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USE OF PUBLIC STANDPOSTS IN THAILAND

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ABSTRACT

The first widespread use of public standposts in Thailand was during the Community Potable Water Project (CPWP) which lasted from 1966-1971. This was a joint project of the Royal Thai Government (RTG) and the United States Operations Mission (USOM). The implementing agency for the RTG was the Sanitary Engineering Division (SED) of the Department of Health. The goal of the program was to build over 600 community water systems in rural areas. Village interest and initiative was the most important criterion for selecting villages to receive a water supply system. The systems generally used complete treatment of surface waters and provided distribution through standposts, each serving 10-20 houses. Villagers responsible for operation of the treatment plant participated in a two week training course given by SED. After construction of the systems, the system was turned over to the government for local administration. A village committee was set up to collect fees to provide for the operation and maintenance of the system.

Numerous problems caused the majority of the systems to fail. Most problems stemmed from inadequate operation and maintenance of the systems and inability to collect fees to provide for proper operation and maintenance. The Rural Water Supply Division of the Ministry of Public Health renovated many of these systems by replacing standposts with private house connections and many of the systems began to function properly.

Only two types of water sources were used successfully in standpost systems. The first source was mountain springs, as these systems required minimal operation and maintenance. The second source was groundwater, which required moderate operation and maintenance. Without adequate social preparation, however, the groundwater systems will require partial subsidy by an external funding agency, such as the local government. Surface water is not considered an appropriate source, as it would require complete treatment and even with a partial subsidy operation and maintenance costs would be exorbitant. It is unlikely that a surface water system could be successful even with adequate social preparation.

Four major agencies presently responsible for water supply in Thailand were contacted to ascertain their current policies or practices in regard to standpost use. The majority stated that they have discontinued and do not recommend the use of standposts. Reasons cited for these practices were: 1) no fair rate-structure; 2) excessive water wastage; 3) improper maintenance. Most of the problems could be attributed to the villagers' belief that the systems belonged to the government and the villagers were, therefore, not responsible for their operation and maintenance.

Two agencies, the Rural Water Supply Division and the Public Water Works Division, expressed an interest in new efforts to utilize standposts. Neither agency presently has the expertise to implement the social preparation and training that would be a prerequisite for successful standpost use. The social preparation and training should include hygiene education and stress village participation from the inception of the project through construction and operation and maintenance. This expertise, and subsequent policy, could best be developed through a pragmatic approach applied at a pilot-project level.

1 AGENCIES RESPONSIBLE FOR WATER SUPPLY IN THAILAND

There are four major agencies in Thailand that are responsible for providing water supply, namely, the Metropolitan Water Works Authority (MWWA), the Provincial Water Works Authority (PWWA), the Provincial Water Works Division (PWWD), and the Rural Water Supply Division (RWSD). Table 1 summarizes the areas of responsibility and managerial aspects of these agencies.

1.1 Metropolitan Water Works Authority (MWWA)

As a state enterprise within the Ministry of Interior, MWWA is responsible for the metropolitan area of Bangkok. The agency is a self-sufficient, profit-seeking organisation.

1.2 Provincial Water Works Authority (PWWA)

This is another state enterprise within the Ministry of Interior established in 1979 by integrating parts of the responsibilities of the now existing Provincial Water Works Division (PWWD) of the Ministry of Interior and Rural Water Supply Division (RWSD) of the Ministry of Public Health. Although the PWWA's area of responsibility covers most municipalities and wealthy sanitary districts, some municipalities and sanitary districts are still under the PWWD's authority due to legal problems. PWWA is also a self-sufficient, profit-seeking agency.

1.3 Provincial Water Works Division (PWWD)

After the major part of PWWD's responsibilities was transferred to PWWA in 1979, the agency focused most of its activities on small rural communities, with the policy that water supply systems be managed, operated and maintained by local

Table 1 Agencies Responsible for Water Supply in Thailand

| Agencies | Areas of Responsibility | Managerial Aspects |
|--|--|--|
| 1. Metropolitan Water Works Authority (MWWA) | Bangkok metropolitan | State enterprise in the Ministry of Interior |
| 2. Provincial Water Works Authority (PWWA) | Some municipalities and wealthy sanitary districts | State enterprise in the Ministry of Interior |
| 3. Provincial Water Works Division (PWWD) | Small rural communities and concession water works in some municipalities and sanitary districts | Government agency in the Ministry Interior; rural water supply systems managed by village committee without government subsidy |
| 4. Rural Water Supply Division (RWSD) | Small rural communities | Government agency in the Ministry of Public Health; rural water supply systems managed by village committee without government subsidy |

organizations. Meanwhile, due to legal problems, as previously mentioned, the agency is still operating the water works of some municipalities and sanitary districts by concession to local organizations.

1.4 Rural Water Supply Division (RWSD)

RWSD has been actively involved in rural water supply since 1966. Its areas of responsibility usually cover small rural communities such as small sanitary districts and villages of more than 250 households. RWSD has the following policies for rural water supply systems: (1) the community should contribute 5 to 30 percent of the capital costs; (2) the agency takes a major role in the construction of water supply systems and then helps organize a local administrative group to operate and maintain the system as well as providing technical and management training.

2 HISTORY OF PUBLIC STANDPOST USE IN THAILAND

2.1 Overview

Prior to 1966, there was no set policy for the use of public standposts in Thailand. Standposts were occasionally used in the Bangkok metropolitan area and possibly other municipalities but rarely in rural areas. These standposts generally dispensed small quantities of water free of charge and had no cost recovery system. After 1966, standposts came into widespread use through the Community Potable Water Project.

2.2 Community Potable Water Project (CPWP)

The Community Potable Water Project (CPWP), was a joint program of the Royal Thai Government (RTG) and the United States Operations Mission (USOM) begun in 1966 with a tenure of five years. The implementing agency in the Thai government was the Sanitary Engineering Division (SED) of the Department of Health in the Ministry of Public Health. In 1966, SED retained an American engineering firm, Tippetts-Abbett-McCarthy-Stratton (TAMS), to provide engineering advisory and training services (Tippett et al., 1969).

The main goal of CPWP was the construction of over 600 community water systems. In addition, it served as a model and training ground for the National Water Program, whose goal was to provide potable water to 12,000 or more rural communities over a 30 year period (Tippett et al., 1969). Funding for the program was supplied by the RTG budget and USAID. The RTG contribution included regular budget funds and counterpart funds.

2.2.1 Design and Construction. TAMS developed a set of standard plans for use in the CPWP (Neave, 1969). The basic principle of design was to provide water that would meet United States Public Health Service standards from a system that was simple and economical to construct and easy to operate and maintain. Generally, these systems provided complete treatment of surface water, including coagulation, sedimentation and filtration. Water was distributed through public standposts, each serving ten to twenty houses, in locations specified by the community (Tippett et al., 1969).

2.2.2 Community Selection. Selection of communities for inclusion in the CPWP was based on several criteria (Neave,

1969): (1) the village must have a high interest in obtaining the system; (2) there must be an existing but not potable water source and (3) the village must be readily accessible by road. The first criterion was the most critical. The request for the system had to come from the village, perhaps stimulated by the Public Health Sanitarian or Community Development Officer (Neave, 1969). As a measure of this interest, villagers were responsible for several tasks (Tippett et al., 1969): (1) providing money to help defray contract or materials cost; (2) providing labor for installation of distribution mains and (3) development of a rate structure which would pay operation and maintenance costs and provide for future expansion of the system.

2.2.3 Training. Training programs were set up to benefit the staff of SED and the villagers involved in the operation and maintenance of the system. TAMS developed an on-the-job training program for SED staff that provided the basics of sanitary engineering. Several SED engineers were also sent to the United States for advanced studies. In addition, several staff members went on informal tours of third country water supply installations. SED mechanics were given an intensive training course in proper plant operation and maintenance. Village operators were given a two-week course which covered the overall operation of treatment plants (Tippett et al., 1969).

While the general utility of a health or hygiene education program was recognized at this time, none was implemented. What basic health education was provided was probably done prior to construction on a one-time basis by the village public health-

sanitarian.

2.2.4 Operation and Maintenance. After construction was completed, the treatment plant and water system were turned over to the government for local administration. A village committee was set up to collect fees, pay the operator's salary, and generally provide for the operation and maintenance of the system. Follow-up visits were conducted by SED engineers to assure the proper operation of the systems (Neave, 1969).

2.3 Reasons for Success or Failure

The success of a system was partly dependent on initial capital costs and operation and maintenance costs. Generally, the lower these costs the more likely the system was to succeed. Surface water was thus the least desirable water source, as its requirement for complete treatment led to high capital costs and operation and maintenance costs. A deep well as a water source was more likely to be successful, as capital and operation and maintenance costs were moderate. The most successful system was one supplied by a mountain spring, which required low capital costs and minimal operation and maintenance.

According to officials at RWSD, only a total of 118 water supply systems were built during the CPWP. Most of these systems failed, except those supplied by mountain springs. Even in the successful systems, however, public standposts were eventually converted to private house connections.

An alternate condition for success was that the system be partly subsidized by an external funding agency. In the past, this was done by the local government which supplied the differ-

ence between the operational cost and the fees collected by the villagers.

Problems causing systems to fail were generally due to improper operation and maintenance and misunderstandings on the part of the villagers as to what the water supply system would provide and how.

2.3.1 Improper Operation and Maintenance. A major problem in the use of the standposts was water wastage because the standposts were left open. In systems with elevated storage tanks, this also wasted the fuel required to pump the water up to the tank. Additional problems cited by Neave (1969) included: (1) in some systems, the operators did not work the required hours, thus reducing the quantity of water available to villagers; (2) improper operation of the treatment plant produced poor quality water; (3) the village headman or committee had inadequate training to set up and implement an efficient water rate structure and as a result funds collected were generally insufficient to provide for the proper operation and maintenance of the water supply system.

2.3.2 Improper Village Assessment and Preparation. Inadequate assessment of the villagers' needs and improper preparation of the villagers for the water supply system created the villagers' misunderstandings on just what the water supply system would provide. This led to numerous problems, as stated by Neave (1969): (1) Thai villagers are traditionally not used to paying a water charge, only a hauling charge; therefore, villagers who hauled water themselves from a public standpost could not under-

stand why they had to pay a fee for the water itself; (2) the operator could not supply water until he had collected fees for start-up of the system, but villagers did not want to pay any fees until they received water; (3) an inability of some villagers to pay any amount for water; (4) an inability of the villagers to pay their initial pledged contribution and the village headman refused to begin operations until the contribution was paid in full; (5) the villagers used the system and paid the water rates during the dry season but not during the rainy season; (6) the village headman gave assurances that the village contribution would be paid but the system never operated; in this case, the system may have been just a status symbol for the village; (7) political differences between villages that were served by one system prevents the operation of the system; (8) the distribution system was inadequate and the villagers believed they would have household connections.

2.4 Modifications of the Systems

Many of the systems built under the CPWP were renovated by the Rural Water Supply Division of the Ministry of Public Health and many of these systems began to operate properly (Field Report 19, 1980). This renovation generally consisted of replacing the standposts with private, metered house connections in villages with a minimum of 250 households. One stipulation of the renovation is that at least 80% of the total houses in the village must receive water through a metered house connection.

3 CURRENT POLICIES AND PRACTICES

Agencies presently responsible for water supply in Thailand were contacted to ascertain their current policies or practices in regard to standpost use. Responses from several Provincial Public Health Offices, the Rural Water Supply Division of the Department of Public Health, the Provincial Water Works Authority, the Provincial Water Works Division, and the Metropolitan Water Works Authority indicated these agencies have discontinued or do not generally recommend the use of public standposts. The reason for this practice is the problems encountered in the use of public standposts, which are similar to those already enumerated for the CPWP.

One problem cited by many officials was that there was no fair rate structure, which made it difficult to collect fees. Some families claimed they did not use the standpost and should not have to pay the water fee. Another common problem is that the villagers believe the water supply system belongs to the government, so they are not responsible for it. This belief is reflected on a daily basis through water wastage and in the long term in inadequate maintenance of the system.

The PWWA does have a policy of providing water to the public through two types of concessions in suburban areas, namely, coin operated vendors and water trucks.

Despite the problems met in the use of public standposts, some officials from the Rural Water Supply Division (RWSD) and the Provincial Water Works Division (PWWD) feel standposts are a good method of supplying water to the poor, particularly those

who cannot afford a private house connection. One PWWD official stated that there should be a policy of teaching villagers to be responsible for the water systems. One official from the RWSD feels public standposts should be tried again, perhaps on an experimental basis. He feels the present approach from the government is to teach the villagers that they are responsible for their own development. Use of a public standpost system would be a good index of whether the government policy of self-development would be feasible in a particular village.

4 CONDITIONS FOR SUCCESSFUL USE OF PUBLIC STANDPOSTS IN THAILAND

Figure 1 shows the conditions necessary for the successful use of public standposts in Thailand. Given the present socio-economic status of villages in Thailand, the most important condition for success is the type of water source supplying the system. Other important conditions are the presence of partial government subsidy and, to some extent, village preparation. The most successful water source would likely be mountain springs, as these systems require minimal operation and maintenance. Groundwater, through a deep well, requires only moderate operation and maintenance costs. Without adequate social preparation, however, the deep well systems will require partial subsidy by an external funding agency, such as the local government. Surface water is not considered an appropriate source, as it would require complete treatment and even with a partial subsidy operation and maintenance costs would be exorbitant. It

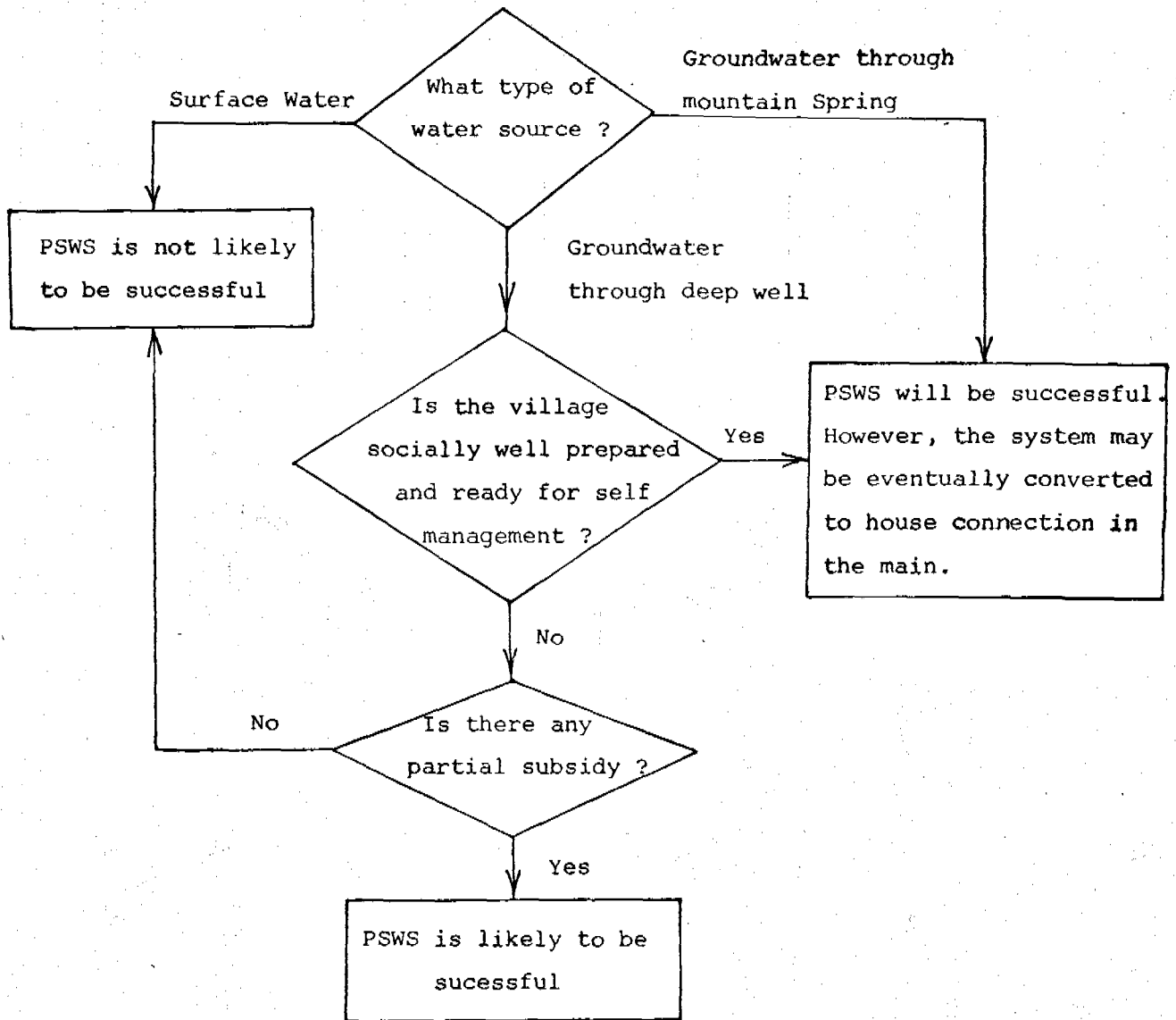


Figure 1 Factors Affecting the Successful Use of Public Standposts in Rural Thailand

is unlikely that a surface water system could be successful even with adequate social preparation.

In the past, the most successful systems were supplied by groundwater from mountain springs.

In systems supplied by groundwater from deep wells, village preparation is an important condition for success. A great emphasis must be placed on village preparation, in both technical and financial management aspects. Village participation in the project should be encouraged, from the projects' inception to construction and finally operation and maintenance. This must be accomplished through effective training programs in both the operation and maintenance of the systems and financial management. It should be demonstrated to villagers that efficient operation and maintenance of the system may produce profits which could then be applied to other village projects. In addition to other training programs, a comprehensive health education or basic hygiene program should be instituted to insure the maximum health benefits from the water supply systems. All programs must make villagers recognize the benefits of having a water supply system and to accept the responsibility for its operation and maintenance.

In order to create and carry out these training programs, the implementing agencies, most likely RWSD and PWD, must develop a pragmatic approach to solving the problems cited earlier. This is most easily done on a small scale, experimental basis. At this level, the agencies can more readily judge the effect of various factors on the approach chosen and modify the approach,

if necessary. Eventually, an agency-wide policy could be developed based on the results of the pilot scale projects. The policy would be flexible enough, hopefully, to allow for the particular needs of each village. Also, the policy may have to be modified to incorporate ideas developed from a continuous monitoring of the pilot scale projects.

The expertise necessary to do this work must be developed by the appropriate agencies or institutions. The agencies must supply adequate manpower and financial support for these programs. Also, all agencies involved in the development of these programs should institute frequent meetings to facilitate the exchange of information and experience.

Finally, it should be noted that public standposts will probably only serve as a transitional phase in villages after the initial construction of a piped water supply system and before villagers convert the system to private house connections. This comment is based on discussions and correspondence with the agencies responsible for water supply as well as observations of the authors on field trips to various water supply systems. All systems constructed during the CPWP which are still in use, were converted to private house connections within two to three years of completion of the piped water supply. Generally, any village which is eligible for construction of a piped water supply system, i.e. any village of over 250 households, has the financial resources to convert the system from public standposts to private house connections.

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