



Ato Brown

The task of renovation and operation of water supply and sanitation in Ghana

1.0 INTRODUCTION

1.1 The Government of Ghana from the time of independence in 1957, has been placing high priority on the provision of safe and adequate drinking water and improved sanitation. From a mere 35 water systems before independence, there has been a rapid expansion to about 195 systems boosting coverage from a low 5-10% to 59% today. Sanitation has also been seen a major improvement in the form of numerous public and household facilities over the years.

1.2 These trends were fueled by the very positive economic circumstances of the 1960's and the desire to meet the glorious aspirations of the independence from colonial rule. There was a sudden departure from the modest beginnings of the 1950's, with hand dug wells, shallow boreholes with hand pumps, rain water harvesting, spring tapping arrangement and pit and pan latrines, giving way to ambitious conventional high technology systems.

1.3 Today these advances have generated into a crisis following major reverses in the economy from the oil crisis of the early 1970's. The situation has been met with high maintenance and investment costs and shortage in manpower culminating into poor organization and stagnation in the delivery of water supply and sanitation.

1.4 This paper will want to throw some light on the state of water supply and sanitation in the country, outlining the task for renovation and operation and argue out some recipe for rejuvenation to meet the ambitious targets of the International Drinking Water Supply and Sanitation Decade.

2.0 THE STATE OF WATER SUPPLY AND SANITATION

Water Supply

2.1 The present water supply coverage according to community size is given in Table 1 (next page). It is seen that 59% of the total population of 12.7 million now have access to safe drinking water. Of the Urban population a little over 90% enjoy this facility as against only 37% of the rural population. The rest of the population domiciled in over 40,000 communities thus, rely on defective dug wells, ponds, streams and other unwholesome sources.

2.2 The Ghana Water and Sewerage Corporation (GWSC) since its incorporation in 1966 has been responsible for the provision of potable water and this is at present supplied to the population as follows:-

(i) Pipe borne water, where treated water is distributed through household connections and standpipes from 195 systems. These are made up of conventional treatment plants, package treatment plants and ground water mechanized systems serving close to 5 million people.

(ii) Non-pipe water supply from drilled borehole fitted with hand pumps. There are in all about 6,000 of these all over the country serving 2 million people.

2.3 Water supply services in many urban and rural areas are intermittent and unreliable due to inadequate maintenance funds and foreign exchange support for spare parts and replacement of equipment, chemicals and high energy costs in operation. In the Volta Region alone out of the 36 systems only 18 were ever operational in 1984. Revenue from water tariffs has been met annually with a subsidy of £550 million (£50.00 = \$1.00, Dec. 1984). Water supplied to consumers is in most cases as low as 13.5 - 22.5 litres per capita per day. The situation is further compounded by the shortage of manpower, both skilled and sub-professional. It is said that the GWSC has only a third of its requirement of Engineers and Technicians.

Sanitation

2.4 As data on excreta disposal facilities is not available, a conservative estimate based on studies in a few large urban towns shows that 30% have private water closets, 35% have private pan latrines and 21% use public facilities. The rest use nature such as beaches and bush, etc. There are at present 3 community water-borne sewerage systems in the country, 2 in newly created townships, Tema and Akosombo and the third in Accra where to date only 50% of the older section of the city has been sewered by GWSC.

2.5 There are some 30 water-borne sewerage systems in various institutions throughout the country. 7 with oxidation ponds, 15 are of the trickling filter type and 8 use the activated sludge process. Most of them are either "abandoned" or "not functioning".

2.6 In the rural areas only a small percentage say 10% of the houses have private privies. All others use public facilities which are usually pit (trench) latrines without lining or super structure and logs for squatting slabs. Indiscriminate defecation is common

Table 1
POPULATION SERVED WITH DRINKING

		Population Group		
		Below 100	101- 199	200- 499
1.	No. of Communities (1970 census)	35,974	4,449	4,268
2.	Estimated 1984 pop. (final details of 1984 not yet out)	1,629	816	1,733
3.	Pop. served with drinking water in 1984	12	80	300
4.	% of Pop. served with drinking water in 1984	1.2	9.8	13.7

WATER IN 1984 (In Thousand)

(Rural)			Total	
500- 1,990	2,000- 4,999	Rural	Urban above 5,000	Urban and Rural
2,621	332	47,634	135	47,479
3,049	1,231	7,858	4,863	12,721
1,700	860	2,952	4,557	7,509
55.8	69.9	37.6	93.7	59.0

in many rural communities.

- 2.7 The management pan latrines has suffered in recent times due to a general break down in dehumanizing conservancy system. Hands are not readily available and replacement of pans are delayed. The public latrines maintenance especially around the urban fringes has also deteriorated remarkably following mass break down of vacuum trucks. This situation is seen in a more hopeless dimension in refuse disposal.

- 2.8 Low budgetary allocation for improvements has put the district councils and department of community development (responsible for provision of sanitary facilities, urban and rural respectively in a very poor performance shape with regards to sanitation. Moreover low water supplies makes water related sanitary systems less feasible and will remain so for many years to come.

3.0 TASK OF RENOVATION AND OPERATION

- 3.1 From the above the tasks for the second half of the decade are clear; close to 50,000 communities covering a population of about 5 million in the rural areas should be provided with access to safe drinking water. Efforts should be doubled to maintain the modest 93% coverage in the urban setting and expand to cover the full population. There is also the task of providing close to 1,000,000 units of latrines to push coverage to the estimated 15 million people by the year 2000. This ambitious programme must be accompanied by parallel programmes for training operators, professional staff and research.

- 3.2 The development objective for improved water supply could be summarized as follows:

- (a) Rehabilitation and stabilization of existing water systems to restore these to original capacities.
- (b) Review of on-going projects where physical work is in progress or is yet to start for possible implementation.
- (c) Rehabilitation of all hand dug wells and shallow boreholes with unserviceable hand pumps and installation of hand pumps on boreholes which have been capped.
- (d) Provision of hand dug wells and shallow boreholes in communities with 100 to 2,000 inhabitants.
- (e) Provision of supporting services, workshops, stores, transport, etc.
- (f) Strengthening of institutional framework and manpower base for responsible renovation and operation of supply systems.

This programme which was estimated to cost about £3,000 million in 1982 is now £30,000 million in present day prices out of which about £10,000 million is required as off-shore complement for equipment and spares and raw material for locally produced items.

- 3.3 For sanitation the task for renovation is categorized as below:-

- (a) Improvement of public toilet facilities in the low income and urban fringe areas by the construction of improved latrines such as pour flush latrines and V.I.P. latrines or possibly connecting these facilities to existing sewers where feasible.
- (b) Improvement of sanitary services by the provision of vacuum trucks, transport vehicles and other needed spare parts for rehabilitation. This is to ensure

efficient excreta disposal and refuse management in the urban areas.

(c) Provision of improved pit latrines in all rural villages not served by the district councils.

(d) Re-organization of the institutional support system within both the Rural Development and Local Government ministries for effective delivery and management of sanitary systems.

These development works are estimated at about ₵4,000 million with close to ₵1,000 million as off-shore component for the provision of equipment and raw materials for local production.

- 3.4 These tasks as contained in the national action plan consultation paper in 1982, remains the same today since not much improvement has been seen in the 'junk yard' scenerio that has plagued the country particularly in the water supply and water-related excreta disposal systems. The total of ₵34,000 million is also accompanied by a 'support programme' for training, demonstration, education and research at a cost of ₵200 million with ₵90 million required as offshore cost component.
- 3.5 A closer look at the world today, present Africa as a very ostentatious continent calling for higher capital investments to meet the Decade goals compared to WHO's South-East Asia region which is pushing initiatives based on community participation and choice of appropriate technology. But I must say that, the 'warning' signals have not gone unheeded in Ghana and recent experiences with appropriate technology and community participation is already defining an alternative path for renovation and operation of water supply and sanitation.
- 4.0 RECENT EXPERIENCE IN APPROPRIATE TECHNOLOGY AND COMMUNITY PARTICIPATION
- 4.1 The promotion of shallow boreholes fitted with hand pumps has made such an impact that the signs are clear that this low technology renovation will receive a major promotional effort. The Joint Ghana Government/CIDA project in the Upper Region has a water utilization component that has brought hand pump usage and maintenance closer to the people. Activities such as well head pad construction and well head sanitation, cattle watering facilities have been promoted with the active participation of the communities.
- 4.2 This encouraging development has expanded into the Northern Region through the test boreholes drilling project and plans are afoot to start another extensive rural water programme. UNICEF is assisting the drilling unit of the GWSC in the rehabilitation of most 'abandoned' boreholes and with a long term objective to produce hand pumps and their spares locally. The VLOMP project has moved into yet another successful phase

whilst the Roman Cath. Church is also financing borehole programmes in the some critical regions of the country. This departure from the conventional high technological approach is seen as a healthy response to the crisis. But at current prices a shallow borehole fitted with a hand pump cost ₵500,000. Compared with the cost of ₵50,000 for a 14m deep, 1.3m diameter hand dug well with a wide apron, well head and well cover, this impressive start at renovation should be met with cautious realism.

- 4.3 The rural people in their own wisdom are mobilizing themselves day in and day out engaged in hand dug well activities and this is gradually becoming a national phenomenon dovetailed into the P.H.C. programme underway in the country. These efforts are being backed by churches, volunteer groups, multilateral agencies and a host of NGO's around the country.
- 4.4 In one particular hand dug well project in the Central Region light precast concrete blocks have been used to line wells cheaply for domestic use and irrigation. The use of a simple lifting mechanism; the rope and plunger hand pump has been exhibited with much success that there is much hope to travel a little beyond the pollution strife days of the traditional bucket and line, given wide popularization. The same system has been used to rehabilitate abandoned boreholes at about ₵8,000 compared to about ₵25,000 needed to instal imported new hand pump. All materials are available on the local market and the only 'expert' needed for construction and maintenance is the village carpenter and mason with community participation.
- 4.5 Research on alternative sanitary systems by the University of Science and Technology has produced the Alternating Ventilated Indirect Pit (KVIP) which is fast becoming a household word among village/town development communities around the country. This innovation has been given quite a big push by the Rural Development Ministry which is engaged in the construction of about 100 ten-seater units all over the country, through communal labour. This system has also provided the answer to the question of how to convert an estimated 200,000 household pan latrines into improved pit latrines. It must be said that all has not been well with this excellent innovation. At a staggering cost of ₵500,000 for a 10 seater communal facility and ₵40,000 for a private 1-seater facility most communities are being pushed out of their enthusiasm.
- 4.6 As research is going on to push the cost to affordable levels, less dimensional efforts on the introduction of the Mozambique slab type and Zimbabwe VIP latrine in the Upper Region (CIDA Project)

and Nima slums of Accra (with support from UNICEF) respectively have seen such great potential in community participation and cost recovery operation. Costs range between ₵1,000 to ₵5,000 and all these are paid for by the beneficiary households with maintenance assured. The take over of public latrines by community committees in most parts of Accra and in other urban centres since 1983 has also seen a remarkable rehabilitation and maintenance virtually taking most of the operational load off the backs of the district councils.

- 4.7 All these isolatory developments are being consolidated in an integrated manner under the Ghana Government/UNDP Joint project "Improvement in Drinking Water and Sanitation" intended to support national participation in the International Drinking Water Supply and Sanitation Decade (IDWSSD) programme. A three-component programme involving rural water supply, sanitation and health education is seeking to bring together GWSC, Department of Community Development, Ministry of Health and the National Service Secretariat to relate to the issues at stake with a responsible and appropriate philosophy.
- 4.8 This project has taken off in two pilot regions with training programmes synchronizing theoretical and practical perceptions on available low level technology (hand dug wells, spring, etc. and simple improved pit latrines) and community motivation techniques. Emphasis in this project is on the encouragement of participation of local people in the planning, design, implementation and management of the projects through their own local water and sanitation committees. The project also foresees the training of a large cadre of 'bare foot' community motivators to protect future operation and maintenance.
- 4.9 Experience has shown in a very short time the need for a dynamic and flexible approach to meet the aspiration of the rural people. In one village the question of financing a 10-seater KVIP latrine was confronted with a choice of ten, 10-seater **less** expensive option. All over the country simple and less expensive innovations are taking place and if well coordinated and systematized will make the task of renovation and operation of water supply and sanitation very easy.

5.0 CONCLUSION

- 5.1 The task appears nebulous. It is quite clear that the glorious days of high technological advancement are over and the breather provided by the recent experiences with low level technology and community participation is a good enough indicator on the path to a healthy and production life by 1990. There is little argument that community participation coupled with the choice of a dynamic and flexible appropriate technology at a range of levels are central to success in this crisis management.
- 5.2 The recipe for rejuvenation and sustenance should thus be;
 - (i) A strong Government priority and commitment to improved water supply and sanitation. Operation and maintenance costs should be met realistically through increased budgetary allocation and tariff adjustments.
 - (ii) Restructuring of the delivery systems to ensure parallel support from the Rural Development, Local Government and Health Ministries through the institutionalization of rural water supply and sanitation extension services that reflect community participation in planning, design, implementation, operation and maintenance of systems.
 - (iii) Improvement in manpower position and manpower orientation.
 - (iv) Increased renovation through the choice of least-cost technologies with corresponding low operational and maintenance costs and effort.
- 5.3 Experiences of people all over the world has shown that the task is surmountable if guided by the search for a sustainable philosophical approach. This humble approach constitutes development capital in its own right and if invested will establish the foundation of all development activities.

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