

# Community Participation and Rural Water Supply Development in Sierra Leone

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**ABSTRACT** Provision of improved water wells is part of the integrated approach to rural development, currently undertaken by development agencies in Sierra Leone. Community self-help in meeting part of the cost of input to be provided is essential in promoting the effective utilization of the service provided. This study surveys the improved water wells programme of Plan International Rural Development Project in Makari-Gbanti Chiefdom, Northern Province of Sierra Leone.

The improved wells were found to be least effective in meeting dry season water supplies to villagers. Among the factors responsible for this situation is the ill-conceived nature of the community self-help development strategy adopted. Villagers were found to meet part of the cost of the improved well not because of the genuine felt need for the system, but because they are interested in the associated benefits of the integrated package – roads, schools, health centres, community centres etc.

The final section introduces a case study village of a successful water supply scheme through a well-conceived community involvement strategy. Lively community self-help is the key to promoting effectively manned schemes in Sierra Leone.

## Introduction

The provision of rural water supplies is a component of the Government's programme to correct the faults of the populist World Bank "rural development" strategy – this was: "A strategy designed to improve the economic and social life of a specific group – the rural poor" (World Bank, 1975).

This strategy has been criticized for concentrating on single-purpose projects such as oil palm estates development, with insufficient emphasis on the ramification of development (Harris, 1982; Airey, 1982; Bank of Sierra Leone, 1974). The present "integrated" approach to rural development which has replaced it, is exemplified by the introduction of Government Integrated Agricultural Development Projects (IADPs) and by the approach of other development agencies, such as Foster Parents Plan International and Church Organisations, all of which implement their programmes in an integrated way. The argument runs as follows:

In order to improve the quality of life of the neglected rural majority, programmes of agricultural production, health with a more efficient health delivery system, investment in rural non-farm activities, co-operatives, rural credit, road construction should be planned and manned in an integrated manner. (M.A.N.R., 1976; F.A.O., 1977)

Further, it is stressed that community participation in meeting part of the cost of the service to be established principally through self-help is the key to realizing the full benefits of the integrated package and that this should be achieved by the community (I.L.O., 1979). The strategy thus places a substantial, if not insuperable burden on the rural poor themselves, since this rule puts the onus on the community rather than on the agency involved in the programme.

This paper reconsiders such policy commitment in the light of key facts relating to rural water supply development in Sierra Leone. It argues that rural communities are willing to meet some of the cost incurred by participating in the programme not because of the need for an improved water supply system *per se*, but because they are interested in the associated benefits of the integrated package. This is illustrated through a detailed examination of the impact of improved water supplies within one integrated rural development scheme – Plan International Project in the Bombali District, Northern Province of Sierra Leone. The debate raised in this paper is to set the context for the improved strategy for rural water supply development in the country, which is illustrated in the final section. A case study of Gbonombu village in the Moyamba District, Southern Province of Sierra Leone, is discussed. This case study exemplifies the potential of an efficient improved water supply system based on local management. "Lively community self-help" of the kind indicated by the case study is probably the key to promoting effective water supply development in Sierra Leone.

## Context of the study

Sierra Leone covers 73,326 Km<sup>2</sup> and lies on the South West coast of West Africa. The country is characterized by a high net radiation input and high temperatures throughout the year; monthly mean temperatures average 20°C (Gregory, 1965; Bowden, 1980). For most of the country rainfall ranges between 2,000 mm and 4,000 mm of which most falls between May and November (rainy season). This rainfall gives high discharges in the rivers, which are the main sources of water (F.A.O., 1980). In spite of the huge volume of water theoretically available, water supply problems do occur from December to April, the peak of the dry season, when maximum temperatures reach 32°C, and the majority of the rural people resort to the use of dug-out swamp pits on river terraces, and to traditional wells (Bah, 1987a).

Water resource development is the main thrust of attempt to improve the living conditions of the rural poor. In 1981, less than 10 percent of the rural

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population in Sierra Leone (communities with less than 2,000 people), forming 75 per cent of the country's population of 3.7 million, had access to safe and adequate drinking water (UNDP/WHO, 1981; B-PRD, 1981). The Government's increasing support for the improvement of this sector is evident: between 1974-1979 its development expenditure on water supply ranged from 1.4 percent - 1.7 percent of the total development expenditure (Sierra Leone, 1974), but by 1980/81 fiscal year, it allocated 10 percent of the total development expenditure to water supply development. 40 percent of the proposed expenditure on water supply development was to be met by foreign sources (UNDP/WHO, 1991).

The water supply development strategy was to serve a further 710,000 of the urban population with pipe-borne water, while providing 2,100,000 rural people with safe drinking water. The latter was to be tackled primarily through improved water wells, to be undertaken by all development projects in the country as part of the integrated strategy to rural development.

### Research strategy

This study examines one integrated project - Foster Parents Plan International. This project is one of the earliest established integrated project in the Northern Province of Sierra Leone. Plan International is a benevolent institution which originated in Spain in 1937, as Foster Parents Plan, to provide children with food, shelter and education after the Spanish Civil War. Today, Plan International is sponsored by philanthropic organisations and individuals in Europe and America. In Sierra Leone, it first established itself in 1977 in Bombali District, Northern province. Bombali District has an areal extent of 8,095 Km<sup>2</sup>, occupied by 200,000 people (Central Statistics Office Report, 1978).

The Northern Province of Sierra Leone is highly constrained by water supplies because of its short rainy season, 5-6 months, compared to 7-9 months in the Southern Province (Gregory, 1965, Gwynne-Jones *et al.*, 1978). Dry season water problems are therefore very acute in the North, and the situation has been described as "precarious" (Primary Health Care, 1978). One might therefore expect Plan International's improved village water wells programme to make a vital contribution to dry season water needs, and that at least in the Northern Province, this component of the integrated package will fully be utilized. How this is realized in practice remains the prime focus of this paper.

The paper examines one of the 13 chiefdoms in the Bombali District i.e. Makari-Gbanti (the first established area for Plan International Project activities in the Northern Province), an amalgamation of two chiefdoms - Makari and Gbanti. It covers an area of 622 Km<sup>2</sup>, occupied by 25,229 people (Central Statistics Office, 1978). This area is agriculturally favoured by intensive rice cultivation on the vast "bolilands" (swamplands) extending over some 1,085,000 acres (Gleave, 1977). It has been shown that such

bolilands are important in providing dry season water supplies to most rural communities in Sierra Leone (c.f. Bah, 1987b; Airey, 1978; Dijkerman, 1969; F.A.O., 1980).

Although an attempt was made to visit all Plan International Project sites in the chiefdom, the data used in this study was derived from 12 areas in which Plan International community development workers reside. Fieldwork lasted 12 months covering two consecutive dry seasons (November-April 1988/89 and 1989/90). Extensive visits were made to these residential areas and interviews were held with village elders, to examine how Plan International activities were instituted; with women, concerning water usage patterns, and with Plan International's resident workers on their activities in promoting the scheme. In addition, background information was gathered from a variety of sources including project documents and research reports.

A major aim of the paper is to provide village level data on the state of Plan International's rural water supply development scheme, to contribute to more general debates on the integrated approach to rural development.

### Plan International and water supply development

Plan International Project, like other integrated programmes in the country, are vigorously pursuing activities for service provision to the rural poor including improved wells. Indeed as Table 1 makes clear, improved wells were the first to be established in each of the 12 community residential areas examined. Others such as schools, community centres, market centres and animal husbandry - followed.

Table 1 Integrated services provision in Plan International project's community workers residential areas

Villages	Water supply	School building	Community centre	Health centre	Market	Animal husbandry
Masongbo	*(1978)					
Makene-bana	*(1977)	*(1978)	*(1982)	*(1980)	*(1979)	
Mokothe	*(1980)	*(1984)				
Pundung	*(1977)	*(1979)	*(1979)	*(1980)		
Kerefe-loko	*(1977)	*(1978)	*(1980)			
Yali-sanda	*(1977)	*(1979)	*(1980)			*(1981)
Mange	*(1978)	*(1980)	*(1982)			
Magbenteh	*(1979)	*(1980)				
Madina	*(1980)					
Moyoba	*(1978)					*(1982)
Kolisoko	*(1978)	*(1978)	*(1979)			*(1980)
Masimera	*(1978)		*(1981)			

\* Service provided

( ) Date of service provision

Source: Plan International Progress Report, 1985.

Table 2 Plan International improved well status

Village	Dry season well status March, 1988	Dry season well status March, 1989
Masongbo	Not in use	Not in use
Mankene-bana	Dried out	Dried out
Mokothe	Dried out	Dried out
Pundung	Dried out	Dried out
Kerefay-loko	Not in use	Not in use
Yali-sanda	In use	Not in use
Mange	Dried out	Dried out
Magbenteh	Not in use	Not in use
Madina	Dried out	Dried out
Moyoba	Dried out	Dried out
Kolisoko	Not in use	Not in use
Masimera	Dried out	Dried out

Source: Field survey, 1989.

Table 3 Summary of improved well status

Condition of well	March, 1988 no. of wells	% no. of wells	March, 1989 no. of wells	% no. of wells
Dried wells	7	58	7	58
Not in use	4	33	5	42
In use	1	9	0	0
Total	12	100	12	100

Note: Reasons for improved wells not being in use include:

- Have adequate water sources and dislike taste of improved well water (one village);
- Closed down by water agency because of well misuse (one village)
- The pulley system to lift water from well has broken down (one village)
- Superstition i.e. improved well might have been contaminated by magical charms (two villages)

The theoretical argument for providing village improved wells can be stated as follows:

"To provide safe and adequate water for villagers to improve their health status for increased agricultural productivity." (UNDP/WHO, 1981)

But in practice, few actually fulfill this role. Table 2 and the summary in Table 3 show how few improved wells were in use during the period of investigation. Of the 12 improved wells constructed in the study area, only one (9%) was in use during the dry season of 1988, and this dropped to zero in 1989. Thus, the vast majority of the improved wells, 11 (91%) in 1988 and all 12 (100%) in 1989, lay out of use over the very period when their contribution should have been greatest. Also of some concern is the proportion of these unused wells which dried out, seven (58%) in 1988 and

1989, effectively precluding their use, and raising serious questions about the adequacy of the programme. Dry wells result directly from the misguided policy of year-round wells construction programmes followed by the project in their efforts to secure funds, by meeting yearly targets of wells to be constructed to justify funds disbursement. Improved wells constructed in the rainy season (May to October), when the water table is high, are unlikely to provide water in the dry season when the water table is much lower.

It can be stated from the data presented so far that a major reason for the limited impact of improved wells is the general scarcity of water they provide. Therefore, one line of argument could be to sink more improved wells or to improve on the current ones such that they provide dry season water. But Table 4 shows the estimated cost of an improved well amounting to Le.8,400 (US\$6,720) (MANR, 1981). In a financially constrained economy, one must ask whether the Government of Sierra Leone can afford this. Furthermore, with villagers' contribution to the construction of a single improved well amounting to about 11 percent of the total cost, construction of further wells or improving on wells already constructed can place a heavy burden on an economically very constrained rural sector. One is therefore led to question the advisability of sinking or improving expensive wells, which are not only costly but also less than perfect, and to ask if alternatives are available in the rural areas of the country to improve water supplies.

As shown in Tables 5 and 6, villagers in all the study sites use a range of water sources. Despite having been provided with improved wells, they continue to use traditional water sources such as swamp dug pits and

Table 4 Estimated cost of one improved well (1982) Exchange rate use US\$ = Le.1.25

1. Expendable materials used in well construction include cement, re-enforcement rods, timber, pulley and paint	1380.50
2. Construction personnel: Includes salaries for technicians, drilling and technical supervisor	882.00
3. Equipment/vehicles: Includes petrol, oil and lubricants and expendable construction materials at 35 wells per year and capital equipment and vehicles depreciation for 3 years or 100 wells	2025.00
4. Health Education: Includes environmental education workshop salaries for health education, materials and spares and P.O.L. for motorcycle	420.77
5. Administrative? operations: Includes salaries for all administrative managerial and support personnel, bush allowance employee benefits, travel, and per diem allowances, postage, rent, electricity, office equipment, purchases etc.	2250.00
TOTAL AVERAGE COST/WELL CONSTRUCTED	6958.27
Average overheads - 7.42%	517.73
6. Community input of labour, materials, sand and gravel, fencing, food and lodging for construction team.	924.00
TOTAL COST OF AN IMPROVED WELL	8400.00

Source: MANR, 1981, p. 14.

Table 5 Villagers drinking water sources (wet season, 1989)

Village	Drinking water sources
Masongbo	stream/river, rainwater, traditional well
Mankenc-bana	stream/river, rainwater, traditional well
Makothe	stream, rainwater
Pundung	stream, rainwater, traditional well
Kerefay-loko	stream, rainwater
Yali-sanda	stream, rainwater, traditional well
Mange	stream, rainwater
Magbenteh	stream, rainwater, traditional well
Madina	stream, rainwater, traditional well
Mayoba	stream, rainwater
Kolisoko	stream, rainwater
Masimera	stream, rainwater, traditional well

Note: There was no use made of the improved well in all villages.

Table 6 Villagers drinking water sources (dry season, 1989)

Village	Drinking water sources
Masongbo	swamp pit, spring and traditional well
Mankene-bana	swamp pit, traditional well
Makothe	swamp pit, spring and traditional well
Pundung	swamp pit
Kerefay-loko	swamp pit
Yali-sanda	swamp pit, trad. well, improved well
Mange	swamp pit
Magbenteh	swamp pit, traditional well
Madina	swamp pit
Mayoba	swamp pit, spring
Kolisoko	swamp pit, traditional well
Masimera	swamp pit, traditional well

Source: Field survey, 1989.

traditional wells. Swamp pit, for example, are important in providing villagers with dry season water supplies. It has been shown that Sierra Leone has vast extent of swamp lands - "Bolilands". Such lands allow easier access to ground water than upland areas, because of the higher water table in such swamps - especially during the crucial dry season (Airey, 1978; F.A.O., 1977).

Villagers can dig water in swamps using traditional tools such as shovels, since a depth of no more than two meters will ensure adequate water. Traditional wells also meet dry season needs for most villagers in rural Sierra Leone. They are constructed by traditional well diggers whose knowledge of the local hydrology and of the optimum season timing for well-sinking ensures that such wells never go without water in the dry season. Even though they are dug with crude traditional instruments, such tradi-

tional wells have often been criticized on the grounds that they are not lined with concrete and often lack covered lids, making them vulnerable to contamination. However, it is perhaps essential to secure adequate water in the first place before worrying unduly about the quality of such water sources.

The key point is that despite the existence of improved wells, the bulk of the communities' water needs are still met by so-called "traditional sources", such as swamp pits, which have been found in use in Third World countries for generations (Konkhai, 1978). These traditional sources rest on a strong base of existing rural knowledge that could be used for development. Agencies concerned with development need to take this into account if they are to be able to see where outside help is most needed or would be best realized, and thus to use aid more effectively. The next question is, to what extent the rule requiring communities to meet about 11 percent of the total cost of improved wells affect their use? Observations and informal interviews held during the course of the work suggest that villagers are willing to meet the considerable cost involved not because of their genuinely perceived need for an improved well, but because they are interested in the associated benefits of the integrated package. In other words, they may be prepared to meet the cost of a well because they want a school, community centre or a health centre. Indeed, this situation is encouraged by Plan International since the fact that a village has an improved well is seen as a precondition for and necessary link to the provision of other services.

The final section addresses the question of which local water developments are likely to work effectively, and why. A case study water development in Gbonombu village is examined. The object is to explore the circumstances under which water supply developments can be made to work successfully. The study thus indicates that not only have Plan International project villages failed to benefit from their improved wells, they may never have felt the need for them in the first place. The waste of financial resources for both Plan International and the communities themselves has been great, but it could have been avoided. It is unlikely that the project discussed in this paper is exceptional, and similar situations have arisen within other integrated rural development projects in Sierra Leone. In short, they arise because rural water supplies are conceived "at a distance" without reference to local knowledge, needs or resources. Paradoxically, the enthusiasm for improved rural water supplies generated by World concern in the "Decade for water for all by 1990", which has directly resulted in such large numbers of water supply projects in Sierra Leone, is partly responsible for this state of affairs.

### Gbonombu - a case study of an efficient improved rural water supply system

Gbonombu is located about 42 km from Moyamba, the headquarter town of Moyamba District. It had a population of 790 people in 1974 (Central Statistics Office, 1974). Gbonombu has a working improved well providing

year round water to its people. Improved well construction there received support from three institutions – CARE (Co-operation of American Relief Everywhere), MEP (Ministry of Energy and Power) and LIONS International.

With the introduction of village well schemes in the District in 1980 by CARE/MEP as part of their integrated programme, many villages in the Moyamba District made requests for improved wells through their Chiefs and Parliamentary Representatives. Gbonombu like many other villages suffered from dry season water supplies constraints. Villagers had to spend many hours looking for water from other areas involving return distances of over 6 km, especially during the driest period – March.

The village women organized themselves to find ways of getting support for an improved well in the village (and selected two women to represent them). The two female representatives were the first to approach the village chief about the subject. A village meeting was subsequently held and the villagers agreed to form a committee of 5 persons, to include the assistant chief, the head of the young adult males labour group, the two women representatives and the head master of the village school. These people were to form a delegation to approach individuals and organisations concerning funding possibilities for the scheme. The villagers also agreed to raise money to meet the cost of transportation for the delegates. On August 10, 1986, the delegation from Gbonombu village met with the Paramount Chief in, Taiama, the administrative head of the chiefdom and he agreed to put in a word on their behalf to the CARE village water supply provision in Moyamba. The village delegation also travelled to Freetown, the capital city of the country on August 29, 1986 to seek assistance from other organisations. LIONS International agreed to meet some of the cost for the improved well and LIONS approached CARE Freetown and MEP for funding and to work out the details of how Gbonombu's well water supply scheme should be funded. CARE, LIONS and MEP eventually agreed to meet 89 percent of the cost for the improved well between them. Villagers met their 11 percent share by providing labour, food and accommodation for a well digging team and they also provided building aggregates (sand and stones). Work was completed in the dry season of 1987, attaining a well depth of 12.95 metres.

#### *Village Work Organization*

A number of village work groups were formed to organize the operation of the improved well.

- (a) The village head master was responsible for communication matters, especially with the funding agencies. He also takes part in the health education meetings in Moyamba organized by the United States Peace Corps team, and undertakes to educate villagers on matters relating to health and improvement of the new water supply system.

- (b) Responsibility for well construction was shared as follows:
- i. The women in the village were responsible for preparing meals for labourers.
  - ii. Provision of sand, gravel and stones was undertaken by the teenagers in the village, under the leadership of the head of one of Gbonombu's agricultural labour groups. Such labour groups have been very effective more generally in solving agricultural labour bottlenecks and seasonal shortages in rural Sierra Leone, since the household cannot provide labour on time for various agricultural tasks (Karimu, 1981; Richards, 1985; Spencer, 1974).
  - iii. The assistant chief was responsible for providing accommodation for the well digging team.
  - iv. Each household in the village provided two labourers to assist with well digging. At the same time, the household providing labour on a particular day also took responsibility for providing food for the well digging team.
  - v. The head woman is responsible for the general cleanliness of the well. The well is usually opened at about 7 a.m. and closed down at about 7 p.m. every day. A lock and a fence has been installed to keep domestic animals away.

#### *Lessons to be learnt from Gbonombu's water supply development*

Gbonombu clearly demonstrates that the need for an improved well existed and it acted successfully on this felt need to produce an effective, locally-manned scheme. Community self-help of the kind indicated in this case study is probably the key to promoting effective water supply development. The essential point is that the villagers themselves took the initiative in seeking help and then in working out the detailed administrative arrangements.

The unsolved issue is how to engender this local organizational impetus. In the meantime, the selection criteria of agencies like Plan International might be re-oriented towards those villages showing prior evidence of this kind of internal capacity for effective mobilization. Further case studies may indicate the factors which differentiate those villages which seem able to achieve it, from those which do not.

#### **Conclusion**

Sierra Leone is currently engaged in an integrated development strategy to improve the productivity of its agricultural labouring rural communities. This strategy includes the provision of rural water supplies, roads and health facilities. This paper has examined the water supply component of this integrated package, concentrating specifically on the activities of Plan International's water supply scheme in Bombali District, Northern Sierra Leone. In the 12 residential areas of Plan International, 12 improved wells were

constructed. Only one (9%) was working in the dry season of 1988, and none in 1989. Dried out wells result from Plan International's misguided policy of year-round well construction. The communities instead retain an overwhelming dependence on traditional water sources such as swamp pits and traditional wells, resting on their rich local knowledge for the construction of such sources. It is important for development agencies to appreciate such rural knowledge and use it for development purposes. Only in this way will they be able to see where outside help is most needed or would be best applied, either to protect the local knowledge itself or to supplement such indigenous systems at identified points of critical weakness.

Improved wells and other services of the integrated package should be provided to villagers where the community demonstrates a genuine need and interest, as the people of Gbonombu so clearly did. Here, villagers were motivated to organize themselves to seek support for the construction of an improved well, because dry season water problems did exist.

Lively community involvement is probably the key to promoting the integrated package, and in this context, one may ask if it might be appropriate for the development agencies to take the initiative. It might be better if villagers were encouraged to seek out the help they need by approaching an institution such as Plan International themselves. If and when local initiative is pushing in the right direction, making detailed administrative arrangements for the kind of water supply and extension service envisaged becomes the next practical step, bringing together local administrators and development agencies in an effective and creative partnership with local groups. The sad story of failed water supply developments as a whole, is more a question of a shortage of such partnership, than a shortage of water as such.

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