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Ghana dug wells project

E.K.Y. Dovlo and C.K. Katsekpor

INTRODUCTION

Country Background

Ghana is located on the west coast of Africa. Its surface area is about 238,500 sq.km.

The country is divided into 10 regions, which are further divided into 110 districts and administered by district councils. The country is administered by a central government with its seat in Accra.

Economy of Ghana is heavily dependent on agriculture which contributes about 40% of the gross national product in recent years. About 57% of the economically active population is engaged in agriculture. Cocoa is the mainstay of the economy and contributes 12% of the gross domestic product and 60% of export earnings. This is followed by minerals and timber.

A population census conducted in 1984 established the national population as 12.2 million resident in 47,185 communities. The average population growth rate is 2.6% per annum. About 70% of the population live in the rural areas in some 47,000 communities. Some 30% of the population reside in communities of population below 500 which are the target communities for the dug wells project.

Water Supply Sector

Ghana Water and Sewerage Corporation (GWSC) is the sector institution responsible for development, operation and maintenance of water supply and sewerage systems for domestic and industrial purposes throughout the country.

The GWSC operates 208 piped water supply systems and over 6000 handpumped wells serving 56% of the population throughout the country. These systems serve 93% of the urban population and 40% of the rural population.

The Government of Ghana launched an action plan for the water decade in 1982. Under the plan, it was proposed to rehabilitate the existing water supply systems, complete on-going projects and accelerate rural water development. The dug wells project forms part of the accelerated rural water development plan.

OBJECTIVES

The objectives of the dug wells project are:

1. To improve productivity and health profile of the rural population by increasing their access to safe water supply and adequate sanitation.
2. To create community awareness and self-reliance for provision and maintenance of basic needs.
3. To provide training and opportunity for rural communities to participate in the provision of basic amenities for themselves.

PROJECT DESCRIPTION

Scope and Activities

The project is expected to provide 10,000 wells for small rural communities of population below 500 throughout the country over a period of five years. In a project planning document entitled "Operation Dry Throat - The Search for Good Drinking Water from Hand-Dug Wells for Small Rural Communities in Ghana" prepared in May 1986 by the GWSC; it was estimated that there are about 40,000 such communities of total population 3.3 million, representing 30% of the country's population. Of this population, only 15% have access to potable water. Dug wells are considered appropriate for small communities in terms of technology, cost effectiveness, affordability and sustainability. It is also proposed to promote the construction of VIP latrines as a follow-up project in the target communities.

The main activities of the project are:-

1. Mobilisation of the communities to participate in planning, implementation and maintenance of the project through village animation, health education, etc.
2. Mobilisation of resources - men, materials, tools, equipment, etc.- required for project implementation.
3. Organisation of training courses, workshops, etc. to transfer technology to artisans and community workers who will be involved in construction of wells and latrines.
4. Establishment of project supervision units at regional and district levels in

collaboration with district councils,

5. Construction of dug wells and VIP latrines. Where dug wells are unsuccessful, other simple water supply systems such as rainwater catchment, spring boxes, small dams with infiltration galleries, etc. will be constructed.

6. Preparation of "How to do it" booklets on appropriate technologies for development of rural water supply and sanitation.

Organisation

The basic concept behind this project is full community involvement in all aspects of the project - from procurement of materials to construction, operation and maintenance stages. The concept of full community participation is expected to promote a sense of ownership which will foster community interest in the proper operation and maintenance of the facilities.

The project is being implemented on community initiative basis. The communities develop their own project proposals, mobilise the necessary resources and obtain financial and technical assistance from the Government and donor agencies through the district councils and GWSC. These activities are co-ordinated by community water and sanitation committees. At the district level, the district councils and GWSC through district water and sanitation committees provide logistic and technical support. Direction, monitoring and evaluation of the project are provided by regional and national committees comprising GWSC, regional and sector-related ministries such as local government, rural development and health.

Resource requirements

Each well sinking team consists of a well-sinker, and a volunteer. They are assisted by communal labour in the village. It is

estimated that 260 teams are required over the project implementation period. Supporting services comprising training, preliminary investigations, village animation, site selection, construction supervision, health education, monitoring, etc. are organised from the district, regional and national levels by well supervisors, works superintendents, hydrogeological and engineering technicians and community health officers. It is estimated that 210 of such personnel are required.

The basic tools and equipment per well sinking team are 2No. short-handle pick-axes, 2No. short-handle shovels, 2No. steel or wooden buckets, 3No. complete units of metal or wooden moulds, a mason's chisel, a sledge hammer, and an overhead steel or wooden frame complete with winch and rope arrangement. In the absence of the overhead frame, a rope ladder and bucket and rope are used.

The construction materials required for a well, 15 metres deep and 1.2 metres diameter, are 50 bags of cement, 8 cubic metres of stones, 4 cubic metres of sand, and 9 metres of 12mm diameter mild steel rod for reinforcing the well cover slab.

For efficient implementation of the project, vehicles for movement of support services personnel and conveying materials to sites are required. In addition, plant and equipment for excavation in soft and hard rock, dewatering, and for water yield and quality tests are required.

The communities contribute communal labour, local materials such as sand and stone, and money for procurement of cement and other inputs. The government provides ten bags of cement per well and finances the cost of logistic and technical support services. Donor agencies and NGO's have been providing foreign inputs and services

IMPLEMENTATION

Implementation Stages and Agencies

Table 1 below shows the stages of implementation, time table and the various agencies involved. Project Inception was in May 1986.

Item No.	A c t i v i t y	Time Schedule (Years)					Responsible Agencies
		1987	1988	1989	1990	1991	
1	Training workshops in well and latrine construction	—	—	—	—	—	GWSC/District Councils
2	Village animation and site selection						GWSC/Community Dev.
3	Supply of basic tools						GWSC/Donors
4	Supply of Construction materials						GWSC/Communities/Donors
5	Construction of wells and latrines						GWSC/Communities/Donors/ Volunteers
6	Preparation of "How to do it" Booklets	—	—	—	—	—	GWSC
7	Project monitoring & evaluation	—	—	—	—	—	GWSC/Donors

Cost Estimates

The estimated project cost is \$18.53 million (May 1986 prices). A summary of the cost during the five year project period is given in Table 2 below:

<u>Project Cost Estimates</u>		<u>Estimated Cost \$ million</u>		
		<u>Local</u>	<u>Foreign</u>	<u>Total</u>
		<u>Currency</u>	<u>Currency</u>	<u>Cost</u>
A. <u>Ghana Government and Donor Contribution</u>				
1.	Preliminary Activities (Mobilization)	0.33	0.25	0.58
2.	Transport, tools and equipment	0.33	2.50	2.83
3.	Materials for construction (cement, iron rods, etc)	1.14	-	1.14
4.	Supervisory labour (semi-skilled)	1.93	-	1.93
5.	Health education activities	0.60	0.10	0.70
6.	Sanitation Component (VIP latrines)	2.07	-	2.08
7.	Institutional Support and Contingencies	0.34	4.75	5.10
	Sub-Total	<u>6.74</u>	<u>7.60</u>	<u>14.34</u>
B. <u>Community Contribution</u>				
1.	Communal labour for site clearance, well excavation, lining and maintenance	0.78	-	0.78
2.	Materials for Construction and Operation	3.41	-	3.41
	Sub-Total	<u>3.19</u>	<u>-</u>	<u>4.19</u>
	Grand-Total	<u>10.93</u>	<u>7.60</u>	<u>18.53</u>

Funding Agencies

Table 3 below gives details of the agencies funding the project, indicating the number of wells proposed, estimated cost, number and population of target communities, project duration and status of implementation:

Item No.	Funding Agency/ Project Title	No. of Wells Proposed	Total Estimated Cost (\$m)	Target Communities		Duration (Years)	Starting Date	Status
				No.	Pop.			
1	UNDP: Improvement in Drinking Water and Sanitation (Pilot Project)	25	1.01*	18	8,000	2	January 1984	Completed in 1986
2	UNICEF: Small Communities Water Supply and Sanitation Project	66	0.6*	61	20,000	3	March 1988	5 wells completed
3	WATERAID: Rural Water Supply Proj.	145	1.3	145	43,000	5	June 1987	23 wells completed
4	PAMSCAD: Dug Well and Low Cost Sanitation Project	2000	7.5*	1500	600,000	2	January 1989	Village animation, tools and equipment mobilization in progress
5	NATIONAL BUDGET: National Hand-Dug Well Project	6364	12.4*	5500	1.2	5	January 1987	50 wells completed
6	OTHER NGOS: Rural Water Supply and Sanitation Project	1000	2.0*	900	300,000	5	June 1987	40 wells completed

* Costs include sanitation component.

In 1984 the UNDP started a pilot project GHA/82/004 - Improvement in Drinking Water and Sanitation with dug-well and low cost sanitation (VIP latrine) components. Twenty-five dug-wells and 50 latrines were constructed in the rural areas during the two-year project period. The impact of this project led to the organisation of a National Dug Wells Workshop in 1985. As a result of the Workshop, GWSC and a number of donor agencies and NGO's formulated dug well programmes which now constitute this Project.

Under the UNICEF assisted project, 66 hand-dug wells and 68 KVIP latrines were proposed. Logistic support such as vehicles and tools were supplied to the project early this year. Five wells have been completed to-date.

WATERAID, a UK charitable organisation, proposed to construct 570 wells in rural communities from 1987-90. To-date 15 dug wells have been constructed.

Under the PAMSCAD (Programme of Action to Mitigate the Social Cost of Adjustment), the Government has sought funding from foreign donors for the construction of 2,000 dug wells and 6,000 single-unit non-alternating VIP latrines for 1500 rural communities of total population 600,000 at an estimated cost of \$7.5 million (1987 prices). Village animation and training workshops are expected to start this year.

The National Hand-Dug Well Project was launched in June 1986 with village animation and mobilisation of tools and equipment. This was followed by the second National Training Workshop on dug well and latrine construction in early 1987. Funds were released by the Government in 1987 and work was started in all districts of the country. Over 50 wells have been completed and a large number in progress.

NGO's involved in the development of rural water supplies and sanitation in the country are also undertaking hand-dug well and VIP latrine construction. It is estimated that over 50 wells have been constructed by them in the rural areas. Their projects are expected to provide about 1000 wells during the five-year period.

It is worth noting that communities have traditionally been providing dug wells for themselves from their own resources. In addition some district councils have engaged the services of private well sinking contractors to construct dug wells in their areas. These wells are funded by means of special development levies.

Problems

The project initially experienced delays in provision of steady and adequate logistic support such as vehicles, equipment and construction materials due to inadequate funding. However, now that donor agencies and the Government have mobilised funds, it is expected that implementation will be accelerated to make up for lost time. Training workshops provided interesting forum for the implementing agencies who made available their artisans and resource persons.

Village animation and community participation are important aspects of the project but could not be adequately addressed in the early stages for reasons stated above. It should be emphasised that the full benefits of the project cannot be realised without community interest and involvement.

EXPECTED IMPACTS AND BENEFITS

Impacts and Benefits

The expected impacts and benefits are primarily improvement in health, social and environmental status of the target communities. It is expected that good drinking water and sanitation will reduce the incidence of water-borne and water-related diseases and mortality. Reduction in morbidity will make more time available for economic and social activities which will lead to improvement in productivity and quality of life.

Technologies appropriate to the socio-cultural background and low-income status of the target communities have been adopted to ensure their sustainability and replicability.

Conclusion

It is clear today, that the days of hi-technology for development of water supply and sanitation in rural areas are numbered. Appropriate technologies such as dug wells, VIP latrines, rainwater harvesting, etc. are taking over. The future looks bright, for rural communities can themselves initiate and pursue these activities which would abate the continuing trends towards ill-health and poverty.

The concepts and objectives of this project are in line with the Government's policy of decentralization, self-reliance and mobilization. It is expected that the project will benefit about 17% of the national population by the year 1991, thus contributing significantly to the goals of the water decade.