

Water Governance Outcomes of Natural Spring Development Project in Ibadan City, Nigeria

Oloukoi, Grace (Ph.D)

Department of Environmental Management

Lead City University

Box 30678, Ibadan, Nigeria

E-mail: oreofeadeniji@yahoo.com

Tel: +234805 216 3358

Abstract

Using governance indicators, this paper evaluates service outcomes of communities' initiatives in the development of natural springs that have been in operation for the past one- and-a-half decades in Ibadan city, Nigeria. Natural spring water projects as alternative water supply sources to forestall impending water supply shortages in Ibadan were facilitated by the Sustainable Ibadan Project (SIP). This study made use of document review, site visitation and informal interviews. In addition, 280 households were sampled for water access survey in four local communities that had benefitted from the natural spring project. Research results show that the strategy has provided improved water access in the beneficiary communities. Also, the spring water projects in the case study communities have been sustained over time through cost recovery, community-based management and service efficiency, thereby fulfilling governance indices. The paper recommends the institutionalisation of the adopted strategy for further replication of spring water development in communities where such resources are available towards improved water access in Nigeria.

Keywords: *Natural spring, water shortage, water governance, water access, community-based water management, Ibadan.*

Introduction

Development of water resources is an inter-disciplinary science which encompasses human history and behaviour. Water is the principal building block in nature since it accounts for about 65% of human weight and the loss of a considerable amount of this can be disastrous (WHO, 1999). It is one of the four basic elements of all living things (WHO & UNICEF, 2003). Shortage of the supply of this important resource is evident and more challenging in urban areas not just as a result of absence of physical water resources, but more on the problems of urban growth without appropriate mechanisms for development of water infrastructure (UNDP, 2006). Urban growth in terms of population increase and spatial expansion has great impacts on water accessibility both in relation to quality and quantity of the resource that is available to urban dwellers, especially when it is measured per capita per day (Cohen, 2006). The implications of these impacts have both social and economic dimensions (United Nations, 2003). In most developing countries, weak municipal capacity to meet the challenge has necessitated alternative actions, especially from local communities to participate in water governance.

Water governance, as defined by the UNDP (2005) is the range of political, social, economic and administrative systems that are in place to develop and manage water resource and its delivery services at different levels of society. Power, politics and policy often influence the governance of water because water provision is a process of choice, decision and estimating trade-offs (UNDP, 2006). It is important to link partners (vertically and horizontally) and strengthen stakeholders' networks to move from building consensus and decision making to implementation and actual provision of water services (Hemnati, 2002). Following the International Conference on Fresh Water in Bonn in 2001 and the Johannesburg Summit in 2002, water governance has become a key to unlock water investment. Categorically, urban slum dwellers (mostly affected by water scarcity), majority of whom are very poor, are now pooling resources and capacities, thus empowering themselves,

gaining a voice in the decision making and facilitating improved access to water services (Tibaijuka, 2004). As stated by the former Secretary-General of the United Nation, working together of all stakeholders guarantees sustainable water access:

... if we work together, a secure and sustainable water future is attainable (Annan 2002; cited in Wolf et al. 2003).

The principles of good governance is applicable to the water sector because it facilitates the inbuilt trust among the service users, enhances services ownership by the community and ensures a more extensive and efficient use, better maintenance and more reliable operations (Banachowicz & Danielewicz, 2004). The UNDP (2005) provided some indicators that could be used to evaluate urban services governance as; sustainability, cost recovery, service efficiency, accountability, security, equity and participation (Table I).

Table I: Principles of Good Governances

The Principles	Related UNDP text on which they are based
1. Legitimacy and Voice	Participation—All men and women should have a voice in decision-making, either directly or through legitimate intermediate institution that represent their intention. Such broad participation is built on freedom of association and speech, as well as capacities to participate constructively. Consensus Orientation—Leaders and the public have a broad consensus on what is in the best interest of group and, where possible, on policies and procedures.
2. Direction	Strategic Vision—Leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the historical, cultural and social complexities in which that perspective is grounded.

3. Performance	Responsiveness—Institutions and processes try to serve all stakeholders. Effectiveness and Efficiency—Processes and institutions produce results that meet needs while making the best use of resources.
4. Accountability	Accountability—Decision makers in government, the private sector and civil society organisations are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organisations and whether the decision is internal or external. Transparency—Transparency is built on the free flow of information. Processes, institutions and information are directly accessible to those concerned with them, and enough information is provided to understand and monitor them.
5. Fairness	Equity—All men and women have opportunities to improve or maintain their well-being. Rule of Law—Legal framework should be fair and enforce impartially, particularly the law on human rights.

Source: Banachowicz and Danielewicz (2004)

Water governance with active participation of all stakeholders, therefore, is a vital component of actions for the following:

- i. Implement Integrated Water Resources Management (IWRM) at local, national and regional levels.
- ii. Achieve Millennium Development Goals – target on water and sanitation (against 2015) and the Sustainable Development Goals (2015-2030).

Local communities' participation in the spring water project was an initiative to combat water supply shortages in Ibadan city. The initiative was informed by the Sustainable City Programme (SCP) of the UN-Habitat 15 years ago in which prioritized environmental issues were tackled in some cities around the world. The city of Ibadan benefitted

from the SCP with water and waste management as the topmost issues. Under the water issue, the Sustainable Ibadan Project (SIP) served as the institution for the facilitation of some programmes in which development of natural spring was explored as a mini water scheme to reduce water stress in local communities where springs were available. Some studies have shown that the development and management of natural spring in Ibadan was evidence of community participation in the provision of urban services Adeniran (2005). Itama, Olaseha, and Sridhar (2006), Agbola and Adeniji (2007) reported that the development of natural springs in Ibadan is a bottom-up approach based on the use of local resources and decentralisation of water management by involving local people towards improving their own welfare.

Adeniji-Oloukoi (2012) observed that water from the natural springs in Ibadan are potable and are within the allowable qualitative benchmarks for physical, chemical and bacteriological parameters when compared with the WHO standards. The governance outcomes of the development of natural springs as alternative urban water supply in Ibadan are yet to be evaluated. The present paper, therefore, investigates service outcomes of the development and management of natural springs for domestic water supply in Ibadan to ascertain that the principles of water governance are evident. The paper is also set out to demonstrate that the spring water projects in Ibadan were observed to be effective, allowing involvement of multi level actors, anchored on cost recovery, improved access, and service efficiency and indicate sustainability of mini water projects in an urban setting.

Data and Methods

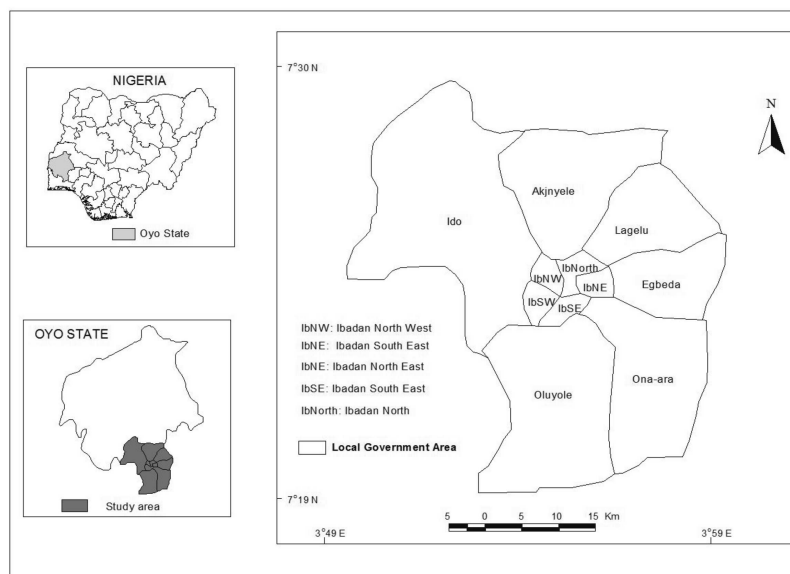
Study Area

The city of Ibadan is the largest indigenous city in the southwest Nigeria, lying between latitudes 7° 19' and 7° 30' N and longitudes 3° 49' and 3° 60' E (Figure 1). Founded in the year 1820 as a war camp, fortunate events have changed the settlement into a big city with an average radius of 30 kilometres. The population increased rapidly from 627,000 in 1963

to over 3 million in 2006 (NPC, 2006) and with over 3,000 villages in its region. It is 150 km west-east of Lagos, and 345 km South-west of the Nigerian Federal Capital Territory, Abuja. Politically, Ibadan has been the centre of government and political administration since pre-colonial era. At present, Ibadan is the capital of Oyo State with its regional setting capturing 11 Local Government Areas (LGAs), 5 belongs to the city centre while the remaining 6 belong to the peri-urban (Figure 1). Its central location confers on it transportation and economic advantages.

Figure 1: Local Government Areas of Oyo State, Nigeria

Water supply shortage in Ibadan is a long-standing problem. According to CASSAD (1995), only 47 percent access to public water supply system in Oyo State. About 24 percent of Ibadan residents get their water from leaking pipes and unimproved sources. Public water supply to Ibadan residents is a major challenge.



Eleiyele dam which was commissioned in 1942 and Asejire dam that was commissioned in 1972.

Background to Spring Water Project in Ibadan

Despite all forms of expansion of the two water works in Ibadan city (Eleiyele and Asejire) in the past years, the production deficit of 72.8 % was recorded by the SIP in 2004. There are also spatial inequalities in terms of distribution of public water system in Ibadan city. In the year 2004, water supply network covered less than 30 % of the city's expansion (Adeniji, 2005).

The dilemma is aggravated by the incapacity of the existing institutions to progressively and effectively redeem the situation. Causalities of the institutional failure include; improper planning; inadequate manpower of the Water Corporation of Oyo State (WCOS); inadequate data on hydrologic recharge, obsolete and non-functional equipment; poor maintenance culture and misuse of watersheds. Water supply shortages and poor sanitation system also have implications for human health in the city. For instance, the United Nations Children Education Fund (UNICEF, 2004) reported that water related diseases account for over 57% of total illness cases in Ibadan city in 1998.

Archival search on water supply shortages as shown in Table 2 indicates that there were reductions in available water per capita per day on yearly basis while the production deficits from the two dams that are supplying the city were also increasing.

Table 2: Public Water Supply Status in Ibadan

Year	Daily Demand (m ³)	Daily Supply (m ³)	Population Served (%)		Deficit (%)	Per capita per day (litres)
			Peri urban	Urban		
1942	ND	167,001.5	ND	65.1	ND	32
1965	ND	149,094.2	ND	43.2	ND	21.7
1972	331,359.6	134,096.7	ND	35.1	59.5	17.4
1990	389,280.4	146,396.9	3.1	37.2	62.4	18.4
1991	406,681.0	135,096.0	3.2	24.8	65.9	15.7
1992	424,838.0	115,838.0	2.8	30.0	72.7	15.6
1993	443,792.4	107,219.8	2.4	25.6	75.8	15.4
1994	349,948.3	107,218.8	2.2	24.3	69.4	15.1
2004	359,613.5	97,879.0	1.2	22.8	72.8	12.5

Source, WCOS, 1997; Olagbemi & Tihamiyu, 2002, Adeniji, 2005 ND: *Not determined by the municipal water agency*

It was the realisation of continuous water supply shortage that necessitated the quest for alternative water supply system in Ibadan city in the 90s. In 1994, the government of Oyo State, Nigeria with Ibadan as the capital joined other selected cities for demonstration projects of the Sustainable Cities Programme (SCP) which was designed by the United Nations Human Settlement (UNCHS) now the UN-Habitat. Immediately, the Sustainable Ibadan Project (SIP) was commissioned alongside the preparation of the Environmental Profile of Ibadan by Centre for Africa Settlement Studies and Development (CASSAD). The City Consultation (CC) followed in 1995 alongside many sensitizing programmes towards the involvement of all stakeholders. Working Groups (WGs) with members from public, private and the concerned communities were inaugurated for each of the prioritized issues and their strategic plans were drawn. The SIP Technical Supporting Unit (SIPTSU) was formed to coordinate the activities of all WGs. Specifically, water and waste management became the topmost on the prioritized environmental issues to be tackled in Ibadan. For water management issues, strategic plans included mini water scheme: boreholes and deep wells and spring water projects.

Twenty five (25) natural springs were identified in various communities of Ibadan region (Table 3). Through the facilitation of the SIPTSU, two springs (Akeu and Agbadagbudu) were first developed as demonstration projects. The success stories recorded from the demonstration locations necessitated actions by all the stakeholders for replication of the project in other communities namely: Adegbayi, Onipasan, Sango, Moga and Rogan. In these communities, members showed readiness and a sense of innovative actions for the developmental project, which was one of the criteria for the replications.

Table 3: Profile of Natural Springs in Ibadan City

S/N	Name of the Spring	Location	LGAs
1	Akeu*	Oke-Offa/Babasale	Ibadan North-East
2	Osun	Opposite Olugbode	Ibadan North-East
3	Agbadagbudu*	Yemetu/Adeoyo	Ibadan North
4	Rogan**	Opposite UCH	Ibadan North
5	Onipasan**	Near Oluyoro Hospital	Ibadan North-East
6	Tayapon	Oke Aremo	Ibadan North
7	Ologbojo	Agugu/Oremeji	Ibadan North-East
8	Alagbafo	Total Garden	Ibadan North
9	Odo Iye	Beyond IP School	Ibadan North
10	Alaro	Oke-Bola	Ibadan South-West
11	Oleyo	Oke-Dada, Mapo	Ibadan South-East
12	Adegbayi**	Adegbayi	Egbeda
13	Arulogun	Kokoru village	Akinyele
14	Odo Baale	Ojoo	Akinyele
15	Alamuyo	Oyemiran village	Lagelu
16	Omi	Adekola village	Lagelu
17	Elewi Odo	Jonku Area	Lagelu
18	Sango**	Sango	Ibadan North
19	Okookoo	Aloda Village	Egbeda

20	Dagbo	Erunmu	Egbeda
21	Omi	Omi-Adio	Ibadan South-West
22	Ogidi	Yejide Road	Ibadan South-West
23	Oloro	Alugbo Village	Ido
24	Thirty–Thirty	Bodija	Ibadan North
25	Oke-Itunu	Alaro	Ibadan North

Source: SIP, 2000; 2004

**Demonstration projects **Replication projects*

Data Sources and Collection

Documentation and Maps

Information on water management strategies in Ibadan city was obtained from the National Archives and the Water Corporation of Oyo State (WCOS). Document review of activities of the Sustainable Ibadan Project (SIP) in relation to water projects provided a background to the study. Information from these sources was used to determine the nature and intensity of water shortage in the city before the spring water project in Ibadan. An analogue map on locations of spring water in the city was obtained from Regional Centre for Training in Aerospace Surveys (RECTAS). Analogue regional map of Ibadan was obtained from Oyo State Ministry of Lands and Surveys. The maps were updated and digitized using the ARCVIEW software.

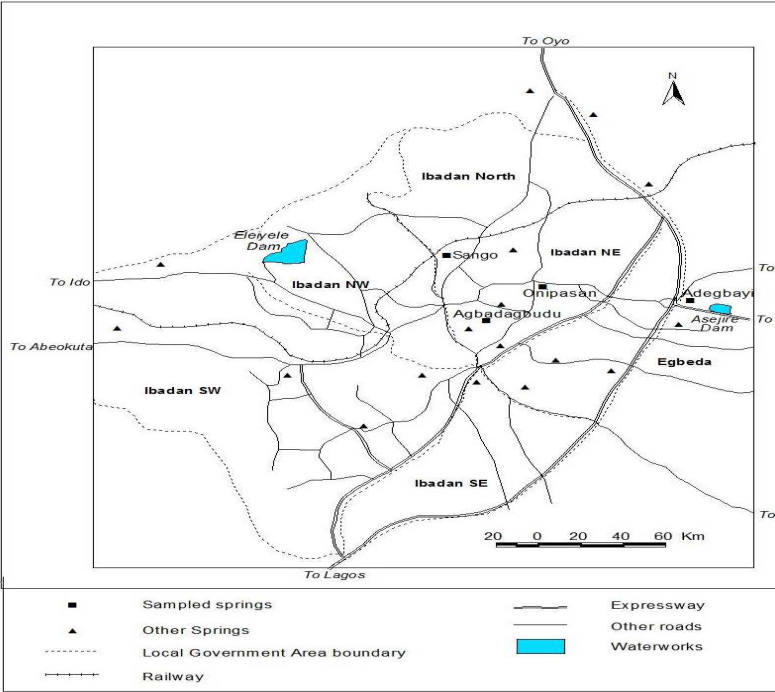
Survey

Four communities that have benefitted from the spring water project were selected from three LGAs across the two sub-regions of Ibadan for the household survey (Figure 2). From the core area of the city, three locations were selected. These are: Agbadagbudu, a demonstration project located in Ibadan North LGA; Sango, (located in Ibadan North LGA and Onipasan (located in Ibadan North East LGA) which are replication projects were selected. In the peri-urban, Adegbayi (located in Egbeda LGA), which was another replication project, was selected. The core area as of the city is connected with the public water system

but may not have access to water almost throughout the year as a result of obsolete infrastructure while the peri-urban is not connected with the public water system. Project sites were visited and informal interaction was made with project beneficiaries (water collectors who were met at collection points) for rapid appraisal of water services. A total of 280 households were sampled across the project benefitting communities: Agbadagbodu (48), Adegbayi (46), Onipasan (40) and Sango (180).

Figure 2: Locations of Sampled S

Household heads were the potential heads were not available, the mo households were the respondents, variables include socio-economi households' water consumption households' contributions in the sp social networks during project mar



Data Analysis

Information collected via the household survey was analyzed with the Statistical Package for Social Sciences (SPSS) for descriptive analysis (frequencies and percentages). Qualitative data which were collected during site visit were integrated into the discussion of the study result.

Results and Discussion

Socio-Economic Characteristics of Service Beneficiaries

There was a gender representation in the survey in which 63.2 % female and 36.8 % male respondents participated in the survey from the four case study communities. This representation followed Tropp, (2005) assertion that women and children, who are between ages of 18 and 45 years, are directly involved in water procurement. Generally, it could be inferred that the sampled population has a higher level of literacy, because, 41.8 % of the sampled populations have tertiary education in the four locations. The household size of the localities shows 6 to 8 persons (54.4%) and 3 to 5 persons (32.5 %). There are wide household income disparities per month in the four communities. For example, 24.6 % households earn less than ₦5,000, 22.9 % households earn between ₦5,000 and ₦10,000 while about 4.3% households earn above ₦30,000 per month (₦155 is equivalent of USD 1). The survey revealed that the benefitting communities depended more on wells (25%) and scooping of spring (41.1%) for domestic water supply before the spring water project initiative.

Governance Outcomes of Spring Water Project in Ibadan

This section provides the outcomes of the spring water project in the benefitting communities using governance indicators. The assessment covered from the development inception and management period in the last 15 years of spring water project in Ibadan.

i. Multi Levels Participation

The study shows a high degree of consensus in decision making and project execution process. From the project start up, benefitting communities arranged themselves into working groups, membership

of which represents specific interests. Each household in the benefitting communities contributed money for the project start-up, while some artisans and professionals rendered free services during project implementation. The state government, through her agency for water and sanitation (WATSAN), international donors such as the UNDP and UNICEF, Non-Governmental Organizations (NGOs) and philanthropists provided financial support after the communities had showed a sense of commitment in the project development. There was consensus and active participation among all the stakeholders in terms of cost sharing during project implementation (Table 4). The spring water project in Ibadan shows that actors from the public, private and community sectors can voluntarily work together in the provision of urban services.

Table 4: Actors and Their Contributions to Spring Water Development Projects in Ibadan

S/n	Actors/Project Communities	Agbadagbudu	Onipasan	Adegbayi	Sango
1.	Oyo State Government	Political support plus ₦60,000	Political support plus ₦50,000	Political support plus ₦350,000	Political support plus ₦150,000
2.	Oyo State WATSAN and UNICEF	Supply of 6 Hand Pumps, 50 bags of cement	Supply of 6 outlet pipes & taps	Supply of 4 Hand Pumps	Supply of 4 outlet pipes & taps
3.	Local Government Areas (LGAs)	Ibadan North: ₦150,000 Donations Land acquisition, Political support disinfection of water storage tank	Ibadan North East: ₦120,000 donations Community mobilization, disinfection of water storage tank	Egbeda: ₦120,000 donations Political Support	Ibadan North: Political Support
4.	SIPTSU	Technical Inputs and Logistics	Technical Inputs and Implementation Supervision	Technical Inputs, Project facilitation	Survey, preparation of C of O and State Plan, Project facilitation
5.	Oso Engineering Firm (NGOs) and Philanthropist	Project Design, Construction, plus ₦130,000 donations	Project design plus donation of ₦130,000	Construction supervision	Project design and construction supervision
6.	Project Communities	Labour Plus ₦70,000 donations	Labour, Land acquisition and survey, ₦100,000 donations	Labour, land acquisition plus ₦85,000 Grants	Labour, land acquisition plus ₦150,000 donations
7.	External Donors (UNDP)	-	₦550,000	₦400,000	₦650,000

Source: SIP, 2004

ii. Community Social Networking

Social trust and active engagement is very critical in building community development bounding (Putnam, 1993). The degree of community networking for spring water project development and management is presented in Table 4. In terms of membership of civil society, Adegbayi has the highest 78%, while Onipasan has the lowest 43%. Review of the activities of the working groups revealed that at the inception of each project, 87.8% of active members of the various Community-Based Organisations (CBAs) contributed to spring projects development (Table 5). Averages of contribution from the four sampled communities include finance (44.5%), technical input (26.5%) and moral support (29%). Sango community had the highest number of people (50.8%) contributing financially to the project.

Table 5: Contributions of the benefitting communities in Springs Projects in Ibadan

Benefitting Communities	Finance		Technical		Moral Support	
	No	%	No	%	No	%
Agbagbudu	12	42.9	11	39.3	5	17.9
Onipasan	12	37.5	11	43.4	9	28.1
Adegbayi	12	40.0	4	13.3	14	46.7
Sango	33	50.8	15	23.1	17	26.1
Total/Mean	69	44.5	41	26.5	44	29.0

iii. Improved Accessibility and Affordability

According to the WHO and UNICEF (2003), water provision is “reasonably accessed” when the supply source (either protected spring, borehole, protected dug well, public stand pipe) produces at least 20 litres per person per day and is within one kilometre of the users’ dwellings. The development of natural spring water in Ibadan city with specific references to the case study areas shows that there is an improved accessibility to water in the beneficiary communities.

Household survey revealed that 88.5 % respondents indicated that they depend solely on spring water after project implementation and that the supplies are reliable during the dry season when water supply shortage is critical in the sampled communities. The survey also shows that more than half of the benefitting population (50%) travel less than 500 m to collect water from the spring points (Table 6). In Agbadagbudu and Adegbayi in particular, key informant interview with community leaders revealed that the travel distance for water collection had significantly reduced in the study area and that average of 250 persons per day.

Table 6: Average Distance between Spring Water Supply Points and Users' Residences

	Benefitting Communities	Distance							
		<0.5 km		0.5-1.0 km		1.0-1.5 km		1.5-2.0 km	
		No	%	No	%	No	%	No	%
Interaction with water collectors at Agbadagbudu and Sango water points revealed that residents of the benefitting communities now spend less than 10 minutes to get water, which is significantly less than 1 hour of queuing at public water taps and long distance walk in search of water prior to the spring water project. Water access per person per day has also significantly increased in the benefitting communities. Households with at most 2 persons consume about 100 litres of water per day, while the survey indicated that 81.3% of households with at least 8 persons consume between 250 and 300 litres.	Agbadagbudu	23	48.0	17	35.4	4	8.3	4	8.3
	Adegbayi	31	30.8	15	14.8	10	16.4	5	8.2
	Chipsan	25	54.3	13	29.8	5	10.9	3	6.5
	Sango	61	52.0	35	28.0	20	16.0	5	4.0
	Total	144	51.4	80	28.6	39	13.9	17	6.1

In terms of users' fee, a sum of ₦5 per water bowl or keg (a bowl is about 25 litres) was agreed upon by the communities for water

collection. Most respondents (74 %) indicated that they spent average of 2% of their monthly income on water service provision. This result indicates a level of reasonable affordability as advocated by the UN-Habitat (2003) that reasonable cost of water should not exceed 3 to 5% of household's monthly income. A cross-tabulation of household income and expenses on water shows that more than 59 % of the benefitting households with average monthly income of ₦5,000 spent less than ₦20 on water per day (₦155 is equivalent of USD1). Also, a total of 69 % of the respondents indicated that they spend less than ₦30 per day for water collection (Table 7). The result shows that spring water initiative is affordable even to the very poor members of the community. Also, 77.1 % of the respondents indicated that they are satisfied with the users' pay initiative. The fact that the supply sources are reliable and potable for drinking gave the beneficiaries much satisfaction.

Table 7: Cross Tabulation of Households' Income and Water Expenses

Monthly Income (₦)	Daily expenses on water (₦) indicating count and % within income				
	< 10	10 – 20	21-30	31-50	>50
< 5,000	11 (15.9%)	30 (43.5%)	12 (17.4%)	12 (17.4%)	4 (5.8%)
5,000 -10,000	11 (17.2%)	11 (17.2%)	20 (31.3%)	10 (15.6%)	12 (18.8%)
10,001 - 15,000	14 (22.2%)	17 (27.0%)	10 (15.6%)	14 (22.2%)	8 (12.7%)
15,001 - 30,000	10 (13.3%)	22 (29.3%)	19 (25.7%)	10 (13.3%)	14 (18.7%)
>30,000	2 (5.0%)	2 (5.0%)	-	-	-
Total	48 (17.5%)	82 (29.8%)	61 (22.2%)	46 (16.7%)	38 (13.8%)

iv. Cost Recovery

From the users' fee collection at the project sites, an average of ₦500 is realized during the rainy season and at least ₦1 000 during the dry season at each water point on daily basis. Bank accounts are operated for each project site and monthly statements of account are usually presented to WG members. Part of the collections is used to pay the wages of the guards who take care of spring site and also for general maintenance of the project. The cost recovery mechanism is also well accepted by the

service beneficiaries much more because of the community-based management strategy. This study shows that local people, even the poorest in the community appreciate the cost recovery mechanism from the spring water service. It was revealed by the SIPTU during an informal interview that the residents of project benefitting communities now see water as both a social good for healthy living and an economic good which the users should pay for. Interaction with WG members in Adegbayi and Agbadagbudu also revealed that the beneficiaries are comfortable with the users' pay because the service is commensurate and more reliable than the past water supply systems which were not reliable.

v. Sustainability and Transparency

Having created a sense of ownership of the projects, the benefiting communities are responsible for the management. It was observed that while many of the government driven projects are vandalized and disused, spring water projects in the case study communities are still existing and have served their respective communities for more than ten years. In terms of design and planning, the projects have no risk potentials to contaminate the source or in altering the ecosystem. Against the apathy the local communities have experienced with government driven projects, information sharing becomes reliable and more transparent. It was also observed that stakeholders have freedom of expression through the WG forum without any form of political sentiment, which is not feasible in the traditional water management practices. Table 8 presents summary of spring water project in terms of development and management activities in the four selected communities that were sampled for this study.

Table 8: Summary of the Development, Use and Management of Natural Springs in Ibadan

Assessment criteria	Aghadagbudu	Onipasan	Adegbayi	Sangre
1. Physical Characteristics of the Project				
a. Project Land Area (m ²)	645.0	265.2	176.107	509.6
b. Execution period	1998–2002	2003–2004	2003-2004	2002
c. Types of Drainage	Open	Close	Open	Open
d. Type of material for fencing	Block	Block	Wire mesh	Block
e. Number of Entrypoint	One	Three	One	Two
f. Number of supply points (Hand pumps)	Six	Six	Four	Four
g. Accessibility route to the location	Foot path	Access Road	Express road	Access
h. Adjoining land uses	Residential, Church, and a Mosque	Residential, Stream & Mechanic Workshop.	Mechanic Workshop and Horticulture garden	Residential Dispo
i. Number of overhead tanks	-	Two	-	Two
2. Patronage of the Project				
a. Names of Benefiting Communities	Aghadagbudu/Adeoyo, Alekuso, Oke-Aremo, Aladorin and Beere	Onipasan, Oke-Adu, Oluyoro, Ode-Aje, St. Mary Agugu	Elelu, Atanda, Alakia and Olosan, Adegbayi	Sangre Road, Isopa, Bana
b. Population of the Benefiting Communities	60,171	13,594	6,284	58,70
c. Average service radius (km)	3.2	3.270	2.12	2.97
d. Average No of Users per day	230	275	120	400
e. Average volume of consumption per Household (A ₁)	150 litres	150 litres	180 litres	120 li
f. Volume of consumption per person/day (A ₂)	25 litres	25 litres	30 litres	22.5 l
g. Water Drawing Period	7am-12 noon, 4pm-6pm	6.30am– 12 noon, 4 pm-7pm	6.30am–6.30pm	6.30–
h. Average Distance from supply points to the users Residences (A ₃)	500 m	500 m	1000 m	750 m
i. Average time spent in drawing water	20 minutes	15 minutes	10 minutes	10 mi
3. Project Finance				
a. Total Expenses Incurred	₦1,500,000	₦1,570,000	₦1,000,000	₦1,5
b. Service Charge Rate (A ₆)	₦5 per water bowl	₦5 per water bowl	₦5 per water bowl	₦5
c. Daily Returns as Cost Recovery	₦800 (Rainy Season), ₦1,100 (Dry Season)	₦500 (Rainy Season), ₦700 (Dry Season)	₦300 (Rainy Season), ₦1,000 (Dry season)	₦500 (Rainy Season), ₦1,000 (Dry Season)
d. Average Expenses/Household/Day (A ₄)	₦20	₦25	₦25	₦20
4. Project Execution and Management				
a. Initiator	The Benefiting Communities	The SIP	Community Leader	The
b. Working Group Membership Roll	17	11	10	12
c. Working Group Meeting Time	Wednesdays at 4.30pm (forth nightly)	Tuesdays at 5pm (forth nightly)	Mondays at 5pm (forth nightly)	Last

Source: Key-informant interviews with Working Group Leaders at each project site; SIP, 2004

Note

- A₁: Average of six persons per household is used, which is in line with the NPC household size norm of six to eight.
- A₂ & A₃: For improved accessibility to water, the WHO and the UNICEF (2003) recommended 20-40 litres of water per person per day and which should be supplied within 1 km travel distances from users' residence.
- A₄: Water affordability ensures that household should spend between 3 to 5 percent of its monthly income on water procurement (UN-Habitat, 2003).
- A₅: A bowl of water is equivalent of 25 litres keg.

Conclusions

This paper has shown that community initiatives and active participation in the development and management of natural spring as alternative urban water supply is a form of good water governance in Ibadan city. The spring water projects in Ibadan revealed that multi-level actors have significantly contributed to the development and management of water resources through networking, cost sharing and cost recovery. The study also shows that the initiative has led to improved water access in the benefitting communities. For further sustainability of existing spring water projects and future replications in other communities.

Recommendations

The following measures are recommended:

- There is a need for more local funds to facilitate improved access to water services in other communities where unexplored natural springs are available. A form of network such as Kinship or Township Association (*'egbe omo ile, egbe omo ibile*) can form a strong social capital by sharing information and resources to improve community's welfare. As revealed in the result of this study, other external assistance will arise when the local initiative is in place. Much potential lies in this strategy, especially in the

slum areas where the poor resides. The use of user fees must be further reinforced with equity objective.

- As such a time as this, when the United Nations is reviewing the Millennium Development Goals (MDGs) Targets and substituting them with the Sustainable Development Goals (SDGs), it is very expedient that the public is properly informed, represented and collaborated with in water programmes. Instead of focusing on macro water projects, which are capital intensive, technologically sophisticated and socio-economically undesirable; the use of local resource such as natural spring is indeed a principal approach towards good water governance. Lessons of experience, as presented in this paper, shows that micro community-based water schemes are more successful. Therefore, institutionalizing this model of alternative water supply system is advocated for.
- Hydrological data of the city should be produced by the public agencies (Ministry of Environment and Water Resources) for reference in further replication of spring water projects. This will be in line with the UN-Habitat objectives for sustainable urban livelihoods through the integration of relevant population, health and environmental data.

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