

There are also more positive outcomes of the Programme which should be of use in other projects. The basic technology of water supply is similar from country to country. Even the organizational structures required for operation and maintenance differ only slightly. In compiling training manuals, MDP was frequently grateful to be able to build on material available from other countries. It is hoped that MDP manuals, and other outputs such as the Manpower Classification System, will in time become available source material for another generation of manpower development programmes in other parts of the world.

Note: The opinions expressed in this article are solely those of the author and do not necessarily reflect the views of the Government of Indonesia or of the International Reference Centre.

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Community Participation in Rural Water Supply Schemes in Tanzania



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Abstract

It is often argued that community participation is fundamental to the success of any water supply scheme in rural areas of developing countries. This paper, therefore, sets out to explore possible arrangements which can increase the share of community involvement in the development and operation of water supply schemes. In order to understand why there have been limited applications of this strategy, Tanzania's experience with community participation is examined. It is observed that the present organization and operational procedures of the Water Department are not conducive to community participation. It is concluded that, to increase participation, local communities should be involved more in all aspects of water scheme development. Creation of village water committees with powers of mobilizing local people, planning, and financing is seen as one of the most promising ways of increasing community participation.

Introduction

Many studies on rural water supply in developing countries appear to be in favour of involving local communities in the development process of water supply schemes. It is often argued that community participation is fundamental to the success of any water supply scheme. In their study of village water supply in developing countries, Saunders and Warford have come to the conclusion that the probability that a village water scheme would fail is much greater in villages

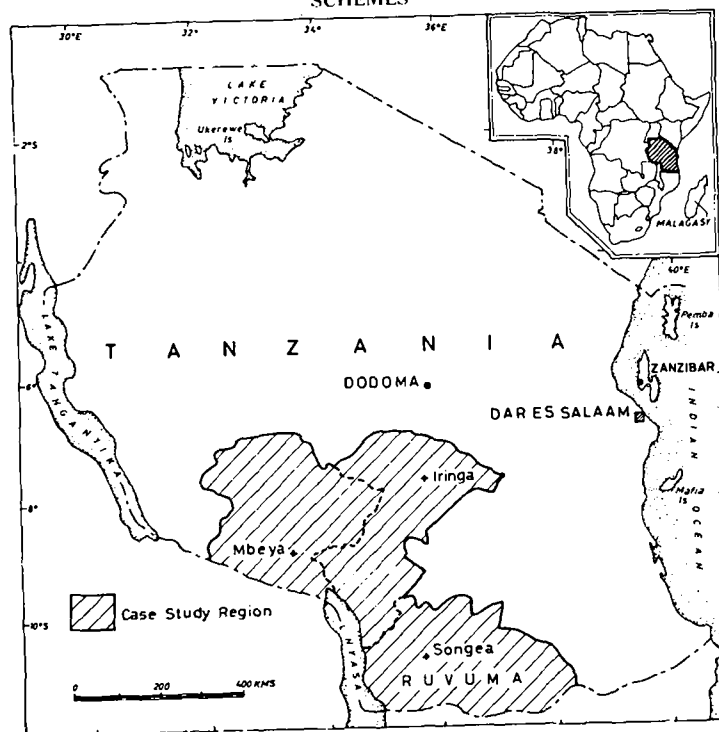
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which are "not outwardly enthusiastic about the project."¹ They have also noted that the success of water supply schemes seems to be assured where village communities participate in their development and especially in their operation and maintenance. Because of the importance of community participation in the success of water schemes, Peru, for example, has included it in the list of necessary criteria for the selection of villages which are to participate in that country's water supply programme.

In spite of this observation, community involvement in the development, operation and maintenance processes of water supply schemes in rural areas is still very limited. The reasons for the limited application of this development strategy are not yet clearly understood. Using the experience with community participation in three regions of Tanzania, Iringa, Mbeya and Ruvuma (Figure 1), this paper attempts to find out why community involvement in the development of rural water supply schemes has been very low, and to suggest alternative arrangements for increasing community participation.

FIGURE 1: STUDIED REGIONS ON COMMUNITY PARTICIPATION IN WATER SCHEMES



Tanzania's Experience with Participation

Tanzania looks at an improved rural domestic water supply partly as an essential ingredient in the development process, and partly as a necessity for the achievement of a better quality of life, especially in rural areas. With these objectives in mind, Tanzania has set the year 1991 as a target date when every rural inhabitant should have already gained access to a nearby source of potable water.

To achieve this target several approaches have been taken simultaneously. Huge sums of money have been allocated to the development of rural water supply; a training programme aimed at producing enough technicians and engineers necessary for the construction of rural water schemes has been launched; and, at the same time, the government has adopted a strategy of mobilizing local communities to participate in the development, operation and maintenance of water supply schemes. It is the government's belief that a fully satisfactory solution to the country's rural water problem will only be achieved by emphasizing inexpensive schemes and especially by mobilizing self-help efforts of the local people.² It is argued that "to speed up implementation of water supply programmes, beneficiaries will be required to participate fully, particularly on small projects. Village governments will investigate best strategies of meeting part of the water supply costs for their water schemes."³ The Long-Term Perspective Plan (1981-2000) also states clearly that "implementation of the various rural water supply programmes will, as previously, call for broad based popular participation."⁴

Tanzania's insistence on community participation is based on the benefits which are expected to be gained as a result of adopting a participatory strategy. These benefits include:

- (1) encouragement of village communities to invest their money and labour resources effectively in water schemes;
- (2) an achievement of some savings on government funds which would otherwise be used to develop water supply schemes in case participation does not take place;
- (3) creation of a sense of responsibility in the minds of the local people towards their water projects; this sense of responsibility would ensure that the scheme is properly operated and maintained and would cut down misuse of water and vandalism;
- (4) an assurance that not only the technical aspects of the scheme are considered, but also great attention is paid to social factors; consideration of social factors in the design and construction of schemes ensures that the needs and desires of the people are properly taken care of;
- (5) creation and strengthening of the spirit of self-reliance in the minds of village communities and reduction of the tendency of rural communities to become passive government aid handout recipients;
- (6) stimulation of the use of indigenous knowledge and expertise in solving local water problems;
- (7) understanding the nature of problems which affect their water supply schemes and their other development projects.⁵

There is a difference between what is theoretically assumed to be possible and what actually takes place in a real situation. Many countries of the Third World have attempted the application of a participatory approach in the development of water supplies for their rural communities. The success with this strategy has varied from country to country or even from region to region within the same country. For many

years Tanzania has attempted to apply the participatory approach in rural water supply development in different parts of this country. These efforts have had partial success both for known and unknown reasons. In what follows, Tanzania's past experience with the participatory approach in rural water supply will be critically examined with the aim of identifying what has been the major constraints in the application of this strategy. Finally, the paper concludes with suggestions on how the application of a participatory strategy in rural water supply can be strengthened.

The idea of involving local communities in the development and operation of local water schemes is not new in Tanzania. Prior to active government involvement in the construction of rural water supplies which started in 1946 with the formation of the Department of Water Development, the colonial government had for a long time embarked on a programme of encouraging local inhabitants to make best use of rainfall by constructing wells and dams on a self-help basis. The Department of Water Development which was formed in 1946 was concerned with two types of water supplies: installation of domestic water supplies to outstations and minor settlements; and installation of rural domestic and livestock supplies both in populated areas inadequately or unsatisfactorily supplied and in unoccupied areas zoned for development.⁶

The financing of these two types of water supplies was, however, different. Construction costs of water supplies to outstations and minor settlements were met entirely by the central government. Maintenance funds were obtained from the annual recurrent vote: "Water Supplies at Outstation." The day-to-day running of these supplies was the responsibility of the appropriate District Commissioner to whom funds were always allocated.

In contrast to supplies to outstations and minor settlements, water supply to rural African communities were owned by the Native Authorities (Local Authorities as they came to be called after Independence) in which water schemes were located. Thus local communities, through their local governments, had to meet part of the costs. For example, from 1946 to 1953 construction costs of water supplies were met from both central government funds and Native Authority treasuries. The latter were required to contribute a third of the capital costs. From 1953 to 1956 Native Authorities were required to meet the total capital costs of the water schemes within their areas of jurisdiction. This requirement was lowered to fifty per cent of the cost in 1956 and two years later the share of the Native Authorities was further reduced to 25 per cent.

This process of participation in water supply development which was largely dependent upon the willingness and especially the ability of Native Authorities to contribute to the costs of water projects had the severe handicap of favouring communities in rich Native Authorities. Native Authorities which could pay their share were able to make considerable advances in the provision of water while communities in poor Native Authorities made very little progress in securing satisfactory water supplies. To eliminate this imbalance the Native Authorities' contribution toward the cost of water supplies was abolished in 1965 and the Water Development and Irrigation Department (W.D. & I.D.) took full responsibility for all capital costs of rural water supply development.⁷

Local participation in the operation and maintenance of rural water supplies varied over the years. At the beginning, maintenance of water supplies was a responsibility of the Native Authorities. When, during the 1950s, maintenance performance by the Native Authorities was found to be unsatisfactory, W.D. & I.D. took over the responsibility of maintaining the supplies. W.D. & I.D. obtained funds from the Maintenance and Renewals Fund to which the Native Authorities were required to contribute 2½ per cent of the capital costs of the supplies they owned. Because of shortage of funds and personnel, W.D. & I.D. found itself unable to

continue maintenance of rural water schemes which once again became the responsibility of the Native Authorities until July 1965 when W.D. & I.D. once more assumed responsibility for maintenance and repair on condition that the local authority made an annual deposit of one per cent of the capital cost. Any maintenance and repair work over and above the one per cent value was also undertaken by W.D. & I.D. but on a pre-payment basis.⁸ Normal running of the supplies, however, remained the responsibility of the Native Authority and no charges were made for the water consumed either for domestic uses or livestock needs. These participatory arrangements did not work satisfactorily and, as a result, in 1969 the central government decided to take over the operation and maintenance of all water schemes in rural areas.

Thus, up to 1969 the main form of local participation in the development, operation and maintenance of water projects was financial contribution. Communities with a very low economic base made very little progress in securing the necessary water supplies irrespective of whether they faced acute water supply problems or not.

In the post-independence period, attempts were made to broaden the participatory approach. Involvement of local communities was no longer to be limited to financial contributions for construction and operation of water schemes. Local communities could participate in the development of water schemes by contributing ideas as well as their physical labour. This form of participation, especially of labour, was encouraged by the leadership mainly because it was believed to be capable of causing tremendous savings in financial resources which would otherwise have been used to pay labourers. Furthermore, it was believed that this contribution of labour created a sense of ownership and responsibility and strengthened a spirit of self-reliance in the minds of the local people who participated in the construction of the water schemes. In practice, however, this form of local involvement was solely in performing unskilled jobs of either digging trenches for water pipes and filling them up after the pipes had been laid or collecting building materials such as sand and stones. Local communities were neither expected nor required to perform any other duties. Project/scheme selection, planning, construction (other than trench digging), operation and maintenance were all performed by technicians from the Water Department (MAJI).

So far, participation of local communities in Water schemes in Tanzania has been very limited in spite of the government's policy of involving local people in all phases of scheme development. Unfortunately, it appears that the existing organizational and operational procedures of MAJI are not conducive to local participation. To achieve increased community involvement it is necessary to change the existing organizational structure and especially the procedures which are being followed in the development of water schemes. Before presenting suggestions on a better way of increasing people's participation in water schemes, I shall briefly review the present organization of MAJI both at regional and district levels in order to gain an insight into the difficulties of policy implementation.

The Organizational and Operational Procedures of MAJI

At regional level the Water Department (MAJI) has six divisions: Finance and Administration; Construction; Planning and Project Preparation; Maintenance; Urban Water Supply; and Special Projects. Each of the above divisions is further divided into a number of subsections. At the district level MAJI is composed of the first four divisions only.

It is interesting to note that up to now MAJI divisions listed above are based more on a formal and not a functional division of labour. That is, the same operation is usually performed by different divisions. At regional level, for example, one finds construction activities being carried out by the Urban Water Supply division, by the Construction division, by the shallow wells programme which is under the Planning and Project Preparation division and by the Special Projects division. Maintenance activities of rural water supplies, such as plumbing, are carried out by the Urban Water Supply division while some parts of Urban Water Supply maintenance are carried out under the Regional Maintenance Unit. Another example of a formal rather than a functional division of labour within MAJI is with the stores section. Whereas the whole stores activities are supposed to be under the Finance and Administration division which is supposed to be the main source of supplies to the Administration and Construction division, the Regional Maintenance Unit keeps and runs its own store of spare parts.

The above examples simply illustrate the proliferation of functions within MAJI, which is confusing the village communities which are to be served. For example, when a village community wants some maintenance job to be done, it is usually not sure to whom the request for that assistance should be addressed and villagers often get lost in the intricacies of the system.

The confusion of who is actually responsible for what is not limited to outsiders. Even MAJI personnel sometimes get confused. There are numerous cases where section and subsection heads are in doubt about the limits of their responsibilities. It is not uncommon to find one section head claiming a certain subsection to be under him while at the same time the head of that subsection claims to be directly under the Regional Water Engineer. The same confusion appears in the discharge of duties.

With such organizational and operational processes it is very difficult to know where local participation fits in. First of all, in the present MAJI job description and job responsibility, the share of community involvement is not clearly indicated. As it stands, the whole activity of providing water to rural communities is supposed to be done by MAJI without involving village communities. It is no accident, then, that MAJI staff have made very little effort to incorporate community participation. Community involvement has never been officially incorporated in their terms of reference or their schedule of work. Lack of community involvement in the terms of reference is reflected in all stages of water scheme development and operation as will be shown later.

Many of the rural water supply schemes are funded by the government and as such they are regarded as government projects. Their implementation has, therefore, to conform to government procedures. Thus, before a project is finally undertaken it has to pass through five major stages: scheme selection and planning; design and cost estimates; construction; operation; and finally maintenance.

Scheme Selection: Under the existing arrangements, identification and subsequent survey of villages for the purpose of supplying water is the responsibility of the District Water Engineer. Generally, a village community has no say in the selection process. At times, however, the Regional Water Engineer's office may be involved in the selection of villages to be surveyed for the purpose of being supplied with water. Politicians and influential individuals may also cause a village to be selected for the supply of water. On very rare occasions can a village, simply by its own request, succeed in being included in a list of villages to be provided with improved water supply schemes.

The criteria followed in selecting villages to be supplied with improved water are not clear. Obviously political motives and pressures are sometimes the deciding factors. Occasionally principles of areal equality act as the guiding force. In such a

situation, villages in divisions with few water schemes stand a better chance of being considered first. This principle of areal equality is an acceptable approach bearing in mind Tanzania's objectives of spreading the benefits of development equally among her people.

Selection of villages is usually followed by survey of the chosen villages. However, actual survey does not take place before funds for the schemes are approved. Approval of funds is included in either five year plans or, more usually, in yearly plans.

Design and Cost Estimates of Projects: These appear to be reserved for the Regional Water Engineer's office. The District Water Engineer may be allowed to perform these two tasks for very small projects only. The Ministry of Water and Energy gets itself involved in the design and cost estimates of water projects which are either very large or very complicated. However, final approval of design and cost estimates is occasionally given by the Ministry of Water and Energy although there are attempts to get the Ministry to be less involved in technical and financial control.

Construction: The availability of design and cost estimates of a scheme is not a guarantee that a project would be built. After design and cost estimates are ready, the scheme has still to inch its way through various government scrutinizing bodies before it gets approval. Projects are usually approved by Parliament and once that approval is secured, funds for the project are *de jure* guaranteed. Theoretically, project funds are to be released at the beginning of the financial year in question and they must be spent within the period for which they have been approved. It is government procedure that the unspent balance of the project funds has to be returned to the Treasury at the end of the financial year in question. If the scheme has not been completed by the end of the financial year, new funds have to be sought.

This mode of funding projects implies that no construction materials can be procured before project funds have been made available. As a result, many projects do not start until late in the financial year. Consequently many schemes cannot be completed within the stipulated financial year. The outcome is that part of the allocated funds is unspent by the end of the year and has to be returned to Treasury.

Late arrival of project funds coupled with recurrent shortages of materials which the country is experiencing results in a pattern of project construction which is not continuous and which is costly in terms of funds which are tied up in uncompleted projects. It also has a negative impact on any efforts of encouraging village participation during the construction process. Uncompleted water schemes discourage the people and hence they lose hope of getting water in the near future.

Operation: Many of the rural water projects are local in nature. As such, when their construction is over, they are handed over to the District Water Engineer's office for operation and maintenance. Scheme attendants are employed and paid by the District Water Engineer's office. Local people who are to benefit from these projects are not involved in deciding on how the projects should be operated nor are they required to contribute towards the operation costs.

Maintenance: One of the main constraints on the smooth running of rural water schemes has been poor maintenance. The current arrangement is for the District Water Engineer's office to maintain all gravity schemes. The District Water Engineer's office meets all costs involved. Repair and maintenance of pumps and engines is the responsibility of the Regional Maintenance Unit. The existing arrangements do not require village people to be involved with the maintenance.

From the above discussion it is obvious that the organizational and operational procedures of MAJI are not conducive to increased local participation in water schemes. The organizational structure has no section which is in charge of

mobilization of local participation and the operational procedures leave no room for community involvement. Therefore, if local participation is to be increased in water projects, it is absolutely necessary that the organization of MAJI becomes more flexible and more efficient by allowing villagers more say in the planning, implementation, operation and maintenance of water schemes.

How to Improve Community Participation

At present, all decisions pertaining to the selection and implementation of water schemes are taken by MAJI personnel without any consultation with the village communities. It is suspected that this lack of consultation may be a contributing factor to the low community involvement in water projects experienced in the rural areas of Tanzania. To deal with this problem it is suggested that villagers share more in decision making.

However, it is neither possible nor practical for every villager to participate in every decision that has to be taken. Yet it is still possible for the village as a whole, through some form of local organization, to participate in decision making. One way of incorporating village communities in decision making is for the villagers to form a water committee which would be responsible for water affairs in the village. Such a Village Water Committee (VWC) would be composed of members selected from among the village residents. The composition of the Village Water Committee would have to take into consideration political and social factors. That means it would be appropriate to include in the Committee the representative(s) of the village government who can either be the village chairman or his deputy or any other official. In addition to the representative(s) of the village government, the VWC should have members representing women. This is very important in the rural areas of Tanzania, since provision of water to the household is the responsibility of women. The inclusion of women representatives in the committee would help identify the wishes of those who are charged with the task of providing water to the household and would, at the same time, help to identify the existing problems encountered in making water available.

The responsibilities of the Village Water Committee would be: (1) to serve as a communication link between the village community, village government and the Water Department (MAJI); (2) to develop, organize, and present village viewpoints concerning the development and provision of water; (3) to mobilize village residents for participation in the development of water schemes, especially during the construction, operation and maintenance phases; (4) to decide on the best way the village community can participate in meeting the costs of operation and maintenance of the water scheme; and (5) to be responsible for the selection of the operation and maintenance team and to see to it that the team gets the required training and the necessary working tools.

Although it is emphasized that the village water committee should be involved in the planning process, it is equally recognized that the committee would generally not have the expertise required in designing water schemes. Design of water schemes has to be done by MAJI staff. However, before final designs are decided upon it is essential that Village Water Committees are allowed to make suggestions on the design and especially on the location of domestic water points. The experience already gained from the Iringa scheme in Iringa region and from the Mapogoro scheme and the schemes in Ulenje and Nyalwela in Mbeya Region where village water committees have been introduced on an experimental basis shows that involvement of water

committees in the choice of the location of domestic points results in a better service level than when the lay-out of domestic points suggested by MAJI staff alone is followed.⁹ This is so because the location of domestic water points suggested by the Village Water Committees matches with village settlement patterns.

Mobilization of labour for digging, laying of pipes and backfilling should be the responsibility of the village water committee and not that of MAJI foremen as is the case now. Work on the scheme by the villagers should be on a self-help basis and no payment should be made for the work done. However, to ensure sustained enthusiasm of the village people, no trench digging should start before ascertaining that all materials required to complete the scheme have been obtained and delivered to the village. This would eliminate the stop-go pattern of construction which is caused by constant shortage of materials.

Before construction of the scheme is completed, the Village Water Committee should appoint suitable people from among the village residents who should be responsible for the operation and maintenance of the water schemes. Since maintenance of the scheme would require tools and spare parts which the village might find difficult to get, MAJI should assist in providing them, and, depending on the financial arrangements agreed upon, the village would be expected to meet the costs involved.

The suggestion that villages should meet the costs of operation and maintenance is based on an assumption that the villagers would be willing and capable of paying the costs. Thus before village participation in operation and maintenance is recommended, it is essential to investigate the willingness and capability of village communities to meet the costs involved.

In an attempt to find out whether villagers would be willing to contribute to operation and maintenance, interviews were conducted in selected villages without water schemes in the Iringa and Mbeya regions and interviewees were asked the following question: "If this village gets a water supply system sometime in the future it will cost money to operate and maintain it. How much money would your household be willing to pay towards these costs every year?" Table 1 summarises the answers obtained.¹⁰ It is clear from the results that many households are willing to contribute towards the operation and maintenance of such a system. What is not clear is whether the amount of money the villagers have indicated as being willing to contribute would meet all operation and maintenance costs.

**TABLE 1
RESPONDENTS' WILLINGNESS TO CONTRIBUTE TO OPERATION AND
MAINTENANCE IN VILLAGES WITH NO WATER SCHEME, IRINGA AND
MBEYA REGIONS**

Respondent	Region	Contribution (Shs/household/year) ¹¹		
		0	1-20	21+
Females (percentage)	Iringa	12	53	34
	Mbeya	8	45	47
Males (percentage)	Iringa	10	43	47
	Mbeya	10	35	55

The capacity to meet all operation and maintenance costs depends on the earnings of the village people (both individually and communally) vis-à-vis the costs of operation and maintenance. Table 2 shows the operation and maintenance expenses of different rural water supply systems. Table 3 shows the average gross cash income per family in the different ecological zones of the three regions while Table 4 gives the average net village incomes from communal farms and from crop levy (1978/79) of selected villages in the Iringa region.

When the costs of operation and maintenance shown in Table 2 are compared with the incomes of households and of the villages it becomes clear that not all villages can meet total operation and maintenance costs irrespective of the particular water supply technology which may be adopted. There is a great need for government

TABLE 2
OPERATION AND MAINTENANCE EXPENSES OF DIFFERENT WATER SUPPLY SCHEME TYPES

Water Scheme	Capital cost (Shs/Person)*	Operation and Maintenance Cost Per Year			
		Percentage of capital costs	Shs/person	Shs/household**	Shs/village***
Surface gravity	300	2.5	7.5	41	14,350
Surface pumped	500	5	25	138	48,300
Borehole	700	5	35	192	67,200
Shallow well	200	1.5	3	17	5,950

*based on projected scheme population 20 years from time of construction

**assuming 5.5 persons per household

***assuming 350 households per village

TABLE 3
AVERAGE GROSS CASH FAMILY INCOMES BY AGRO-ECOLOGICAL ZONES

Agro-Ecological Zone	Gross Cash Income Per Family (Shs) ¹
Iringa Region	
High Rainlands	2,107
Upper Plateau	1,484
Medium Dry Intermediate Zone	1,884
Dry Northern Fringe	2,122
Mbeya Region	
Wet Highlands	1,122
Lake Shore	1,698
Dry Plain	4,002
Dry Northern Zone	4,102
Ruvuma Region	
Wet Western Highlands	5,754
Intermediate Zone	4,336
Dry Eastern Zone	1,355

TABLE 4
AVERAGE NET VILLAGE INCOMES FROM COMMUNAL FARMS AND FROM CROP LEVY 1978/79 OF SELECTED VILLAGES IN IRINGA REGION

Income from	District	
	Iringa	Njombe
Communal Farms	10,521 (n = 8)	19,851 (n = 14)
Crop Levy	6,799 (n = 9)	9,625 (n = 9)

assistance to villages to meet part of the costs of operation and maintenance.

The government can assist in the operation of the schemes by, for example, supplying fuel free of charge to the villages with pumped schemes. The villagers' share in the operation would therefore be in paying the scheme attendants. Maintenance responsibilities should also be shared between the government and the villages. Certain sections of the physical structure, such as domestic points, can be maintained and paid for entirely by the village, while other parts of the scheme can either be maintained by the government or can still be maintained by the village, but paid for by the government.

The ability of villages to contribute towards operation and maintenance varies from village to village. It would therefore be unrealistic to assume that the same level of subsidy should be given to each village even if the villages in question are served by schemes of the same type. Because of this variation in subsidy level and the conditions under which it is given, it is essential that any subsidy be explained first to the villagers and left to them to decide whether they accept or reject the conditions under which the assistance is given. Acceptance of the conditions under which subsidy is given would ensure effective use of government funds.

Conclusion

The discussion of government attempts to involve local communities in the development, operation and maintenance of rural water supply schemes presented in this paper suggests that there are definite advantages to be gained. Many people who have studied this question of community involvement in water supply development have come out with long lists of advantages which would be obtained as a result of applying a participatory strategy.¹² However, Tanzania's experience with this strategy has revealed that the anticipated advantages of community participation cannot be easily obtained under the existing organization and operation of the Water Department. It is therefore suggested that, in order to involve local communities more effectively in the development, operation and maintenance of water schemes, the organization and operation of the Water Department should be more flexible and should allow local communities to participate in all stages of water supply activities.

Some suggestions on how to increase the share of community participation in rural water supply development have been presented in this paper. Emphasis has been placed on operation and maintenance. However, much still needs to be known about the application of this strategy. It is, therefore, suggested that further studies should be made to find out how to involve local communities more effectively in the development and especially in the operation and maintenance of rural water supply schemes.

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- (7) Such work was done, for example, in Masai District where pipelines were laid to carry water from distant springs and distribute it in new grazing and arable areas which were unpopulated at the time. See Water Development and Irrigation Department, *Annual Report*, 1956, p. 5.
- (8) Water Development and Irrigation Department, *Annual Report*, 1965, p. 9.
- (9) *ibid.* p. 16.
- (10) Much of the information in this section is derived from the Socio-Economic Studies for the Water Master Plans for Iringa, Ruvuma and Mbeya Regions of which the author was a senior researcher.
- (11) Tables 1-4 have been adapted from the Report on Water Master Plans for Iringa, Ruvuma and Mbeya Regions, Socio-Economic Studies Vol. 12, 1982, pp. 6.21, 6.30, 6.24 6.27.
- (12) A Tanzanian Shilling (Shs) is equivalent to U.S. \$0.12.
- (13) White, Alastair, T. *Op. cit.* has listed ten advantages which would be obtained as a result of including Community participation as an element of Water Supply programmes.

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Factors Influencing the Irrigators' Organization in India



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Abstract

Irrigators' participation in the project management of surface irrigation systems in the Indian context is influenced by many factors. Important among them are the irrigators' confidence in the systems' mode of delivery of water supplies and their self-perceived ability to share responsibilities with the irrigation bureaucracy. A discriminant analysis of some select variables is undertaken and it is found that the model developed has a fairly high predictive value for decision-makers with regard to formation of irrigators' organizations.

THE PARTICIPATORY ROLE of irrigators in the running of irrigation systems in India has been negligible. This has caused great concern among the planners who have drawn up an ambitious programme for bringing approximately 50 per cent of the net cultivable area under irrigation by the end of the current century (Panday, 1980). Intensive involvement of the irrigators would enable the mobilization of local resources so that at least some major part of annual operational as well as capital investment costs of the irrigation projects could be recovered. Furthermore it would help tap the hitherto neglected talents of the farmers — such as their knowledge of the local environment and skills in the management of natural resources at the decentralized level (Agricultural Development Council, 1980).

The objective of this paper is to explore the factors influencing the irrigators' coming together to share responsibilities with the irrigation bureaucracy. The paper is divided into three sections. The first presents a brief background to the problem of a