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Latrine promotion in rural Thailand: A study of selected factors influencing community participation

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LATRINE PROMOTION IN RURAL THAILAND:

A STUDY OF SELECTED FACTORS

INFLUENCING COMMUNITY PARTICIPATION

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ABSTRACT

In order to increase the coverage of sanitary latrines in Thailand, the Ministry of Public Health has developed country-wide promotion effort based on five strategic initiatives, namely: sanitation fund, village craftsmen, community participation, public awareness, and primary health care philosophy.

Although there has been progress in increasing the rate of sanitary latrine coverage in the country, it is clear that the goals set for the year 2,000 will not be achieved at the present rate of growth in coverage.

This study addresses that problem through an exploration of the general proposition that an increased understanding of the behavioral and social dynamics of decision making could enhance the planning and implementation of environmental improvement efforts. This study was specifically designed to analyze the extent to which personal beliefs and values related to the five strategic initiatives influenced progress in sanitary latrine construction coverage. Such studies have not before been carried out in any systematic way in Thailand.

A second element of the study involved an examination of the relationship at the village level between the implementation of the two strategic initiatives (sanitation fund and village craftsmen) and the construction of sanitary latrine.

Data were collected through Survey research techniques using interviews and review of official records. The study was carried out in Surin.

The findings showed an association between implementation of strategic initiatives (sanitation fund and village craftsmen) and low and high coverage villages. At the household level,there were statistically significant differences in perceived value of the four strategic initiatives between heads of households from the low and the high sanitary latrine coverage of the villages (Perceived value of primary health care was the only exception).

Stepwise Discriminant Analysis revealed that perception of the value of sanitation fund and community participation were the two important factors influencing construction of sanitary latrine.

The study suggests that greater attention to behavioral and social science research and sound education planning with enhance the existing latrine promotion strategies.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

The major health problems affecting rural people in many developing countries are gastrointestinal and parasitic diseases linked with inadequate water supplies and lack of hygienic excreta disposal facilities. Lacking sanitary latrines as a means of disposal, people dispose of body wastes in lakes or rivers from which they may later obtain their drinking water, or they utilize bushes or open fields from which transmission of disease agents to other individuals occurs.

Human excreta is thus a principal vehicle for the transmission and spread of a wide range of gastrointestinal and parasitic diseases. Over 50 infections can be transferred from one person to another by various direct or indirect routes in which excreta is involved (Mara, 1982).

Children are the most vulnerable to these water- and fecal-related diseases. The harmful effect is a major factor contributing to high infant and child

mortality, low life expectancy, and poor quality of life (Damme, 1985).

Efforts to reduce the incidence of these gastrointestinal diseases have always been a major goal of public health in developing areas. A key mechanism for reducing this morbidity is to break or interrupt transmission. A consistent public health strategy for doing so has been the promotion of sanitary latrine construction and use as part of overall programs to improve environmental sanitation.

Although such programs have been in place in developing countries for many years, it is reported that less than 10 percent of households in developing countries have adequate excreta disposal facilities (Elmendorf and Buckles, 1980). The United Nations (1985) estimated that, in 1983, the percentage of the population in rural areas of Asia and the Pacific (excluding China) with adequate excreta disposal facilities was only 9 per cent. The urban percentage reported was 48 per cent. In western Asia the percentage was 25 per cent in rural areas and 93 per cent in urban areas.

In order to increase attention to the problem, many developing countries have, in recent years, launched nationwide latrine promotion programs and adopted the principles of the International Drinking

Water Supply and Sanitation Decade (1981-1990) and the Alma Ata Conference (1978) on primary health care.

Sanitary Latrine Situation in Thailand

In Thailand, gastrointestinal diseases remain a major health problem, particularly among rural villagers. Surveillance data for gastroenteritis from 1983 (including acute diarrhoeal disease), report 11,051 deaths, a mortality rate of 22.3 per 100,000 population (Ministry of Public Health, 1987).

The Sixth Five-Year National Health Development Plan (1987-1991) set goals for reducing the number of cases of diarrheoal mortality and morbidity by 50 percent and 20 percent respectively and also reducing the prevalence of hookworm from 40 percent to 30 percent by the end of 1991 (Ministry of Public Health, 1987).

Evaluation of the results of the past 25 years of national development efforts in Thailand indicate the gradual increase of latrine installation throughout the country. At the end of the Fifth Five-Year Plan, in 1986, Thailand had 3,735,574 latrines covering about 50 percent of the households, (Department of Health, 1988). The number of latrines and the average rate of increase for latrine construction during the First

Five-Year Plan, 1961-1966 is shown in Table 1.1.

National latrine coverage is shown in Table 1.2.

Table 1.1: Number of Latrines and Average Rate of Increase from 1966 to 1986, Thailand

5-Year Plan	Number of Latrines	Number of New Latrine during 5-Year Plan	Average Percentage of Increase during 5-Year Plan
1966 (1st)	365,161	352,796	-
1971 (2nd)	1,092,689	727,528	39.84
1976 (3rd)	2,043,329	950,640	17.40
1981 (4th)	2,603,660	560,331	5.48
1986 (5th)	3,735,574	1,131,914	8.69

Source: Department of Health, Ministry of Public Health, Thailand, 1988.

Table 1.2: Latrine Coverage and Average Coverage for Five Year Periods from 1966 to 1986, Thailand

Five Year Plan	No. of Latrines	No. of Households	Latrine Coverage (%)	Average Increased Coverage /Year for 5-Year Plan Period
1966(1st)	365,161	4,497,056	8.12	1.56
1971(2nd)	1,092,789	4,824,233	22.65	2.91
1976(3rd)	2,043,329	5,736,465	35.62	2.59
1981(4th)	2,603,660	6,158,136	42.28	1.32
1986(5th)	3,735,574	7,301,747	51.16	1.77

Source: Department of Health, Ministry of Public Health, Thailand, 1988.

To better appreciate the sanitary latrine situation in Thailand, Table 1.3 shows national targets and the percentage of actual sanitary latrine coverage reported by Five-Year Plans from 1961.

Table 1.3: Target and Actual Percentage of Sanitary Latrine Coverage by 5-Year Plan 1961-1991

Planning Period	Percentage Latrine Coverage Target	Actual
1961-1966	-	8
1967-1971	-	22
1972-1976	-	36
1977-1981	50	42
1982-1986	70	51
1987-1991	90	?

Source: Sanitation Division, Ministry of Public Health, Thailand, 1987.

The present (1990) goal of the Thai government is to achieve 100 percent coverage by the year 2000. Such an accomplishment would call for two-fold increase over the results during the Fifth Plan (1982-1986).

These facts raise important questions relating to the possibility of accelerating the construction rate.

Context of Research

Thailand has realized the importance of human excreta disposal since the Sukothai Era, about 700 years ago (Department of Health, 1988). However, at

present it is still faced with the difficult goal of achieving its national latrine coverage target.

Since 1960, the Ministry of Public Health has responded to the issue of latrine coverage in various rural sanitation development plans and has used different strategies aimed at increasing the rate of such construction.

The present (1990) strategy is based on the adoption by the Ministry of Public Health of the World Health Organization, "Health for All by the Year 2000" policy which emphasizes community participation in planning, conduct, and evaluation of community health and sanitation programs.

The implementation of the policy with reference to sanitary latrine construction is built on a set of five strategic initiatives. These initiatives, more fully described in Chapter 2, include these dimensions (Sanitation Division, 1989):

1. Mobilize resources from governmental/non-governmental agencies and international organizations to establish sanitation funds and encourage management by the community and mobilization of available community resources for sanitary latrine construction.

2. Promote community volunteers to gain skills necessary to cope with village sanitary latrine projects, e.g. the village craftsmen program.

3. Strengthen community participation as acrucial factor for the success of sanitary latrine promotion.

4. Promote public awareness of the village sanitary latrine program in order to increase sanitary latrine construction.

5. Link the sanitary latrine program with the Primary Health Care philosophy and its implementation.

Previous studies in Thailand of latrine construction have focused on techniques or designs for constructing different types of latrines. Few studies since 1970 relating to sanitary latrine construction have been carried out. Of those which have been reported, most have been descriptive surveys. For example, Sujumnong (1970) used socioeconomic variables in studying construction of privies in Ban Munangkum, Amphur Phan, Chiengmai Province; Sermsri et al., (1982), studied attitudes, behavior and needs concerning drinking water and sanitary latrines in the northeast region of Thailand. The study focused primarily on drinking water rather than sanitary latrines. Tanyawanich et al., (1987) studied women, water and sanitation in the rural northeast of Thailand, including latrine construction and use as a sub-topic. Descriptive results were presented but

explanations about sanitary latrine construction were not emphasized.

In addition, there have been some studies of factors affecting the success of sanitation funds (Chanpen et al., 1984; Euitrakul et al., 1985; and Sukpongthai et al., 1986). Moreover, little evaluative research on rural sanitation funds have been carried out (Sanitation Division, 1986; Sirihorachai, 1985; and Research and Development Center and Sanitation Division, 1990).

Although the impact of these initiatives is subject to much continuing review, neither the conceptual foundation on which the initiatives are based, nor the follow up data which are available appear to take the behavioral and social factors of the individuals who are the subjects of the program into account. The general assumption which provides the basic rationale for this study, then, is that more systematic use of behaviorally focused research will enhance our understanding of the human dynamics on the basis of which more productive environmental sanitation efforts can be carried out in rural areas of Thailand. It should, of course be clear that such research will require broad and systematic effort equal to that in place for the more technical aspect of environmental

health. This study is thus put forth as an exploratory step in examining the proposition that enhanced understanding can, indeed, provide needed support for developing programs more likely to achieve national latrine coverage goals. This study is designed to examine more systematically the nature and extent of the relationship between the effectiveness of each of the strategic initiatives and the perception of the value of such initiatives by the people of rural Thai communities.

Overview of Research Design

Inasmuch as the lowest national sanitary latrine coverage occurs in rural areas, particularly in the northeastern region of Thailand, this study was carried out in this area. The northeastern region, consisting of 17 provinces, has about one third of the total population of the country. Sanitary latrine coverage for this region varies from 36 percent to 80 percent (Sanitation Division, 1988). Among these provinces, Surin province has a very low level of sanitary latrine coverage, varying from 22.87 per cent to 52.29 per cent with an average coverage of 36.42 per cent (Sanitation Division, 1988). Therefore, it was decided to undertake this investigation in Surin province.

The research question focuses on examining (1) the extent to which the presence or absence of specific attributes of the national sanitary latrine promotion program are associated with high and low sanitary latrine coverage; (2) the extent to which such differences may be related to the perceived value of these sanitary latrine strategic initiatives by community residents; and (3) which, if any, of the strategic initiatives appears to be the most influential in decisions to initiate sanitary latrine construction.

This research design and hypotheses are further elaborated in Chapter III.

CHAPTER II

LITERATURE REVIEW

This chapter reviews a range of literature related to the background, concepts and research relevant to an understanding of the Thai public health situation and the issues of expanding sanitary latrine construction. Included are these sections:

- Experiences, Concepts and Research in Latrine Promotion-International
- Experience with Strategic Initiatives-International
- Development of Sanitary Latrine Program in Thailand
- Relevant Behavioral Concepts
    - Perception and Behavior
    - Values
    - Adoption of New Practices

Experiences, Concepts and Research in Latrine Promotion- International

The large scale attention to environmental health improvement in developing countries over the past several years has lead to the accumulation of a large

and varied literature. Much of this is focused on reports and documents of proposed policies, guidelines, country reports and expert committee declarations. Relatively little, however, covers behavioral research efforts of relevence to the enhancement of latrine construction efforts.

It is clear that at the operational level, governments in developing countries realize the importance of accessibility to sanitary latrines and have their own policies for latrine promotion programs using various strategies aimed at increasing national latrine coverage.

Many of these efforts are stimulated and guided by international agreements such as the UN Conference of Human Settlements (Vancouver, Canada, 1976), the UN Water Conference (Mar del Plata, Argentina, 1977), the WHO/UNICEF International Conference on Primary Health Care (Alma Ata, USSR, 1978), and the International Drinking Water Supply and Sanitation Decade (1981-1990) which was launched at the UN General Assembly on November 10, 1980.

Of the reports of on going developments in water supply and sanitation improvement, the following are selected examples from developing countries in Latin America and Asia:

In San Pedro La Laguna, Solola, Guatemala, the first anaerobic biogas latrine promotion program was carried out between 1930 and 1944. The program, which sought compliance through compulsion resulted in a minimum of cooperation. In 1958, a second promotion program was attempted with the support of local leaders. This program, which used a strategy of installing demonstration latrine models in the homes of the community leaders, was more successful. However, the results were achieved only as long as it was a priority of the government. When the promoters changed the work direction to literacy and cooperative aspects, people abandoned the latrine construction program. A third attempt in 1974 was to introduce pit latrines by providing materials but no promotion. The program failed to achieve its objectives (Elmendorf and Buckles, 1980).

In the water and latrine promotion project of Chijtinimit and Chontala, El Queche, in Guatemala, success was dependent on the following strategies (Elmendorf and Buckles, 1980):

1. The linkage of excreta disposal services(which were not the felt need) with water supply improvement (which was the felt need).

2. The use of an interdisciplinary program team to facilitate community participation and organization.

3. The integration of water supply and waste disposal service activities with local health center activities provided for continued motivation and promotion of the projects.

4. The organization of committees to facilitate project implementation and administration of the fund maintenance in the community.

In Mozambique, a national campaign was launched by the Ministry of Health in 1976 with the aim of encouraging people in peri-urban areas and villages to build latrines. The accomplishment of the program relied on a high degree of community participation in both the organization of workshops and the promotion of the use of the latrines (Muller, 1988). Similar results from the studies in Latin American countries found that people's reasons for not having implemented ideas for improvement of the existing water supply and/or sanitation facilities were lack of economic resources (Guatemala, Mexico, and Nicaragua), lack of leadership, and lack of technical knowledge, (Elmendorf and Buckles, 1980).

In India, latrine programs were tried out for many years without widespread success. Barriers to the success of the programs were of three types: design

and constructional, educational, and organizational (Directorate General of Health Services, India, 1962). In the first aspect, people rejected the construction of sanitary latrine because: (a) the constructed latrine could not remove the fecal material, odor, and flies completely; (b) water and urine splashed around the latrine floor; (c) the latrine pits filled up too rapidly; (d) the foot rests were uncomfortable; and (e) the construction was expensive and difficult to maintain.

The second barrier was"educational" and related to (a) villagers' resistance to changing the habit of defecating in the fields; (b) villagers who knew little of sanitary latrines had little interest in constructing one; (c) people perceived the latrines as "dirty"; (d) villagers did not connect diseases with latrine use; and (e) no knowledge or skill existed in the community in latrine construction and maintenance.

The third dimension was the "organizational" barrier which included problems with: (a) securing an adequate number of well trained technical personnel; (b) securing appropriate priority for the program; (c) ineffective supervision and guidance of field workers; and (d) poor administrative procedures.

Experience with

Strategic Initiatives- International

This section covers the reported experience in several countries including Thailand, in which initiatives similar to those which are the subject of this study were utilized.

Sanitation Fund

The sanitation fund is a revolving fund established in the community as a strategy to reduce the financial problem of villagers in sanitary latrine construction.

Revolving funds are assumed to offer the best possibilities to establish long range financing, especially for rural programs (Donaldson,1977). Where the villagers want to construct sanitary latrines but lack the financial resource to pay for their costs, the existence of sanitation fund is intended to overcome such economic barriers. Reports in Cabrobo of Brazil and Kerala, India, support this assumption (Pacey, 1980).

In Kerala, the establishment of a revolving fund for latrines in fishing communities is reported in a community development project which helped raise living standards by generating income. The basis of this was a fishing co-operative. In order to obtain latrines,

each family paid an initial deposit with the rest of the cost covered by a loan from the revolving fund. The loan was sudsequently paid back in monthy installments.

In Brazil, a similar project was effective in places phase where conventional sewerage schemes still left many people in the poor suburbs of town in the northeast withot sanitation. For example, in the small town of Cabrobo, a latrine program was launched with the help of two Peace Corps volunteers. This scheme was supported by the mayor and the parish priests, and helped to stimulate other activities in the communities. When families contributed small weekly amounts to a fund, groups worked together to dig pit latrines and line them with bricks. Prefabricated concrete squatting slabs were then provided at a subsidized rate, and installed by a mason. The mayor provided building material and transportation.

In Thailand, Chanpen (1986) studied factors influencing the progress performance of the community fund to health development (for sanitation) and found that the implementation problems of the fund were: (a) lack of available time from committee members of the community fund, (b) lack of skills for community fund management, and (c) lack of systematic pay back by those who borrowed money from the fund.

The Sanitation Division (1986) of the MOPH, performed a Half Plan Evaluation on Environmental Project and the Provision of Safe Drinking Water Project in the Fifth Health Development Plan (1982-1986). A total of 317 sanitation funds, randomly selected from 9 Sanitation Regions, comprised the sample for this study. Factors affecting progress of the sanitation fund were the level and age of the fund, the beginning budget of the fund, the management pattern, regulation of money borrowing, time schedules for pay back of the money, and membership.

Results obtained from the Research and Development Center, Mahidol University in corporation with the Sanitation Division, Ministry of Public Health, on an "Evaluation of the Rural Sanitation Development Fund in Thailand": UNCEFF/Thailand Country Programmes (1990), showed that factors affecting the achievement of the Sanitation Development Funds were (a) the period of time that the people were informed in advance, (b) the strength of the people organization in the villages, (c) the economic status of the people, (d) the unity of the project committee members and (e) the technical knowledge of accounting by the project's committee.

Menaruchi (1986) did a pilot project for the improvement of drinking water supplies and sanitation

facilities in a Thai village. It was conducted on the basis of community preparation, the training of village craftsmen, the setting up of village health development cooperative funds, and project implementation through the community development principle. The project was considered success. The village headman, the village committee members, and the craftsman were very well accepted and trusted by the villagers. Participation of the cooperative fund was of a high order, and the implementation was also continuous and effective.

In order for the sanitation fund to be used successfully as a strategy for mobilizing financial resources within the village, the villagers must express satisfaction with the management to the fund. The measurement of "access" is, in part, related to expressions of satisfaction. Thus, their perception of "access" to the fund in various aspects is critical. Five dimensions for measuring access are suggested namely, availability, accessibility, accommodation, affordability, and acceptability (Penchansky and Thomas, 1981). Access is most frequently discussed as a concept that relates to the consumers' ability or willingness to enter to the health care system. In this study, access is also used and viewed as a general concept relating to enabling variables influencing

villagers' willingness to construct sanitay latrines. Thus, access encompasses the Royal Thai Government strategic initiatives, in particular, the sanitation fund initiative that influences the level of sanitary latrine constuction by villagers.

Village Craftsmen

One of the primary constraints to the successful provision of sanitation facilities in developing countries is lack of trained personal (Kalbermatten et al., 1982). Because of the scarcity of resources, very few, if any, personnel develop skill in these areas. In Togo, one rural water supply technician was serving a region where over 300 pumps had been installed. In Zaire, a handful of technicians served the entire country , and in Burundi, until recently th eonly employee of the rural water service was its director (Isely, 1985).

The construction of a water supply and sanitation facility needs technical expertise and local labor as do operation and maintenance. The technical expertise required for these functions can often be supplied by properly trained local people (Isely, 1985).

In Africa, Isley (1985) reported that the promotion of community participation by health workers and the involvement of women were the two major

prerequisites of successful projects for the supply of water and sanitation.

A reason for not improving the sanitation facilities in Guatemala and Mexico was the lack of technical knowledge (Elmendorf and Buckles, 1980). Most people in San Pedro La Laguna, Guatemala, perceived a need for technical assistance when initially installing latrines (Elmendorf and Buckles, 1980). Experience from Chan Kom, a village in the Yucatan, Mexico, found that using only the drawings and without the presence of an "expert" such as an engineer, people did not have the confidence to initiate construction. The short visit of the engineer did not allow time for feedback or discussion with the community, nor was there audio-visual material available to share. The village people invested time, energy, money, and dynamite to blast holes in the rocky ground with the hope that technical advice and orientation would eventually be available. In conclusion, although diffusion of the idea of improving sanitation was rapid,the scarcity of skilled technical personnel prevented the idea from being adoption. (Elmendorf and Buckles, 1980).

Using village craftsmen is one strategy to increase the coverage of sanitary latrines. It is

assumed that if villagers have a positive perception of (or satisfaction with) the contributions of these village craftsmen, they are more likely to accept sanitary latrine construction. In this study, villagers' perception towards village craftsmen contributions is expressed in terms of the satisfaction or dissatisfaction with the village craftsmen's technical competence (skill), quality of work and cost/convenience (Hulka et al., 1970; Zyzanski, Hulka and Cassel, 1974; Thomas and Penchansky, 1984).

Villagers' perceptions of village craftsmen in terms of satisfaction is conceptualized to affect the construction and use of sanitary latrines.

The following are examples of using satisfaction in studying health service utilization. Satisfaction with medical care received has been of major concern in the field of health service research. Some scholars use satisfaction as a determinant of utilization (Rochmann, et al., 1979). Satisfaction with care or preferences about care, could be hypothesized as having an increased relevance in determining the frequency of utilization and the choice of any given of plan or provider (Zastowny, et al., 1983). Satisfaction could be viewed as an input variable (Suchman, 1964;

Andersen 1968). Similarly, the prevailing conceptualization of health educators (Rosenstock, 1966) use satisfaction variables as inputs for patient compliance (Becker, 1979).

From the study by the Thai Sanitation Division (1986) on the effectiveness of the training of village craftsmen program, 355 village craftsmen were randomly selected from 9 sanitation Regions (all over Thailand). It was found that sanitary latrines were the most common sanitation activities in which the villagers sought consultation. Half of the village craftsmen participated in sanitation fund management by being contributors, managers, and members.

Community Participation

Community participation refers to the process of involvement by people in the community in health development project activities at all stages: the planning, implementation, evaluation, and enhancement activities (Whyte, 1986; Sarwono, 1986).

Experience gained over the years from many places around the world in water supply and sanitation development projects shows that best results are obtained only when the community participates in planning the project. In fact, communities have both the right and the responsibility to be involved in the planning and implementation of their own health

programs. The more the community participates in the project, the greater are the prospects for success. Therefore, "community participation is now accepted as a key factor for the success of health development projects in rural area (Whyte, 1986).

This is a change from former projects in which the community was seen as a passive recipient of facilities planned and provided by the central government (Whyte, 1986). The role of the government has been to provide support to communities in thier efforts to achieve their objectives.

There are a number of reasons cited to suggest community participation a strategy in sanitation activity promotion projects (Arriens, 1982):

1) With participation, more will be accomplished;
2) With participation, services can be of value for participants;
3) Participation has an intrinsic value for participants;
4) Participation is a catalyst for further development;
5) Participation encourages a sense of responsibility;
6) Participation guarantees that a felt need is involved;
7) Participation ensures things are done the right way;
8) Participation uses valuable indigenous knowledge;
9) Participation frees people from dependence on others' skills;
10) Participation makes people more conscious of the causes of their poverty and what they can do about it. (pp.55-56)

The International Drinking Water Supply and Sanitation Decade approach emphasizes that community participation in water supply and sanitation projects should involve the main areas as follows (Whyte, 1986):

1. Communities should be involved in the planning of projects

2. Communities should be responsible for the implementation, operation, and maintenance of the projects

3. The whole community should share the benefits of the project

Community participation alone, however, is a necessary but not a sufficient condition for the successful design and implementation of the sanitation program. Institutional support by government-nation, state and local- is needed to supply technical expertise and support services not available in the community (Kalbermatten et al., 1982).

White (1978) developed a scale of community involvement in water supply programs which may be adapted for the sanitary promotion programs. It includes the following categories:

1)a. Consultation with community representatives, or leaders, to ensure that the program introduced by the outside agency is adapted to the needs of the community, and avoids difficulties in implementation.

1)b. Consultation with other members of the community, or specifically, the poor to ensure that the program meets their requirements.

2) A financial contribution by the community towards construction.

3) Self-help projects in which a specific group of beneficiaries perform the construction work, to reduce costs. There is a large input from the external agency.

4) Self-help projects in which the whole community collectively contributes labour (perhaps also materials), especially in construction work. There is also a large input from an external agency.

5) The training of one or a few community members to perform specialized tasks (e.g., village health worker, or operator of a slow sand filtration system).

6) Mass action: collective work aimed directly at an environmental change of general benefit, e.g. draining waste water (distinguished from self-help by the relative unimportance of any input by an external agency).

7) Collective commitment to change personal behavior, and collective social pressure for the realization of such changes (e.g. construction and use of a latrine, frequent hand-washing with soap).

8) Self-reliance in the sense of the autonomous generation, within the community, of ideas and movements for the improvement of living conditions, as opposed to stimulation by outside agents. The community may well have recourse to external agencies to help with the implementation of these improvements.

9) Self-reliance in the sense of using only the efforts of the community members themselves and not appealing to outsiders for help.

10) Self-reliance in the sense of using local materials and manpower, rather than collection funds internally in order to purchase goods and services from outside; including increasing local capacities with this kind of self-reliance as a goal. (pp. 27-28)

The literature thus provides evidence that community participation and an educational program prepared for this participation are gaining wide

acceptance and have a positive influence on community water supply and sanitation projects.

From the report of WHO in 1972, most Latin American and Caribbean countries showed "willingness of the community to participate" as the second highest of the criteria for arranging priorities in providing new supplies. In tropical Africa however, this criteria was mentioned least of all (Pineo and Subrahmanyam, 1975).

In Quatemala, the proportion of community contributions in construction and operating costs ranged from zero to total cost (White, 1974).

Elmendorf and Buckles (1980) concluded from the studies of Latin American countries that people were more willing to give time working to improve their sanitation facilities than to pay more than a very small amount of cash for improvement (Guatemala, Mexico, El Salvador, Columbia, Nicaragua).

Bennell (1979) summarized findings from data on 97 villages in seven African countries suggesting that participation plays an important role in a rural water system.

A case study of a village perimeter irrigation program in the Natam region of Senegal demonstrated that local participation that involves low capital

expenditure yielded very substantial agricultural results (Fresson, 1977).

Experience from 97 villages in seven African countries suggest that participation plays an important role in rural water supply systems at two levels: 1) in the early stage of project design (project identification, site selection and organization authority for the operations) and 2) in the recurrent maintenance of the system (Miller, 1979).

Barra-Rowland (1978) studied self-help and public participation in rural water supply projects in Mexico, with a sample size of 1928. He found that user involvement led to better and cheaper maintenance. Results indicated that in 83 percent of the communities that participated in the form of materials, labour and/or money, the water system worked, while in the communities without participation, only 51 percent of the systems worked.

Among the few studies that address the issue of community early participation in project identification and design, most report that participation was excluded or severely limited. The judgement is made that "if the initiative does not come from a community itself but from other sources, the project usually meets

failure after construction is completed" (UN-ESCAP, 1976).

From his review of eight programs in Tanzania, Tschannerl and Mujwahuzi (1975) concludes that although participation should be encouraged, it could and did lead to design faults. The people usually were able to diagnose these faults and initiate temporary measures, but costly repairs eventually had to be effected by the central water authority.

Feachem (1978) concluded that self-help labour was more productive than contract labor in Lesotho but the variation was not significant enough to make any impact. Carruthers (1973), stated that the Kenyan experience indicated that self-help labor was too difficult and time-consuming to organise and therefore might have a negative impact on project performance. From the studies of Carruthers and Vierstra (1976) appear to imply that self-help labour might be productively utilised if the period between project planning and construction was short. Both reports however addressed self-help as a means of labour mobilization.

The Canadian Public Health Association and the Indonesian Public Health Association studied communities with primary health care programs in order to identify community participation characteristics,

namely volunteerism, self reliance and decision making process (Sarwono, et al.,1986). Analytical results did not confirm the influence of socio demographic factors on levels of volunteerism, self-reliance in the decision making process. Further investigation of the role of the psychological aspects in generating community participation were recommended.

Public Awareness

Awareness is well established as a first stage for adoption of new ideas or practices. The general concept is discussed under the section to follow on "Adoption of New Practices". In this section emphasis is on literature relating public awareness and community education fo sanitary latrine promotion in the village.

Health and social benefits are likely to occur if communities participated in improving excreta disposal facilities. The participation would be underlined through national public information campaigns, using radio, television, leaflets, and posters, backed up by assistance from all agencies concerned (Isely, 1985).

Examples in the literature emphasize that continuous promotion activities are neccessary. Although initial participation might be high, without continuing attention participation declines as energies

are utilized in competing frequently related to producing an income.

The Nicaraguan experience with a rural sanitary latrine program revealed the importance of health educators and local health promoters in explaining new technologies, it showed that local participation was delayed when villagers did not understand the needed behavior change (Elmendorf and Buckles, 1980).

In San Pedro, La Laguna, Guatemala, most people, however, perceived a need for technical assistance when initially installing latrines. Without continuous or at least periodic promotion -even in communities where initial acceptance was high as in Yalcuc, Chiapas, Mexico and Las Chacras, San Salvador, El Salvador--new families did not usually take the initiative to install a latrine (Elmendorf and Buckles, 1980).

An intensive health education program geared towards increasing the community's knowledge and inducing some changes in the attitude and behavioral factors towards the use of pour-flush latrines in a rural community in Malaysia was studied by Bohari et al. (1987). Before the intervention was launched, awareness of the government's program stood at only 40.9 percent, much below that expected. Health knowledge was found unsatisfactory in most situation topic areas (general health, worm infestation,

advantages of using latrines, how to build a latrine and keep it clean). By using talks, exhibitions, dialogues, demonstrations and pamphlets distribution, in only two weeks, health education program had significantly increased the knowledge regarding general health, worm infestation, personal hygiene, the construction and benefits and how to construct the latrine and awareness of the government's program. Changes in attitude and behavior were also noted although they were much less significant.

In many countries, the provision of latrine slabs takes place without any concurrent health education program. These cases demonstrate that the health gains are minimal or undetectable when health planners do not generally recognise that a much greater emphasis needs to be put on the integration of a health education element into a combined water and sanitation program (Isely, 1985).

The involvement of the community in Guatemala, Columbia, and Mexico in environmental sanitation projects is directly related to opportunities for frequent contact and information exchange with technically informed individuals (Elmendorf and Buckles, 1980).

When the health technology (sanitary latrine)

isunderstood by the population, demonstration models are not needed. The use of visual media and visits to prototypes might be important to gain the support of the community leaders. When adequate visual examples are not available, demonstration models are then usually necessary (Elmendorf and Buckles, 1980).

Primary Health Care

The Declaration of Alma-Ata defines Primary Health Care as "essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally acceptable to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" (WHO,1978).

Many governments have formulated national policies, strategies and plan for action to launch and sustain primary health care as a part of a comprehensive, national health system in coordination with other sectors (WHO, 1978).

Primary health care concepts and principles were not new to Thailand. Health development based on people participation had long been taking place in rural Thai communities in terms of traditional birth attendance under jargons of "Moh Tum Yae", Mae Jang" or

tradition healer or "Moh Klang Ban" (Ministry of Public Health, 1988). The introduction of village volunteers to inform and assist people in malaria control program brought about a dramatic decline in the morbidity and mortality rates (Ministry of Public Health, 1988).

In implementing primary health care in 52 projects assisted by AID (American Public Health Association, 1982), it was found that some improvement of health status of target population in Egypt/SHDS has lowered infant mortality rates by half in test villages by using oral rehydration therapy; Kenya/Kitui has reported reductions in infant mortality rates; and Panama/RHDS has registered decreases in the incidence of diarrhea, parasites, and typhoid in areas where safe water and excreta disposal systems have been built.

Development of Sanitary Latrine Program in Thailand

During 1960-1976, the strategy of the Ministry of Public Health was based on the establishment of a "sub-district committee for sanitation development" through the country. Thus committee, consisting of a chief of the subdistrict, a village headmen, a senior monk, a school principal, and a representative, villager served as a base unit to accept technology transfer (sanitary latrine construction) from

government officers and then transfer such technology to other villagers.

During 1977-1981 (Fourth National Social and Economic Development Five-Year Plan) the Ministry of Public Health emphasized a strategy of "community self-reliance", focusing on technology transfer by villagers to villagers. "Village craftsmen" were recruited in the villages and trained to help in the construction of sanitary latrines and as mediators (communicators) between villagers and government health officers. At the end of the Fourth Five-Year Plan, the Ministry of Public Health adopted the policy of the World Health Organization, "Health For All by the Year 2000," emphasizing community participation. Moreover, a priority was set for the provision of safe drinking water and sanitation under the title of "The International Drinking Water Supply and Sanitation Decade (1981-1990)". The Ministry of Public Health also included that priority in the Fifth National Social and Economic Development Five-Year Plan. During this plan (1982-1986), "community participation" was useful as a key strategy for sanitation development. As part of this policy establishment of the sanitation fund was encouraged and role of a health officer was changed from being a provider to a facilitator of community astron (Sanitation Division, 1988).

As part of the Fifth Five-Year Plan, the Ministry of Public Health, realizing the importance of the local leader who will be the link between villagers and the health worker, arranged a training program for sub-district committee members. Following the orientation training, the trainees returned to their sub-districts to encourage and assist on village sanitation improvement.

Sanitary Latrine Promotion Strategy in Thailand

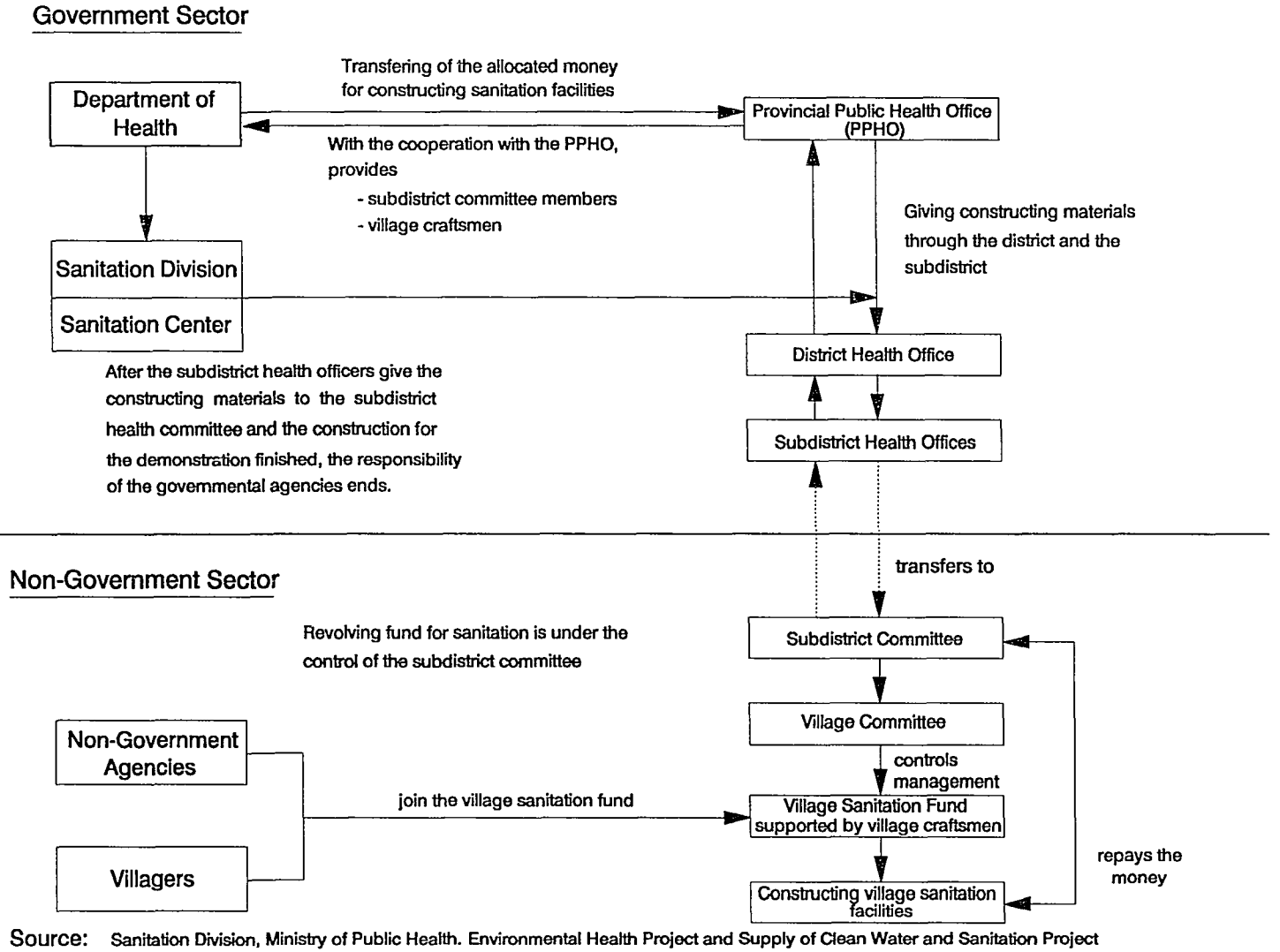
In this section the five strategic initiatives of the national sanitary latrine promotion program which provide the framework for this study are further described.

1. Sanitation Fund

A primary restaining factors in sanitary latrine construction is the economic limitation of the Thai villagers (Suchamnong, 1970; Sermsri, 1982). To cope with this problem, sanitation funds are establishing. The fund is established by villages and managed by the committee which functions under supervision of the sub-district. The primary intention is to help the poor.

To better understand this process, the organization chart is shown in Figure 2.1 At the

Figure 2.1 Organization Chart of Thailand Village Sanitation Fund



Source: Sanitation Division, Ministry of Public Health. Environmental Health Project and Supply of Clean Water and Sanitation Project for the Fifth Public Health Development Plan (1982-86). Annex p.7-9.

provincial level, the Provincial Public Health Office grants permission for the village sanitation improvement project, and provides a budget equivalent to the cost of sanitation construction materials (sanitary latrine, water tank, jumbo jar, etc.) through the sub-district committee. The sub-district committee finally encourages the village committee to establish a sanitation revolving fund.

The loan from the government for the development of sanitation activities is provided in the form of materials for the purpose of construction demonstration. After receiving these materials, the villager who accepts the demonstration construction (such as construction of a sanitary latrine) has to repay the loan to the village committee as cash equivalent to the cost of the materials In order to comply with the national policy to increase the latrine coverage, the Sanitation Division, encourages village committees to use this accumulated cash to set up a sanitation fund. This suggestion is "not compulsory". Each village has its own strategy for increasing the village sanitary latrine coverage.

The successful village drug cooperatives were used as a model for the sanitation fund (Ministry of Public Health, 1988). Members of the sanitation fund are able

to borrow money from the fund for sanitary latrine construction and pay back the full amount to the sanitation fund committee. Other members on the waiting list take their turns in borrowing the money for constructing sanitary latrines.

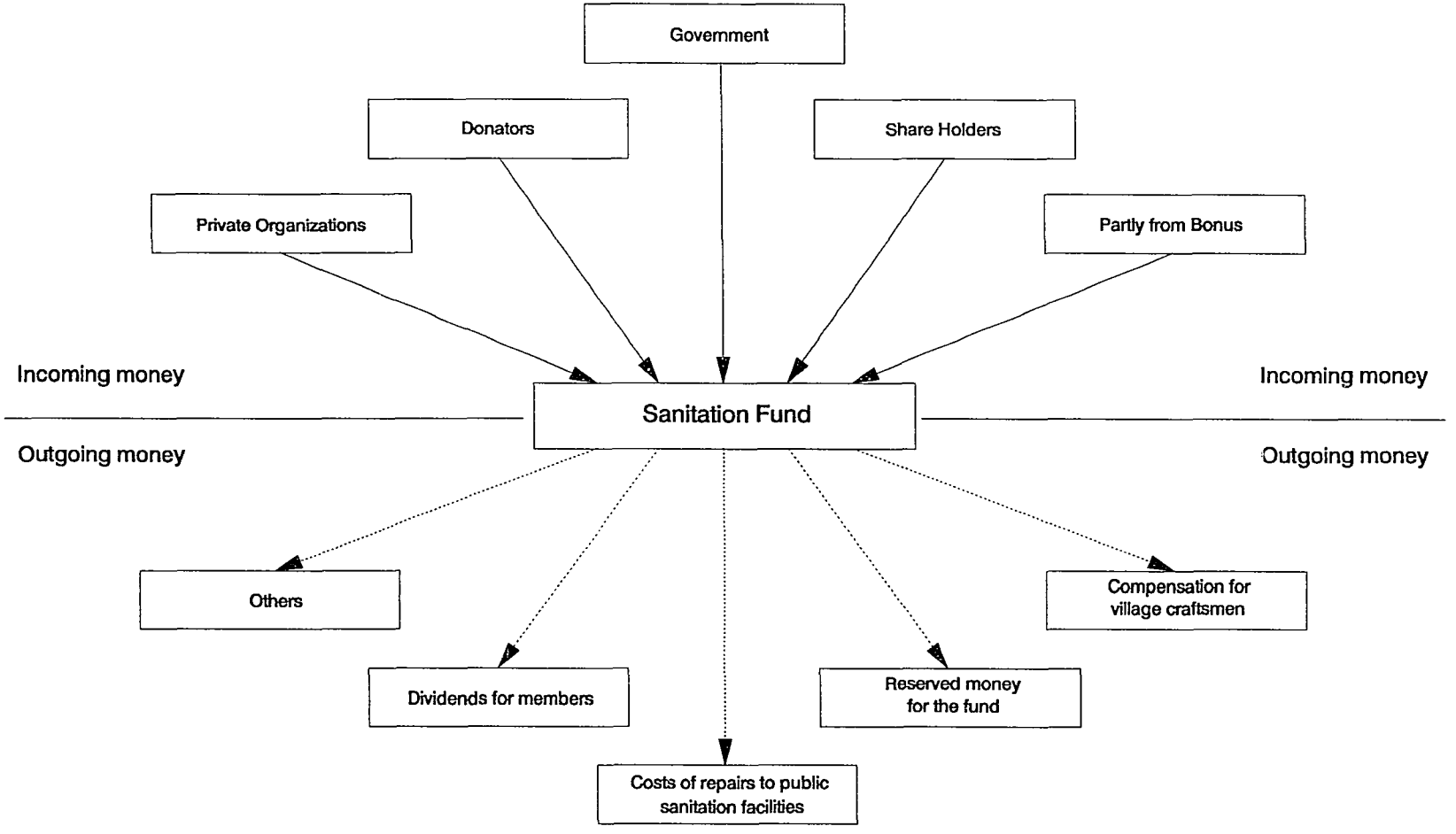
Sanitation fund money is raised by selling shares to villagers, money donated by religious ceremonies, and individuals and other non government sources. Funds may also be provided in the government budget. Since the funds are from both government and non-government organizations and the management of the sanitation fund is under the village committee, it is necessary that the sanitation fund should show a profit and at the same time offer some benefits to the sanitation fund members to make the sanitation fund sustainable and effective.

The expenses of the fund include: dividends for members, the reserve for the fund, compensation for village craftsmen, and repair costs for public sanitation facilities (see Figure 2.2).

2. Village Craftsmen

The second major barrier to increasing village sanitary latrine program is trained manpower. In Thailand, the importance of using local manpower for health development activities is well recognized. In light of this, the strategy of using "village

Figure 2.2 Chart Showing Incoming and Outgoing Money of the Sanitation Fund



Source: Sanitation Division, Ministry of Public Health. Environmental Health Project and Supply of Clean Water and Sanitation Project for the Fifth Public Health Development Plan (1982-86). Annex p.8.

craftsmen" for construction sanitation activities is promoted. Local villagers who have some background in construction skills such as a carpenter or mason are recruited for the latrine promotion project. They are usually 20-45, literate, a resident of that village, willing to work for sanitation activities, and devoted to their community. These representatives are furthertrained in technical skills in giving information to other villagers about the village sanitary latrine promotion program.

3. Community Participation

According to the Fifth Five-Year Plan, the Ministry of Public Health places emphasis on community participation in promoting latrine construction. This is in keeping with the approach stressed in the primary health care concept. It is universally recognized. As discussed earier that community participation is a crucial factor for the success of sanitary latrine development (Department of Health, 1988). The community is responsible for formulating its own development plan and operating self-managed projects such as village sanitary latrine program, etc. (Ministry of Public Health, 1988). Moreover the community participation in terms of manpower (participate in constructing sanitary latrine) and financing (become as sanitation fund membership),

participate in attending village sanitary latrine program meeting in order to making decision, are emphasized.

4. Public Awareness

Effective communication is an essential component of health prevention and promotion. In Thailand, villagers are informed about the village sanitary latrine program through village meetings. In addition, the Sanitation Division, Ministry of Public Health offers health education to villagers about the importance of sanitary latrines and the relation between having latrines and excreta-related diseases through various means; for example: mass communication (radio and television, posters, and pamphlets), interpersonal communication, and mobile units.

5. Primary Health Care Philosophy

In 1977, the goal of "Health for All by the Year 2000" was declared by all the member states of World Health Organization. At the Alma Ata conference on Primary Health Care in September 1978, Primary Health Care was accepted as the appropriate strategy to ensure better health for the global population (Nondasuta, 1981).

In Thailand, Primary Health Care was adopted as the key strategy for health development in 1978

(Ministry of Public Health 1988). In December 1979, the National Seminar on Health for All by the Year 2000 was conducted for primary health care activities. Adequacy of safe water and basic sanitation were combined and listed as one element (Ministry of Public Health, 1985).

Primary health care makes maximum use of local resources and promotes personal and community self-reliance to ensure that health care remains affordable and accessible (Pyle, 1982).

There is a plan calling for the reorientation of the role of the people from one of "acceptor" or "recipient" to one of "initiator" or "actor" (Ministry of Public Health, 1988). The role of the health officials corresponding should change from one of "provider" to "facilitator". Using local resources (materials) as "appropriate technology" for constructing sanitary latrine is also promoted.

Problems of the Strategic Initiatives

In the implementation of the program in Thailand, six major problems have been identified.

1. Lack of community participation in terms of matching sanitation funds (Sanitation Division, 1986; Reserach and Development Center and Sanitation Division, 1990). Reduces the money for the revolving

fund and does not leave sufficient funds for loaning to new sanitation fund members to construct sanitary latrines.

2. Sanitation fund committee members are not competent in managing the sanitation fund effectively (Reseach and Development Center and Sanitation Division, 1990).

3. The purpose of the sanitation fund is to help the poor villagers to have the opportunity to construct sanitary latrines, but in reality it does not do so. The villagers with middle income status have a better chance to borrow money from the sanitation fund to construct sanitary latrines (Research and Development Center and Sanitation Division, 1990).

4. The village craftsmen feel that they do not have sufficient knowledge about sanitation work. They feel that they were taking time from their normal occupation and they also feel unhappy about the wages paid for their job (Research and Development Center and Sanitation Division, 1990).

5. Lack of dissemination of information about the concepts and benefits of the sanitation fund by sanitation fund committee members leads to the lack of self-reliance for village sanitary latrine development

(Research and Development Center and Sanitation Division, 1990).

6. Health officers do not consider the village sanitary program as an important program (Research and Development Center and Sanitation Division, 1990). There is a lack of support and supervision from health officers to village craftsmen (Sanitation Division, 1985).

Relevant Behavioral Science Concepts

This final section reviews three social science areas which provide the conceptual foundation for this study.

The material is classified under three headings and is primarily a review of the source of and brief summary of those dimensions of behavioral science which focus on: perception, values, and adoption of new behaviors.

Perception and Behavior

Human perception is defined by Jones and Gerand (1967) as the kind of mental activity involved in recognizing, knowing and understanding events and objects in our immediate environment. The object or event in the immediate environment -the "stimulus input"- is transformed through perceptual processes into a cognition, which is a bit of knowledge or understanding (Tan, 1984). It is a process by which

people become aware of internal and external messages and interpret these messages into meanings (Kreps and Thornton, 1980). Interpretation requires memory and recall, it often involves an evaluation process. Individuals have their own way for selective perception and perceived messages differ widely, even among those in the same situation (Taylor, 1980). We tend to perceive and interpret events within a framework of our own needs and values. It is therefore follows that understanding of how government proposals are perceived and decisions made to act on them is an important consideration for planners.

In order to understand 'behavior'(equivalent terms 'actions' and 'practices') which plays so important a role in disease prevention and control process of the most health problems (Hubley, 1988), sociologists, psychologists and anthropologists have proposed theories and models explaining factors that influence behavior.

The kind of behavior related to health which is most permanent and self directed is that which results from an internalization process. Through the internalization process, a concept is formed that influence direction to the individual's behavioral patterns (Bedworth and Bedworth, 1978). The idea that

what people believe about their health behavior influences what they do about it is that great importance (DiMatteo, 1982). People normally perform a given behavior if they see that it will provide some benefits. The interpretation of "benefit" may vary widely from person to person and culture to culture.

Value

Values as defined by Rokeach (1973), are an enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence. They provide people with a meaning for their behavior that relates to some larger meaning for their lives (Rokeach, 1975).

A value is one kind of belief which is either prescriptive or proscriptive. Its components are (Rokeach, 1973) cognitive, affective and behavior.

Values are assumed to motivate health behavior by providing a reason or rationale for behavior that transcends one's own short-term beliefs about comfort or gain. Some writers regard values and needs as equivalent. Maslow (1959) refers to self-actualization both as a need and as a higher-order value.

In some respects the properties of a value and of a need are similar. A person may want to do something

but also feel that he ought to do it, since a value is not only a belief about what he ought to do but also a desire to do it (Rokeach 1973). Therefore, knowing a person's values should enable us to better understand how he may behave in various life situations (Rokeach, 1973).

Though many studies have dealt with change in knowledge of health and beliefs which have change as a result of interventions, studies of value changes influencing behavior have been less clear (Gochman, 1988). Three aspects that Gochman (1988) suggested for value change are:

1. "Benefit" that they derive from the life-style and behaviors with which they have become comfortable. It is difficult to persuade persons to give up a behavior or make major changes in the way they live when the benefits of this changes are unknown.

2. "Source of values" that are obtained from our culture, science, religion, and personal experience. Sometimes, information about value differs between these sources, requiring that individuals make choices to guide their behavior. Individuals may make behavioral choices that appear inconsistent with respect to their value of health. These inconsistencies may reflect conflicts in information between source of values and, hence, the individual's ambivalence about

how total health is valued.

3. "How individual learned" their values about health. Attempts to change values using the same approach in which the values were learned may have an opposite effect, especially if the conditions that surrounded the initial learning are now different.

Adoption of New Practices

This concept had been discussed by many authors (Rogers, 1983; Beal, 1958). For the purpose of this study, Lionberger's material (1958) provides the most suitable discussion context.

Lionberger explain a process of adoption which moves through a series of five stages:

1. Awareness- the first knowledge about a new idea, product or practice;

2. Interest- the active seeking of extensive and detailed information about the idea, to determine its possible usefulness and applicability;

3. Evaluation- weighing and sifting the acquired information and evidence in the light of the existing conditions into which the practice would have to fit;

4. Trail- the tentative trying out of the practice or ideas, accompanied by acquisition of information on how to do it;

5. Adoption- the full scale integration of the

practice into the on-going operation.

Time between the initial information and final adoption if it occurs, varies considerably by person, place , and practice.

Source of information vary in relation to both the "stage" of adoption the person is in and to his relative "position" in the adoption cycle. At the awareness stage, the most frequent source of information is mass-media newspaper, magazine, radio, television. At the interest stage, the mass media and other villagers rate high as information sources, but for somewhat different reasons than at the awareness stage. Various health agencies are likely to be important at this second stage, particularly for early adopters and in connection with practices involving changes in techniques.

For the "how do I apply it?" questions arising at trial stage, several sources are most frequently used.

Finally at adoption stage, when the person has decided in favor of continued use of a new idea or practice, self-satisfaction and the satisfaction of others to whom he often refers are most important.

Lionberger also pointed out that individuals are important information sources. They provide initial knowledge of the practice, definite advice as to the course of action to be taken, or reinforcement of

decision already made. He even mentioned "key communicators" (opinion leaders, local leaders, adoption leaders, informal leaders, or communicators) who are defined in terms of high mentions received in response to question regarding persons as sources of information used for general or specific purposes.

In Mozambique, the improved latrine program found that the most important source of information about improved latrine were the existing users, together with the 'grupo dinamisadore' the local political authority.

These concepts, it must be emphasized, were first developed from an examination of North American behaviors in the field of agriculture. Although they have had some useful application in relation to problems in other countries, their application to rural sanitation in Thailand cannot be applied without considerable attention to their relevance to cultural and socio-economic differences.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the research methodology employed in this study. It includes a discussion of the research design, research sampling methods, population and sample size. It also describes methods used for data collection, the field survey administration, the design of the structured interview schedule and the pretest for validity and reliability. Finally, the scales of measurement, operational definitions of variables, and the data analyses are discussed.

Research Design

This study utilized a cross-sectional survey research design in order to determine the relationship between five strategic initiatives utilized in promotion of sanitary latrine construction and the values of the initiatives as perceived by heads of households in the rural area of Thailand. A structured interview was the primary data collection instrument. An informal in-depth interview strategy was employed

prior to the field survey in order to strengthen the validity of the structured interview schedule which was the primary data collection instrument.

Research Sampling Methods

Surin province, situated in the northeast region of Thailand was selected as a research site based on the officially reported low coverage rate of sanitary latrines (36 percent of households). Moreover, Surin Province showed the highest morbidity rate of diarrhea (Provincial Public Health Office, Surin Province, 1988) among all diseases in the province.

A multistage random selection process was chosen as the sampling technique for this study. Surin province is comprised of 13 districts. From Surin province, the sanitary latrine coverage at the district level was classified into three levels: high, medium, and low (five, three, and five districts respectively) by using the following criteria:

$X > (\bar{X} + .5\ SD)$ = high

$X = (\bar{X} + .5\ SD)$ = medium

$X < (\bar{X} + .5\ SD)$ = low

Where $\bar{X}$ = mean of village sanitary latrine coverage

X = sanitary latrine coverage

A random selection of one district from five high and five low sanitary latrine coverage districts was made (Ratanaburi represented the high sanitary latrine district while the low was Sangla district). Two -subdistricts were randomly selected from each high and low coverage district (Nongboaban and Ravieng were the high subdistricts, while Tubtan and Janvan were the low subdistricts). Using the same pattern, five villages were randomly selected from the 2 high and 2 low subdistricts. Finally, 30 household heads were randomly selected from each village. A total of 307 household heads comprised as the sample size.

Unit of Analysis

In this study, the unit of analysis employed, represented the household level, where the head of each household or his/her representative was interviewed, and the village level, where secondary data was collected from government reports of the operational presence or absence of the sanitation fund and village craftsmen initiatives.

Population and Sample Size

Heads of households with age ranging from eighteen to sixty years were the respondents for this study. The sample size used (n = 307) was judged to be

sufficiently large to detect statistically significant differences in means of d = .30 with a significance criterion of $p<.05$ and a power level of .96 if they in fact exist in the data. Correlations greater than r = .20 can also be detected with a criterion significance level of $p<.05$ and a power level of .94. Multiple regression analyses can be performed and statistically reliable chi-square results detected if the r-square value is greater than .10, given $p<.05$ and a power level of .94. The use of this sample for multiple regression of discriminant function analyses will produce stable coefficients provided that no more than 30 independent variables or categories of discriminators are introduced to the analyses (Cohen, 1977; Kraemer and Thiemann, 1987).

In summary, the sample used in this survey is sufficiently large to detect statistically reliable results if they indeed exist. The results should be considered as robust in light of the analyses performed and there are sufficient cases for the bivariate contingency table analyses that will be used.

The Interview Schedule and Pretest

Based on the literature review of theory and research findings, the in-depth interview, field

observations, and some suggestions from five experts in the sanitation field, the first structured interview schedule with closed-ended questions was developed.

The first pretest was applied to a sample of 30 household heads in one district which was similar in socioeconomic and cultural characteristics to the study areas. The main purpose for this pretest was to assess the content validity of the instrument including the suitability of wording, and length of sentences used. After the initial revision, a second round of pretesting of the structured interview schedule was undertaken with 50 household heads in another district of Surin province. The time spent for each interview was approximately 60 minutes. The purpose of this second pretest was to determine the reliability of the structured interview schedule. Cronbach's Alpha (Cronbach, 1951). Coefficient was calculated to determine the internal consistency of scaled data. Items found to make little or no contribution to reliability were eliminated. The whole questionnaire was then revised and reorganized. The final structured interview schedule consisted of closed-end questions relating to the framework for this study is found in Appendix A.

The structured interview schedule contained questions in four parts as follows:

Part 1 General Background of the Respondent

This part included questions concerning age, sex, marital status, education level, number of family members, occupation and family income.

Part 2 Sanitary Latrine Construction

This part contained questions concerning place of defecating, kind of sanitary latrine, location of sanitary latrine, number of year that sanitary latrine was built, and the reason for constructing or not constructing sanitary latrine.

Part 3 Strategic Initiatives

These questions assessed the perception of the value of each of the five strategic initiatives: namely, sanitation fund, village craftsmen, community participation, public awareness, and primary health care philosophy.

1. Sanitation fund. Measurement assessed to this strategic initiative included the heads of households' perception of sanitation fund management in terms of the availability (money for lending), and accessibility (feasibility gaining information and guidance from sanitation fund committee members), accommodation (schedule arrangement for consultation, loaning system), affordability (membership fee, returning the

borrowed money), and acceptability (efficiency of management of the sanitation fund committee members).

2. Village craftsmen. This strategy was measured by assessing the perceived of value of skills (technical construction skill), quality (constructing quality, suitable selection of village craftsmen), cost (wages paid to village craftsmen), and convenience (time available of village craftsmen).

3. Community participation. This referred to the perception of value of heads of households toward community participation related to sanitary latrine construction. White's scale of community involvement in water supply program (1978) was used as a guideline to set the questions and then modifying them into Thai to set the questions which were then modified to achieved cultural relevance. The value of community participation was measured in terms of participation in sharing the ideas, manpower, money, decision making, planning and implementation which related to the increase of village sanitary latrine coverage.

4. Public awareness. This referred to the perceived value of public awareness campaigns for heads of households towards the coverage of village sanitary latrines, the village sanitary latrine program, sanitation fund, village craftsmen relating to sanitary latrine construction. The channels which provided

information about village sanitary latrine program to heads of households were included.

5. Primary health care philosophy. This referred to the villagers' perception of the value of village sanitary latrine program as part of a broader concept of self-reliance, community involvement, the role of village health worker as facilitator, the use of existing local resources and appropriate technology for sanitary latrine construction.

Data concerning problems perceived in the sanitary latrine construction program were solicited as the final part of each interview.

Each section of the perception of the value of the measured, problems involving the implementation of these five strategic initiatives were solicited.

Presence and Absence of Strategic Initiatives at the Village Level

This part refers to the analysis of the operational presence or absence of the strategic initiatives. Sanitation fund and village craftsmen initiatives were measured at the village level. Data were collected from the official records containing this information.

Variables Studied and Scales of Measurement

As described earlier, in this study, the dependent variables were related to the level of sanitary latrine construction among rural people. Independent variables that might affect the level of sanitary latrine construction of villages, were the value given by household heads to the five strategic initiatives, namely the perception of value of the sanitation fund, perception of value of the village craftsmen, the perception of value of community participation, the perception of value of public awareness and the perception of value of the primary health care philosophy.

The designation and the scales of measurement of variable used were as follows:

The Perception of the Value of Sanitation Fund

This variable was measured as the heads of households perception of the value of the sanitation fund management in terms of availability, accessibility, accommodation, affordability, and acceptability. The statements were formulated on a three point Likert-type scale covering both positive and negative statements. The responses to the statements were "Agree", "Uncertain", and "Disagree". Positive statements were coded 3 for "agree", 2 for

"uncertain", and 1 for "disagree". For the negative statements, each item was coded in the opposite direction.

The Perception of the Value of Village Craftsmen

The perception of the value of village craftsmen was measured in terms of the "satisfaction" toward village craftsmen. The statements were formulated on a three point Likert-type scale. Scales for measurement were the same as those used for the perceived value of the sanitation fund.

The Perception of the Value of Community Participation

This variable included the heads of households' perception of the value accorded to the participation of the community in the village sanitary latrine program. Scales of measurement were the same as for the perceived value of the sanitation fund.

The Perception of Value of Public Awareness

The perceived value of public awareness was determined by responses to the questions relating to knowledge and understanding of the program. Scales of measurement were the same as for the perceived value of the sanitation fund.

The Perception of Value of the Primary Health Care Philosophy

This variable was measured in relation to the householders knowledge and acceptance of the primary health care philosophy. Scales of measurement were the same as for the perceived value of the sanitation fund.

Data Collection

This study employed an interview format in a field setting. Before developing questionnaires, a qualitative approach in terms of an in depth interview technique was used to increase an understanding of the problem situation and to help development of the standardized questionnaire. A survey form to collect the presence or absence of strategy initiatives for the village sanitary latrine program was also developed. The village headman completed the presence and absence questionnaire forms. One month was used for data collection with the structured interview schedule. The questionnaire was tested by using the Spearman Brown's Split Half Method to determine discriminating power of the instrument. The pretest was carried out in a district with similar socioeconomic and cultural background, and also similar high and low rate of

sanitary latrine coverage. Questionnaire revisions were done in order to develop an appropriate questionnaire under the supervision and acceptance of the 5 experts in health policy planning and the sanitation field. In order to investigate the presentation of strategic initiatives for village level, a presence or absence of strategic initiatives (sanitation fund and village craftsmen) was developed for checking and recording.

Training of Interviewers

Six undergraduate students residing in Surin province with majors in health education from the Health Education Department of the University of South E-Sarn, Surin, Thailand, were recruited and trained as interviewers. A graduate student from the Health Education Department, Faculty of Public Health, Mahidol University, a native Surin served as a supervisor. A one-day in-class training session in basic interview techniques was conducted by the researcher at the Department of Health Education, University of South E-Sarn. In this session, all interviewers were informed about (1) the current situation of the sanitary latrine construction of villagers, the five strategy initiatives (sanitation fund, the village craftsmen, community participation, the public awareness and

primary health care philosophy) (2) the specific objectives of this study, (3) the data collection process and its quality control (4) interviewing techniques and (5) the schedule and the self preparation needed prior to the survey in the real setting. All items in the interview schedule were reviewed step by step to make sure that all interviewers clearly understood the content of the questions and the flow of the questionnaires. In order to gain familiarity, the interviewers also tested the questionnaire with each other, using the local dialect. A one day practice field experience in the actual setting was then carried out under the supervision of the investigator. After this practice, a discussion session was held at the Department of Health Education in order to help resolve the problems and difficulties of the interview.

Field Survey Administration

The research team consisted of a supervisor, a field director and five interviewers. Each member of the team was assigned five to six interviews a day. The completed questionnaires were examined for completeness each day. Group discussions among interviewers and the director about problems and errors

occurring in the interview process were also addressed daily.

Data Management and Analysis

The structured interview schedules were completed for 307 heads of households. All coding was carried out after all questionnaires were checked for completeness. Data from the coding sheet were then transferred to a computer for data processing. After data were verified through a computer program, they were analyzed as follows:

1. Descriptive statistics such as the mean, and the standard deviation, were computed to describe the socio-demographic features of the sample.

2. The chi-square technique was used to identify statistically significant relationships between the presence or absence of the sanitation fund and the village craftsmen and the level of construction of sanitary latrines in the high and the low sanitary latrine coverage villages.

3. The Paired T-test technique was used to examine the difference of perception of the value of the five strategic initiatives.

4. Pearson correlations were calculated to analyze the strategic initiatives with sanitary latrine

construction for households in high versus low sanitary latrine coverage villages.

5. Finally, a stepwise discriminant analysis was conducted to determine the linear combination of the five strategic initiatives, that would maximally discriminate between the heads of households from high and low sanitary latrine coverage villages.

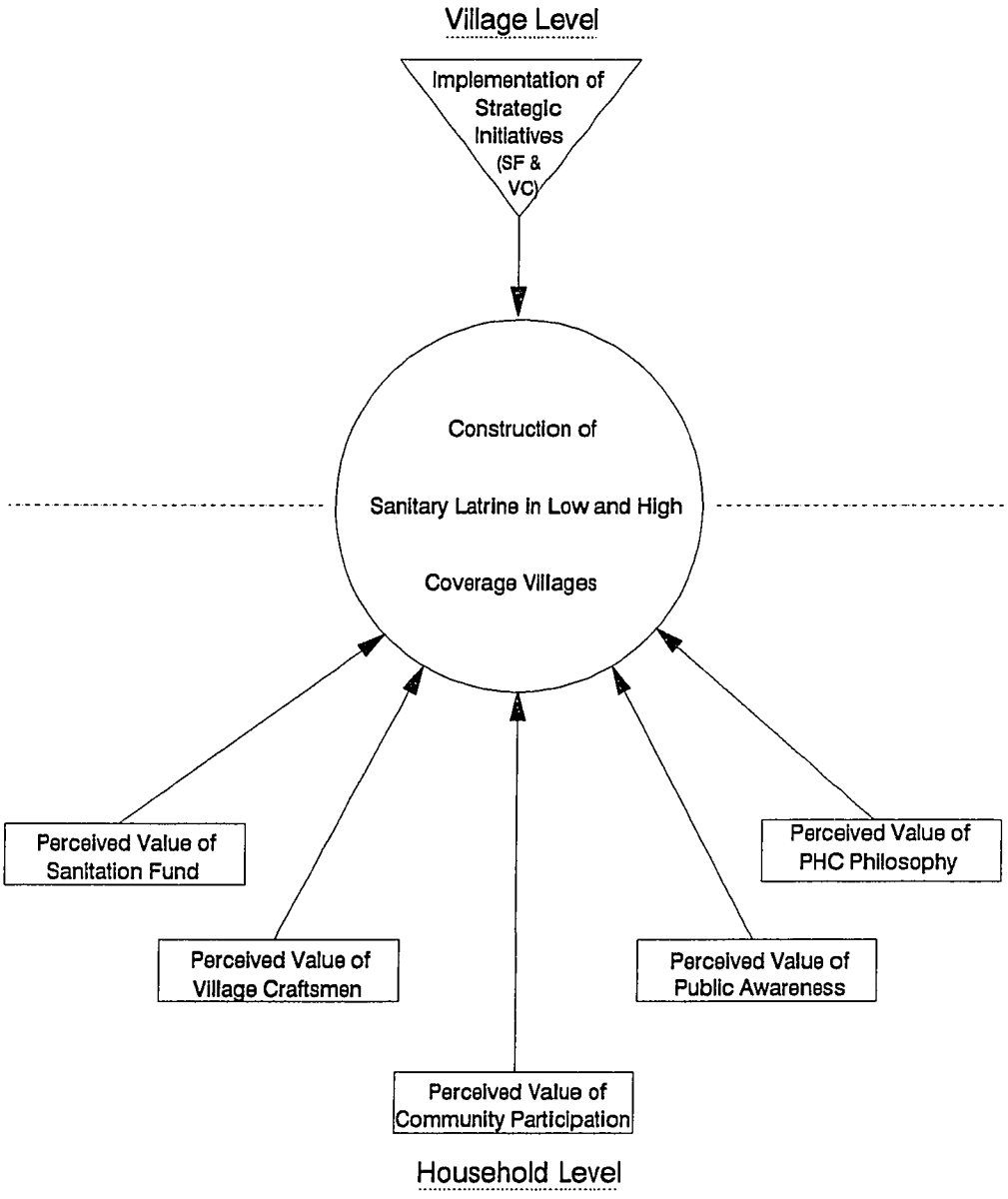
Framework for the Study of Sanitary Latrine Promotion

We know that the rate of national sanitary latrine coverage still has not reached its target. The Royal Thai Government has approached this problem by introducing five strategic initiatives in order to increase the rate of sanitary latrine coverage. It is necessary to now critically assess the effectiveness of these strategic initiatives have had on sanitary latrine construction. This study realizes that behavioral factors effect adoption practice, therefore such value, perceptions, and adoption were included for the measurement.

There were two units of analysis in this study, village and household level. At village level, presence or absence of strategic initiatives (sanitation fund and village craftsmen) were

independent variables while level of sanitary latrine coverage among Surin villages was the dependent variable. For the household level, five perceptions of the value of the strategic initiatives (sanitation fund, village craftsmen, community participation, public awareness, and primary health care philosophy) were assigned as independent variables and the dependent variable was the same as at the village level, which was the level of sanitary latrine coverage (in high and low coverage villages). (see Figure 3.1)

Figure 3.1 Framework of the Study of Sanitary Latrine Promotion Program



Note:

SF = Sanitation Fund
VC = Village Craftsmen

Hypotheses

The study design and analysis was oriented around seven hypotheses, described as follows:

Village Level

Hypothesis 1

There is a positive association between implementation of policy strategic initiatives (sanitation fund and village craftsmen) and level of sanitary latrine coverage among Surin villages.

Household Level

Hypothesis 1 A

The perceived value of the sanitation fund will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in he high coverage villages will perceive a higher value of the sanitation fund).

Hypothesis 1 B

The perceived value of the village craftsmen will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in the high coverage villages will perceive higher value of the village craftsmen).

Hypothesis 2

The perceived value of community participation will vary positively with the level of sanitary latrine coverage among the villagers. (The heads of households in high coverage villages will report higher community participation.)

Hypothesis 3

The level of public awareness will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in high coverage villages will report higher public awareness).

Hypothesis 4

The perceived value of primary health care philosophy will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in high coverage villages will report higher value of primary health care philosophy.)

Hypothesis 5

Among facilitating influences, the perceived value of community participation will be the most important

factor for the level of sanitary latrine coverage among Surin villagers (heads of households).

Limitation of the Study

The limited dimensions of the study clearly limits generalizability beyond Surin Province. It is assumed however, that the insights which the Surin analysis may stimulate can be a basis for considerations in similar areas of Thailand and may serve as a first step toward a more extensive examination of the behavioral variables studied.

It is also recognized that the study of such qualitative phenomena as perceived values cannot be expected to produce data at the same precision as more concrete variables and prompts need for considerate caution in interpretation of the findings without further similar studies.

Due to the limitation of the budget used in this investigation, generalizations of the findings in this study can be applied to Surin Province only. Nevertheless, it is hoped that certain aspects of the findings can be applied to policy planning in other settings. Since this study concentrates on perception of heads of households towards the five strategy initiatives, the some questions may be too abstract for these households heads to response accurately, even

though the survey instrument had been developed carefully for its reliability and validity.

CHAPTER IV

RESEARCH FINDINGS

This chapter presents the findings of the study. The data presented include the socio-demographic characteristics of the sample, percentage of sanitary latrine construction, reasons given for the decision to construct or not construct a sanitary latrine, and data related to perceptions of the value of the sanitary latrine construction strategic initiatives, namely: the value and management of the sanitation fund; the development and participation of the village craftsmen; value and role of community participation; the development value of public awareness, and awareness of the primary health care philosophy. Descriptive data related to these five strategic initiatives are shown. Statistical analyses of associations between variables, mean differences and Pearsonean correlation coefficients and Discriminant Function Analyses are presented to determine strategies affecting the construction of sanitary latrines.

General Findings

Socio-demographic Characteristics of the Sample

The study sample included 307 heads of households, of which 153 households were from villages with high sanitary latrine coverage and 154 households from villages with low sanitary latrine coverage*. The data were collected from 10 villages in Surin province by interviewing heads of households or, if unavailable, their representatives.

The demographic characteristics are presented in Table 4.1. Almost three-fourths of the sample (74%) were males. For low coverage villages, males were 80 percent of the sample and 68 percent in high coverage villages). The average age of respondents was 41 years. The majority of heads of household (90%) were married and had an average family size of 5 persons. Most of heads of households (85%) had finished the elementary school (grade 4). However, about three-fourths (71%) of the sample was literate. Nearly all of heads of household (95%) reported their main occupation as farmers with average annual family income of 22,000 Baht (approximately US $865.00) which was low

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* Sanitary latrine coverage was rated by village, then subdivided into high and low groups according to methods described in chapter III.

Table 4.1

Sanitary Latrine Construction by Socio-Demographic Characteristics of Village Sample(%)

Socio-demographic Characteristics	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Sex:			
Male	79.7	67.5	73.6
Female	20.3	32.5	26.4
Age:			
< 24	3.3	5.2	4.2
25-29	13.7	7.1	10.4
30-34	13.1	17.5	15.3
35-39	19.0	16.9	17.9
40-44	16.3	14.9	15.6
45-49	12.4	13.6	13.0
50-54	9.2	13.6	11.4
55-60	13.1	11.0	12.1
Marital Status:			
Married	90.2	90.3	90.2
Widowed	3.3	3.9	3.6
Divorced	1.3	0	.7
Separated	.7	0	.3
Single	4.6	5.8	5.2
Educational Level:			
No education	7.9	1.9	4.9
Lower than ele lev	12.5	3.9	8.2
Elementary level	78.3	92.2	85.3
Sec level and higher	1.3	1.9	1.6
Literacy:			
Literacy	71.9	70.8	71.3
Illiteracy	28.1	29.2	28.7
Family Size:			
More than 1	7.2	2.6	4.9
Three	6.5	8.4	7.5
Four	22.2	22.1	22.1
Five and over	64.1	66.9	65.5
Main Occupation			
Farming	94.8	96.1	95.4
Hired labor	4.6	0	2.3
Private Business	0	.6	.3
Government officer	.7	3.2	2.0
Family income/Baht/Year (25.50 Baht = US$1)			
Less than 4999	5.2	5.8	5.5
5,000- 9,999	15.0	17.5	16.3
10,000-14,999	19.6	16.9	18.2
15,000-19,999	7.8	12.3	10.1
20,000-24,999	17.6	24.7	21.2
25,000-29,000	5.2	7.8	6.5
30,000-34,999	5.2	5.8	5.5
35,000-39,000	5.2	1.9	3.6
40,000-44,999	7.8	2.6	5.2
over 45,000	11.1	4.5	7.8

in comparison to the national average income of 48,500 Baht (US $1,900.00). The higher income members of the

sample were persons who had gone to work in Saudi Arabia as laborers and those who had private businesses such as rice millers.

Sanitary Latrine Construction.

More than half of the heads of households (56%) utilized the sanitary latrine daily for excreta disposal. About one-third of heads of households from low sanitary latrine coverage villages (33%) and approximately four-fifths of the heads of household from high sanitary latrine coverage villages, (80%) daily disposed of excreta in the sanitary latrine (Table 4.2). About one-quarter of heads of households (27%) defecated in the field, with 37 percent of household heads residing in the low sanitary latrine coverage villages and 17 percent in the high coverage villages doing so.

Table 4.2

Location of Excreta Disposal by Heads of Households in High and Low Coverage Villages (%)

Place	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Sanitary Latrine	32.7	79.9	56.4
Field	37.2	16.8	27.0

Although all of heads of households in the high and the low coverage villages accepted that every household should construct sanitary latrine, only a little over half of the total sample (55%) had sanitary latrines. About one-third (31%) were in the low sanitary latrine coverage villages and almost four-fifths (79%) in the high sanitary latrine coverage villages (Table 4.3). Approximately three-quarters of sanitary latrines (74%) were located outside the houses. (Table 4.4)

Table 4.3

Sanitary Latrines Construction by Heads of Households in High and Low Coverage Villages (%)

Latrine Construction	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	30.7	79.2	55.0
No	69.3	20.8	45.0

Table 4.4

Location of Sanitary Latrine by Heads of Households in High and Low Coverage villages (%)

Location	Low Coverage Village n=47	High Coverage Village n=122	Total N=169
Inside	48.9	17.2	26.0
Outside	51.1	82.8	74.0

Reasons given by heads of household for constructing or not constructing sanitary latrines were varied (Table 4.5), with the main reason given being convenience (65%). Other reasons were to prevent gastrointestinal and parasitic diseases (41%), cleanliness (25%), and to follow the suggestion of the health officer (10%).

Table 4.5

Percentage of Reasons for Constructing Sanitary Latrines by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Convenience	78.7	59.0	64.5
Prevent of diseases	29.8	45.9	41.4
Cleanliness	17.0	28.7	25.4
Persuaded by sanitation fund com members	6.6	7.7	0
Follow health officer	2.1	13.1	10.1
No bush (place) available	8.5	4.1	5.3
Followed neighbors	0	4.9	3.6
Privacy	6.4	0.8	2.4
Improved social status	2.1	0	0.6
Others	6.4	4.1	4.7

The most important reason for not constructing sanitary latrines was lack of money (44%). More than half (69%) of those from low sanitary latrine coverage villages gave this reason whereas only about one-fifth (20%) of those from high sanitary latrine coverage

villages reported the same reason (Table 4.6). Moreover, only few household heads in both groups gave reason of lack of water.

Findings regarding the perceived value of the sanitation fund, village craftsmen, community participation, public awareness, and primary health care philosophy are shown in Table 4.7. Among the five strategic initiatives, community participation showed

Table 4.6

Reasons for Not Constructing Sanitary Latrines by Heads of Households in High and Low Coverage Village (%)

Reasons	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Lack of money	68.6	20.1	44.3
Lack of construct materials	5.9	1.3	3.6
Lack of water	1.3	0	0.7
No space	1.3	0	0.7
Lack of information about sanitary latrine	0.7	0	0.3
Others	4.6	0.6	2.6

(64%), followed by village craftsmen (62%), sanitation fund (57%), public awareness (57%), and primary health care philosophy (45%).

Table 4.7

Heads of Households by Level of Perception of the Value of Five Strategic Initiatives (%)

Level of Measurement	Low Coverage Village n=153	High Coverage Village n=154	Total n=307
Sanitation Fund			
Low	63.4	22.1	42.7
High	36.6	77.9	57.3
Village Craftsmen			
Low	45.8	29.9	37.8
High	54.2	70.1	62.2
Community Participation			
Low	51.0	21.4	35.2
High	49.0	78.6	63.8
Public Awareness			
Low	47.1	39.0	43.0
High	52.9	61.0	57.0
Primary Health Care Philosophy			
Low	52.9	57.8	55.4
High	47.1	42.2	44.6

Low : less than mean score of perception of value
High : greater than mean score of perception of value
Mean score for sanitation fund = 2.61
Standard deviation for sanitation fund = .33
Mean score for village craftsmen = 2.68
Standard deviation for village craftsmen = .34
Mean score for community participation = 2.61
Standard deviation for community participation = .21
Mean score for public awareness = 2.48
Standard deviation for public awareness = .22
Mean score for primary health care = 2.31
Standard deviation for primary health care = .27

Focusing on the low and high sanitary latrine coverage village differences, more heads of households from high sanitary latrine coverage villages had

positive perceptions of the value of the strategic initiatives than those from low sanitary latrine coverage villages except in the case of primary health care philosophy.

About three-quarters of the heads of households in the high sanitary latrine coverage villages (79%) gave positive responses towards community participation whereas only half of the heads of households in low group (49%) expressed positive perceptions. Using the same pattern, the perception of the value of various strategic initiatives of heads of households in high sanitary latrine coverage villages as compared to those in low sanitary latrine coverage villages were 70 percent to 54 percent for village craftsmen, 78 percent to 37 percent for sanitation fund, 61 percent to 53 percent for public awareness. In contrast, the perception of the value of the primary health care philosophy by heads of households in high sanitary latrine coverage villages (42%) was less than those in the low group (47%).

In Table 4.8, the means and standard deviations of each strategic initiative are presented for high versus low sanitary latrine coverage villages. The mean differences between high and low coverage villages were compared in this table using a paired t-test and the

statistical significance (p-value) is also presented.

In viewing the table, only the perceived value of the primary health care philosophy failed to achieve significance.

The range of responses for these variables was from 1.33 to 3 with the highest number being the most positive response. It should be noted that, with the exception of the primary health care philosophy, in all instances, the more positive perception was identified with the high coverage villages. In the case of the primary health care philosophy, there was no statistically significant difference in the mean responses, nor was there a substantive difference.

From the Table 4.8, using Pearsonean correlation coefficient analysis, it was found that there were statistically significant positive relationships between the perceived value of the sanitation fund, the village craftsmen, and the level of sanitary latrine construction: $r = .39$ ($p<.001$), and .21 ($p<.001$) respectively. There were also statistically significant positive relationships between community participation ($r = .15$)($p<.01$) and public awareness ($r = .16$) ($p<.01$). In contrast, there was no statistically significant relationship between perception of the value of primary health care philosophy between the high and the low sanitary

Table 4.8

Pearsonean Correlation and Differences
Between High and Low Sanitary Latrine Coverage of
Five Strategic Initiatives

Perceived value	High Coverage Village n=154	Low Coverage Village n=153	t	r
Sanitation Fund				
			***	***
Mean	2.76	2.45	9.35	+.388
Standard deviation	0.24	0.33		
Village Craftsmen				
			***	***
Mean	2.75	2.62	3.53	+.207
Standard deviation	0.32	0.35		
Community Participation				
			***	**
Mean	2.67	2.55	5.37	+.150
Standard deviation	0.17	0.23		
Public Awareness				
			**	**
Mean	2.52	2.44	3.10	+.157
Standard deviation	0.19	0.24		
Primary Health Care Philosophy				
Mean	2.32	2.32	0.06(ns)	-.055(ns)
Standard deviation	0.24	0.29		
	****			***
Combined				+.309

Note: ** = p<.01
*** = p<.001
**** = All perceived value scores summed

latrine coverage villages (r=-.06). When combined the perception of the value of the five strategic initiatives, there was a statistically significant positive relationship (r = .31) (p-<.001) between perceived value towards the five strategic initiatives and level of sanitary latrine coverage. It should be concluded that the higher household heads perceived the value of these five strategic initiatives the more likely they would construct a sanitary latrine.

Investigation of Hypotheses

The main purpose of this investigation is to determine if the success of sanitary latrine promotion had any relationship to the perceived value of the five strategic initiatives. Each initiative is explained in detail in previous chapters. Report of present and absence of strategic initiatives (sanitation fund and village craftsmen) was collected at the village level and those at the household level, data collecting by interview perceptions of the value of five strategic initiatives.

Of the seven hypotheses were proposed for this, 6 were supported by the analysis.

Village Level

Hypothesis 1

There is a statistically positive and significant association between implementation of policy strategic initiatives (sanitation fund and village craftsmen) and level of sanitary latrine coverage among the villages.

The implementation of strategic policy initiatives (sanitation fund and village craftsmen) were calculated for all 379 villages in the selected high and low coverage districts used in the study.

From the chi-square analysis, there was a positive and significant association between the implementation of strategic policy initiatives (sanitation fund and village craftsmen) and the level of sanitary latrine coverage among the villages ($P<.05$) (Table 4.9). Therefore this hypothesis was supported.

Table 4.9

Association Between Implementation of Policy Strategic Initiatives (Sanitation Fund and Village Craftsmen) and Sanitary Latrine Coverage

Strategic Initiatives	Low Coverage Villages n=202	High Coverage Villages n=177	Total N=379
Yes	83(41.1)	55(31.1)	36.4
No	119(58.9)	122(68.9)	63.6

$X^2 = 4.08$ ($p<.05$)

From Table 4.5, heads of households in the high coverage villages were found to be more aware of health information related to constructing sanitary latrines than in the low coverage area (high=46%, low=30%). This may relate to the work of the village headmen (Table 4.10) in coordination with the health officers in helping the household heads to be aware of the need to construct sanitary latrines (high=86%, low=81%).

Table 4.10

Source of Information of Village Sanitary Latrine Program by Heads of Households in High and Low Coverage Villages (%)

Source of Information	Low Coverage Village n=153	High Coverage Village n=154	Total
Village headmen	81.0	86.4	83.7
Village craftsmen	5.9	2.6	4.2
Neighbors	3.3	0	1.6
Broadcasting tower	2.0	0	1.0
Others	7.8	11.0	9.4

Household Level

Hypothesis 1 A

The perceived value of the sanitation fund will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in the high coverage villages will perceive a higher value of the sanitation fund).

According to the Table 4.7, the heads of households in the high coverage villages perceived a

higher value to the sanitation fund than the lower ones. Moreover, Table 4.8 also demonstrates that there were statistically positive ($r=.39$)($p<.001$) and significant differences ($p<.001$) in the perception of the value of the sanitation fund and level of sanitary latrine coverage between the high and the low villages. Therefore this hypothesis was supported.

Results from the item analysis of the perception of the value of "access" to the sanitation fund cluster showed that 84 percent (11 of 13 items) were statistically significant difference between the high and the low sanitary latrine coverage villages.

Relating to hypothesis 1 A, additional information which support the different perception of the value of the sanitation fund between household heads in the high and the low coverage villages are as follows: in table 4.11, heads of households from high coverage villages reported less problems related to sanitation fund management (5%) than the low one (24%).

Types of problems that the high group reported differently from the low ones were (Table 4.12) unfair in loaning system (high = 0%, low = 16%), lack of information related to sanitation fund (high = 0, low = 11%), including fund cheated (high =0, low = 8%).

Table 4.11

Reported problems with Sanitation Fund Management by Heads of Households in High and Low Coverage Villages (%)

Problem Existed	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	24.2	4.5	14.3
No	75.8	95.5	85.7

Table 4.12

Type of Problems of Sanitation Fund Management by Heads of Households in High and Low Coverage Villages (%)

Type of Problems	Low Coverage Village n=37	High Coverage Village n=7	Total N=44
Nonrevolving fund	51.4	57.1	52.3
Lack of follow up system	35.1	28.6	34.1
Unfair loan system	16.2	0	13.6
Lack of information related	10.8	0	9.1
Fund cheating	8.1	0	6.8
Others	13.5	14.3	13.6

All of heads of households in high coverage villages reported that information given from sanitation committee members was clear. The same response on the low coverage was made by 88 percent of those response (Table 4.13). Type of unclear

Table 4.13

Information Given by Sanitation Fund Committee Members to Heads of Households in High and Low Coverage Villages (%)

Information Given	Low coverage Village n=153	High Coverage Village n=154	Total N=307
Clear	87.6	100.0	93.8
Unclear	12.4	0	6.2

from the low ones were (Table 4.14) "regulating of borrowing system" (high = 0%, low = 53%), and "advantages of becoming the member of sanitation fund" (high = 0%, low = 21%).

Table 4.14

Types of Unclear Information Related to Sanitation Fund Management by Heads of Households in High and Low Coverage Villages (%)

Type of Unclear Information	Low Coverage Village n=19	High Coverage Village n=0	Total N=19
Regulations of the borrowing system	52.6	0	52.6
Advantages of becoming members	21.1	0	21.1
Financial situation of san. fund	15.8	0	15.8
Other	10.5	0	10.5

Though most of households in both areas agreed that sanitation fund helped the poor to have sanitary

latrines (Table 4.15), there still were complaints from both villages.

Table 4.15

Comparison of Responses to Questions of Extent to Which Sanitation Fund Helps Poor by Heads of Households in High and Low Coverage Villages (%)

Help	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Help	98.7	99.4	99.0
Not help	1.3	.6	1.0

As Table 4.16 shows the high coverage villages had fewer complaints (8%) than the low ones (28%). The low coverage villages complained more about (Table 4.17) lack of follow up regarding the pay back of money (low = 23%, high =17%) and lack of understanding about the management by the committee members (low = 12%, high = 0%). Whereas the high coverage villages complained more about different ideas among the committee members (high = 25%, low = 14%).

There were some differences regarding the clear answers given by sanitation fund committee members to heads of households (high =100%, low =91%) (Table 4.18).

Table 4.16

Complaints Concerning Sanitation Fund Management by Heads of Households in High and Low Coverage Villages (%)

Complaint	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	28.1	7.8	17.9
No	71.9	92.2	82.1

Table 4.17

Types of Complaints Toward Sanitation Fund Management by Heads of Households in High and Low Coverage Villages (%)

Type of Complaints	Low Coverage Village n=43	High Coverage Village n=12	Total N=55
Lack of Follow up pay back money	23.3	16.7	21.8
Different ideas among the committee members	14.0	25.0	16.4
Fund cheated by committee members	14.0	8.3	12.7
Lack of understanding the management by the committee members	11.6	0	9.1
Sanitation fund money were deposited in the bank	4.7	0	3.6
Others	32.6	50.0	36.4

Table 4.18

Comparison of Responses to Questions Concerning Clarity of Information of Sanitation Fund Committee Members by Heads of Households in High and Low Coverage Villages (%)

Answer Clearly	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	90.8	100.0	95.4
No	9.2	0	4.6

The unclear answers that the low group listed were "process of becoming sanitation fund members" (43%), "regulation of borrowing money" (21%), and "financial situation report" (21%) (Table 4.19).

Table 4.19

Comparison of Topics by Clarity of Information Given by Heads of Households in High and Low Coverage Villages (%)

Types	Low Coverage Village n=14	High Coverage Village n=0	Total N=14
Process of becoming sanitation fund members	42.9	0	42.9
Regulation of borrowing money from sanitation fund	21.4	0	21.4
Financial situation report	21.4	0	21.4
Other	14.3	0	14.3

Table 4.20

Assistance from Sanitation Fund Committee Members Related to Sanitary Latrine Construction by Heads of Households in High and Low Coverage Villages (%)

Assistance	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	80.4	81.2	80.8
No	19.6	18.8	19.2

Although the assistance from sanitation fund committee members related to sanitary latrine construction to heads of households was almost the same between the two areas (Table 4.20), types of assistance in term of buying construction materials showed the difference between the two groups (high = 54%, low = 38%) (table 4.21).

Table 4.21

Type of Assistance of Sanitation Fund Committee Members Offered for Construction of Sanitary Latrine by Heads of Households in High and Low Coverage Villages

Types of Assistance	Low Coverage Village n=123	High Coverage Village n=125	Total N=248
Buying construction materials	38.2	53.6	46.0
Motivating Neighbors to participate in the construction	29.3	28.0	28.6

Table 4.21 (Continued)

Giving technical consultation	23.6	20.0	21.8
Problem solving while constructing	7.3	11.2	9.3
Facilitating about transportation	3.3	7.2	5.2
Providing mason and carpenter help in construction	4.9	4.0	4.4
Others	13.8	5.6	9.7

Hypothesis 1 B

The perceived value of the village craftsmen will vary positively with the level of sanitary latrine coverage among Surin Villagers. (The heads of households in the high coverage villages will perceive higher value for the village craftsmen).

It was found that heads of households in the high coverage village perceived a higher value for the village craftsmen (Table 4.7). Table 4.8 also shows statistically positive finding ($r=.21$)($p<.001$) and significant differences ($p<.001$) in the perception of the value of the village craftsmen and the level of sanitary latrine coverage between the high and the low villages. It is concluded that this hypothesis was supported.

Regarding the item analysis of the perception of the value of the village craftsmen cluster, it was found that 55 percent (total = 11 items) were statistically significant difference in perceived "satisfaction" of village craftsmen's contribution

between heads of households in the high and the low sanitary latrine coverage villages.

Although both coverage villages accepted village craftsmen as the experts in sanitary latrine construction (Table 4.22), accepted the present recruitment procedure of village craftsmen (Table 4.23) and had no problem with village craftsmen related to sanitary latrine construction (Table 4.24); they still consulted (Table 4.25) and received a the clear consultation from the village craftsmen (Table 4.26). There were differences between the high and the low coverage villages in terms of the type of consultation on construction techniques (high = 78%, low = 63%), places to buy construction materials (high = 23%, low = 39%), and price of construction materials (high = 11%, low = 28%) (Table 4.27).

Table 4.22

Acceptance of Village Craftsmen
As the Experts in Sanitary Latrine Construction by
Heads of Households in
High and Low Coverage Villages (%)

Accept as Expert	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	90.8	84.4	87.6
No	9.2	15.6	12.4

Table 4.23

Problems of Recruitment of Village Craftsmen by Heads of Households in High and Low Coverage Villages (%)

Problem	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	2.0	3.2	2.6
No	98.0	96.8	97.4

Table 4.24

Village Craftsmen's Problem on Sanitary Latrine Construction by Heads of Households in High and Low Coverage Villages (%)

Problem	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	2.0	1.3	1.6
No	98.0	98.7	98.4

Table 4.25

Consultation Needs of Heads of Households to Heads of Households in High and Low Coverage Villages (%)

Need to Consult	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	93.5	96.1	94.8
No	6.5	3.9	5.2

Table 4.26

Comparison of Clarity of Consultation with Village Craftsmen by Heads of Households in High and Low Coverage Villages

Clear Consultation	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	95.4	99.4	97.4
No	4.6	.6	2.6

Table 4.27

Type of Consultation with Village Craftsmen by Heads of Households in High and Low Coverage Villages (%)

Type of Consultation	Low Coverage Village n=146	High Coverage Village n=153	Total N=307
Constructing techniques	62.6	77.7	69.9
Buying construction materials	38.8	23.1	31.2
Price of construction materials	28.1	10.8	19.7
Use of sanitary latrine	.7	4.6	2.6
Sanitary latrine maintenance	2.2	3.1	2.6
Others	6.5	.8	3.7

Hypothesis 2

The perceived value of the community participation will vary positively with the level of sanitary latrine coverage among the villagers. (The heads of households in high coverage villages will report higher community participation.)

From Table 4.7, heads of households in the high coverage villages perceived a higher value of community participation than the low coverage villagers. It was also found that there was a statistically significant positive relationship ($r=.15$) ($p<.001$) between the perceived value of community participation and level of sanitary latrine coverage (Table 4.8). Table 4.28 also indicated that all heads of households in both areas agreed that community participation was associated with village sanitary latrine construction. The result also showed the statistically significant differences towards the perceived value of community participation between the high and the low villages (p-<.001). Therefore this hypothesis was also supported.

Further analysis through an item analysis of the community participation cluster shows half of the items (total =12 items) were statistically significant difference between the high and the low coverage villages.

Additional information supporting the difference of perception of value towards community participation was as follows. In table 4.29 shows more consultation with village headmen in the high coverage villages (high = 94%, low = 75%). A major reason for not consulting between the high and the low coverage

villages were: "latrine topic was not related to village headmen responsibility" (high = 44%, low = 16%).

Table 4.28

Household Heads Perception Acceptance of Association between Community participation and Village Sanitary Latrine Construction by Heads of Households in High and Low Coverage Villages (%)

Association	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	100.0	100.0	100.0

Table 4.29

Comparison of Consultation with Village Headmen by Heads of Households in High and Low Coverage Villages (%)

Consultation	Low Coverage Village n=153	High Coverage Village n=154	Total
Yes	75.2	94.2	84.7
No	24.8	5.8	15.3

None of the household heads in the high coverage villages had ever been informed about village sanitary latrine programs, whereas there were some heads of households in the low coverage villages who had never be informed (low=11%. high=0%) (Table 4.30)

Table 4.30

Comparison of Reasons for Not Utilizing Consultation with Village Headmen by Heads of Households in High and Low Coverage Villages (%)

Types of topic	Low Coverage Village n=38	High Coverage Village n=9	Total N=47
Latrine topic was not related to village headmen responsibility	15.8	44.4	21.3
Not dare to consult	13.2	11.1	12.8
Never being informed about the project	10.5	0	8.5
Village did not pay attention to the village project	5.3	0	4.3
Lack of time	5.3	0	4.3

Table 4.31

Comparison of Consultation to Neighbors by Heads of Households in High and Low Coverage Villages (%)

Consultation	Low coverage Village n=153	High coverage Village n=154	Total N=307
Yes	79.1	92.2	85.7
No	20.9	7.8	14.3

In the high coverage villages, heads of households consulted more with their neighbors (high = 92%, low = 79 %) (Table 4.31) and the difference between the two areas in consulting with their neighbors was that the

sanitary latrine seemed to be the family topic. (high = 75%, low = 53%) (Table 4.32).

Table 4.32

Comparison of Reported for Absence of Consultation with Neighbors by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=32	High Coverage Village n=12	Total N=44
Family topic	53.1	75.0	59.1
No use to consult	12.5	16.7	13.6
Not important problem	12.5	8.3	11.4
Others	21.9	0	15.9

In becoming sanitation fund members, there were more members in the high coverage villages than the low ones (high = 84%, low =61%) (Table 4.33).

Table 4.33
Comparison of Sanitation Fund Membership by Heads of Households in High and Low Coverage Villages (%)

Member	Low Coverage Village n=60	High Coverage Village n=25	Total N=85
Yes	60.8	83.8	72.3
No	39.2	16.2	27.7

Reasons for not becoming sanitary latrine members rated highest by high coverage household heads were "lack of money" (high = 48%, low = 32%), "had sanitary

latrine already" (high = 32%, low = 10%) while the reason of "lack of detailed information" was most frequently chosen by low coverage household heads (low = 32%, high = 12%) (Table 4.34).

Table 4.34

Comparison of Reasons Reported for Not Becoming Sanitation Fund Members by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Lack of money	31.7	48.0	36.
No detailed information	31.7	12.0	25.9
Have sanitary latrine already	10.0	32.0	16.5
No benefit	10.0	0	7.1
Untrusted committee members	1.7	0	1.2
Others	15.0	8.0	12.9

Table 4.35 showed that in the high coverage villages, household heads helped others construct sanitary latrines more than in the low area (high = 86%, low = 58%). The differences between the high and the low areas in terms of their reasons for not helping others construct sanitary latrines were, the low coverage villages reported lack of time (low = 23%, high =14%), while the high coverage villages gave the higher frequency on unhealthy (high=14%, low =6%) (Table 4.36).

Table 4.35

Comparison of Extent which Respondents Assist in Sanitary Latrine Construction by Heads of Households in High and Low Coverage Villages

Help others	Low Coverage Village n=153	High coverage Village n=154	Total N=307
Yes	58.2	85.7	72.0
No	41.8	14.3	28.0

Table 4.36

Comparison of Reasons for Not Assisting Others to Construct Sanitary Latrine by Heads of Households in High and Low Coverage Villages (%)

Help Others	Low Coverage Village n=64	High Coverage Village n=22	Total N=86
No one ever asked for help	56.3	59.1	57.0
Lack of time	23.4	13.6	20.9
House owner should do it by himself	7.8	4.5	7.0
Unhealthy	6.3	13.6	8.1
Not interested in others business	1.6	0	1.2
Often not stay home	0	4.5	1.2
Others	4.7	4.5	4.7

Most of household heads (91%) participated in village sanitary latrine planning meeting, however, it was found that the those in the high group participate more (96%) than those in the low group (87%) (Table

4.37). Among household heads that did not attend the meeting reason were "no such meeting available" (30%), while half of the high group gave the reason of "it was the village committee members responsibility" (57%) (Table 4.38).

Table 4.37

Comparison of Participation in Village Sanitary Latrine Planning Meeting by Heads of Households in High and Low Coverage Villages (%)

Participation	Low Coverage Village N=153	High Coverage Village N=154	Total N=307
Yes	86.9	95.5	91.2
No	13.1	4.5	8.8

Table 4.38

Comparison of Reasons for Not Participating in Village Sanitary Latrine Planning Meeting by Heads of Households in High and Low Coverage Villages

Reasons	Low Coverage N=20	High Coverage N=7	Total N=27
No meeting	30.0	0	22.2
Being village committee responsibility	25.0	57.1	33.3
Lack of time	15.0	14.3	14.8
Do not know	15.0	14.3	14.8

The high group also showed higher participation in decision making (high = 84%, low = 69%) (Table 4.39).

Related to the reasons for not making decisions on village sanitary latrine programs, the high coverage villages reported that "it was the responsibility of sanitation fund committee members" (high = 36%, low = 21%), "no opportunity" (high = 28%, low = 13%), whereas in the low coverage villages it was reported that there was a "lack of opportunity to help" (low = 51%, high = 32%) (Table 4.40).

Table 4.39

Comparison in Participating in Decision Making on Village Sanitary Latrine Project by Heads of Households in High and Low Coverage Villages (%)

Decision making	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	69.3	83.8	76.5
No	30.7	16.2	23.5

Table 4.40

Comparison of Reasons for Deciding Against Sanitary Latrine Project by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=47	High coverage Village n=25	Total N=307
No opportunity	51.1	32.0	44.4
Being sanitation fund committee responsibility	21.3	36.0	26.4

Table 4.40 (Continued)

Not used to have decision making	12.8	28.0	18.1
Never attend the meeting	4.3	4.0	4.2
Others	10.6	0	6.9

Hypothesis 3

The perceived value of the public awareness will vary positively with the level of sanitary latrine coverage among Surin Villagers. (The heads of households in high coverage villages will report higher public awareness).

According to Table 4.7, household heads in the high coverage villages perceived a higher value of public awareness more than the low coverage villages. It was also found that there was a statistically significant positive ($r=.15$) ($p<.01$) and differences ($p<.01$) of the perception of the public awareness and the level of sanitary latrine coverage between the high and the low villages (Table 4.8). This hypothesis was supported.

The item analysis of the data showed that 69 percent (total = 16 items) were statisically significant differences between the high and the low sanitary latrine coverage villages.

Although both high and low coverage villages were similarly aware of village sanitary latrine coverage (high = 91%, low = 88%) (Table 4.41).

Table 4.41
Comparison of Awareness of Sanitary Latrine Promotion by Heads of Households in High and Low Coverage Villages (%)

Awareness	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Less than one forth	87.6	5.2	46.3
Half	6.5	3.9	5.2
More than three fourth	3.9	90.9	47.6
Do not Know	2.0	0	1.0

All heads of households in the high areas showed the higher score on the awareness of village sanitary latrine program (high = 100, low = 87%) (Table 4.42). For those who were unaware in the low coverage villages, the most frequent reason given was "no one informed them" (Table 4.43).

Table 4.42

Comparison of Awareness of Village Sanitary Latrine Project by Heads of Households in High and Low Coverage Villages (%)

Awareness	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	86.9	100.0	93.5
No	13.1	0	6.5

Table 4.43

Comparison of Reasons for Lack of Awareness of Village Sanitary Latrine Project by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low coverage Village n=20	High coverage Village n=0	Total N=20
No one informs	75.0	0	75.0
Only village committee members know	10.0	0	10.0
other	15.0	0	15.0

Similar sources of information about the village sanitary latrine program were reported for both areas, namely the village headmen (high = 86%, low = 81%) (Table 4.44).

Table 4.44

Sources of Information of Village Sanitary Latrine Project by Heads of Households in High and Low Coverage Villages (%)

Sources of information	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Village headmen	81.0	86.4	83.7
Village craftsmen	5.9	2.6	4.2
Neighbors	3.3	0	1.6
Broadcasting tower	2.0	0	1.0
Others	7.8	11.0	9.4

High coverage villages reported the higher awareness of the sanitation fund (high = 97%, low = 77%) (Table 4.45). Moreover, the source of information on the sanitation fund for both areas was the village headmen (high = 90%, low = 86%) (Table 4.46).

Table 4.45

Comparison of Awareness of Village Sanitation Fund by Heads of Households in High and Low Coverage Villages (%)

Awareness	Low Coverage Village n=153	High coverage Village n=154	Total N=307
Yes	77.1	96.8	87.0
No	22.9	3.2	13.0

Table 4.46

Comparison of Sources of Information of Village Sanitation Fund by Heads of Households in High and Low Coverage Village(%)

Source of Information	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Village headmen	86.3	90.3	88.3
Village craftsmen	3.9	1.9	2.9
Neighbors	0.7	0	0.3
Broadcasting tower	1.3	0	0.7
Others	7.8	7.8	7.8

Hypothesis 4

The perceived of value of the primary health care philosophy will vary positively with the level of sanitary latrine coverage among Surin villagers. (The heads of households in high coverage villages will report higher value of primary health care philosophy.)

The finding from Table 4.7 presents an opposite result towards the perceived value of the primary health care philosophy. The heads of households in the low coverage villages reported the higher value of the primary health care philosophy than the high group. The t-test in Table 4.8 shows no statistically significant difference between the two groups and also with no statistically significant correlation. Therefore, it is concluded that this hypothesis was not supported.

According to the item analysis of the data for the primary health care philosophy cluster, it was found that only 40 percent (total = 10 items) had statistically significant differences.

Additional information related to the difference towards perceived value between these two groups are as follows:

The high and the low coverage villages are somewhat similar in awareness of primary health care philosophy (high = 77%, low =71%) (Table 4.47). The village headman also was the source of information on primary health care information (Table 4.48). Both

groups gave the reason they had not heard about primary health care, namely, no one informed them (high = 91%, low = 89%) (Table 4.49).

Table 4.47

Comparison of Awareness of Primary Health Care Philosophy by Heads of Households in High and Low Coverage Villages (%)

Awareness	Low Coverage Village n=153	High Coverage Village n=154	Total N=307
Yes	71.2	77.3	74.3
No	28.8	22.7	25.7

Table 4.48
Source of Information of Primary Health Care by Heads of Households in High and Low Coverage Villages (%)

Source of information	Low Coverage Village n=109	High Coverage Village n=119	Total N=228
Village headmen	58.7	52.9	55.7
Neighbors	2.8	3.4	3.1
Broadcasting tower	4.6	0.8	2.6
Village craftsmen	4.6	0	2.2
Printed materials	1.8	0	0.9
Others	.9	0	0.4

Table 4.49

Comparison of Failure to Know of Primary Health Care Philosophy by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=44	High Coverage Village n=35	Total N=79
No one informed about it	88.6	91.4	89.9
Lack of contact with health officers	2.3	5.7	3.8
Others	9.1	2.9	6.3

In the high coverage villages, household heads reported a lack of time more than those from the lower ones (higher = 64%, low = 53%) (Table 4.50).

Table 4.50.

Comparison of Reasons for Not Participating in Community Activities by Heads of Households in High and Low Coverage Villages (%)

Reasons	Low Coverage Village n=153	High coverage Village n=154	Total N=307
Lack of time	52.9	63.6	58.3
Village Committee member responsibility	6.5	0	3.3
Unaware of the importance of sanitary latrine	2.6	0.6	1.6
Health officers' responsibility	0.7	0	0.3
Others	37.3	35.7	36.5

Hypothesis 5

Among facilitating influences, the perceived value of community participation will be the most important factor for the level of sanitary latrine coverage among Surin villages.

In order to investigate this hypothesis, determination of the most important strategic initiative influence on sanitary latrine construction must be made. A Stepwise Discriminant Function Analysis was used for this purpose.

Data for 307 heads of households were used for the discriminant analysis. In order to determine the discriminant function, discriminating variables were introduced using a stepwise method. Each variable was selected into the discriminant function by considering its level of Wilkes' Lambda. Moreover, prior probability were determined for each group which gave the following results.

There was only one discriminant function and only two discriminating variables were included in this discriminant function namely, perceived valued of sanitation fund and perceived value of community participation.

This discriminant function was statistically significant ($P<.0001$) and had a canonical correlation of 0.505 and Wilk's Lambda was 0.745 (Table 4.51).

Table 4.51

Statistical Analysis of Discriminant Function

Fcn	Eigen Value	Canonical Correlation	After Fcn	Wilk's Lambda	Chi-square	DF	P-value
1	0.343	0.505	: 0 :	0.745	89.601	2	.0000

Using the two discriminant variables, the classification results showed that overall percentage for grouped cases correctly classified was 74 %, which 69 % were correctly classified as low coverage member and 79 % were correctly classified in the high group. By chance alone, we would expect 50 % to be in each group (Table 4.52).

Table 4.52

Percentage Breakdown
of Discriminant Function Accuracies for
High and Low Sanitary Latrine Coverage Villages

Actual Groups	No. of Cases	Predicted Group Membership Low Coverage	High Coverage
Low Coverage	153	106 (69.3%)	45 (30.7%)
High Coverage	154	33 (21.4%)	121 (78.6%)

Percent of group cases correctly classified 73.9 percent

Therefore, by using the information of the two discriminant variables we improved our prediction of

membership in the low group by 19 % and that of the high group by 29 %.

Since the stepwise procedure had been used with the forward inclusion criteria specified, we are able to determine the order of the important predictor. The first predictor included was the perceived value of sanitation fund. After the next predictor, perceived value of community participation was included, no other variables enter in the equation.

In examining these data and our hypothesis, we do not find full support. However, partial support is generated for the hypothesis in that perceived value of community participation is a very important predictor of sanitary latrine coverage.

In summary, at the village level, it was found that villages with actual presence of strategic initiatives (sanitation fund and village craftsmen) had a positive association with the level of sanitary latrine coverage among the villages.

At the household level, it was found that household heads in the high coverage villages perceived higher value towards the four strategic initiatives (sanitation fund, village craftsmen, community participation, and public awareness) than the low sanitary latrine coverage villages. In contrast, the household heads in the high coverage villages indicated

the higher perception of value of primary health care philosophy than the household heads in the low coverage villages. Moreover, data also showed that there were statistically positive ($p<.01$) and significant differences ($p<.01$) in the perception of the value of the first four strategic initiatives and only perceived value of primary health care failed to support the hypothesis.

Finally, the discriminant function analysis revealed that the perception of value of the sanitary fund and of community participation are the first and the second influential predictors in sanitary latrine coverage respectively. Therefore, the hypothesis was partially supported.

CHAPTER V

DISCUSSION, IMPLICATIONS, AND SUMMARY

This chapter presents a discussion of the study findings as reported in Chapter IV and suggests the implications of these findings for latrine promotion programs in Thailand. Suggested areas for future research and a summary of the study conclude the chapter.

The first phase of the inquiry examined the association between the level of village sanitary latrine coverage and the presence or absence of the strategic initiatives. The second phase of the study determined the relationship between the level of sanitary latrines coverage in the high and the low coverage villages and the perceived value of the five strategic initiatives by heads of households.

Discussion

Seven hypotheses were formed as one basis for study and analysis. The first hypothesis tested the relationship of the implementation of the two strategic initiatives (sanitation fund and village craftsmen) and the level of sanitary latrine coverage among Surin

villages. The finding showed that there was statistically significant association between the presence or absence of the two strategic initiatives (sanitation fund and village craftsmen) and the level of sanitary latrine coverage.

The main problems that are reported as obstructing sanitary latrine coverage are lack of money and construction skills. The two initiatives studied are focused primarily on these problems. When the initiates are in place, they clearly have an impact on coverage. This finding is congruent with the success of sanitation fund or revolving fund program in increasing the number of latrines in Kerala, India and Carbrobo, Brazil (Pacey, 1980). We find in using Green's concept (1980) that sanitation fund development and village craftsmen are critical as "enabling factors".

The data demonstrate statistically significant positive relationships between perceived value of four of the five strategic initiatives (sanitation fund, village craftsmen, community participation, and public awareness) and the level of sanitary latrine coverage. Such relationship was not found , however, between coverage and perceived value of the primary health care philosophy. It is clear that the Ministry of Public Health efforts do have an impact when the strategic

initiatives are implemented at the village level among the heads of households in such a way that they are perceived as valuable by householders. This finding is consistent with the behavioral science concept which suggests that values are critical elements of behavior (Rokeach, 1973).

Within an effective program of encouraging the adoption of strategic initiatives by the government, doing so in a way which is consistent with local values or helps people see the need to change value will increase the probability that desired behaviors will be adopted. We can thus be more confident of positive health behavior (in this case, construction of sanitary latrines) where household heads perceive positive value of strategic health initiatives.

We find additional information supported relationship between perceived value of these four strategic initiatives and sanitary latrine coverage as follows:

1. Perceived Value of Sanitation Fund. Household heads in high and low villages are generally satisfied with the management of the sanitation fund. Most of them also agreed that the sanitation fund does help the poor to construct sanitary latrine. Those who constructed also

reported that sanitation fund committee members were very helpful in buying sanitary latrine construction materials. However, they reported problems, especially the fact that the fund program was nonrevolving.

2. Perceived value of Village Craftsmen. Most household heads accepted village craftsmen as experts in sanitary latrine construction. Most of them have a good impression of the village craftsmen. These findings are consistent with those reported by Menaruchi (1986). Village Craftsmen were not perceived as motivating households heads to participate in the sanitation fund. (Village headmen appeared to provide this function.)

3. Perceived Value of Community Participation. Most household heads saw a direct association between community participation and the construction of sanitary latrines. Because of efforts at developing community participation, villagers participated well in becoming sanitation fund members, helping to construct their neighbor's sanitary latrines, attending the sanitary latrine planning meetings, and making decisions on the village sanitary latrine project. This finding is consistent with Whyte's idea that

community participation is a crucial, if not the key factor in the success of water supply and sanitation projects in rural areas (Whyte, 1986).

4. Perceived Value of Public Awareness. Most household heads are aware of the sanitary latrine project in terms of village sanitary latrine coverage, the village sanitary latrine project, and sanitation fund. The village headmen is the major source of such information. This is unlike the findings in Mozambique, where existing users the local political authority (grupo dinamisadoe) were important (Muller, 1988.) In the low coverage villages, information about the village sanitary latrine project was not widely available. Our findings are consistent with the study by Sermsri and others (1982) that information exposure is associated with the use of sanitary latrines. It is clear that people cannot be expected to consider actions if they are not in the place informed of the possibilities and opportunities which are available.

The village headmen appear to be the major influence in making the villagers aware of the sanitary latrine project to the point of aiding the sanitation fund committee to manage the funds

and to work with the village craftsmen to construct the sanitary latrines.

These four findings suggest that the efforts of the Ministry of Public Health to implement the strategic initiatives program have had a major impact where village level support (role of village headmen, sanitation fund management, village craftsmen assistance, community participation, and public awareness) are high.

Moreover data also showed the statistically significant difference between the high and the low sanitary latrine coverage villages related to perceived value of the four strategic initiatives (sanitation fund, village craftsmen, community participation, and public awareness. Only perceived primary health care philosophy failed to support the hypothesis.

Additional information supported the differences of perceived value of the four strategic iniatiatives were as follows:

In general, household heads in the high sanitary latrine coverage villages reported fewer problems, had fewer complaints, and gained clearer information towards sanitation fund management than heads of households in the low coverage villages. Problems that the low area reported more were about unfair loan system, lack of information, fund cheating, failure to

pay back money, and confusion about regulations of the borrowing system. The household heads in the high sanitary latrine reported more consultation with village craftsmen about construction techniques than the low ones. The low coverage villages, however, consulted more on place and price of construction materials. Community participation was higher in the high sanitary latrine coverage villages than the low ones. This is reflected in consulting with village headmen, consulting with neighbors, helping (manpower) others construct sanitary latrines, attending the village sanitary latrine planning meetings, and making decision in the village sanitary latrine project. Household heads in the high sanitary latrine coverage villages reported more awareness of village sanitary latrine coverage, the village sanitary latrine project, and the village sanitation fund than household heads in the low coverage villages. Moreover, the main reason for less awareness was reported as lack of communication. It is possible that the village headmen that appear to be the key source of information may themselves not be informed or interested.

Our results however, showed no statistically significant difference in the perception of the value of primary health care philosophy and level of sanitary

latrine coverage between the high and the low sanitary latrine coverage villages.

Primary health care was adopted as the operational philosophy of the Ministry of Public Health in 1978. Since the Ministry of Public Health has followed the primary health care strategy for over twelve years, the presence of primary health care principles (community participation, village health volunteer, use of local resources) should be well supported at the village level. The result of no relationship the primary health care philosophy may be related to the difficulty of measuring perception of the value of primary health care philosophy. The perception of a "philosophy" may be the kind of abstraction which our methods are not sensitive enough to properly "measure".

We further posited that community participation would be the most important factor in predicting construction of sanitary latrine in high versus low coverage villages. Our result demonstrated that the sanitation fund, and not community participation was the most important factor. This finding may be a result of the abstract nature of the concept of community participation as suggested above in relation to the primary health care philosophy. It may simply be too abstract and intangible for household heads with low educations. Moreover, the perceived felt need for

the construction of sanitary latrines among northeast villagers has been reported as low (Sermsri, 1982). Perception of the value of a sanitation fund, which is more concrete notion than community participation, could easily demonstrate positive perceptions among the household heads. People prefer to acquire benefits from the sanitation fund to participate in community development activities.

Implications of the Study Findings

The findings of this study demonstrated that, among the five strategic initiatives of the latrine promotion program of Thailand, the sanitation fund and community participation were the two most significant factors affecting sanitary latrine construction. The sanitation fund strategic initiative was the most important factor.

The implication of our study of the five strategic initiatives are summarized as follows:

1. Perception of the Value of a Sanitation Fund

Heads of households from low sanitary latrine coverage villages revealed that the information about sanitation fund management was not clear. This lack of clear information concerned the process of becoming a sanitation fund member, the regulations for borrowing

money from the fund to construct a sanitary latrine, and inequity in the loaning system. Moreover, some heads of households from low sanitary latrine coverage villages complained about the lack of a follow-up system for repaying borrowed money.

In order to improve the sanitation fund strategy, the Ministry of Public Health should consider the following:

a. Working closely with village headmen to provide effective training for sanitation fund committee members on effective sanitation fund management. The objectives will vary from place to place. Themes which can be considered include the management and regulations of the sanitation fund, the purchasing system for sanitary latrine construction materials, the follow-up system for repaying money, the management of money collected from members, and the collection of interest for the fund. All problems identified in this study should be included in order for the sanitation fund to reach its goal of providing the opportunities for the poor to construct sanitary latrines.

b. District health officers or provincial sanitarians, along with the village headmen should provide supervision and support continuously for sanitation fund committee members for the improvement

of the fund management. A clear supervision relationship could include monthly reports on the sanitation fund situation, records about listing of membership, lists of borrowers. The waiting list for members who want to borrow should be up-dated regularly.

c. Programs for village committee members to broaden their experience by visiting other villages which were successful in implementing sanitation fund strategies should be encouraged.

d. Information related to the sanitation fund benefits should be provided to all villagers by sanitation fund committee members.

e. Regular evaluation of the sanitation fund strategy should be undertaken by health officers at every level (regional, provincial, district and sub-district) in order to improve the management of the fund.

2. Perception of the Value of Village Craftsmen

Regarding the results of village craftsmen's contribution, it was found that heads of households from both low and high sanitary latrine coverage villages seemed to have few problems with the village craftsmen in terms of recruiting, consultation, and acceptance. Most of household heads consulted the

village craftsmen on construction techniques. It can be concluded that villagers in both areas expected village craftsmen to be experts in construction skills. Close supervision of construction techniques should be carried out by provincial sanitarians or district health workers. However, health information related to sanitary latrine construction and the information about the sanitation fund given by village craftsmen should not be neglected. Since the village craftsmen's job is a voluntary task, the government should consider appropriate incentives.

3. Perception of the Value of Community Participation

Community participation is generally thought to be a very important factor for the success of sanitary latrine promotion programs. And, household heads from "low" villages showed less participation than those from the high coverage areas. They consulted village headmen and neighbors less than those in the high ones. They showed 'less participation' in becoming members of the sanitation fund, helping others construct sanitary latrines, and making decisions on the village sanitary latrine program than household heads from the high coverage villages. To increase community participation, the key role of village headmen as the key persons for motivating their community members is clear. In the village meetings, sanitation fund

committee members, village craftsmen, and village headmen should take on the important roles of explaining, motivation, and encouraging attendants about the paramount effects of community participation in promoting sanitary latrine construction in the village. Village headmen will play an important part in encouraging discussion for the planning and implementation of village sanitary latrine improvements. They can encourage participation in the form of ideas, but also money (buying a share of the fund) and manpower (helping others construct sanitary latrines).

4. Perception of Value of Public Awareness

Most of heads of households from the two areas are aware of the village sanitary latrine program, and are familiar with the extent of their own village sanitary latrine coverage. The adoption process, as Lionberger suggests, starts with awareness, followed by interest, evaluation, trial, and adoption. Most of heads of households had already reached the awareness stage.

One important implication of this study is that awareness alone is only one step. We must learn to continue and sustain people through the various stages of adoption.

5. Perception of Value of the Primary Health Care Philosophy

It was revealed that village headmen were the most important source of information about primary health care. Many household heads in this study, in both low and the high areas, were not aware of primary health care. Few, obviously, have helped them know or understand the concept. This suggests that the training of committee members at the subdistrict and village level needs to concentrate on the concept and philosophy of primary health care.

In conclusion, national planning for promoting sanitary latrine coverage should considered these recommendations.

Future Research

1. Further research on the effective management of the sanitation fund and the performance of village craftsmen at the national level should be undertaken. Results obtained will be used in adjusting the policy planning.

2. Research on the influence of village headmen upon village sanitary latrine project should be carried out.

3. Studies on factors affecting the proper use and maintenance of sanitary latrines at the national level should be conducted.

4. Studies on the influence of social and psychological factors on sanitary latrine construction should be carried out in the other areas.

5. A study on the strategic initiatives affecting construction of sanitary latrine should be carried out in every region of Thailand.

Summary

The purpose of this study was to explore the relationship between strategic initiatives and behavioral responses of Thai villages in decisions to construct sanitary latrines.

Heads of households were interviewed and relationships between their perceptions of the value of the five strategic initiatives (sanitation fund, village craftsmen, community participation, public awareness, and primary health care philosophy) and level of sanitary latrines coverage was analyzed. Householders were selected from high and low sanitary latrine coverage villages in Surin Province, Northeast Thailand.

A cross-sectional survey research design was used. A structured interview schedule and a review of

-secondary data were employed in the data collection. Two levels of analysis were used: the village level; and, the household level. At the village level, all 379 villagers from a random selection of high and low sanitary latrine coverage districts of Surin Province were used as study sites. Secondary data analyses involved the examination of records to determine the extent of the presence of the implementation of the strategic initiatives of sanitation fund and village craftsmen. For the household level, data from 307 heads of households, selected in a multi stage random selection process were analyzed.

The findings demonstrated a significant association between the presence of the strategic initiatives (sanitation fund and village craftsmen) and the level of sanitary latrine coverage among Surin villages.

The data also showed that the perceived value of sanitation fund, village craftsmen, community participation, and public awareness varied positively and significantly with the level of sanitary latrine coverage in Surin province. Moreover, data from the household heads showed a statistically significant difference toward the perception of the value of these

four strategic initiatives between the high and the low coverage villages.

The hypothesis regarding the perceived value of the primary health care philosophy showed no statistically significant relationship or difference between the high and the low sanitary latrine coverage villages.

We expected perceivrd value of community participation to be the most important factor in predicting adoption level (high, low) among the villages. Our discriminant analysis suggested that both perceived value of sanitation fund and community participation were the two most important factors. Therefore, the hypothesis is partially supported.

The additional information related to the five strategic initiatives is described as follows:

Although heads of households in both areas were satisfied with the management of the sanitation fund, those in high sanitary latrine coverage villages reported fewer problems, complained less and gained clearer information related to sanitation fund management than those in the low coverage villages. Problems identified with sanitation fund management, focused on the nonrevolving fund. Household heads in the low sanitary latrine coverage villages reported additional problems which pointed to what was

considered an unfair loan system, lack of related information, fund cheating, failure to pay back money, and confusion about regulations of the borrowing systems. The two areas reported good assistance from sanitation fund committee members in buying construction materials for sanitary latrine construction.

The descriptive reports related to village craftsmen showed that most household heads accepted village craftsmen as the expert in sanitary latrine construction. They valued consultation with village craftsmen and gained by such consultation. In high sanitary latrine coverage villages, household heads supported more consultation with village craftsmen on construction techniques than the low ones.

Village craftsmen are expected to be the experts on construction skills and to motivate the villagers to join the sanitation fund. From the findings, it would appear that village craftsmen were not perceived in this latter role.

Although all heads of households in this study agreed that community participation had an association with sanitary latrine construction, differences of participation in the village sanitary latrine programs existed. Household heads in the high sanitary latrine

villages indicated more participation in every aspect than those in the low ones. They participated more with the village headmen about the village sanitary latrine program, with neighbors, in helping others to construct sanitary latrines, attending the village sanitary latrine planning meetings, making decisions for the village sanitary latrine program than those in the low sanitary latrine coverage villages. It was found that in the low sanitary latrine coverage villages, information related to the village sanitary latrine program and sanitation fund was lacking.

Most household heads in the two areas were aware of the village sanitary latrine coverage and the village sanitary latrine program. It was clear that the village headmen are the most important persons for promoting village sanitary latrine programs. In the low sanitary latrine coverage villages, data indicated that those household heads who were not aware of the village sanitary latrine program gave the reason that no one informed them. It is clear that the communication process in the low area needs to be improved in order to increase the awareness of the village sanitary latrine program. It is probable that the headmen in these areas may themselves not be informed or interested.

The awareness of the primary health care philosophy across the high and the low sanitary latrine coverage villages was not high. Key persons who disseminated the primary health care philosophy were the village headmen. The main reason both groups reported as the reason they had not heard about primary health care was that no one had informed them. An important reason for not participating in community activities was perceived lack of time.

The study suggests a number of implications for sanitary latrine promotion in rural Thailand. The most important of these is the need to devote greater resources to achieve a better understanding of behavioral aspects of environmental health programs and the utilization of individuals with competence in health education and behavioral science as part of research and service teams.

I.D.No.....

APPENDIX

INTERVIEW SCHEDULE

on

Latrine Promotion in Rural Thailand:

A Study of Selected Factors

Influencing Community Participation

For Head of Household

Household I.D.No.....Mu.....Village.....

Subdistrict.....District.....Province Surin

Interviewing Date.....Month.....Year 1990

Interviewer's Name.....

Time Duration.....Total.....min.

Part 1

Socio-Demographic Characteristics of Respondents

To interviewer: Mark an X in only one box ( ). Do not read the answer to the interviewee.

1. How old are you now? Age.....years.

2. What sex are you? ( ) male ( ) female

3. What is your marital status?
   ( ) married ( ) widowed ( ) divorced
   ( ) separated ( ) single

4. What is your level of education ?
   ( ) no education ( ) lower than grade 4
   ( ) elementary school ( ) secondary school

( ) high school ( ) higher than high school
( ) other(specify).....

5. Can you read?
( ) Yes ( ) No

6. How many family members live in the same house?
.....person(s).

7. What is your occupation ?
( ) farming ( ) hired labour
( ) private business ( ) government officer
( ) no occupation ( ) other(specify).....

8. How much did your family earn in the last 12 months?
primary income.....baht,
secondary income.....baht

Part 2

Construction, Use, and Maintenance of Sanitary Latrines

1. At present, what is the practice for you and your family members in using?
( ) a sanitary latrine ( ) the field
( ) wooded area ( ) neighbor's latrine
( ) the rice field ( ) other (specify).....

2. Do you have a latrine?
( ) Yes ( ) No (if No, then move to no.9)

3. What kind of latrine do you have?
( ) pit latrine, (if so, then move to no. 9)
( ) sanitary latrine
( ) other (specify).....

4. Where is your sanitary latrine located?
( ) inside your house ( ) outside your house

5. How long have you had your sanitary latrine?
.....year(s).

6. What are your reasons for constructing a sanitary latrine?
( ) no place to defecate
( ) convenience

( ) cleanliness
( ) privacy
( ) prevention from diarrhoeal, cholera and hook-worm diseases
( ) follow your neighbours
( ) forced by sanitation fund committee members
( ) forced by the health officer
( ) increased social status
( ) other (specify).....

7. Do you think that every household should construt a sanitary latrine?

( ) Yes, (if Yes, then move to no.9) ( ) No

8. It is not neccessary to construct a sanitary latrine because.....

9. The reasons for not construct a sanitary latrine? are:

( ) lack of money
( ) lack of water for flushing and cleaning the latrine
( ) lack of constructing materials
( ) no enough space
( ) lack of information for guiding the construction
( ) used to defecating in the field
( ) the sanitary latrine has a strong smell
( ) have a difficulty in carrying water
( ) many cock-roaches in the pit
( ) many mosquitoes and their eggs in the pit
( ) other (specify).....

Part 3

3.1 Perception of the Value of Sanitation Fund Management

Please answer whether you agree or disagree or are uncertain about these statements (There are no right or wrong answers).

	agree (3)	disagree (1)	uncertain (2)
1. The sanitation fund is worthwhile program in promoting			

a sanitary latrine construction in your village.	( )	( )	( )
2. The sanitation fund does not help increase the number of sanitary latrines in your village.	( )	( )	( )
3. Every house should buy a share to become a sanitation fund member.	( )	( )	( )
4. A villager who is a sanitation fund member will have a better opportunity to construct a sanitary latrine than a non-member.	( )	( )	( )
5. The sanitation fund committee members give clear information about the sanitation fund management.	( )	( )	( )
6. A richer sanitation fund member will receive preference to borrow money from the fund over a poored member.	( )	( )	( )
7. The sanitation fund committee members will normally give priority in lending money to their close friends or relatives.	( )	( )	( )
8. All sanitation fund committee members are available and give you an opportunity to answer your questions about the sanitation fund.	( )	( )	( )
9. The sanitation fund members do not have an effective financial administration	( )	( )	( )
10. You have a good understanding about the steps borrowing money from the sanitation fund	( )	( )	( )
11. The sanitation fund committee members forgot to ask members to			

return the loaned money from the fund.	( )	( )	( )
12. The meetings arranged to explain to members about the sanitation fund's financial situation are inadequate	( )	( )	( )
13. If you are a sanitation fund member, would you not persuade others to become a member of the fund	( )	( )	( )
Also if you are not a member, would you ever apply for membership	( )	( )	( )

Please answer the following questions:

14. Do sanitation fund members have any problems in lending money for the construction of sanitary latrines?

( ) Yes ( ) No, (if No, then move to no.17)

15. What are the type of problem(s)?
( ) unfair distribution of the fund
( ) borrowing is difficult because of little money to make the fund revolve effectively
( ) lack of information about the sanitation fund
( ) lack of a follow-up system to get the money back from the borrowers.
( ) cheating among the sanitation fund committee members
( ) other (specify).....

16. Do the sanitation fund committee members give clear information about the sanitation fund management?
( ) Yes, (if Yes, then move to no. 21) ( ) No

17.What is the "unclear" information about?
( ) advantage of being a member of the fund
( ) regulation for money lending for constructing sanitary latrines
( ) role of sanitation fund committee members
( ) financial situation of the sanitation fund
( ) other (specify).....

18.Can the sanitation fund help poor villagers to have sanitary latrines?
( ) Yes, (if Yes, then move to no. 21) ( ) No

19.What are the reasons that the sanitation fund cannot help the poor villagers to have sanitary latrines? (You may give more than one reasons)
( ) the rich villagers are served first
( ) the relatives of sanitation fund committee members are served first
( ) the friends of sanitation fund committee members are served first
( ) the bias that the poor villagers cannot return the loaned money
( ) other (specify).....

20. Are there any complaints about the sanitation fund management?
( ) Yes ( ) No, (if No, then move to no. 23)

21. What are the complaints? (You may choose more than one item)
( ) the cheating by the sanitation fund committee members
( ) different ideas among the sanitation fund committee members about managing the sanitation fund
( ) lack of understanding of the fund management by the sanitation committee members
( ) the fund money is deposited in the bank instead of giving loans to members
( ) the sanitation fund committee members are not capable of asking members to return the loaned money
( ) other (specify).....

22. When there is a problem in managing the sanitation fund, do the sanitation fund committee members answer the questions of members clearly?
( ) Yes, (if Yes, then move to no.25) ( ) No

23. What are the type of "unclear" answers about?
( ) the regulation of the loaning system
( ) giving the financial situation of the sanitation fund
( ) the process of becoming a sanitation fund member
( ) benefits gained by being a sanitation fund member
( ) other (specify).....

24. In constructing the sanitary latrine, do the sanitation fund committee members give any assistance?
( ) Yes ( ) No

25.What kind of assistance do they provide?
( ) buying construction materials

( ) solving problems while a sanitary latrine is being constructed
( ) providing technical construction skills
( ) motivating neighbours to give help in constructing the sanitary latrine
( ) providing transportation for construction materials
( ) providing skilled masons and carpenters

3.2 Perception of the Value of contribution by Village Craftsmen

Please answer whether you agree or disagree or are uncertain about the following statements. (There are no right or wrong answer)

	agree (3)	disagree (1)	uncertain (2)
1. Village craftsmen are persons who willingly give assistance to villagers in the construction of sanitary latrines.	( )	( )	( )
2. The village craftsman is not interested in persuading villagers to construct sanitary latrines.	( )	( )	( )
3. Consultation with the village craftsmen about the construction of sanitary latrines is rather useless and time wasting.	( )	( )	( )
4. Persuading villagers to be members of the sanitary fund is not the role of the village craftsmen.	( )	( )	( )
5. The village craftsmen should be responsible for giving knowledge about the importance of a sanitary latrine in preventing gastrointestinal diseases among villagers	( )	( )	( )

6. When one is having problems in constructing a sanitary latrine, the first person to consult with is the village craftsman.	( )	( )	( )
7. The village craftsmen should make time available to construction of sanitary latrines.	( )	( )	( )
8. Whenever villagers want to construct sanitary latrines, the village craftsmen do not explain clearly about materials to be used for the latrine construction	( )	( )	( )
9. Most villagers do not accept the village craftsmen as expert persons for sanitary latrine construction	( )	( )	( )
10. The village craftsmen should charge villagers a lower rate for latrine construction	( )	( )	( )
11. The village craftsmen are not important people in sanitary latrine construction of the village	( )	( )	( )

Please answer the following questions:

12. Are there any problems in recruiting qualified village craftsmen?
( ) Yes ( ) No, (if No, then move to no. 15)

13. What kind of problems are seen?
( ) the recruiting of village craftsmen is not based on set criteria
( ) villagers do not accept the procedure of recruiting the village craftsmen
( ) some village craftsmen are "forced" to accept the position unwillingly
( ) other (specify).....

14. Do the village craftsmen inform villagers clearly about the process of constructing sanitary latrines?
( ) Yes, (if Yes, then move to no. 17) ( ) No

15. What is the unclear information?
( ) the cost of a sanitary latrine
( ) the location of the place where one can buy construction materials
( ) the steps in the latrine construction procedure
( ) detailed method of latrine construction
( ) other (specify).....

16. In constructing a sanitary latrine, do you think that village craftsmen would be experts consult with?
( ) Yes ( ) No, (if No, then move to no. 21)

17. Which kind of topics do you think you should consult with village craftsmen?
( ) construction technique
( ) buying of construction materials
( ) using a sanitary latrine
( ) maintenence of sanitary latrines
( ) price of construction materials
( ) others
(specify).....

18. Are there any problems concerning the contribution of village craftsmen?
( ) Yes ( ) No, (if No, then move to no.21)

19. What kind of problems are they?
( ) time available to villagers who want to construct sanitary latrines
( ) construction skill of village craftsmen
( ) health information about the relationship between sanitary latrine construction and gastro-intestinal and parasitic diseases
( ) no need to consult with village craftsmen because we can discuss this matter among neighbours
( ) other (specify).....

20. Do you need to consult with village craftsmen when you want to construct a sanitary latrine?
( ) Yes, (if Yes, then move to no.23) ( ) No

21. Why don't you need village craftsmen as your consultants for constructing your sanitary latrine?
Because
( ) you can construct a latrine by yourself
( ) village craftsmen charge you too much

( ) village craftsmen construct sanitary latrines with low quality
( ) village craftsmen cannot get along with neighbours
( ) village craftsmen do not have enough time for consultation
( ) other (specify).....

22. Have you ever heard any complaints about village craftsmen among villagers?
( ) Yes ( ) No, (if No, then move to no.24)

23. What are the kind of complaints?

( ) cheating villagers in buying construction materials
( ) villagers cannot afford the charges of village craftsmen
( ) lack of responsibility in keeping appointments
( ) lack of time available
( ) village craftsmen are self-centered and they do not care for villagers
( ) other (specify) .....

3.3 Perception of Value of Community Participation

Please answer whether you agree or disagree or uncertain about the following statements. (There are no right or wrong answers)

	agree (3)	disagree (1)	uncertain (2)
1. If villagers were able to share ideas in the sanitary latrine construction project, the latrine coverage of the village would increase.	( )	( )	( )
2. You should consult with your neighbours whenever you want to construct a sanitary latrine.	( )	( )	( )
3. Villagers' participation through buying shares in the sanitation fund would help increase the revolving fund for sanitary latrine construction.	( )	( )	( )
4. It is the responsibility of the head of household to employ			

a mason and carpenter to do the job the sanitary latrine construction.	( )	( )	( )
5. When any household is constructing a sanitary latrine, the neighbours will come together and offer help.	( )	( )	( )
6. Only the monk should be responsible for constructing the sanitary latrines for the temple	( )	( )	( )
7. Constructing sanitary latrines should be decided by the heads of households only, not by neighbours.	( )	( )	( )
8. You have never helped your neighbours construct sanitary latrines.	( )	( )	( )
9. If the meeting on the village sanitary latrine construction was held in the village, you would be the one who attend it.	( )	( )	( )
10. The decision on the village sanitary latrine construction program would be the responsibility of the village headman only.	( )	( )	( )
11. In the meeting on the village sanitary latrine construction program, you should not play a role of offering any ideas. This would be the role of the village committee only.	( )	( )	( )
12. Villagers' participation in the village sanitary latrine construction program will help increase the sanitary latrine coverage of your village	( )	( )	( )

Please answer the following questions:

13. In your opinion, does villagers' participation have a relationship to the increase in the number of sanitary latrines in the village?
( ) Yes, (if Yes, then move to no.15) ( ) No

14. Why do you think that villagers' participation have increases the number of sanitary latrines? Because
( ) sanitary latrine construction is a responsibility of the Ministry of Public Health
( ) sanitary latrine construction is a responsibility of the village headman
( ) sanitary latrine construction is a specific issue to be discussed within each household
( ) community participation is a public issue
( ) other (specify).....

15. Have you ever consulted with the village headman about the sanitary latrine program?
( ) Yes, (if Yes, then move to no.17) ( ) No

16. Why have you never consulted with your village headman about the sanitary latrine program? Because
( ) the headman has never mentioned the village sanitary latrine program in any village meetings
( ) the headman has never considered the sanitary latrine construction in the village as an important issue
( ) the village headman has no time available to you
( ) you think that it is not appropriate to discuss with the village headman about the sanitary latrine construction
( ) you dare not to have a discussion with him
( ) other (specify).....

17. Have you ever consulted with your neighbours about the village sanitary latrine construction program?
( ) Yes, (if Yes, then move to no.19) ( ) No

18. Why haven't you consulted with your neighbours about the village sanitary latrine construction program? Because
( ) both you and your neighbour already have sanitary latrines
( ) sanitary latrine problems are not important to you and your neighbours
( ) the construction of a sanitary latrine is a family topic to be discussed in the family only

( ) it is not useful to consult neighbours about the sanitary latrine construction
( ) other (specify).....

19. Have you ever bought a share(s) in the village sanitation fund?
( ) Yes,(if Yes, then move to no.21) ( ) No

20. Why haven't you bought a share in the village sanitation fund? Because
( ) no money
( ) do not trust the sanitation fund committee
( ) cannot see any benefits of the sanitation fund
( ) know nothing about the sanitation fund
( ) already have a sanitary latrine
( ) other (specify).....

21. Have you ever helped others construct sanitary latrines?
( ) Yes, (if Yes, then move to no.23) ( ) No

22. Why haven't you helped others construct sanitary latrines? Because
( ) no spare time
( ) not interested in others' business
( ) constructing sanitary latrines should be the responsibility of the householder only. The householder should not disturb others
( ) no request from anybody
( ) having poor health
( ) always away from home (not stay at home)
( ) other (specify).....

23. Have you ever attended the meetings for planning the village sanitary latrine program?
( ) Yes, (if Yes, then move to no.25) ( ) No

24. Why have you never attended meetings for planning the village sanitary latrine program? Because
( ) such meetings are never held at all
( ) it is the responsibility of the village committee only. Villagers should not be concerned
( ) no time available for the meetings
( ) never known about such meetings
( ) other (specify).....

25. Have you ever made any decision on the village sanitary latrine program?
( ) Yes ( ) No

26. Why have't you made any decision on the village sanitary latrine program? Because
( ) not familiar with the making decision process
( ) no opportunity to make any decision

( ) never attended any group meetings for administering the village latrine program
( ) decision making on the village latrine program is the responsibility of the village committee
( ) other (specify).....

3.4 Perception of Value of Public Awareness

Please answer whether you agree or disagree or uncertain about the following statements. (There are no right or wrong answers)

	agree (3)	disagree (1)	uncertain (2)
1. The number of sanitary latrines in the village may increase though the villagers are not aware of the presence of the village sanitary latrine program.	( )	( )	( )
2. Most of villagers think that the increase in number of sanitary latrines of the village is not an effect of the sanitation fund.	( )	( )	( )
3. Most of the villagers think that the village craftsmen are important to them in constructing sanitary latrines.	( )	( )	( )
4. Most of the villagers think that the number of sanitary latrines would be increased if everybody gave help by offerring labour in constructing sanitary latrines.	( )	( )	( )
5. Most of the villagers think that if villagers would have opportunities to participate in the sanitary latrine program management, the number of sanitary latrines of the village would increase.	( )	( )	( )

6. Most of the villagers think that becoming members of the sanitation fund is participation which effects an increase in number of village sanitary latrines. ( ) ( ) ( )

7. Most of the villagers think that having and using sanitary latrines can reduce the incidence of gastro-intestinal diseases. ( ) ( ) ( )

8. Most of villagers think that the spread of parasitic diseases has no association with defecating in sanitary latrines( ) ( ) ( )

9. Most villagers are informed about sanitary latrines by visiting health officers. ( ) ( ) ( )

10. Most villagers are directly informed about sanitary latrine construction by the village headman, not by other persons. ( ) ( ) ( )

11. The village health communicators rarely inform villagers about sanitary latrine construction. ( ) ( ) ( )

12. Most villagers are informed about the sanitary latrine construction by village health volunteers. ( ) ( ) ( )

13. Village meetings on sanitary latrines will help to spread knowledge about the sanitary latrine program all over the village. ( ) ( ) ( )

14. Most of villagers are informed about the sanitary latrine from printed materials: folders, and posters at the subdistrict health offices. ( ) ( ) ( )

15. Most of villagers are not informed about sanitary latrine

from the village broadcasting
tower. ( ) ( ) ( )

Please answer the following questions:

16. Do you know the number of sanitary latrines present in your village?

( ) less than 1/4 of the villagers construct latrines
( ) half of the villagers construct latrines
( ) more than 3/4 of the villagers construct latrines
( )more than a half)
( ) do not know

17. Do you know that there is a sanitary latrine construction program in your village?
( ) Yes, (if Yes, then move to no.19) ( ) No

18. Why do feel you don't know about the sanitary latrine construction program in your village?
( ) no one has informed
( ) already have a sanitary latrine
( ) do not want a sanitary latrine
( ) only the village committee should know about it
( ) other (specify).....

19. Do you know the village craftsmen?
( ) Yes, if Yes, please tell the
name....., then move to no. 21
( ) No

20. Why do you feel you do not know your village craftsmen? Because
( ) no one introduces them
( ) already have a sanitary latrine
( ) do not have a sanitary latrine
( ) only the village committee know
( ) other
(specify).....

21. Which of the following do you think is the most important person (or source) for villagers to receive information about the sanitary latrine?
( ) village headman
( ) village craftsmen
( ) neighbours
( ) printed materials
( ) village broadcasting tower
( ) other

(specify).....

22. Do you think most villagers know about the sanitation fund?
( ) Yes ( ) No

23. In your opinion, from whom (source) do most villagers know about the sanitation fund?
( ) village headman
( ) village craftsmen
( ) neighbours
( ) printed materials
( ) village broadcasting tower
( ) other (specify).....

24. In your opinion, do most villagers know their village craftsmen?
( ) Yes ( ) No

3.5 Perception of Value of Primary Health Care Philosophy

Please answer whether you agree or disagree or uncertain about the following statements. (There were no right or wrong answers)

	agree (3)	disagree (1)	uncertain (2)
1. You should take care of personal health by yourself rather than waiting for health officers.	( )	( )	( )
2. Village health volunteers are persons who can help villagers improve their health.	( )	( )	( )
3. The health of everybody in the village should be better if the health care system is based on "self-help" or "self-reliance".	( )	( )	( )
4. Village health communicators are persons in the village who give villagers suggestions for preventive health measures by individuals against diseases.	( )	( )	( )

5. Participating in community activities is time wasting and interfering with the normal everyday work to earn a living. ( ) ( ) ( )

6. Health officers are the only Qrpersons who are able to solve

any illness problems in your village. ( ) ( ) ( )

7. Villagers should build the super-structures of latrines with local materials in order to decrease the cost of construction. ( ) ( ) ( )

8. Using local materials for constructing the super-structures of latrines makes the latrines old-fashioned. ( ) ( ) ( )

9. Villagers construct sanitary latrines because health officers ask them to do so. ( ) ( ) ( )

10. Villagers construct sanitary latrines because the village headman asked them to do so. ( ) ( ) ( )

Please answer the following questions:

11. Have you ever heard the statement "Primary Health Care"?
( ) Yes ( ) No, (if No, then move to no. 13)

12. From what source have you heard about the term "Primary Health Care"?
( ) village headman
( ) village craftsmen
( ) neighbours
( ) printed materials
( ) village broadcasting tower
( ) other (specify).....

13. Why do you think villagers have never heard about "Primary Health Care"? Because
( ) are not interested in health issues

( ) no one talks about it

( ) no connections with health officers
( ) other (specify).....

14. Why do you feel villagers have not participated in community activities? Because
( ) such activities are the responsibility of the village committee

( ) such activities are the responsibility of the health officers
( ) no spare time

( ) do not perceive the importance of a sanitary latrine
( ) other (specify).....

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