and dietary habits
- Personal hygiene of housewives
- Garbage disposal
- Sewage disposal
- Insects, animal stool disposal

The committee in these activities consists of:

1. Teachers at Nong Kung Primary School; 3 persons
2. Village Health Volunteers in Nong Kung Village; 3 persons
3. Health Workers from Chaturapukphiman DHO; 3 persons

The time period for these activities is from May-July 2000. Upon finishing these activities, they advertise who has the best practices in the hygienic kitchen and give an award to praise people who continually perform such activities and to be the excellent household model. (Budget from the PHC Program in their village).

Health Education Campaign in community

It is particularly important to inform people that most cases of diarrhea can be treated with simple measures. There is no substitute for drinking only safe water, practicing good personal hygiene, and preparing food safely. Therefore, these health education campaign to encourage people to change their behaviors :

- Drinking only water from a safe source or water that has been disinfected (boiled or chlorinated)

- Cooking food and re-heating it thoroughly, and eating it while it is still hot
- Avoiding uncooked food unless it can be peeled or shelled
- Washing hands after any contact with excreta and before preparing or eating food.
- Disposing of human excreta promptly and safety.
- Disposal of excreta: appropriate treatment of diarrheal stools also helps to control the spread of an epidemic. The simplest method for family or small rural health unit is to dispose of diarrheal stools by putting them in a pit latrine or by burying them. Hygienic latrines were encouraged to be built up for every household, with suggestions on latrine use, and disposal of children's stools by mothers (in case they are unable to use the latrine by themselves), were initiated.
- Waste disposal: appropriate facilities for human waste disposal are a basic need of all communities; in the absence of such facilities there is a high risk of diarrhea. Sanitary systems that are appropriate for local conditions were constructed with the cooperation of the community.

People were taught how to use the latrine, about the dangers of defecating on the ground, or in or near water, and about the importance of thorough hand-washing with soap or ash after contact with excreta. The disposal of children's excreta in the latrine were also emphasized.

The preferred method for disposing of waste is incineration, provided that the community incinerator used is designed to destroy contaminated waste. Separation of

wet and dry rubbish using plastic bags to gather carry the waste was taught. The waste collected plastics bags must be burned.

Sewage disposal: after the study period, domestic sewage disposal by digging sewage ditches was done to avoid sewage flooding. Especially, village food shops were shown the way of sewage disposal by covering with soil and digging sewage ditches.

(4.2 Monitoring and Evaluation

The CBO and health workers set up the monitoring and evaluation on a monthly basis.

The participants and project team followed the monitoring and evaluation plan all the time, setting up the checklist, the progress report and problems for presentation and participatory discussion.

2.7 Problems, Conflicts and Mean of Resolution

1) The unskilled PRA facilitator in our team should be trained PRA techniques before conducting the intervention program.
2) The long time period of implementation, project team workload, participants less cooperative.
3) On some issues, the participants may be unclear, such as surveillance. Health workers should be introduced to help them to understand
4) Budget limitations meat that a large group of participants could not be used.

CHAPTER III

EVALUATION

3.1 Introduction

This project applied the participatory rural appraisal (PRA) approach for managing and solving diarrhea in Nong Kung Village of Roi-Et Province. The project was implemented for seven months between March and September 2000. The project focused on exploring the situation analysis of diarrhea, identifying the existing practices and recommendation of diarrhea prevention and control, developing and action plan, its implementing, monitoring and evaluation through PRA. After finishing the intervention process, the project was evaluated for six months between October 2000- March 2001. The evaluation aims to improve quality of further project.

3.2 Purpose

The assessment of Community Management of Diarrhea through Participatory Rural Appraisal had three important objectives as follows:

1. To study the project development; the project outcome and the project impacts during March to September 2000.
2. To study the project problems; limitations; and the factors both internal and external effecting to the project implementation.
3. To propose an appropriate models and approaches for further health problem solutions.

3.3 Evaluation Design

The formative and summative evaluations were applied for assessment the project by using the evaluation pattern of Somkit Promjuei (1999).

1) Formative evaluation

The formative evaluation was used for providing information to help the improvement of the project process. It carried out during PRA process.

2) Summative evaluation

The summative evaluation was carried out after finishing the PRA intervention program to measure the success and effect of a study. It points out that how did the project solved the diarrhea problem in the community by using PRA technique. It provided information about the effectiveness of the project that was used for the decision making.

3.4 Evaluation Questions

1. Did PRA participants have personal characteristics consistent with the set up inclusive criteria?
2. Did a quantity of PRA participants appropriate with a conducting of PRA activities?
3. Did the facilitators have enough capability for conducting PRA activities?
4. Did the boss support the project, if he did, how?
5. How much funding was used in the project, was it efficiency used?
6. How was time used for project management, was it efficient?
7. Could PRA participants appraise the major causes of diarrhea in the community?
8. Could PRA participants identify the existing practices and recommendations of diarrhea prevention and control?
9. Could PRA participants develop the strategic plan for diarrhea prevention and control?
10. Did the diarrhea morbidity rate in study site decrease, how?
11. Did the villagers improve in diarrhea prevention, how?

Detail of evaluation guidelines, see Table 3.1

Table 3.1 : Evaluation guidelines

Evaluation Questions	Data Needed	Data Collection	Source of Data	Standard
1. Did PRA participants have personal characteristics in consistent with the set up inclusive criteria?	The characteristics of PRA participants: 1) Able to Provide concerning data 2) Able to play a major role or act as a key person for development of the participatory management and solution of the diarrhea problem. 3) Residents of the village who has been living there for more than three years.	1. Interview 2. Reviewing the record	1. PRA participants 2. Villagers 3.Community leader	PRA participants have personal characteristics in consistent with the set up inclusive criteria

Table 3.1 : Evaluation guidelines (Cont.)

Evaluation Questions	Data Needed	Data Collection	Source of Data	Standard
2. Did a quantity of PRA participants appropriate with a conducting of PRA activities?	A quantity of PRA participants is appropriate with approach of PRA activities	1. Reviewing the guidelines of PRA 2. Consulting the PRA expert	1. Guideline of PRA 2. PRA expert	A quantity of PRA participants is appropriated with method of PRA and recommendation of expert
3. Did the facilitators have enough capability for conducting PRA activities?	Capability on facilitating and supporting the participants in PRA activities	1. Observation 2. Interview	1. Facilitators 2. PRA participants 3. Villagers	Facilitators have enough capabilities in conducting PRA activities to achieve its objectives
4. Did the boss support the project, if he did, how?	There was project support such as funding time and vehicle	Reviewing the boss support	1. Record 2. Interview	The approval record of funding, time and vehicle
5. How much funding was used in the project, was it efficiency used?	Funding management of the project	Comparison of funding use with the plan	Funding record	- Economize - Appropriate with the plan

Table 3.1 : Evaluation guidelines (Cont.)

Evaluation Questions	Data Needed	Data Collection	Source of Data	Standard
6. How was time used for project management, was it efficient?	Time management of the project	- Comparison of time use with the plan	Record	- Save time - Appropriate with timeframe
7. Could PRA participants appraise the major causes of diarrhea in the community?	Participants capability in an appraisal of the major causes of diarrhea occurred in the village	1. Focus Group Discussion 2. Interview 3. Reviewing the report of sanitation and environment in the village	1. PRA participants 2. Report, Record	PRA can appraise the major causes of diarrhea in their village that are: (1) household sanitation; (2) environment; (3) food sanitation; (4) personal hygiene
8. Could PRA participants identify the existing practices and recommendations of diarrhea prevention and control?	PRA participants capability in identifying the existing practices and recommendations of diarrhea prevention and control	1. Focus Group Discussion 2. Interview	PRA participants	PRA participants can identify the existing practices and recommen-dations of diarrhea prevention and control

Table 3.1 : Evaluation guidelines (Cont.)

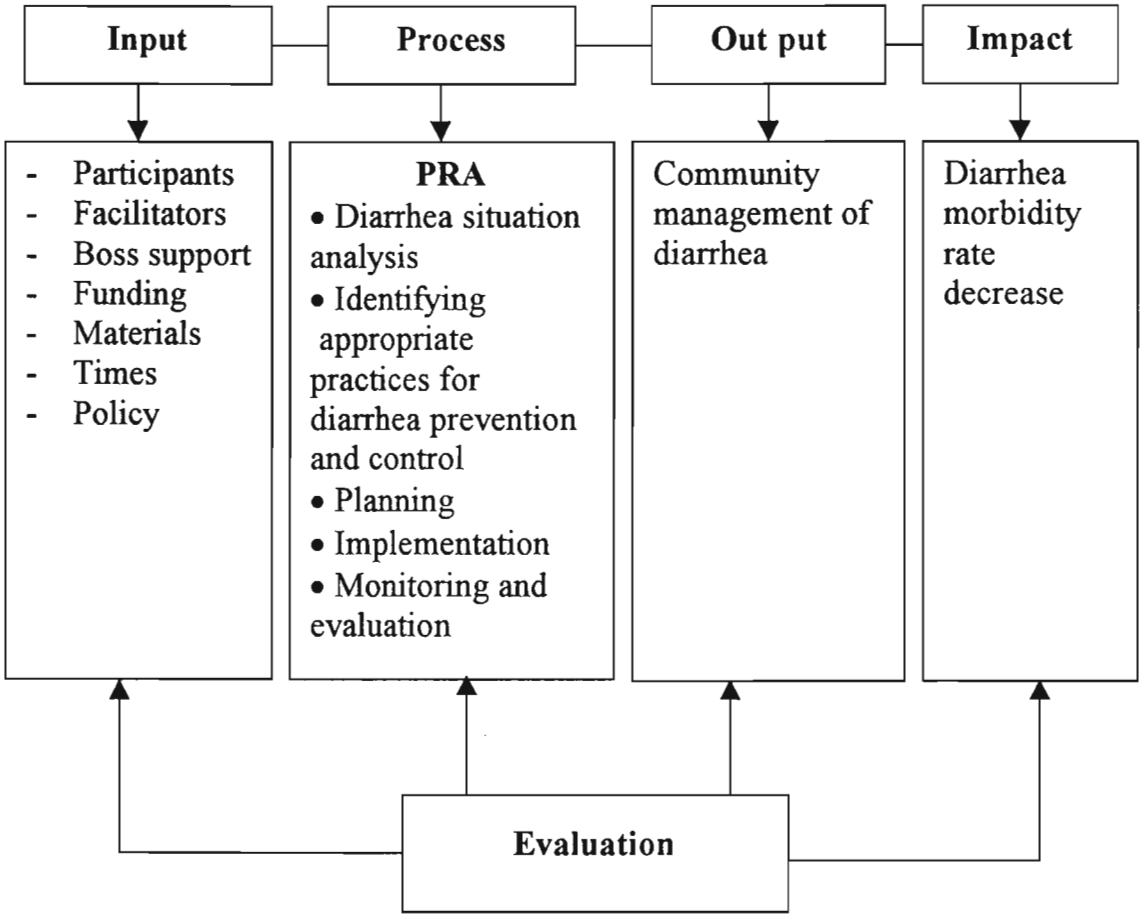
Evaluation Questions	Data Needed	Data Collection	Source of Data	Standard
9. Could PRA participants develop the strategic plan for diarrhea prevention and control?	PRA participants capability in setting up the strategies plan for diarrhea	1. Observation 2. Brain storming	PRA participants Record, Plan	The strategic plan for diarrhea prevention and control must to relevant with community problems, to easy to practice, to have not conflict with community style, and to have community management.
10. Did the diarrhea morbidity rate in study site decrease, how?	Diarrhea morbidity rate between Oct.2000-March.2001	Reviewing data record	1. Record (506, E1) 2. Report	The diarrhea morbidity rate is not higher than the target in the 8th Public Health Development Plan(1997-2001), (1,000/100,000 population)

Table 3.1 : Evaluation guidelines (Cont.)

Evaluation Questions	Data Needed	Data Collection	Source of Data	Standard
11. Did the villagers improve in diarrhea prevention, how?	Nong Kung villagers have a better health behavior in term of diarrhea prevention	Observation and interview	Record of the participants	After finishing the intervention program, more than 50% of the total household of Nong Kung Village have improve health behavior in terms of diarrhea prevention

Conceptual Framework of Project Evaluation

Figure 3.1 : Conceptual Framework of Project Evaluation



3.5 Data Collection and Methods

The project evaluation attempted to generate quantitative findings and qualitative descriptive information by employing the following techniques:

1) Observation was employed for both quantitative and qualitative data concerning actions of the people about diarrhea prevention, outbreak

control and primary care. The participant checklist from family members and the project team were continued observed to complete the data.

2) Informal interviews were used in the items that could not be observed.

3) Group discussion was utilized to get detailed qualitative information from participants.

Instruments

1. Guidelines for observation and informal interview
2. Guidelines for group discussion
3. Epidemiological surveillance reports (506), E.1
4. Diarrhea records of village health volunteers

3.6 Data Analysis and Results

The quantitative data were analyzed by using descriptive in statistic and qualitative data used content. Cross-checking data collected from interviews with observations, focus group discussions by using triangulation technique.

Results

Evaluation Question 1:

Did PRA participants have personal characteristics consistent with the set up inclusive criteria?

Yes, all participants have personal characteristics consistent with the set up inclusive criteria.

Evaluation Question 2:

Did a quantity of PRA participants appropriate with a conducting of PRA activities?

Yes, a quantity of PRA participants appropriate with a conducting of PRA activities.

Evaluation Question 3:

Did the facilitators have enough capability for conducting PRA activities?

The unskilled PRA facilitators, should be trained the PRA technique before conducting the intervention program.

Evaluation Question 4:

Did the boss support the project, if he did, how?

Yes, he supported many things for this project such as:

1) Authorizing use the money from Chaturapukphiman DHO about 5,500 Baht.
2) Permitting the project team to work in the time frame.]
3) Authorizing the vehicle and driver to collect data.

Evaluation Question 5,6:

How much funding was used in the project, was it efficiency used?

How was time used for project management, was it efficient?

The project team found the comparison of money and time used for project with the plan budget and schedule proved the use of both money and time was efficient. That is to say, the money and allocation were less than the plan budget and schedule. The data show in Table 3.2.

Table 3.2 : The Comparison of the money and time with the plan budget and schedule

Resource Allocation	Plan budget and schedule	Performance	Difference
Money	32,150 Baht	9,000 Baht	23,150 Baht
Time and period of implementation			
• Preparation	• 1 month	• 1 months	• None
• Data Collection	• 6 months	• 6 months	• None
• Data Analysis and summarization	• 2 months	• 2 months	• None
• Progress report	• Jun,Sep.2000	• Jun,Sep.2000	• None
• Project evaluation.	• 6 months	• 6 months	• None

Evaluation Question 7:

Could PRA participants appraise the major causes of diarrhea in the community?

Yes, they could. The PRA participants found that the poor households sanitation, poor food sanitation, poor personal hygiene are the major cause of diarrhea.

Evaluation Question 8:

Could PRA participants identify the existing practices and recommendations of diarrhea prevention and control?

Yes, they could, the PRA participants presented the existing practices and recommendation for diarrhea prevention and control in their village. (The detail was shown in p.52-71.)

Evaluation Question 9:

Could PRA participants develop the strategic plan for diarrhea prevention and control?

Yes, they could, the participants could developed the strategies plan for diarrhea prevention and control. Including the objectives, target, time period, budget and responsible. The detail was shown in Table 7,8,9 (p.72-76).

Evaluation Question 10:

Did the diarrhea morbidity decrease, how?

For this study, a diarrhea episode is defined as passage of loose stool more than three times within a 24hour period, or any passage of mucous and/or bloody stool, who goes to the CPHCC, hospital or health center. The impact of this project on diarrhea morbidity was evaluated six months after completing the intervention program, between October 2000 and March 2001. To gather data on the number of cases of diarrhea in Nong Kung Village from October 2000–March 2001, the project team collected data from Chaturapukphiman Hospital and interviewed household members and checked data in Nong Kung Village CPHCC to compare with the same period in previous year. The data are shown in Table 3.3.

Table 3.3 : The number of case of diarrhea during the period October - March,1996-2001

Time period	Number of cases /month						Total
	Oct	Nov	Dec	Jan	Feb	Mar	
Oct. 96-Mar. 97	1	0	1	0	0	0	2
Oct. 97-Mar. 98	1	1	0	2	0	0	4
Oct.98- Mar. 99	0	0	0	3	9	2	14
Oct. 99-Mar. 2000	0	1	1	0	0	0	2
Oct. 2000-Mar. 2001	0	0	0	0	1	0	1

Source : Chaturapukphiman Hospital, 1996-March 2001

The morbidity rate for diarrhea in Nong Kung Village between October 2000 to March 2001 was 1.53 per 1,000 population which was a decreased from the same period in the previous year. The data are shown in Table 3.4.

Table 3.4: Comparison morbidity rate for diarrhea in Nong Kung Village during the period October to March, from 1996-2001.

Time period	Cases	Population	Morbidity rate per 1,000 population
Oct 96- Mar 97	2	592	3.38
Oct 97- Mar 98	4	607	6.59
Oct 98- Mar 99	14	621	22.54
Oct 99- Mar 2000	2	643	3.11
Oct 2000- Mar 2001	1	655	1.53

Source : Chaturapukphiman Hospital, 1996-March 2001

Evaluation Question 11 :

Did the villagers improve in diarrhea prevention, how?

It is an important part of the community members' job to prevent diarrhea. Preventive practices are improved weaning, using of plenty of water for hygiene and clean water for drinking, hand-washing, use of latrines, proper disposal of the stools of young children, food sanitation, etc.

The participants observed and interviewed family members in their village by using observation interview guidelines. The project team set up the standard criteria of

diarrhea prevention among the family member to cover more than 50 percentage of the households. It was found that people in Nong Kung Village prevented diarrhea better than they did before the PRA intervention program in some activities. The some activities decreased from before the intervention program, such as using only registered flavoring and coloring agent, having and using sanitary cooking and eating utensils, washing the hands after cleaning someone who has defecated and after disposing of a child's stool, and washing the hand before feeding a child. However, some activities increase from before the intervention program, such as: having food cabinet or food cover, cleanness and tidiness of kitchen increase, having garbage bin with cover in kitchen and housing area and having proper waste water. The data are shown in Table 3.5.

Table 3.5 : Comparison of diarrhea prevention

Items	Results (Percent of all households)	
	Pre (Mar. 2000)	Post (Oct. 2000)
1. Using only the registered flavoring and coloring agents	59.38	56.91
2. Having food cabinet or food cover	76.56	82.11
3. Having and using sanitary cooking and eating utensils	17.79*	25.20*
4. Three step utensil washing	49.22*	43.90*
5. Cleanness and tidiness of kitchen	16.40*	35.77*
6. Having clean drinking water	73.44	78.05

Table 3.5 : Comparison of diarrhea prevention (cont.)

Items	Results (Percent of households)	
	Pre (Mar. 2000)	Post (Oct. 2000)
7. Having garbage bin with cover in kitchen and housing area	14.84*	33.33*
8. Sanitary water for consumption	75.00	80.49
9. Having and using sanitary latrine	100	100
10. Having proper waste water disposal	9.38*	37.39*
11. Hand washing		
- After defecation	35.94*	39.02*
- After cleaning someone who has defecated and after disposing of a child's stool	39.84*	26.02*
- Before preparing food	42.19*	46.34*
- Before eating	32.81*	32.52*
- Before feeding a child	27.34*	25.20*

Source: Pre- Post checklist, diarrhea prevention behaviors

Detail of diarrhea prevention :

Proper Disposal of Feces

Regarding the disposal of feces in the proper place, the project team interviewed the mothers in Nong Kung Village usually disposed of feces of their children in the latrines. When asked about fecal disposal of their children getting diarrhea, some

mothers reported that they had disposed of feces of their children in the latrines. For adults they had disposes of feces in the latrines every time. When working in the field the feces will be buried after defecation.

Proper Use of Water for Hygiene and Drinking

After completing the intervention program, most people in Nong Kung Village drink water collected in the rainy season without boiling or improving the quality of the water. When the researcher asked during an in-depth interview, "*Why are you not improving* the *quality of the water, such as boiling before drinking?*" They reported that they have no time and that if boil they the water, it will not be delicious.

Proper disposal of garbage

As for disposal of garbage in Nong Kung Village, the participants observed and interviewed the people. They usually disposed of garbage in a refuse storage facility in the house, however most households had no garbage bin the kitchen.

Dry waste will be burned while wet rubbish will be composted. They have ten large refuse storage bins for disposing the garbage from their village.

Food sanitation

Most households have their own kitchen to prepare food for their family members. They put the chopping board on the kitchen floor, on newspaper or on a mat covering the kitchen floor and start cooking food nearby where they are preparing some

other ingredients. However, an apron and cap will not be used when preparing food at all, and they do not washing their hands before preparing food and cooking it.

They use groundwater for domestic and food hygiene. Food typically will be cooked before eating but for some kinds of food, especially meat it will be traditionally eaten raw.

When the researcher, dosing an in-depth interview asked" *Why don't wash your hands every time before cooking?*. They said that their hands were not in contact with dirt or feces and it is their permanent habit.

Food storage and dietary: the housewives in Nong Kung Village cook for their family members at breakfast and dinner. But for lunch they buy lunch from a food shop in the village. The traditional food is 'som tum'. Some families prepared breakfast and lunch at the same time in the morning and they told to the project team that they may reheat it before eating it for lunch and dinner.

Equipment cleaning behavior: after preparing food and after a meal, they use detergent for cleaning kitchenware and rise with groundwater two or three times.

Hygienic Practices

The participants were observed and interviewed about their hand washing behavior before and after using toilet. The people usually wash their hands with no soap because they assume that their hands did not contact feces. Thus, hand washing with

soap is not a matter for their concern. For body hygiene, people take a bath twice a day and sometimes with no soap. They brush their teeth once or twice a day but with the wrong tooth brushing method.

Health education

Village Health Volunteers in Nong Kung Village provided health education activities for prevention of diarrhea after finishing the intervention program once a month in the CPHCC of their village from printed information, with brochures for the people. Sometimes they get education by face to face with their neighbors. When the researcher, in an in-depth interview asked them that, *What any health education activities are people interested in?* They said they like face to face method more than any other, it is very clear and easily accepted.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The target community of this study was Nong Kung Village, Chaturapukphiman District, Roi-Et Province. In these village there was a crisis health problem in diarrhea; the morbidity rate was the highest in villages of Chaturapukphiman District, Roi-et Province. In 1998, it was 3,259/100,000 population, and in 1999 (data between January and September 1999) the morbidity rate was 2,595.42/100,000 population, and there was one dead case, with a mortality rate of 152.67/100,000 population.

The project was implemented a participatory rural appraisal to increase awareness and knowledge regarding planning, implementation, monitoring and evaluation o diarrhea prevention and control. The intervention ran from March to September 2000.

The purpose of this project were: (1) to conduct PRA for managing and solving of diarrhea in the village, (2) to explore diarrhea situation in the terms of perceptions, sanitation and environment, food sanitation and personal hygiene, (3) to identify existing practices and recommendations for managing and solving diarrhea and (4) to define planning, implementation, monitoring and evaluation through PRA.

The strengths of PRA in the project

1) PRA is one of strategy to assist villagers in the community to analyst the crisis problem of diarrhea and its effect in the community.
2) This strategy initiates the linkage among the villagers and government sectors on managing and resolve diarrhea problem in the community, starting with setting plan, implementing, monitoring and evaluating.
3) The villagers are able to utilize the community resource for managing and solving diarrhea problem, the health workers provide technical support.
4) As the PRA technique is uncomplicated activity so that it can apply to solve the problem in their daily life.
5) The facilitators gained more experience that can apply the strength of PRA to solve other problems.
6) The PRA process consumes less time, thus the villagers do not spent more time to participate in the process.
7) The PRA make villagers have had a good cooperation to solve diarrhea problem in systematically.

The experience of villager in Nong Kung Village and the health workers including the project team of this study presented a participatory rural appraisal (PRA) as an appropriate approach for managing and solving of diarrhea in the village. It is a popular and effective approach to gather information in rural areas, based on village experiences where communities effectively manage their natural environment. It is a methodology of learning about rural life and the village environment from rural people.

It requires researchers/field workers to act as facilitators to help local people conduct their own analysis, plan and take action accordingly.

The weakness of PRA in the project

1) Due to PRA is new method for Nong Kung villagers. They never exposed to this kind of activity. In the past, the villagers have had less participation to solve the community problems, which mostly officer dominants. The PRA activities make the villager turn to have good cooperate with officer on studying and analyzing a diarrhea problem.
2) The unskills facilitators unable to control the group during the PRA activities.

Conclusion of the PRA results

Cause of diarrhea

Some of local cultural habits appear to be risks of factors causes diarrhea. For example, most adult people seem likely to eat raw meat, raw fish, which is locally knows as "Koy", "Som-tum", it made is an uncooked food. Some of the people eat left over food without re-heating it or after improper cooking, or not washing the hands before eating or feeding a child.

The adult in Nong Kung Village using sanitation latrine when they are at home, when they are working in the field, the feces will be buried after defecation. For children, the people usually bath their children after pass stool then throw away the feces without burying.

Most of households in Nong Kung Village stored rainwater for drinking, they drink unboiled water. Some households had a rubbish bin but they did not use it everyday. We found that the sanitation environmental looked dirty in the community.

Most of the households have their own kitchen to prepare food for their family members. They put the chopping board on the kitchen floor, on newspaper or on a mat covering the kitchen floor and start cooking food nearby where they prepare some other ingredients.

However, apron and cap didn't used when preparing food at all, and hand are not washed before preparing and cooking food. Groundwater was use for domestic. Food typically is cooked before eating but some kinds of foods, especially meat, people prefer eat raw meat.

Food storage, the housewives in Nong Kung Village cook for their family members at breakfast and dinner, but for lunch they will buy it from a food shop in the village; traditional food is 'som tum'. Some families prepared breakfast and lunch at the same time in the morning and they told the researcher that they may reheat it every time before eating it again for lunch and dinner. Equipment cleaning behavior: after preparing food and after the meal, they use detergent for cleaning kitchenware and rinsing with groundwater twice.

Some housewives in Nong Kung Village prepared food for their family members without washing hands. If they do, they wash their wash hands with no soap.

They assume their hands have not contacted feces. Thus hand washing with soap is not a matter for their concern.

The family members did not wash their hands every time before eating. For body hygiene, most people take a bath twice a day, brush their teeth once or twice a day with the wrong brushing method.

The hygienic practices of the people in Nong Kung Village were not improved much among family members partly result from the physical environment of the community. Living in a community with dirty garbage under the houses and nearby provided them with no incentive to keep the community clean, especially in the matter of garbage disposal. Besides, the domestic animal raised by the family members and the neighbors continually wandered into the houses, including the kitchens.

Health behaviors to prevent of diarrhea: hand washing before preparing food, eating feeding a child, cleaning a child who has defecated, and after disposing of a child's stool, after defecation, people usually wash their hand with no soap and sometimes do not wash their hands, they believed that their hands have not contacted feces, so their hands are not dirty. These results are the possibility of people getting diarrhea easily.

Existing Practices of Diarrhea Prevention and Control

In the past, practices for the prevention and control of diarrhea existing at Nong Kung Village were carried out by health workers. For example, the educational

program whenever health workers have an opportunity, they must took educate family members about the prevention of diarrhea. Opportunities may occur when mothers come for prenatal care, and or for children immunization. In addition, health workers performed group education at the health center and individual education during home visit. However, there was a lack of a stimulated community towards awareness and participation in activities.

Responsibilities of CBO in managing and solving of diarrhea: the village health volunteers took a major role for helping the health workers on health education, facilitating when health workers worked in their village in outbreak control activities.

However most of VHVs lacked of knowledge on diarrhea problem solving. The village committee provide the transportation for the refered cases because they had their own car. They also able to support the budget in the PHC program for diarrheal control in their village. The housewives participated less in diarrheal problem solving in their village. They never been trained about how to prepare cleaned food.

The food seller group, we found that they prepared were clean and safe food for their customers. They would like to have more knowledge on how to get rid of flies when they are cooking and selling food in order to prevent and control the epidemic of diarrhea.

Perceptions of diarrhea

Nong Kung villagers perceive the cause of diarrhea based on their experiences and beliefs including: improper cooking or re-heating of food, failure to wash fruits and vegetables, consuming some sour fruits, eating some kinds of food that are cooked but eaten with raw food, some medicines, unclean food, lack of personal hygiene, lack of improving physical environment, drinking untreated water.

Recommendations for diarrhea prevention and control through PRA

Preventive practice

Educational activities are an important approach to developing the health behavior of the people to prevent diarrhea, such as breast-feeding, improved weaning, use of latrine, use of plenty of water for hygiene and clean water for drinking, hand washing, proper disposal of the stools of young children, food sanitation, improving the physical environment. All activities will be done by community participation and the village health volunteers is the major group responsible.

Outbreak control

The participants set up outbreak control planning for diarrhea. This consists of the committee responsible for activities, prepared material for outbreak control, sharing the information in their group day to day, participating in investigation surveillance rectal swab culture, health education activities, and coordination with other organizations.

Primary care

Concerning ORS. for primary care of diarrhea, the village health volunteers are an important group preparing out these activities, such as improving the ORT corner in the community primary health care center or preparing ORS for use in their family.

CHAPTER V

RECOMMENDATIONS

Regarding the results of the study, there are recommendations as follows:

1) The PRA facilitators should be trained about the PRA technique before conducting the intervention program.
2) The Provincial Health Office should set up the clearly the strategies to prevent and control diarrhea in rural areas by coordinating with related organizations at province level to increase awareness of the problems. For example should collaborate with the representative of the Ministry of Interior and the Ministry of Education to motivate the school as the network for control of diarrhea.
3) The District Health Office should coordinate with the municipality local organizations to improve the cleanliness of the market to prevent the food contamination in the market, especially meat, vegetable, and fruit.
4) The prevention and control of diarrhea program should not conflict with the lifestyle of the people in the community. The strategies for diarrhea prevention and control should be simple to understand and clear for the villagers could take the necessary actions by themselves.

5) Regarding the practical model of health education in the community, the select villagers should have potential communication in providing a training course. Then should apply participate in the appropriate methods for health education including door to door education to nsure the coverage of all family members in the community. Appropriate communication channels of health education and health promotion should be considered. Such activities could be implemented through several channels such as school teachers, poster display at health centers & schools, face to face education, and brochures at outlets where disinfectant is sold. Moreover, the activities for improving environmental sanitation should be done more than twice a week.
6) For The sustainability of community participation, health worker should stimulate the community for awareness and participation in problem solving n diarrhea prevention and control until they can be self–reliant.
7) Six months for evaluation did not adequate for accessing the PRA impact, thus an extendibility of time for evaluation should be considered.
8) The project implementation should avoid the time for plantation otherwise the villagers will not available to participate.

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APPENDICES

Appendix 1

Operational Definitions

1) ***Diarrhea*** for the purpose of the study defined as three or more loose or watery stools in a day (24 hours), or any passage of mucous and/or bloody stool.

2) ***Participatory Rural Appraisal (PRA)*** means an approach and methods for learning about rural life and conditions from, with, and by, rural people, process which allows them to participate in analysis, awareness, problem identification, planning, and implementing for solving problems involving villagers and local officials in the process.

3) ***Management*** means participation of both the people who live in Nong Kung Village and the officials who are responsible for diarrhea control in Nong Kung Village in management in terms of prevention, outbreak control and primary care.

4) ***Prevention*** means an important part of community members job to prevent before had diarrhea, these preventive practices are breast–feeding, improved weaning, use of plenty of water for hygiene and clean water for drinking, hand-washing, use of latrines, proper disposal of the stools of young children, food sanitation, etc.

5) ***Outbreak Control*** means the activities during the people in Nong Kung Villlage had diarrhea to stop the outbreak or decrease the epidemic, investigation and surveillance.

6) ***Primary care*** means the appropriate first care or simple care of diarrhea that the people can prepare by themselves, for example using ORS from the CPHCC or prepared in the family.

7) ***Village*** means Nong Kung Village, Moo 8, Hua Chang Sub-District, Chaturapukphiman District, Roi-Et Province.

8) ***Health Worker*** means the Health Officers who work in the Division of Health Promotion and Division of Sanitation and Prevention, Chaturapukphiman Hospital and Chaturapukphiman District Health Office, and who are responsible persons for prevention and communicable disease in Nong Kung Village.

9) ***Governmental Organization*** means health workers in the study site, the hospital, heath center, and district health office in Chaturapukphiman District.

10) ***Community-Based Organization (CBO)*** means groups of Nong Kung villagers who are involved and important in managing and solving the diarrhea problem in Nong Kung Village. This group is a population of the study consisting of Village Health Volunteer, Village Committee, Housewives Group, Food Sellers Group. Detail of each group is as follows:

    10.1) Village Health Volunteer means people who have major responsibility for public health activities in the village.

    10.2) Village Committee means people who are elected to be leaders for village development.

10.3) Housewives Group means the women's group of Nong Kung Village which has an important role in medical care for family members, including cooking and village development activities.

10.4) Food Sellers Group means Nong Kung people who have cooking activities for sales purposes in the village and Nong Kung School.

Appendix 2

Guidelines for Focus Group Discussion

Target Group : 7 Village Health Volunteers

Purpose	Data Needed	Items	Questions
To explore the diarrhea situation • Perceptions • Existing practices	1) How did VHVs perceive diarrhea?	1)Perceptions of diarrhea	1) Based on definition, severity, health seeking
	2) What did the Village Health Volunteers do for prevention of diarrhea in village?	2) Experiences in diarrhea prevention in village carried out by the VHVs.	2) Based on previous experience. Did VHV play role in diarrhea prevention in village. If yes, how did they do it?
	3) What were the problems of diarrhea prevention activities ?	3) Problems of prevention activities for diarrhea for VHVs.	3) Were there any problems in doing diarrhea prevention. What were they?
	4) How did they solve those problems?	4. Managing and solving diarrhea prevention done by VHVs	4) How did they solve the problem?
	5) What are appropriate practices for prevention of diarrhea?	5) Appropriate prevention of diarrhea by VHVs.	5) What should be done for diarrhea prevention in the village?

Target Group : 7 Village Health Volunteers (Cont.)

Purpose	Data Needed	Items	Question
	6) What did the VHVs do for diarrhea control in the village?	6) Experiences in diarrhea control in the village by VHVs.	6) Based on experience, when there was diarrhea problem in village, did VHVs done for diarrhea control.
	7) What were the problems of the disease control activities?	7) Problems of diarrhea control which was done by VHVs.	7) Based on previous control activities, were there any problems, What were they ?
	8) How did they solve those problems?	8) Managing and solving diarrhea control.	8) How did they solve those problems?
	9) What are the VHVs ideas for diarrhea control in the village?	9) Further practices for diarrhea control done by VHVs.	9) What should be done for diarrhea control in the village?
	10) Previously what kinds of primary care for diarrhea patients were done by VHVs?	10) VHVs Experiences in primary care for diarrhea patients in village.	10) Previously, when there were diarrhea patients in the village, did VHVs do primary care?, How?
	11) What were the problems with primary care done by VHVs?	11) Problems of VHVs primary care for diarrhea patients in the village.	11) What were the problems of primary care for diarrhea patients in the village?
	12) What are appropriate practices for primary care that should be done by VHVs?	12) Appropriate practices that should be done for primary care of diarrhea.	12) What should be done for the practice of primary care in the village?

Target Group: Housewives Group (7 persons)

Purpose	Data Needed	Items	Questions
To explore the diarrhea situation • Perceptions • Existing practices and recommendations	1) How the housewives perceived diarrhea?	1) Perceptions of diarrhea	1) Based on definition, severity, health seeking
	2) How housewives prepare and cook for family member?	2) Problems of preparing food for family members.	2) What were the problems of preparing food and cooking?
	3) What are appropriate methods for cooking to prevent diarrhea in the family?	3) Appropriate methods of cooking food and preparation	3) How appropriate methods for preparing and cooking food?
	4) Managing and primary care for diarrhea patients in the family.	4) Practices for primary care of diarrhea in family members.	4) What should be done for appropriate food preparation for family members?

Target Group: Food Sellers Group (7 persons)

Purpose	Data Needed	Items	Questions
To explore the diarrhea situation • Perceptions • Existing practices and recommendation	1) How food seller perceived diarrhea? 2) Previous methods of preventing diarrhea in the village during food selling/cooking . 3) Appropriate cooking and selling methods of the food sellers.	1) Perceptions of diarrhea 2) Previous practices for diarrhea prevention 3) Food Sellers practices for diarrhea prevention in the village.	1) Based on definition, severity, health seeking 2) How did they prepare food in order to prevent diarrhea? 3)What should be done for diarrhea prevention when cooking and selling?

Target Group: Village Committee Group (7 persons)

Purpose	Data Needed	Items	Questions
To explore the diarrhea situation • Perceptions • Existing practices and recommendations	1) How the village committee perceived of diarrhea.	1) Perceptions of diarrhea	1) Based on definition, severity, health seeking.
	2) Previous village leader support activities to manage and solve the diarrhea problem.	2) Practice of supporting to manage and solve in village done by village leaders.	2) How practical is support of managing and solving diarrhea in the village by village committee?
	3) Previous problems of supporting activities done by village leaders.	3) Problems of supporting.	3) What problems diarrhea management were those?
	4) Appropriate support activities to manage diarrhea problems in the village by village leaders.	4) Appropriate practices that should be done by village leaders.	4) What should be done for supporting each group managing and solving diarrhea by village leaders; What are the appropriate practices

Target Group : Health Workers Group (persons)

Purpose	Data Needed	Items	Questions
To explore the diarrhea situation • Perceptions • Existing practices and recommendations	1) How health workers perceived of diarrhea ?	1) Perceptions of diarrhea.	1) Based on definition, severity, health seeking.
	2) Previous method of supporting prevention, control and primary care activities in the village.	2) Strategy in the past for diarrhea management.	2)What were the strategies for dealing with diarrhea problems in the past?
	3) Previous problems of supporting activities and problem solution.	3) Problems in supporting and solving diarrhea problems.	3) What problems were those supporting diarrhea management?
	4) Appropriate practices for supporting activities in prevention, control and primary care in the village done by health workers.	4) Appropriate practices for supporting management of diarrhea by health workers.	4) What should be done for supporting diarrhea management?

Appendix 3

Pre-Post Observation and Interview Guidelines for Diarrhea Prevention

Name of observer/interviewer.....

Number of house .....

Mark / or X in ..... if the item in checklist is true or false

Items	Results	
	True	False
1. Using only the registered flavoring and coloring agents	.....	.....
2. Having food cabinet or food cover	.....	.....
3. Having and using sanitary cooking and eating utensils	.....	.....
4. Three step of utensil washing	.....	.....
5. Cleanness and tidiness of kitchen	.....	.....
6. Having clean drinking water	.....	.....
7. Having garbage bin with cover in kitchen and housing area	.....	.....
8. Sanitary water for consumption	.....	.....
9. Having and using sanitary latrine	.....	.....
10. Having proper waste water disposal	.....	.....

Pre-Post Observation and Interview Guidelines for Diarrhea Prevention (Cont.)

Items	Results	
	True	False
11.Hand washing		
- After defecation	.....	.....
- After cleaning someone who has defecated and after disposing of a child's stool	.....	.....
- Before preparing food	.....	.....
- Before eating	.....	.....
- Before feeding a child	.....	.....

Appendix 4

E.1 (Applied)

No	Name	Address	Age	Date of Illness	Date of Treatment

Appendix 5

Diarrhea Record of Village Health Volunteers

No	Date	Name	Address	Symptoms	Services / Health education

Report by.....

Appendix 6

Epidemiological Surveillance Report

บัตรรายงานผู้ป่วย
แบบ รง. 506

ฝ่ายงานเฝ้าระวังโรค กองระบาดวิทยา สำนักงานปลัดกระทรวง กระทรวงสาธารณสุข
โทร. 591-8582, 590-1731

เลขที่อ 0 ของ สสจ. .....
เลขที่อ 1 ของ สสจ. .....
เลขที่อ 0 ของ สสอ. .....
เลขที่อ 1 ของ สสอ. .....
เลขที่อ 0 ของ รพ./สอ. .....
เลขที่อ 1 ของ รพ./สอ. .....

โรค

- ☐ อหิวาตกโรค 01
- ☐ อุจจาระร่วง 02
- ☐ อาหารเป็นพิษ 03
- ☐ บิด Dysentery, unspecified 04
  - ☐ Bacillary (Shigellosis) 05
  - ☐ Amoebic 06
- ☐ Enteric fever 07
  - ☐ Typhoid 08
  - ☐ Paratyphoid 09
- ตับอักเสบ (Hepatitis, unspecified) 10
  - ☐ A 11
  - ☐ B 12
  - ☐ C 13
  - ☐ D 69
  - ☐ E 70
- ☐ โรคตาแดง (haemorrhagic conjunctivitis) 14
- ☐ ไข้หวัดใหญ่ 15
- ☐ หัดเยอรมัน 16
- ☐ สุกใส 17
- ☐ ไข้หรือไข้ไม่ทราบสาเหตุ 18
- ☐ ไข้กาฬหลังแอ่น 19
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  - ☐ Japanese encephalitis 29
- ☐ มาลาเรีย ☐ PF, ☐ PV, ☐ PM, ☐ MIXED 30
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- ☐ โรคอื่นๆ (ระบุ).....

ชื่อผู้ป่วย..... H.N. .....
ชื่อบิดา-มารดาหรือผู้ปกครอง (สำหรับผู้ป่วยเด็ก ที่มีอายุต่ำกว่า 15 ปี).....อาชีพของบิดา-มารดา.....

เพศ	อายุ	ภาวะสมรส	สัญชาติ	งานที่ทำ
1 ชาย 2 หญิง	ปี..... เดือน..... วัน.....(☐☐)	1 โสด 2 คู่ 3 หย่าร้าง 4 หม้าย	☐ คนไทย ☐ คนต่างชาติ ประเภท ☐1 ☐2 ระบุสัญชาติ.....	..... (☐☐)

ที่อยู่ขณะเริ่มป่วย
บ้านเลขที่/ถนน หมู่ที่ ตำบล อำเภอ จังหวัด

1 ในเขตเทศบาล
2 อบต.

สถานที่ใกล้เคียง.....(☐☐☐) (☐☐)

วันเริ่มป่วย	วันพบผู้ป่วย	สถานที่รักษา	ประเภทผู้ป่วย
วันที่.....(☐☐) เดือน.....(☐☐) พ.ศ. .....(☐☐)	วันที่.....(☐☐) เดือน.....(☐☐) พ.ศ. .....(☐☐)	1 ร.พ.ศูนย์ 4 คลินิกของราชการ 7 คลินิก ร.พ.เอกชน 2 ร.พ.ทั่วไป 5 อื่นๆ 8 บ้าน 3 ร.พ.ชุมชน 6 ร.พ.ราชการใน กทม.	1 ผู้ป่วยนอก 2 ผู้ป่วยใน

สภาพผู้ป่วย	วันที่ตาย	ชื่อผู้รายงาน	สถานที่ทำงาน	จังหวัด	วันที่เขียนรายงาน
☐ หาย ☐ ไม่ทราบ ☐ ตาย ☐ ยังมีชีวิตอยู่ ☐ ยังรักษาอยู่	วันที่.....(☐☐) เดือน.....(☐☐) พ.ศ. .....(☐☐)			(☐☐)	(☐☐☐☐☐☐)

วันที่รับรายงานของ สสอ.
.....(☐☐☐☐☐☐)

วันที่รับรายงานของ สสจ.
.....(☐☐☐☐☐☐)

วันที่รับรายงานของกองระบาดวิทยา
.....(☐☐☐☐☐☐)

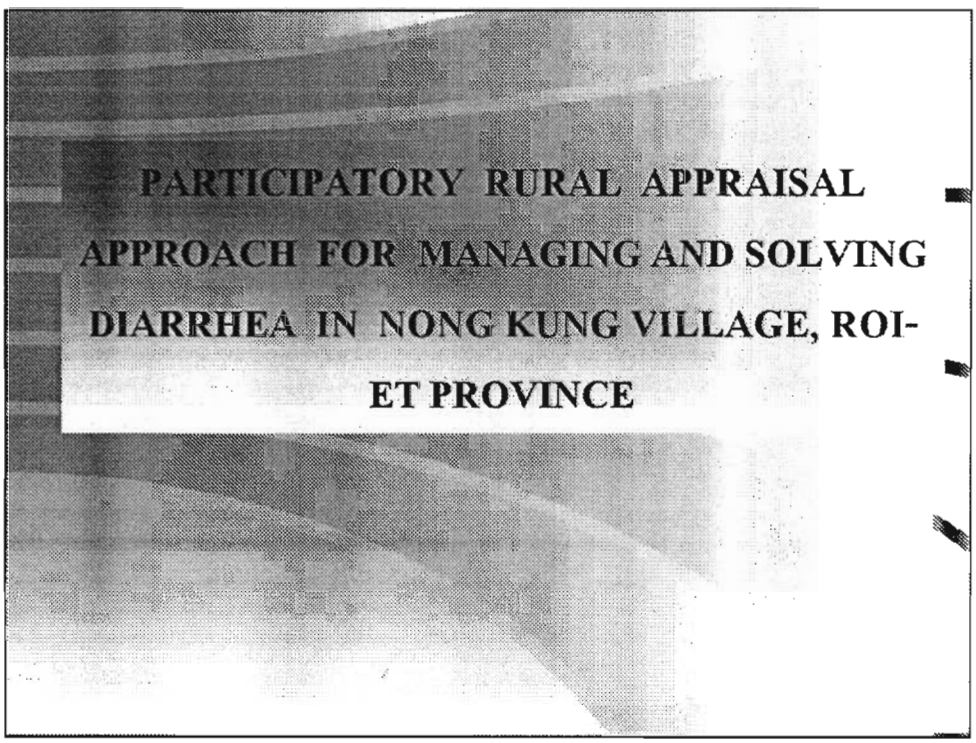
ให้ทำเครื่องหมาย × ในช่อง ☐ หน้าข้อความที่ต้องการ
และกรอกรายละเอียดในช่องว่างให้ครบถ้วนและชัดเจน ยกเว้นใน (☐☐)

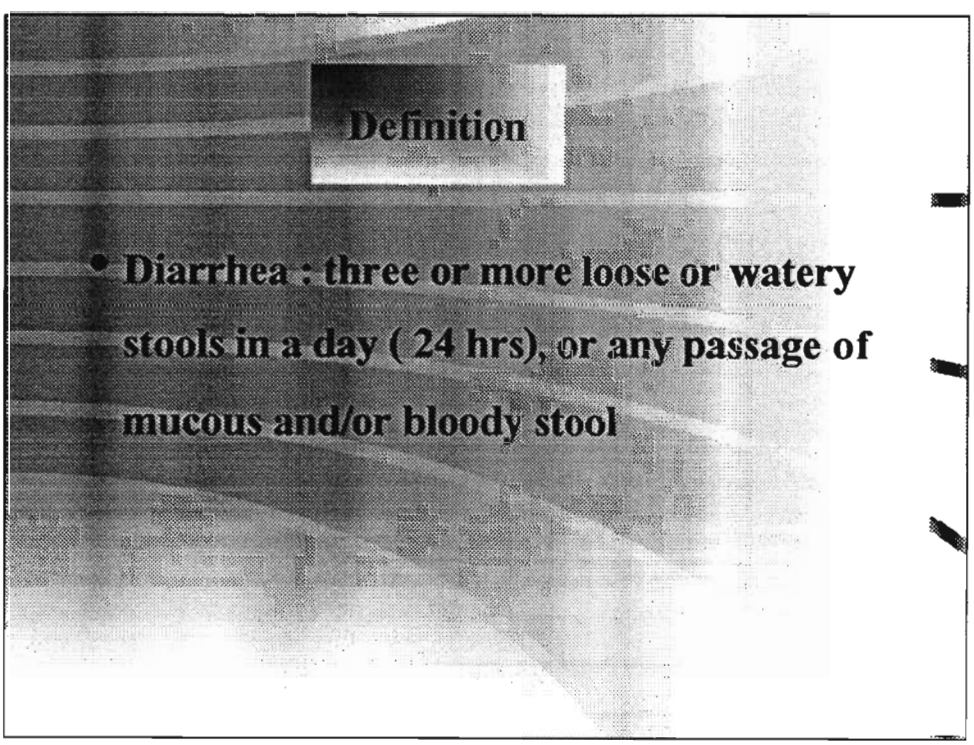
พิมพ์ที่ รพ. องค์การรับส่งสินค้าและพัสดุภัณฑ์ จำนวน 2,031,000 ฉบับ พ.ศ. 43

นิยาม ต่างชาติประเภท 1 คือ ชาวต่างชาติที่เข้ามาทำงานในประเทศไทย ไม่มีใบต่างด้าว
ต่างชาติประเภท 2 คือ ชาวต่างชาติหรือนักท่องเที่ยวต่างชาติที่เข้ามารักษาในประเทศไทย
เมื่อหายแล้วกลับประเทศของตน

Appendix 7

PRESENTATION





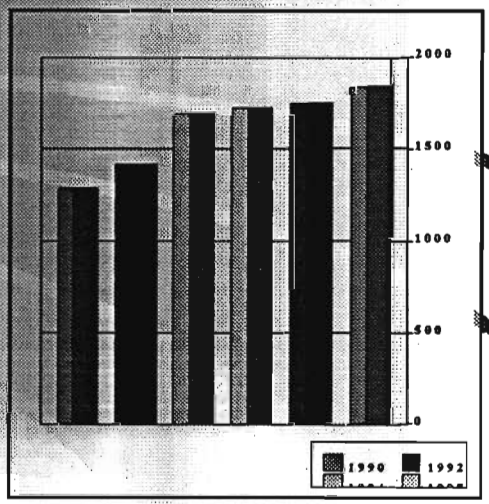
Background and Rationale

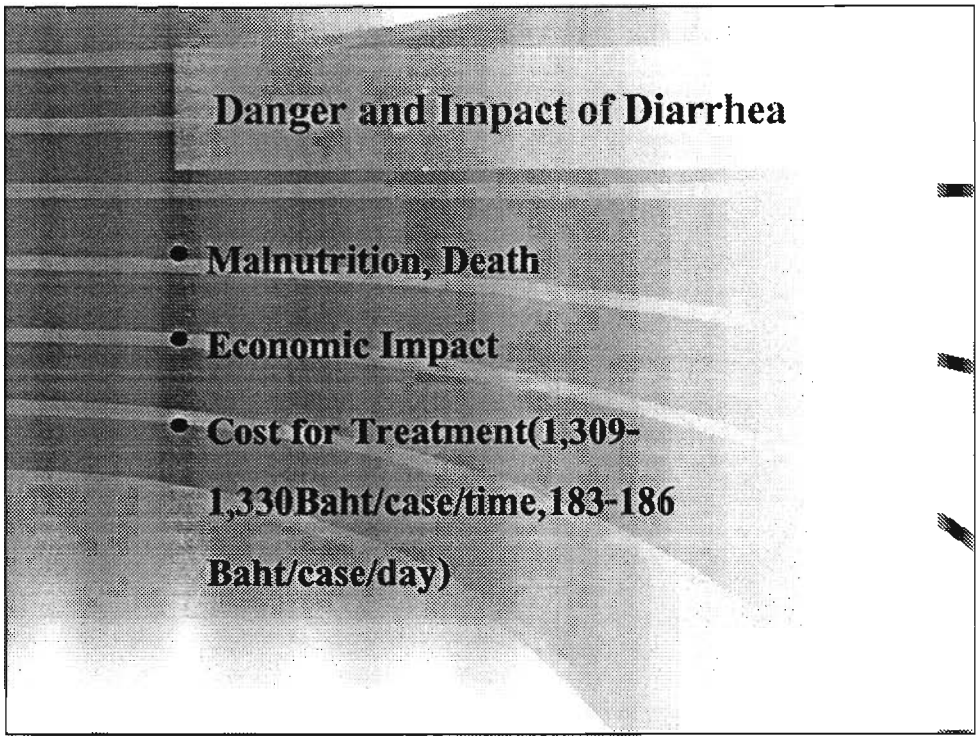
Diarrhea . . . .

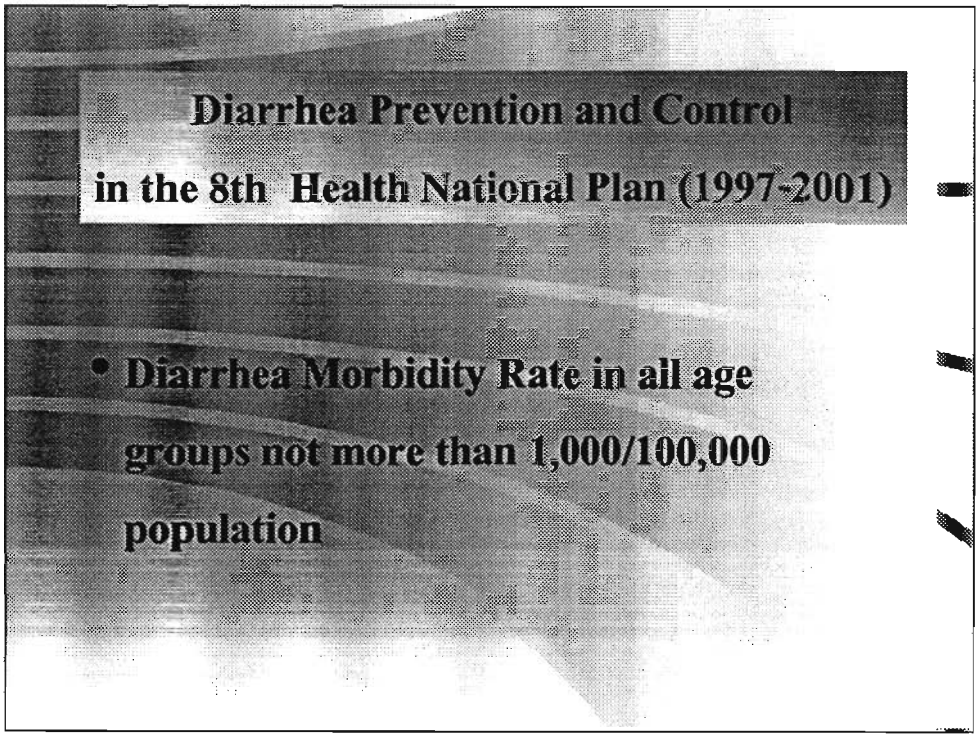
- Communicable disease, occurred to all sex and age group
- Highest morbidity rate in epidemiological surveillance report
- Morbidity rate increased rapidly and continuously every year

(1990-1999)

- 1990 = 1,284.66
- 1992 = 1,412.99
- 1994 = 1,690.67
- 1997 = 1,724.19
- 1998 =1,744.32
- 1999 =1,835.26

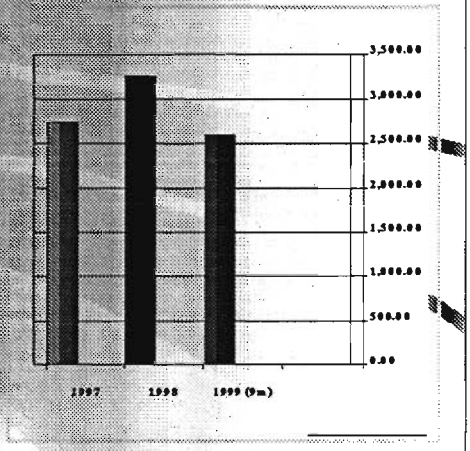



Danger and Impact of Diarrhea
• Malnutrition, Death
• Economic Impact
• Cost for Treatment(1,309-1,330Baht/case/time,183-186 Baht/case/day)


Diarrhea Prevention and Control in the 8th Health National Plan (1997-2001)
• Diarrhea Morbidity Rate in all age groups not more than 1,000/100,000 population

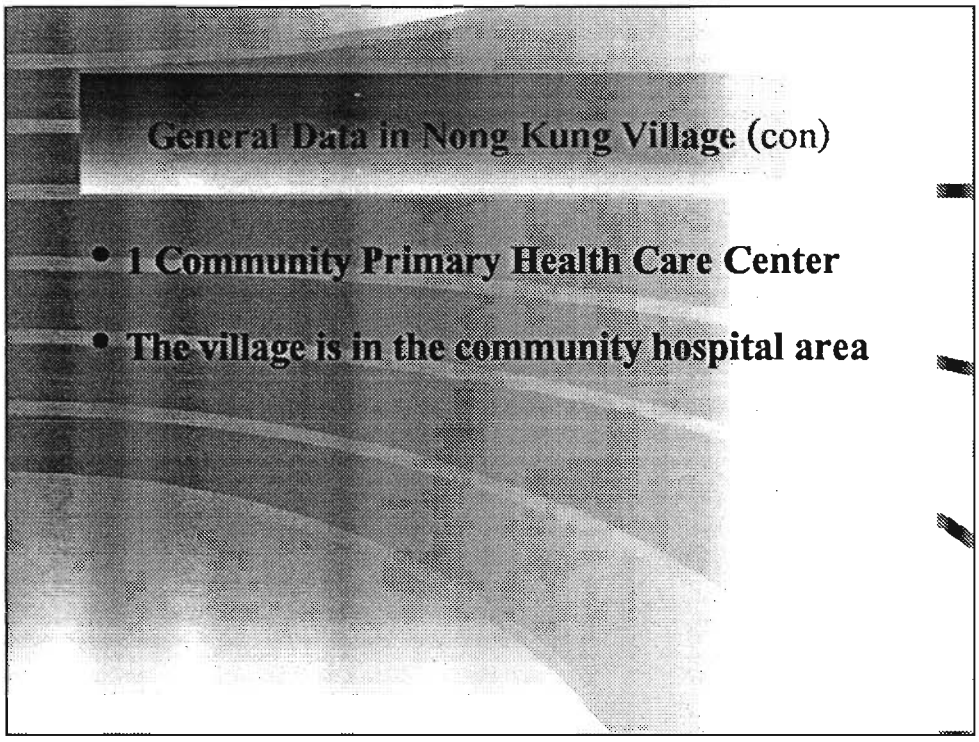
Diarrhea Morbidity rate/100,000 population in Nong Kung Village(1997-1999)

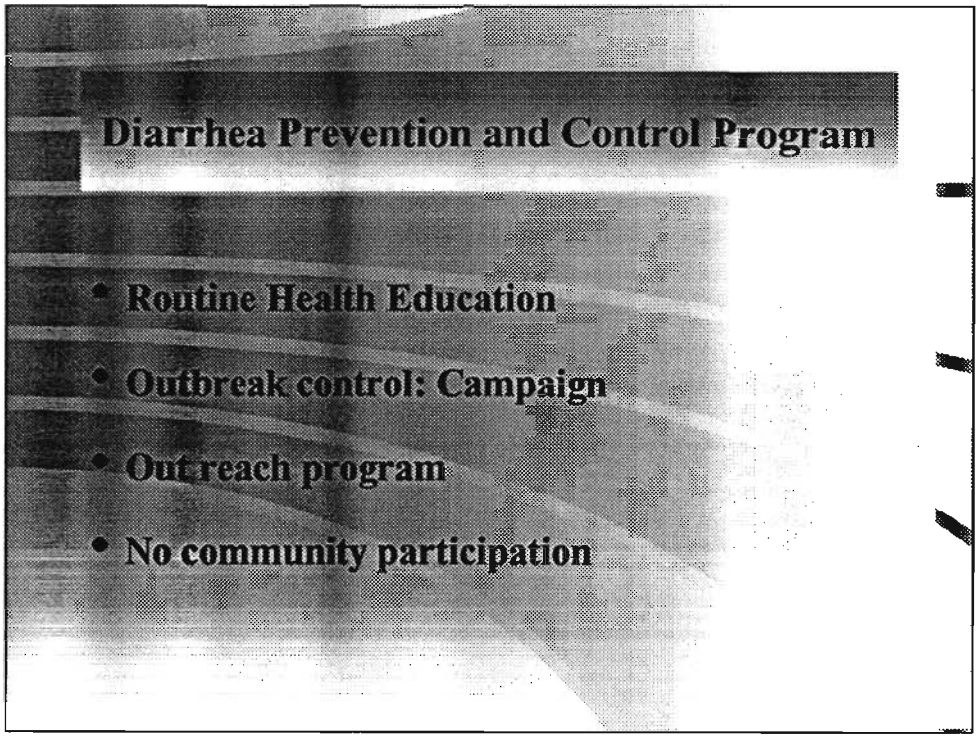
- 1997 = 2,736.48
- 1998 =3,259
- 1999 (9 months, Jan-Sept)=2,592.42
- One death case
- Higher than the target and severe

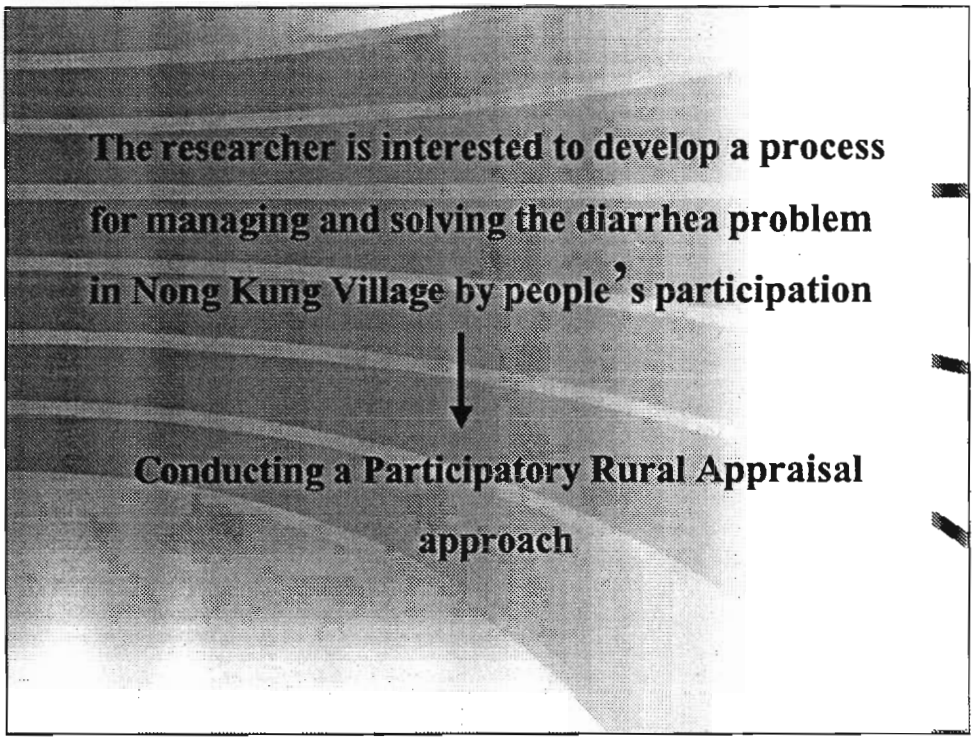


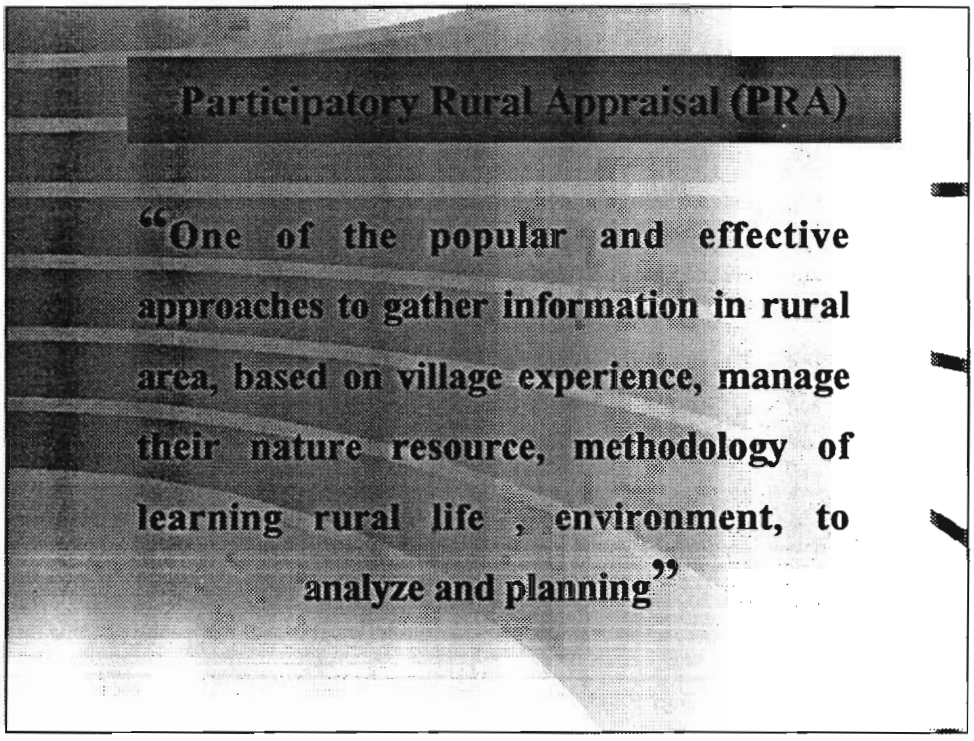
General Data in Nong Kung Village

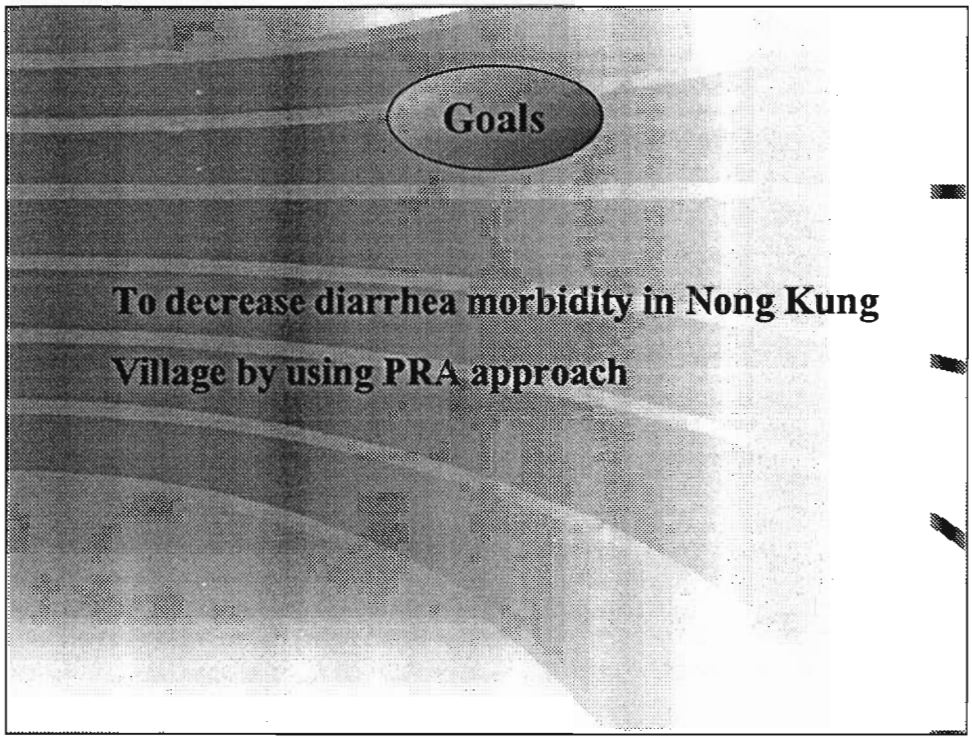
- 137 households
- Population 655 persons
- 73 Childrens under 5 years
- 8 Food shops
- Local culture, eating raw

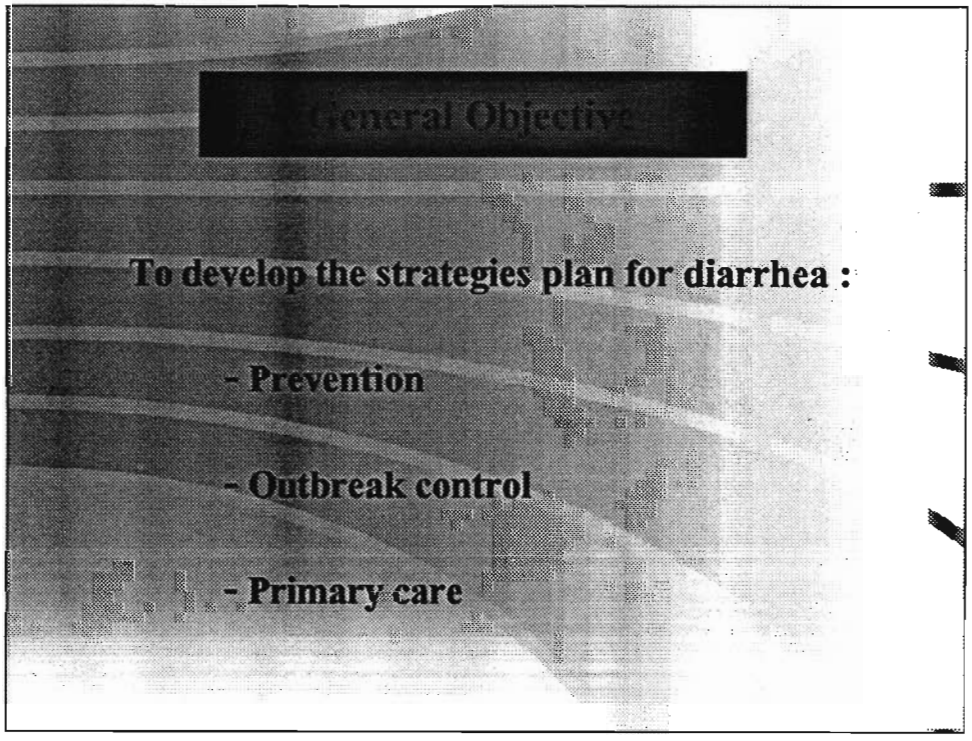

General Data in Nong Kung Village (con)
• 1 Community Primary Health Care Center
• The village is in the community hospital area


Diarrhea Prevention and Control Program
• Routine Health Education
• Outbreak control: Campaign
• Out reach program
• No community participation


The researcher is interested to develop a process for managing and solving the diarrhea problem in Nong Kung Village by people's participation
Conducting a Participatory Rural Appraisal approach


Participatory Rural Appraisal (PRA)
"One of the popular and effective approaches to gather information in rural area, based on village experience, manage their nature resource, methodology of learning rural life , environment, to analyze and planning"

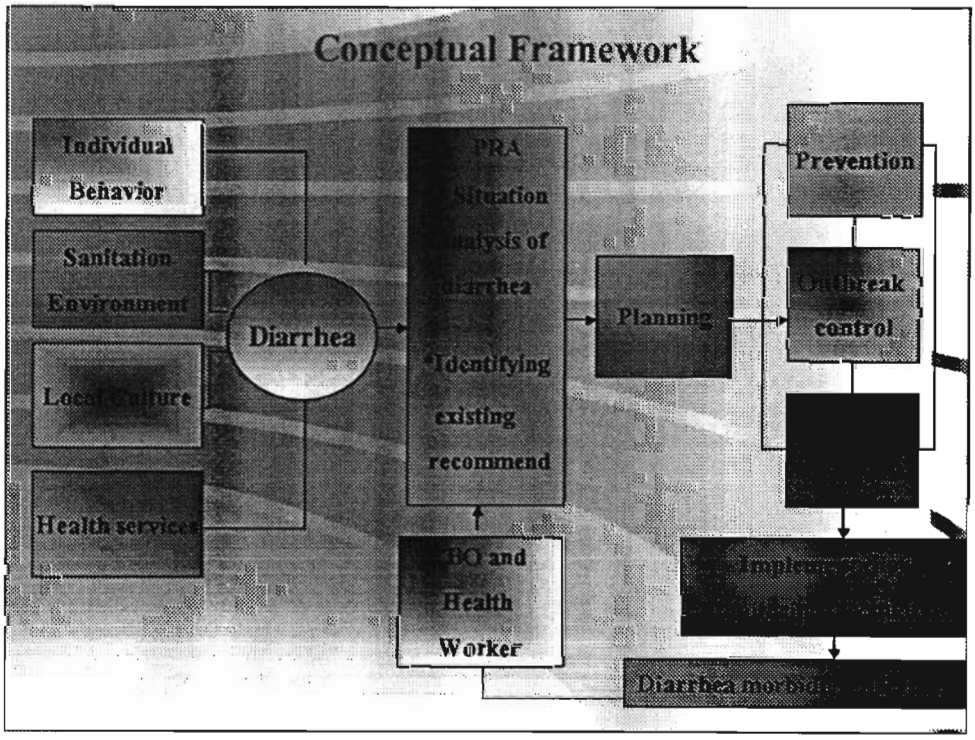

Goals
To decrease diarrhea morbidity in Nong Kung Village by using PRA approach

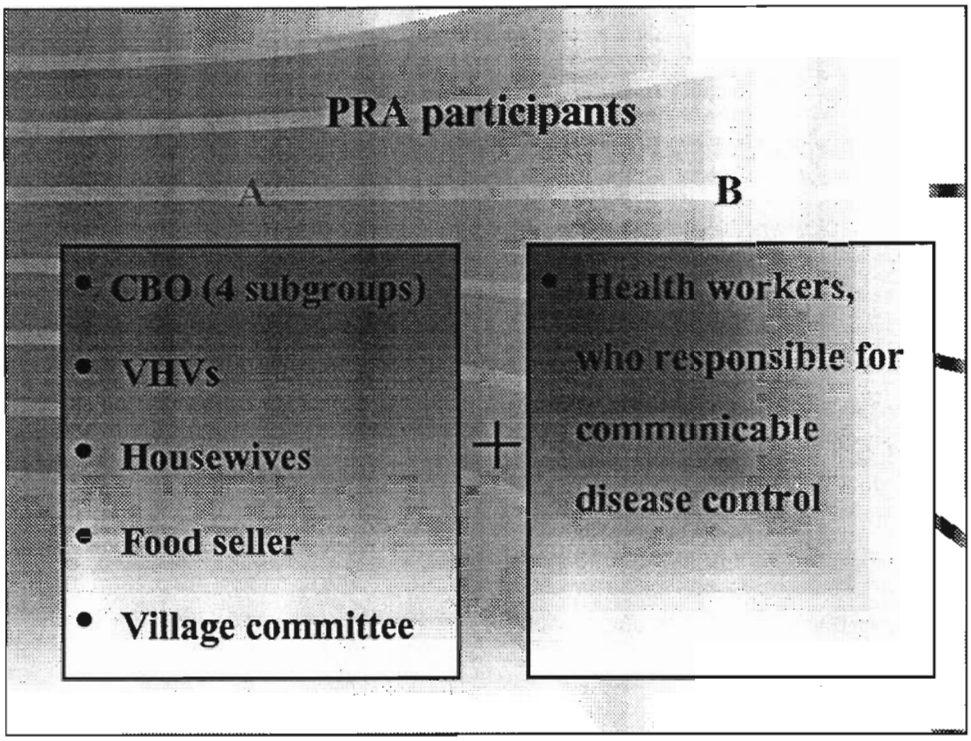

General Objective
To develop the strategies plan for diarrhea :
- Prevention
- Outbreak control
- Primary care

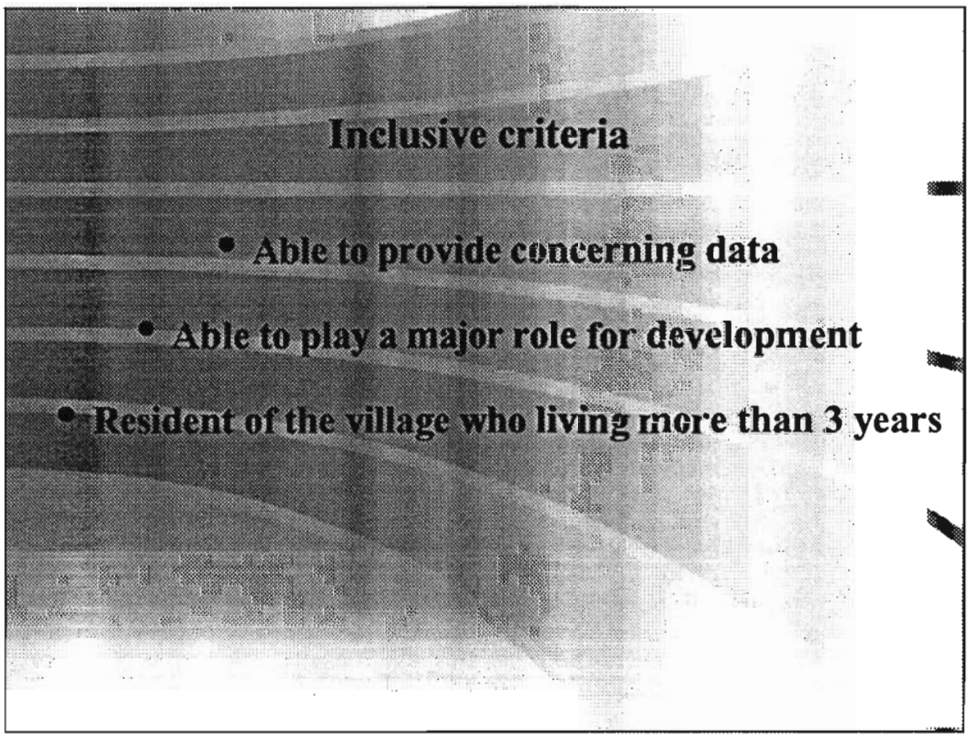
Specific objectives

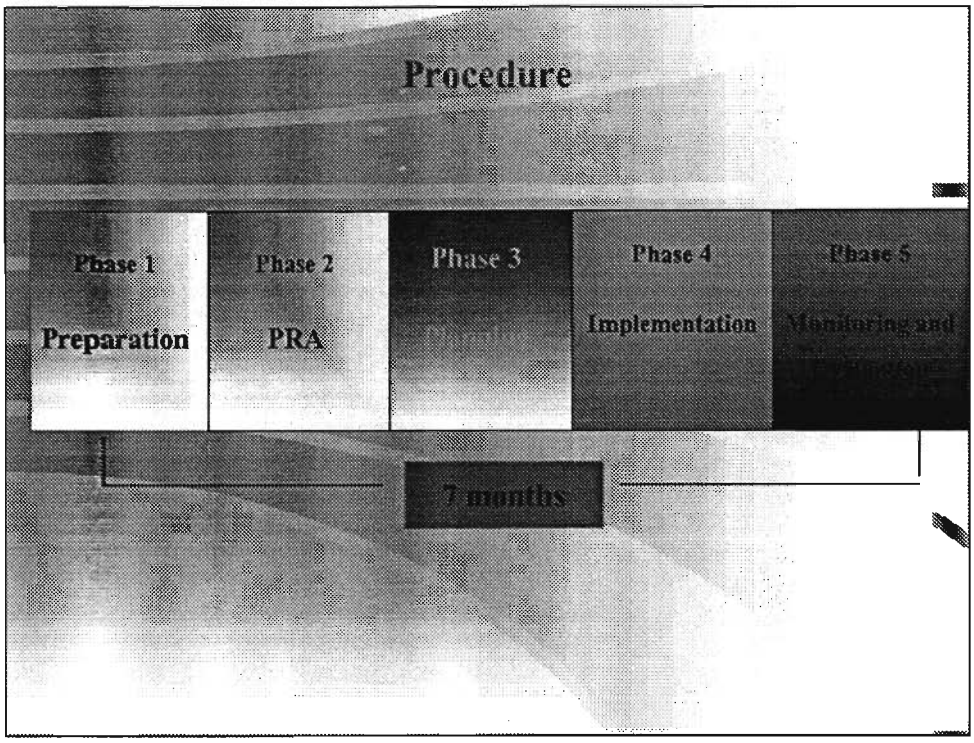
- To explore the diarrhea situation
- To identify the existing practices and recommendations for diarrhea prevention and control
- To define the practices; planning,implementation, monitoring and evaluation

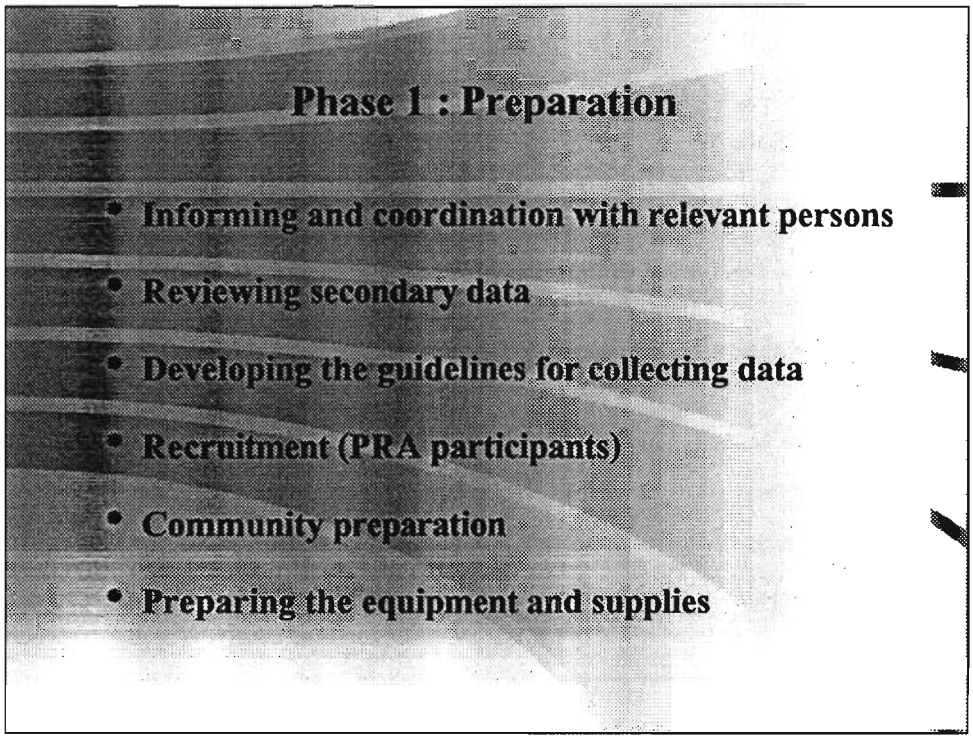
Conceptual Framework




PRA participants
A
B
• CBO (4 subgroups)
• VHVs
• Housewives
• Food seller
• Village committee
+
• Health workers, who responsible for communicable disease control

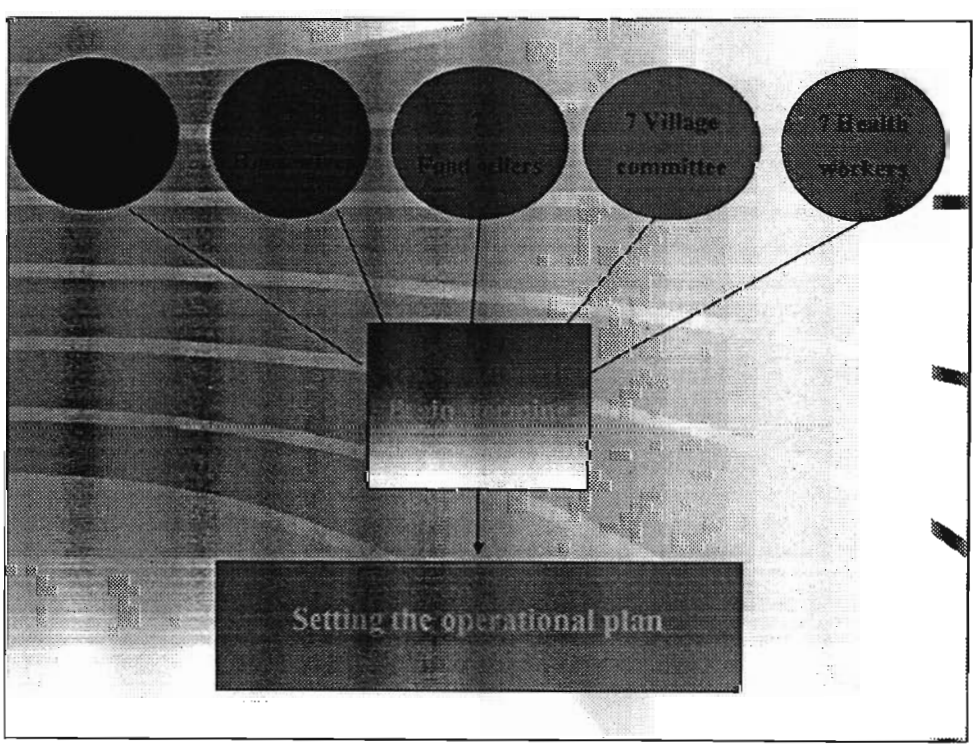

Inclusive criteria
• Able to provide concerning data
• Able to play a major role for development
• Resident of the village who living more than 3 years


Procedure
Phase 1
Preparation
Phase 2
PRA
Phase 3
Phase 4
Implementation
Phase 5
7 months


Phase 1 : Preparation
Informing and coordination with relevant persons
Reviewing secondary data
Developing the guidelines for collecting data
Recruitment (PRA participants)
Community preparation
Preparing the equipment and supplies

Phase 2 : Conducting Participatory Rural Appraisal

- Created friendly atmosphere
- Empowerment
- Situation analysis of diarrhea
- Observation
- Group discussion



Phase 3 : Planning

- Developing the operational plan:
- - Prevention
- - Outbreak control
- - Primary care
- Developing the guidelines for monitoring and evaluation

Phase 4: Implementation

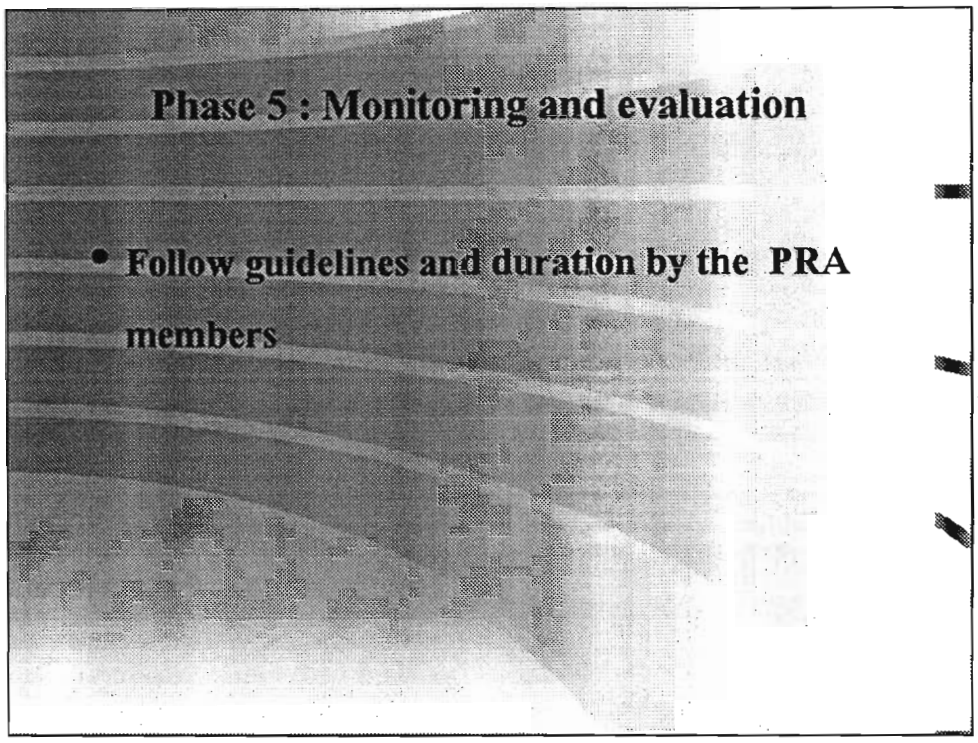
- The participants described the plan to the people by meeting, asked them for their cooperation and participation
- The villagers interest and likelihood of acceptance of the intervention

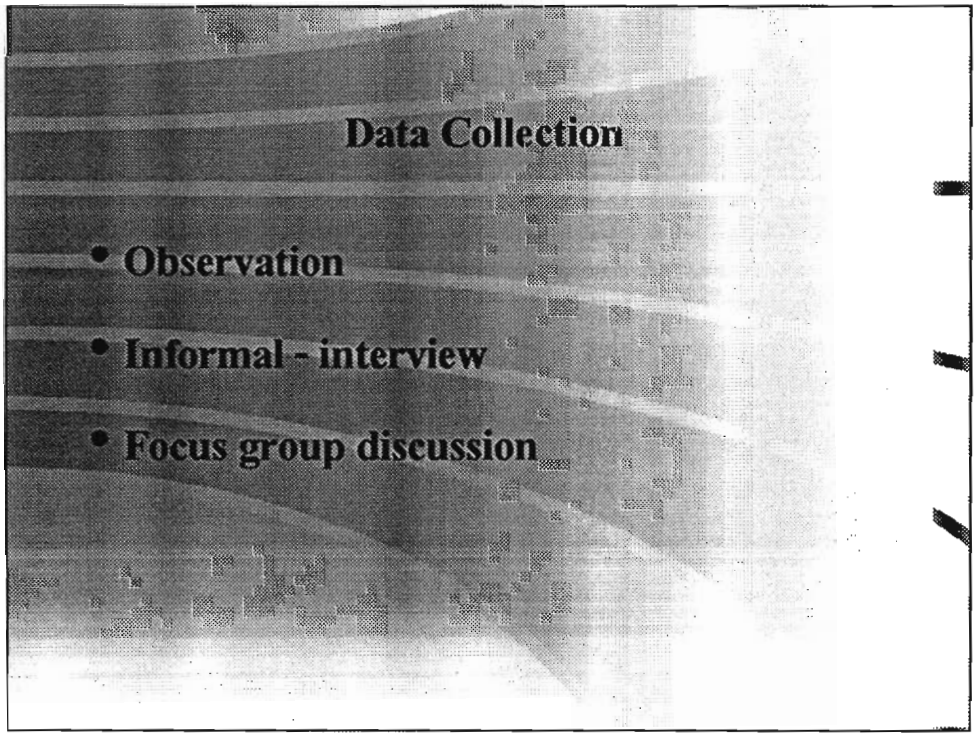
Phase 4 (con)

- Training and Refresher Course on Diarrhea
- Community participation on:
- - Hygienic Kitchen Contest
- - Campaign on household sanitation, food seller sanitation

Phase 4 (con)

- Health education by VHVs
- Improving the ORT corner in the CPHCC, preparing ORS for use in the family


Phase 5 : Monitoring and evaluation
• Follow guidelines and duration by the PRA members


Data Collection
• Observation
• Informal - interview
• Focus group discussion

Instruments

- Observation and interview guideline
- Focus group discussion guidelines

Data Analysis

- Quantitative data: descriptive in statistic (percentage)
- Qualitative data : content analysis
- Cross-check data by using triangulation

Timeframe

- Reviewing literature = Sep-Nov. 1999
- Developing proposal = Dec.1999-Mar.2000
- Preparing = Feb.2000
- PRA exercise/ intervention= Mar.-Sep.2000
- Evaluation = Oct.2000-Mar.2001

Situation analysis of diarrhea

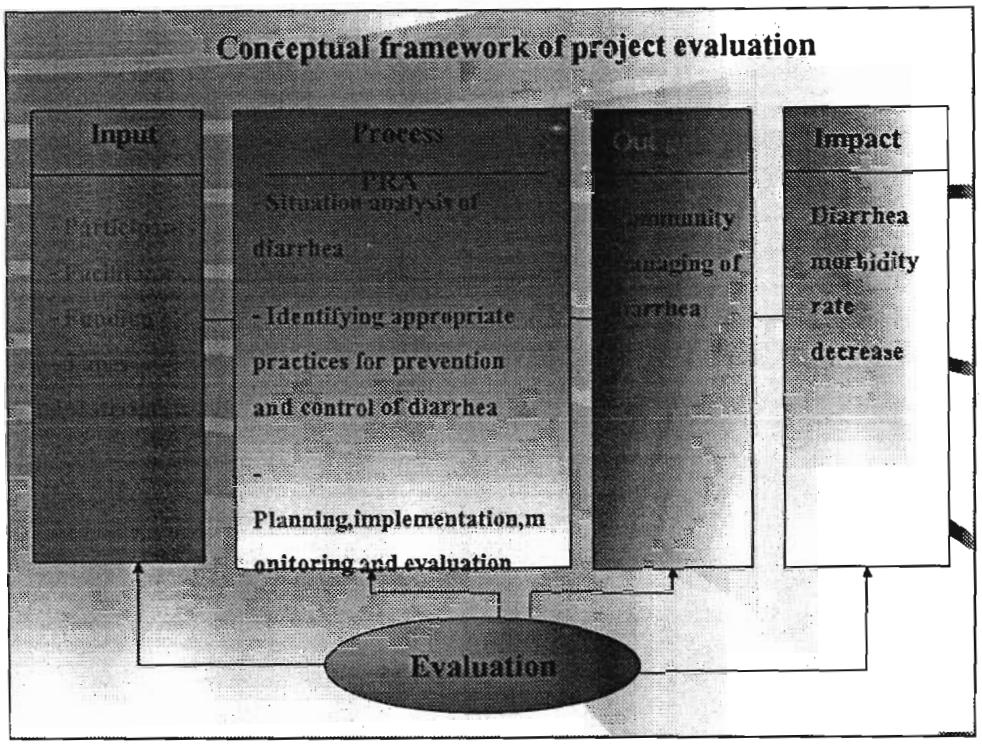
- 1) Perceive of diarrhea (Definition, causes,severity) .....
- 2) Sanitation and environment .....
- 3) Food sanitation .....
- 4) Personal hygiene .....

Existing practices / Recommendations

- Existing practices: Diarrhea prevention and control were done by health workers, CBOs had less participation
- Recommendation : Community participation on planning, implementation, monitoring and evaluation for diarrhea prevention and control are needed

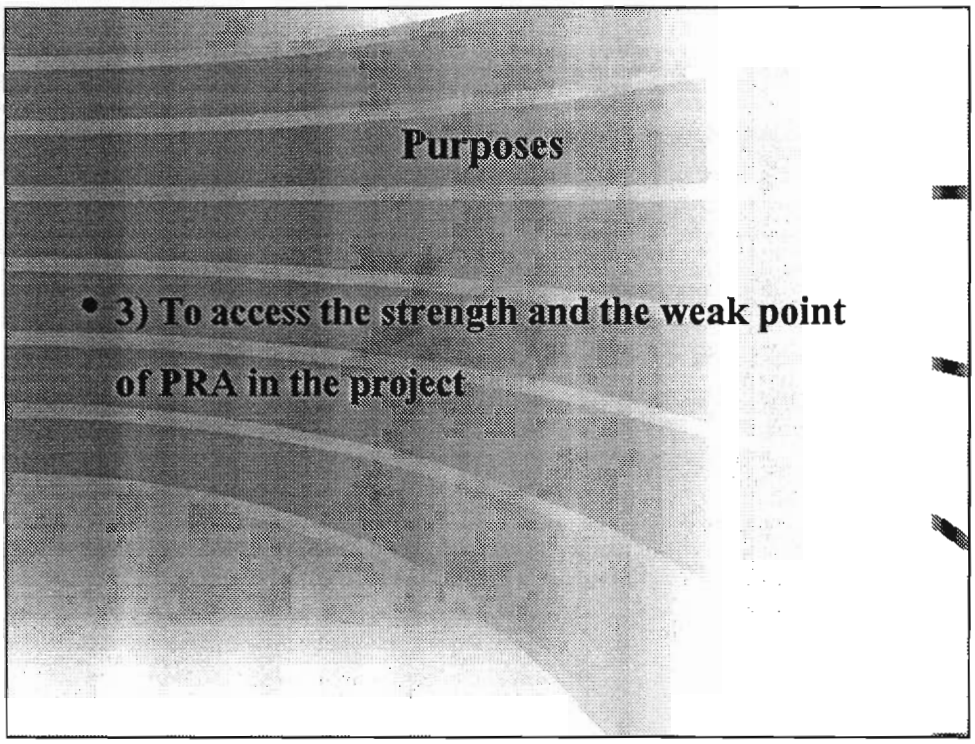
Project Evaluation

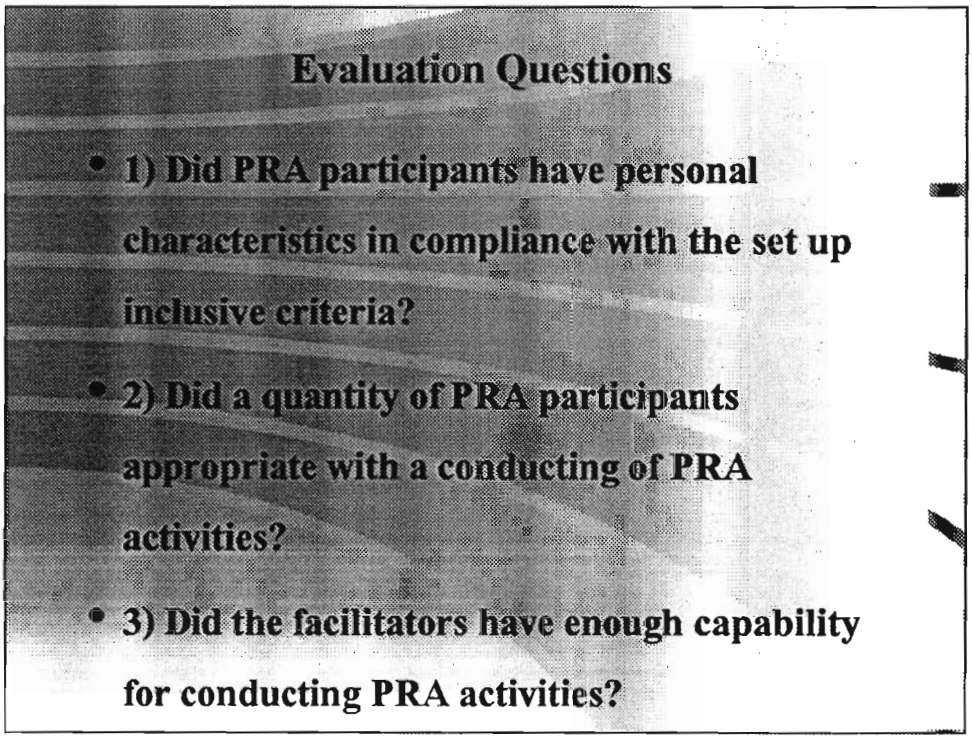
- Evaluation Design:
- - Formative Evaluation (During the intervention program)
- - Summative Evaluation (After finishing the intervention program)
- Period 6 months (Oct.2000-Mar.2001)



Purposes

- 1) To study the project development; the project implementation results; and the project impact
- 2) To study the project problems; limitations; and the factors both internal and external effecting to the project implementation


Purposes
• 3) To access the strength and the weak point of PRA in the project


Evaluation Questions
• 1) Did PRA participants have personal characteristics in compliance with the set up inclusive criteria?
• 2) Did a quantity of PRA participants appropriate with a conducting of PRA activities?
• 3) Did the facilitators have enough capability for conducting PRA activities?

Evaluation Questions (con)

- 4) Did the boss support the project, if he did, how?
- 5) How mach funding was use in the project, was it efficiency used?
- 6) How was times used for project management, was it efficient?

Evaluation Question (con)

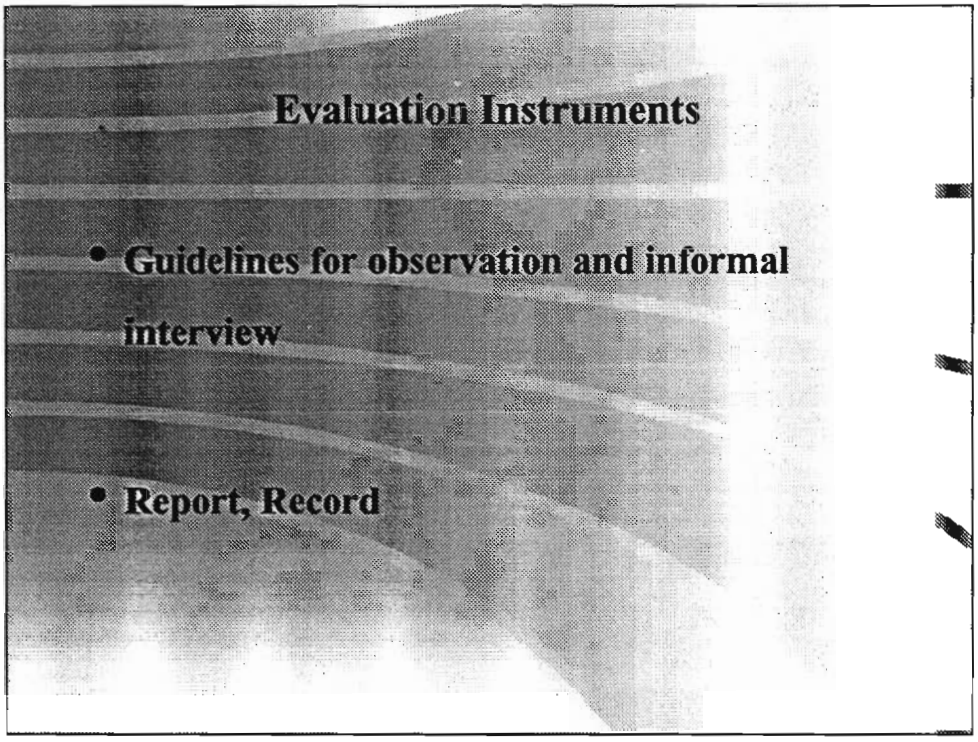
- 7) Could PRA participants appraise the major causes of diarrhea in the community?
- 8) Could PRA participants identify the existing practices and recommendations for diarrhea prevention and control?

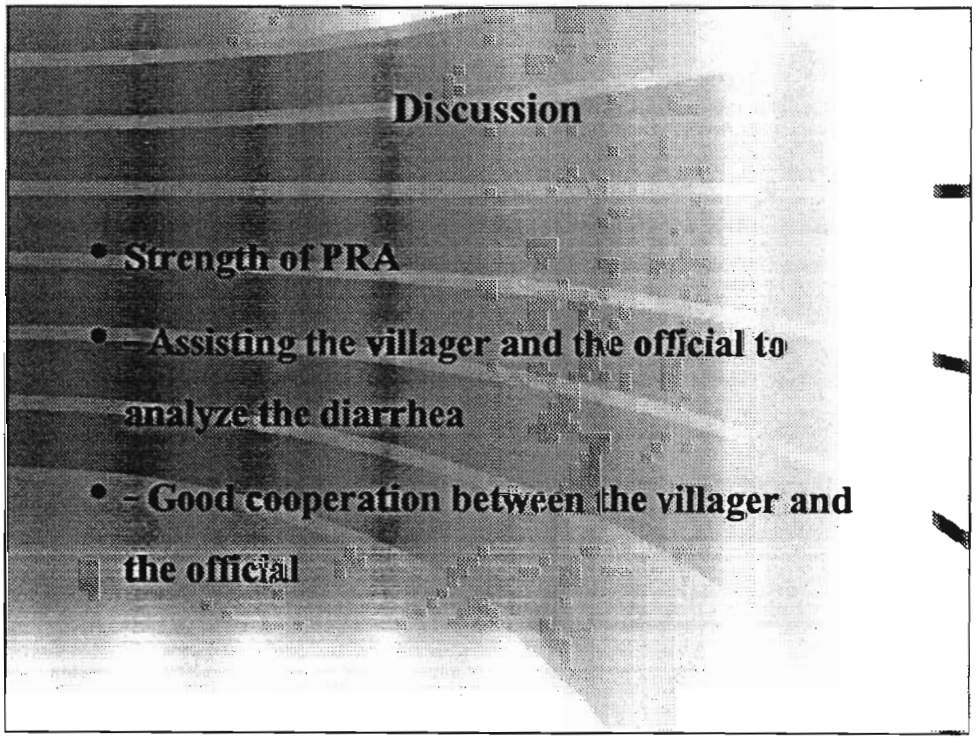
Evaluation Questions (con)

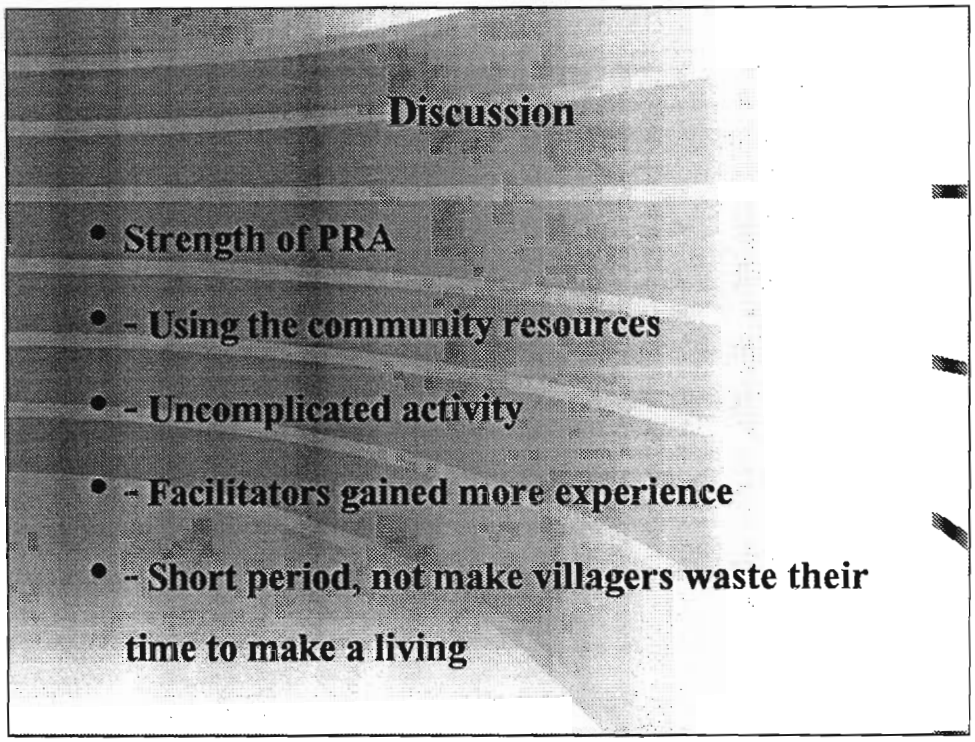
- 9) Could PRA participants develop the strategies plan of diarrhea prevention and control?
- 10) Did the diarrhea morbidity rate decrease, how?
- 11) Did Nong Kung Villagers have development in diarrhea prevention, how?

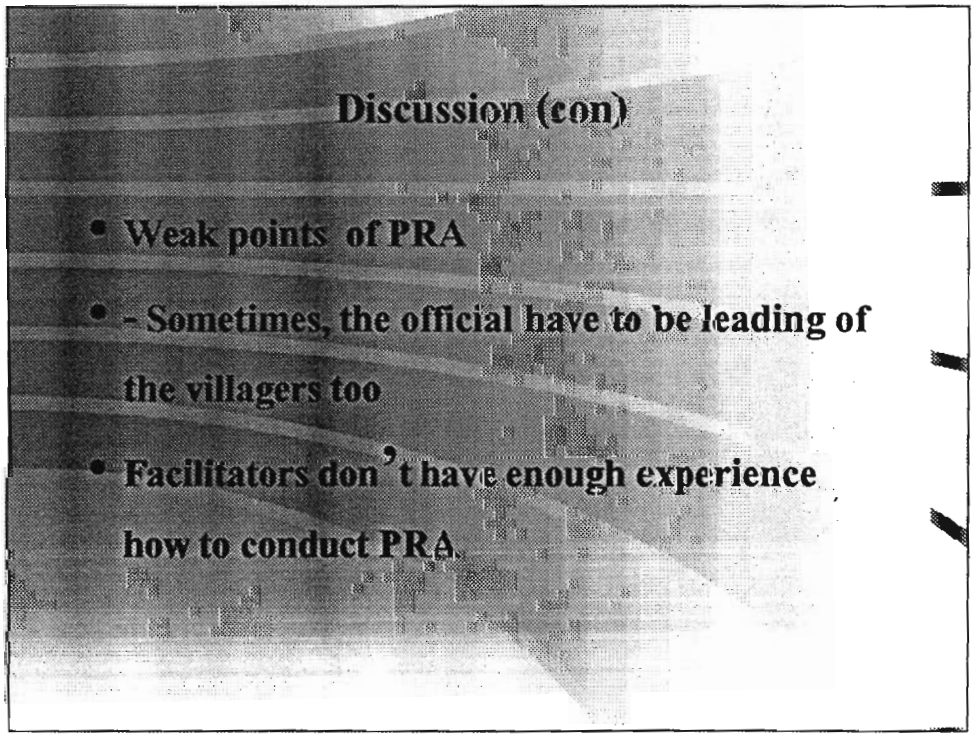
Data Collection and methods

- Reviewing the secondary data record, Report
- Observation
- informal interview


Evaluation Instruments
• Guidelines for observation and informal interview
• Report, Record


Discussion
• Strength of PRA
• – Assisting the villager and the official to analyze the diarrhea
• - Good cooperation between the villager and the official


Discussion
• Strength of PRA
• - Using the community resources
• - Uncomplicated activity
• - Facilitators gained more experience
• - Short period, not make villagers waste their time to make a living


Discussion (con)
• Weak points of PRA
• - Sometimes, the official have to be leading of the villagers too
• Facilitators don't have enough experience how to conduct PRA.

Conclusions

- PRA assisted the villagers for managing and solving diarrhea
- Diarrhea morbidity decreased (compare with the previous time)

Recommendations

- Should be trained the facilitators about PRA technique before conduct PRA
- The officials should be follow up the field work after finishing the intervention program to stimulate community participation to solve their problems until they can be self-reliant

Recommendations (Cont.)

- Six months for evaluation did not adequate for accessing the PRA impact, thus extendibility of time for evaluation should be considered
- The project implementation should avoid the time for plantation so that majority of villagers not fully participate in the project

Thank you

Curriculum Vitae

Name Julpan Suwan

Date of birth 26 November 1965

Sex Male

Nationality Thai

Education

- Certificate of Junior Health Worker, 1986 from College of Public Health, Khon- Kaen Province
- B.Ph. (Health Administration), 1989 from Sukhothaithumathiraj University

Area of interest Diarrhea, PRA, PAR, Planning and Evaluation, PHC, Health Administration

Work Experience

1986-1987	Junior Health Worker in Health Center, Phathumrat District, Roi-Et Province
1988-1990	Chief of Health Center, Phathumrat District, Roi-Et Province
1991-1999	Health Academic, Chaturapujphiman District Health Office, Roi-Et Province
2001-Present	Assistant to the District Health Officer, Phon-Sai District Health Office, Roi-Et Province

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