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TOWARDS THE MILLENNIUM DEVELOPMENT GOALS

Providing water at affordable cost in developing economies

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**Introduction**

Water supply in Oyo State is currently below any acceptable standard. Records from the Water Corporation indicate that 233,485m³ are generated daily by all water supply schemes but only about 55,080m³ are actually supplied daily. Statistics presented below show that statewide only 17.45% of households have piped water supply, but in Ibadan municipality 55% of households are linked to piped water supply. Thus over 56% of households in Oyo State have to obtain their water from unreliable sources. Problems identified include:

- Inadequate Infrastructure for water treatment and distribution
- Aging and corroded pipe network, booster stations, pumps, treatment plants
- Unplanned extensions and illegal connections
- Non-availability of maintenance and repair services
- Poor staffing and capacity building in the water supply sector.

Financing an efficient water supply scheme is often very cost intensive. According to Federal Ministry of Water Resources (1992) estimates, the minimum price for the development of piped water supply is about 100USD per capita. Applying this to Oyo State, this would imply that the state will require a total of 556.02 million USD for full development by the year 2010 or 461.49 million USD for development of the shortfall, if the existing 17.4% serviced households are deducted. It is doubtless that such funds are not available to the State, requiring that efficient and practicable solutions be developed to achieve the goal of water for all.

**Management Options**

**Resources development**

From above, one can deduce that most rural households in Oyo State obtain their supply from untreated sources (i.e. springs, rainwater, ponds, etc). Simple impoundment, treatment and protection techniques would make such sources suitable for use at relatively cheap cost. Rainwater harvesting is a viable supplement that can minimise the long journey to the stream in the rainy season.

In small peri-urban communities groundwater development via large diameter wells with overhead tank facilities and yard or public taps would achieve the water supply goal quicker and cheaper than any piped system would do.

In the rural areas groundwater extraction via improved dug-wells equipped with hand-pumps should be the best choice. It should focus on full community participation, especially for operation and maintenance, and draw experience from various WATSAN projects, both within and outside the State.
In the more developed urban areas, where people are able and willing to pay for such services, piped water supply to individual households should be given priority. Here a regular cost/performance/satisfaction analysis is a must.

**Operation and management (O & M)**

The O & M style adopted affects the success or failure of any water supply scheme. Thus Oyo State should adopt separate strategies for resource development and supply due to the different socio-economic groupings in the state and their different developmental levels.

Areas with piped water supply should have an optimum pipe network management with appropriate leak detection and monitoring systems. Sufficient funding for proper maintenance, repair and replacement of defective equipment must be provided. An efficient costing and charging of water rates, adequate machinery for billing, bill distribution and collection, and for network policing to detect illegal connections and apprehend illegal water users must be put in place. Personnel training and welfare is a must for guaranteed effectiveness.

At the rural and peri-urban level emphasis must be on community participation in the operation and maintenance of installed facilities. An elected community water caretaker committee should deal with matters relating to operation, repairs, maintenance and collection of water rates from users.

**Further strategy for action**

Oyo State has enough water of potable quality sufficient to meet its socio-economic requirements in the next decade. But there is need to develop proper strategies to guarantee the constancy and adequacy of supplies to all users. It must be borne in mind that surface water development via dams, beside its cost implications, also has some negative impact on the environment, especially with regard to public health hazard from the reservoir area, and permanent changes to the local hydrology. Groundwater of good quality is widely available in the State and adequate facilities for household use can be developed. Though slim boreholes are fast to construct and also provide clean water, they are costly. But improved dug wells, though slower to construct, are much cheaper, last longer and are easier to maintain by the rural populace. Such wells should be equipped with heavy covers and two or three hand pumps per well to improve hygiene standards. Going by these suggestions, the following projections can be made for capital requirement for water supply in Oyo State for the year 2005.


**Assumptions**

1. A rural population of 2,567,566
2. An urban population of 2,323,035 divided in 60:40 ratio between peri-urban and urban
   - Peri-urban = 1,393,821
   - Urban = 929,214
3. UNICEF Cost estimates for water projects
   - Rural – 40 USD per capita (wells/boreholes with hand pumps)
   - Peri-urban – 100 USD per capita (mechanised boreholes, overhead tanks, stand pipes)
   - Urban – 200 USD per capita (treatment plant, overhead tanks, piping, house connections)

**Capital requirement**

1. Rural: $40 \times 2,567,566 = 102,702,640$ USD
2. Peri-Urban: $100 \times 1,393,821 = 139,382,100$ USD
3. Urban: $200 \times 929,214 = 185,842,800$ USD
4. **TOTAL**: $427,927,540$ USD

Existing levels of achievement were not taken into consideration in these estimates. A more pragmatic approach is to estimate the cost of shortfall in supply based on the assumed average cost of 100 USD per capita as suggested by the Federal Ministry of Water Resources.

At the present supply level of 55,080,267 l/d, and projected total demand of 216,409,080 l/d by the year 2005, there would be a shortfall of 161,328,813 l/d that must be
Financial Estimates for Water Supply in Oyo State (Preferred Approach)

Rural Area
An improved dug well with hand-pumps at a total cost of about USD 500 to serve 5 households of ten persons each. This implies 50 persons per well and a per capita development cost of USD 10.

Peri-Urban Area
A mechanized improved dug well with overhead tank and piping with public taps at a total cost of about USD 1000 to serve also 5 household of 10 persons each, and yielding a per capita cost of USD 20.

Based on expected population figures earlier calculated for the year 2003, this would imply a cost of:

USD 25,675,660 for rural water
27,876,420 for peri-urban water

USD 53,552,080

Some Cost-Benefit Implications of the Proposed Preferred Approach
The cost-benefit implications of this approach, as a measure of the acceptability or otherwise, are presented here.

- Improved Affordability for All Social Levels, thus Improved Access to Wholesome Water for All.
- Reduced Time Spent Getting Water: More Time Available For Other Important Household Chores.
- Enhanced Health Benefits: Better Quality of Life
- Improved School Attendance for the Girl-Child: Better Future For the Society

Conclusion
The goal of water for all remains elusive. This study has shown that improvements can be made when appropriate measures are taken and strictly adhered to. Cost calculations undertaken in the study show that per capita expenditure in bringing wholesome water to the people could be brought to as low as USD 10 and USD 20 for rural and peri-urban dwellers respectively. When this cost is spread over an amortisation period of as low as 5 years, the average annual cost of provision of water amounts to USD 2 and USD 4 respectively, an amount that is readily affordable by even the poorest of the poor. This makes the approach quite sustainable and worthy of adoption.

References