HARISAPATTUWA WATER SUPPLY AND SANITATION PROJECT, SRI LANKA

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Introduction

Since independence Sri Lanka has, through its highly developed welfare system, succeded in improving the conditions of living of the people in several important areas but the implications of the unevenness and imbalance in this improvement received very little attention until recently. In the indicators of infant mortality, fertility rate, life expectancy and literacy Sri Lanka ranks very high among developing countries. This remarkable progress, however, is not reflected in the domestic water supply and sanitation sector. Sri Lanka ranks among the worst third of the most seriously affected nations in the percentage of the total population with access to safe drinking water.

Piped water services are in the main confined to urban areas. According to a census in 1971, 66 out of 135 urban communities had piped water systems. In rural areas, where over 78% of the population lives, only about 13% had access to piped water services. The rest of the population draw their water from over a million wells. In the dry zone districts a fair percentage depend on irrigation canals, streams or tanks for their supplies of domestic water.

Water supply technology

This project is sponsored by the Department of International Development Cooperation of the government of Finland in association with the government of Sri Lanka within the broad context of the Decade Plan.

The Project

Harispattuwa covers an area of about 145 km , in the wet zone up lands and is situated close to Kandy town in the Kandy District. The area has an annual rainfall of about 2000 millimeters, with little climatic variation. On the average there are about 3-4 dry months every year. The population of the project area is just over 153,000 and represents a rather high density in comparison with the national average. Ethnically the Sinhalese predominate with a high concentration of Muslims in certain locations. The area encompasses several small rural towns particularly at key road junctions in the southern and eastern parts but a vast majority of the people live in about 200 villages.

Hand-dug, open, shallow wells, mostly privately owned, are the chief source of domestic water supply for the people of Harispattuwa. Assuming that about 40% of these wells dry up during the dry months, there is, on average, one perennial well for about 215 people. In extreme drought conditions this proportion goes down further. In addition there are six small piped water supply schemes catering to a total of about four thousand people in certain high density areas. These schemes provide for only a few house connections and the supply is mainly via public standposts. All these are gravity flow schemes using surface water or small spring wells as their sources.

Four factors make these schemes unsatisfactory: (a) inadequacy of supply during the dry season, (b) defective planning, (c) inadequate maintenance and (d) non-availability of treatment arrangements. The quality of water is also considered unsatisfactory.

The other important source of water is spouts, and these are invariably open for pollution as there is no protection against surface drainage. Raw water from rivers and streams are also used but not for drinking or cooking.

Project Components

The original proposal of the Harispattuwa Project had as its main component the construction of a centralised treatment plan for the purification of water drawn from river Mahaweli.

The main ingredients of the new proposals are: (a) the provision of about 900 community shallow and deep wells installed with hand pumps to serve approximately 97,000 people in 1985 in low housing density areas and (b) the provision of about 9 small piped systems using ground water sources such as springs, deep or shallow wells to serve approximately 64,000 people in high housing density areas.

With regard to water supply the new proposals retained the principle of geographically demarcated service level variations, i.e. certain areas were demarcated for piped services, while the rest were to get ground water through handpump installed wells. The proposed sanitation aspect involves the improvements of conditions of sanitation mainly by hygienic disposal of excreta through the rehabilitation of existing facilities and the provision of new latrines for about 15,000 people.

In the context of the various drinking water development projects planned or being implemented now in Sri Lanka the Harispattuwa project is perhaps the most comprehensive. In more than one way it represents a new experiment in water supply and sanitation development in Sri Lanka. It is one of the few water development projects which combines the provision of a new water scheme with improve-

ments in sanitation. Shallow wells installed with handpumps have not been included in such concentrations in any drinking water project before. Involving the recipient community in the construction and operation and maintenance of the supplies is also envisaged as an essential ingredient of this project. An organizational framework that involves the divisional and local level bureaucrats, women and other village volunteers has already evolved.

Handpump wells low in preference

Shallow wells installed with handpumps form the main component of the project and the only new supply level for the vast majority of villagers. This form of service level is selected for Harispattuwa and advocated for elsewhere mainly because of its relatively low per capita cost and the extremely low operation and maintenance cost. While it is the least cost alternative it ranks very low in people's scale of preference as a service level. Investigations to assess the abilily of pay for water revealed that the number willing to pay for shallow well service was the smallest:

Service with house connections 83.3%

Service with plot connections 56.3%

Service with handpump wells 52.8%

For most people of Harispattuwa who have been depending on unsatisfactory wells subject to vagaries of weather a new service is invariably associated with a pipe borne water system. From the villagers point of view a shallow well does not signify a major advance in service level. As in the traditional well this too requires carrying water from the source to the house, even if it obviates the need for a bucket and a rope. Consequently the quantity of water consumed may not show a marked improvement, as shown by field research in Harispattuwa. In fact if the new well is located at a distance further away from the traditional source its attraction for the users may be even less. In Harispattuwa, which is a water abundant area, only a handful of people (4%) travel over 400 meters for their domestic water presently. The criteria for siting new wells requires that the space should be at least 1/2 a mile between two wells. Consequently a quarter of a mile may be too long a distance for a large number of people for their water and they are likely to stick to their more proximate traditional sources.

Limitations due to rigidity of technology

The nature of the terrain and the technology adopted in constructing new wells could also contribute to limit the benefits of the new service. The difficulties of transporting the heavy concrete cylinders used for lining wells and the concrete cover used in sealing the well, where no roads are available, has led to the siting of many shallow wells along the roads. The interior of villages where most of the villages, particularly the more economically depressed ones, live and whose water requirements are most acute and conditions of sanitation and personal hygiene needs improvement, will not benefit from the new wells.

The areas where a perennial supply cannot be assured are also likely to be left out of the new services. The shallow well technology requires the possibility of obtaining water supplies throughout the year if a well is to be constructed at all. It also demands that the well should reach a particular depth. In soil conditions that do not meet these requirements wells will not be constructed even if water is available at a lesser depth during a good part of the year. A case could be made in favour of building a water source that guarantees good quality water even if it is only for a part of the year, than allowing the villagers to rely on the poor quality and inadequate sources throughout the year.

The technology used prevents the consideration of any method other than either shallow well or medium size piped schemes, in areas where there is the possibility for a third alternative. For instance, in hilly locations within areas earmarked for shallow wells but where they are not practicable, there are spouts, pihillas, which provide a perennial supply and could be harnessed at a small capital cost as a source for a very small gravity flow based pipe line to serve households in the neighbourhood. Such variations are not permissible because of the rigidity of the technology.

Further, in some other highly inaccessible and hilly areas, with no possibility of permanent supply of ground water but where adequate supply of spring water is available during at least 10 months of the year, adjustments may be required in both the technology and the ideal objectives as regards quality of water. The water in the spring may be collected in medium sized tanks constructed so as to prevent surface pollution and with periodic purification to supply fairly safe water at least for 10 months of the year. This will certainly be a better alternative to using water directly from the springs and small rock pockets and shallow holes which are generally highly polluted. The internationally recognized ideal standards of bacteriological quality of water may not be possible but if the present level of bacterial pollution can be reduced to safe level at least during good part of the year, there is bound to be beneficial results on conditions of health and sanitation of people living at higher elevations.

Under the Harispattuwa Project as it is being implemented this kind of

variation in technology to suit the specific needs of the terrain and the people is not possible, and consequently a large number of people may be denied an improved service altogether.

Inequalities due to sitting and technology

The siting of a well is an important factor in determining the extent of its utilization. The selection of well sites without consulting the people or giving due consideration to their preferences has led to the non-utilization or under-utilization of wells. Quite often the construction convenience, the influence of leading villagers or local level bureaucrats could lead to the selection of a site that does not coincide with the preference of the majority of potential users. Access to wells is another aspect which has not received adequate attention in locating wells. There should be right of free access for all villagers to the new well. The access, if left to the mercy of the owner of either the land where the well is sited or of the invening land, the objectives of constructing the well may not be fullfilled. The access to a well located near a house or in the middle of a vegetable garden will naturally be restricted. Inadequate attention paid to the nature of the terrain where the well is constructed has also led to access problems and has thereby affected the level of utilization. Those located in the middle of paddy fields or at the bottom of a precipice, necessitating the users to go over narrow and slippery mud banks that separate paddy fields or descend steep hills may obviously be under-utilized.

The piped supply system have the advantage of being very flexible; they are also highly desired by the people. This type of service marks a significant departure in the level of supplies for a population that is used to obtaining their supplies from wells located at varying distances from their houses. It has the capacity to bring water right to the dwellings of the people, irrespective of the location of house or the terrain of the land. A major drawback about pipe systems under this Project is that it is a service through main lines that will necessarily leave out those living away from the roads. Unlike in an urban context where the dwellings are generally located close to each other along the roadways, in rural areas where only a fraction of the population live on the roads, this level of service will leave out the majority of the population.

Obtaining connections in the interior areas require the payment of considerable sums of money which the bulk of the population living there can ill afford. It is found that, generally, the more economically depressed sections tend to live further away from the roadways where the value of land and the rents are low. The provisions of the present project allow for metered house or plot connections and a mininum number of standposts. The standposts are to be located only at or near public places such as dispensaries or temples, and the water be paid for by the local authorities. This situation would in effect mean the restriction of the benefits of the new services to a small section which is economically better-off in the areas earmarked for piped services. The bulk of the pupulation, those living away from the roads and those who cannot afford private connections and pay the water tariff, will have no alternative but the unsafe traditional sources.

Sanitation needs reorientation of curative health care approach

The principal objective of the improvement of water supply is to help overcome the high incidence of water borne and water related diseases.

Water related diseases are among the most prevalent diseases affecting a large number of people in Sri Lanka. In 198 diarrhoeal diseases and helminthiasis were the third highest cause of hospital morbidity. Among children between 1-4 and 5-14 years diarrhoeal diseases are among the major causes of morbidity and mortality.

Changing some of the attitudes is vital and only a system of health education formulated to suit the socio-economic conditions and the level of general education of the recipients can tackle this problem. Health education is the vital link between all aspects of health and sanitation. This is particularly important in the context of Sri Lanka where the predominant form of medicine (the Western system) is alien to the traditions and culture of the bulk of the people. The present attitude towards health education has on the whole been patronizing with a tendency to lecture to the people on better habits of sanitation, good food, birth control etc., ignoring the conditions of the people and their level of education and knowledge. The school health education programme in particular, is knowledge oriented and has no relevance to the environment and the actual health and sanitation practices of the students.

Improvement of these conditions may not be feasible unless the current practices and policy directions adopted by Sri Lanka's health care system in general, are not changed. In the health care system of the country one finds an over emphasis on urban high-technology medical facilities and specialists while the primary health care system in the peripheries have received little attention. Besides, the system stresses the curative rather than the preventive aspect. Environmental sanitation, nutrition and health education are aspects which have received very low priority. In general, the Western medical system in Sri Lanka has evolved with a high level of responsiveness to the elitist character of society. Its major weakness is in its Western orientation and the inability of reach the people in their day to day lives. The

people readily accept the superiority of Western treatment but the perceptions of diseases and processes involved in the spread of diseases associated with Western medicine have remained foreign to most of the people. To make it less alien and to ensure that its theories and concepts penetrate to the lower strata of society a reorientation of Western medicine is essential. This will require a health education programme closely integrated to the health care system.

Cost of recurrence problems

Financing the operation and maintenance of water supply schemes stands out among the problems facing drinking water development in Sri Lanka. The policy of the government has been to consider water supply and sanitation development projects, among others, as part of the welfare services and therefore to subsidise not only the entire capital cost but sometimes even the operation and maintenance costs. In view of the high operation and maintenance costs, which is likely to rise rapidly with the expansion envisaged during the decade, and also to be in line with the government's present policy of reducing state subsidies in general. The projects are designed with the objective of recovering the entire operation and maintenance costs from the users. This appears to be a principal prerequisite in planning new water development schemes in Sri Lanka today.

The policy of recovering the recurrent expenditure from the consumers, particularly in the context of an area like Harispattuwa where the majority of the population has a low standard of living and poor conditions of sanitation, raises several important problems. The low income level will make it difficult for the majority of the people in Harispattuwa to use the new services if they have to pay more than a nominal sum for water. On the other hand the per capita cost of operation and maintenance is likely to go up because of the fact that only a small proportion of people will be able to afford private connections. In a location like Harispattuwa where alternative traditional sources are in abundance though unsatisfactory, people will continue to use them, even at the risk of health hazards, rather than pay high rates for their water. There does not exist a tradition of paying for water in many rural areas; where it exists, as in small rural towns, the rates are purely nominal and do not represent the actual cost of operation and maintenance. More than even the water raters, the initial cost of obtaining a private pipe connection to the house would discourage many potential users.

The Harispattuwa project envisages the collection of operation and maintenance costs even from the shallow well users, after an initial tariff holiday of three years. A well, in people's perception is provided for free and unrestricted use of all and the government has considered, hitherto, the provision of wells as part of its welfare programme. There are also some practical problems associated with imposing charges where the users and non users of a well cannot be differentiated. A water tax affecting the entire village may not be justified in the eyes of the villagers if a fair section of them is unable to make use of the new service. The levying of a tax, even at a very low level, on the uses of wells, may also have adverse political effects and it is quite likely that subsisidising the cost of operation and maintenance of the entire well programme may appear as politically expedient.

As for piped services it is highly unlikely that their operation and maintenance cost can be recovered through water rates alone, unless very high rates are levied. One of the possible situations is to raise additional revenue in rural areas to supplement the revenue from water rates so that the operation and maintenance cost could be met.

There is in fact sufficient scope for revision of rural taxation to generate considerable revenue to meet part of the costs of water supply and sanitation requirements. This may reduce the burden on the poorer sections but will still fail to avoid subsidization altogether . A strict adherence to the principle of recovering the operation and maintenance cost from the consumers alone would, in addition to restricting the benefits of the services to the affluent minority, also undermine the attainment of the larger sanitational objectives laid down in the Decade Plan. The promotion of sanitation, in the long run would be a most valuable social investment in view of the heavy costs on health service.

Community Participaction Obstacles

A salient feature of the new water development strategy is the involvement of the community in the planning, construction, and above all, in the operation and maintenance of schemes. This is highly desirable in view of its potential benefits particularly in relation to the selection of appropriate technologies, making the community feel responsible for the schemes, ensuring the maximum effectiveness of services, and above all, lowering the cost of operation and maintenance. This will also have the effect of reducing the central government's responsibility in the context of expanding water and sanitation services.

In Sri Lanka, Harispattuwa is one project where this strategy is being tested now. With regard to the well programme the participation of the village community is actively encouraged and an organizational mechanism for this purpose is already in existence. For the piped schemes this mechanism is not worked out in Harispattuwa yet, but it remains as one of the objectives. For the pipe schemes under the water development project in the adjacent district of Matale an elaborate system to involve the community in the operation and maintenance is

already finalised, and it is likely that a similar arrangement would be worked out for Harispattuwa's small pipe schemes as well.

Field work in Harispattuwa on the nature of voluntary work and voluntary organizations highlights certain difficulties in obtaining a meaningful degree of community participation in the construction and maintenance of water supply schemes as envisaged. The concept of community participation presupposes the existence of a virile "community consciousness" and a collective identity in rural societies which could be harnessed for improvement of the conditions of life of the people. But in actual practice the processes of class differentiation and polarization have not by-passed the rural communities.

In Harispattuwa there is a variety and a multiplicity of voluntary or semi-voluntary societies which are essentially welfare and service oriented. The leadership in these societies is largely concentrated among those of higher economic standing, either businessmen or landowners, except where a conscious attempt is made to involve the lower strata of society in leadership roles, as in the case of Sarvodaya, as well as in instances where particular skills and aptitudes are involved, e.g. sports societies. In most locations few wealthy persons control many of these societies at the same time. Popular participation in their regular activities is extremely limited. It is only a minority of active members who function in several societies as the same time.

The general feeling is that there is apathy and disinterest among villagers which makes collective effort on a voluntary basis difficult, particularly where sustained interest is required. In instances where the rewards or benefits are related to peoples' immediate problems, participation is readily forthcoming. As illustrated by the popularity of Funeral Assistance Societies, optimum participation is in organizations where immediate concrete benefits are assured. Quite often the high level of enthusiasm and participation in projects and programmes of self-help evident at the initial stages do not last long. This is due more to preoccupations with the day to day problems of the individuals than due to any lack of interest. The belief that rural folk are generally less busy than the urban dwellers and can afford to devote their time for community activities is untenable in reality. The poorer villager often wishes to withdraw from community activity which tends to consume his time which he can otherwise utilize to attend to his own work. It is often the more affluent, who can employ labour to attend to their own work and therefore could afford to devote more time for community activity. But the preoccupation with their own economic activity, occupations and other involvements that often go beyond the limits of the village makes their participation more formal than active.

Another aspect of this weakening of community consciousness is the high degree of politicisation commonly seen in villages. The vitality and even the survival of most village societies and community activities are becoming increasingly linked with the balance of power at the centre. The arrangement of forces along party loyalties, consolidated by the proliferation of branch organizations of parties, is very evident in village life. The competition among political groups to plan dominant roles in every community activity is a common feature today. This tendency towards political control of village level societies has been brought to its logical conclusion by the institution of Gramodaya Manadalas within the decentralised administrative system restructured recently. All the village level societies recognised by the state will have representation in Gramodaya Mandalas, and thereby, for the first time they will be incorporated into the formal power structure of the village. This will not only complete the process of politicizaiton of all recognized village level societies but make political factionalism one of their essential features. This trend is bound to undermine local initiative, a key element in all village level voluntary organizations. All these factors make community participation though laudable as an ideal objective, highly unreliable as a basis for projects and programmes which require sustained interest.

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