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MANAGEMENT PRACTICES AND PRODUCTIVITY OF EKITI STATE WATER CORPORATION IN NIGERIA

David Gbenga OWOSENI
Department of Business Administration, Faculty of Management Sciences, Federal University Oye Ekiti

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ABSTRACT

Access to safe and improved water has a significant impact on people's wellbeing, economic growth and quality of life. However, one of the major problems facing Nigerian communities today is lack of access to improved water, arising from increasing population, inadequate funding and investment in water sector by government and poor management of water production in the country. Therefore, the broad objective of this study is to evaluate the effect of management practices, control and productivity of Ekiti State water corporation services. The research design for this study was a longitudinal study design. The study considered time series data for 13 years from 2006 to 2018 on the activities of the Ekiti State Water Corporation using secondary data for the study. The data were sourced from the Ministry of Budget and planning in Ekiti State and Ekiti State Water Corporation. Data were analyzed using descriptive statistics and ordinary least squares (OLS) techniques to estimate the multiple linear regressions between management practices and control and productivity of Ekiti State Water Corporation. The results of the study revealed that there were significant relationships between management practices and control and the productivity of Ekiti State water corporation services. The results of the findings showed that funding and investment ($t= -2.111$; $p = 0.020$), had negative significant influence and retail price ($t = 3.126$; $p = 0.014$), had positive significant influence on productivity Ekiti State water corporation services. However, operational cost ($t =2.882$; $p = 0.068$), and water consumption rate ($t = 1.564$; $p = 0.156$) does not significantly influence the productivity of water services during the period under consideration. The study concluded that since water is an essential economic good, adequate funding is required for the continual availability of service in the public water sector. Thus, the study recommended that funds should be provided for the repair of dilapidated facilities in the sector and that the Ekiti State water corporation be allowed to charge cost reflective tariff for their services in order to boost their revenue base to ensure optimal services for the citizens.

Keywords: Funding and investment, Tariff structure, Operational cost, Consumption rate.

1. INTRODUCTION

Water is an important natural resource that gives human beings access to sustainability, survival and growth. In the Holy Bible it was revealed that the entire world was covered with water in the beginning before God created the earth. Water is one of the basic needs of man and is a key driver of sustenance, economic growth and poverty alleviation. Water supply provides a channel to improvements in so many aspects of human development, such as health, education and poverty reduction (Hall & Lobina, 2010). For more than 20 years, the orthodox paradigm for financing

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public water supply in developing countries such as Nigeria has been treated as the state of having inadequate capacity to either finance or operate water services, and it has promoted the primacy of private direct financing of investment (Hall & Lobina, 2010).

Over the past two decades, the conventional view that public water services in developing countries like Nigeria are underfunded or inadequately managed has encouraged private financing of investment. This has been accompanied by statements of urgency regarding Nigeria's water sector, with UNICEF (2011) declaring a state of emergency and UNEP (2011) noting that rising energy demand, population growth, and economic development intensify the challenge of providing water and food and creating decent jobs. The 2012 MDG-based estimate by Adeleye and Olumayokun (2014) places 783 million people without access to an improved drinking water source, highlighting the global scale of the problem.

The usability, as well as the cost of treatment, of water is highly dependent on its quality, rather than solely on its availability. Veolia and IFPRI (2015) demonstrate that the quality of water defines which uses are possible and can cause or create economic water shortages. They also caution that the worsening of water quality will most likely escalate, posing health, ecosystem, and industrial activity risks unless management systems are reinforced. According to governance studies (Ezenwanji, Eduputa & Okoye, 2016), the level of productivity of the services provided by the government in a particular region is determined by the character and quality of management practices and the control over resources, and it is the work of federal, state, and local governments. In Nigeria, there has been notable under-access to better water due to persistent declines in service, with WHO & UNICEF JMP (2012) reporting national access rates of approximately 58% with significant urban-rural disparities. UNESCO (2016) observes that millions of people do not have access to safe water, which is aggravated by socio-economic and institutional factors. The provision of water to the population is primarily the business of state governments, although the national policy acknowledges water as a social service and an economic good. With the investment in dams and pipelines, piped-water availability decreased to 6% in 2009, compared with 14% in 1990 (WHO/UNICEF JMP 2010), highlighting the fact that achieving management, pricing, and sustainability remains a challenge.

The research problem denotes the fact that in Nigeria, and especially in the south-western part, the situation with the public water supply in Nigeria is continuously worsening, leading to a high spread of waterborne diseases, including cholera, typhoid and malaria. Some of the reasons behind this crisis include population growth, poor operational efficiency, leakages, inadequate cost recovery, poor technical expertise, poor governance, corruption and overdependence on government funding. Despite the fact that a number of studies have been conducted on the issue of productivity and management in the public water sector, the results are inconclusive, particularly on how tariff structure, operational cost, and governance affect the productivity of water supply. There is a lack of empirical studies that determine the importance of effective management control in improving the water supply, and significant gaps remain in the body of knowledge. In addition, accountability, transparency, and corruption remain a challenge to productivity in the Nigerian public water sector despite numerous investments and policy interventions. There is flexibility in the conclusions made by studies, some of which reveal positive correlations between tariffs and productivity, and others demonstrate negative and ineffective correlations. Likewise, the results regarding the effect of operational costs are inconsistent and it is hard to derive sound conclusions. The challenges are further exacerbated by low per capita water

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use, high operation costs since most of the processes are electricity dependent, and low-quality water. Interestingly, not many studies have specifically examined how management practices, tariff structures, funding decisions and cost of operations relate to water productivity in Nigeria. These lapses explain why more empirical research is required, especially in Ekiti State, to generate practical findings on how effective management control can enhance the productivity of the public water supply. Therefore, this study focused on management practices and productivity of Ekiti State water corporation in Nigeria.

The following research questions were raised to guide the study

i. What is the effect of funding and investment on the productivity of Ekiti State water corporation services?
ii. What is the effect of tariff structure on productivity of Ekiti State water services sector?
iii. What is effect of operational cost on productivity of Ekiti State water corporation services?
iv. Does the rate of water consumption affect the productivity of Ekiti State water corporation services?

Research Hypotheses

The following hypotheses were formulated

H_{01}: Funding and investment have no significant effect on the productivity of Ekiti State water corporation services.

H_{02}: Tariff structure does not significantly affect the productivity of Ekiti State water services sector.

H_{03}: Operational cost has no significant effect on productivity of Ekiti State water corporation services.

H_{04} Consumption rate has no significant effect on productivity of Ekiti State water corporation services.

Empirical Review

Many studies have been carried out on productivity and management of public water supply in Nigeria and abroad in the water sector but in different perspectives, each research normally takes a particular aspect of a particular variable and examines its impact on public water supply productivity. The studies include Balogun, Galkaye and Sajobi (2017) who examined public water supply in Lagos, Nigeria: Review of importance and efficiency challenges. The study found that poor operational efficiency, population growth rate, inadequate funding, poor operational cost recoveries are identified as the main determinant of water supply productivity in Nigeria water sector.

Nyathikala and Kulshrestha (2017) carried out study in India on performance and productivity measurement of public urban water supply services: the study observed that the service was inefficient under government monopolies and strict control which resulted to insufficient municipal revenue and loss that required subsidy from government. The study utilized panel data on 21 municipalities observed over the financial years from 2005-2010, to analyze the relative efficiencies and productivity growths of utilities considering tariff infrastructure, operating cost and water consumption leverage. Data Envelopment Analysis method was adopted to obtain efficiency scores and productivity measures, TFP was used to generate Malmquist index. The result of the findings indicate that inefficiencies and decreasing productivity of water supply over

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time ocurredas a result of failure in proper tariff structure, increase in operating cost, input cost that has direct significant effect. The study thereby drived the need for sector regulation for tariff revision and policy implementation

Olajuyigbe and Fasakin (2014) investigate citizens' willingness to pay for improved sustainable water supply in a medium sized city in South Western Nigeria. The findings indicate that the factors affecting consumer willingness to pay for water services in Nigeria are distance from main source to house, adequacy of supply from source of water, quantity of water used per day and consumer's income and unstable tariff structure policies.

Nourali, Davoodabadi, and Pashazadeh (2014) Studied regulation and efficiency and productivity considerations in water and wastewater industry in Iran. The study aimed to measure the productivity of water and wastewater companies between 2008 to 2011 as an incentive regulation tools for stimulating efficiency of production and supply through cost reduction and improving the quality of service provide by water distributors. The study observed the effect of Retail Price (RP), Operating Cost, and Technological Change (TC) on Water supply productivity (WP) and Wastewater Efficiency (WWE).The results of analysis indicate that the average efficiency of WWCs under constant return to scale (CRS) is equal to 77% (technical efficiency) and under variable return to scale (VRS) is equal to 88% (scale efficiency). In other words, given the existing resources and facilities, the potential to improve water production equals to 23% and 12% respectively. Whereas in terms of constant return to scale (CRS), the cost saving potential amounts to 1874 billion Rials or 16% of the operating costs (price=2011). Also, the Malmquist index for total factor productivity (TFP) and technology change are calculated as 0.951 and 0.940 respectively, indicating a decrease of productivity in the Iranian water and wastewater industry during 2008 to 2011.

Ajayi, Haruna, Majid and Ishaku (2011) Reviewed public water supply dilemma in Nigeria Rural Communities. The finding s revealed that over 70% of households in rural communities does not have access to improved water supply and they rely solely on self water supply such as rivers, perennial streams, water ponds, unprotected wells, which is susceptible to water borne diseases such as typhoid fever, cholera, dysentery, and malaria parasite.

Akpo and Muchie (2011) carried study in South Africa on challenges in the Nigeria Drinking Water Supply and Distribution sector. The findings shows that there is need for enforceable water legislation, building of institutions, making of policies related to water resources planning, resources development and management of water supply and distribution sector.

Ferreira da Cruz, Marques, Romano, and Guerrini (2012) conducted studies on measuring of efficiency of the water utilities: a cross-national comparison between Portugal and Italy. The findings shows that funding, tariff were significantly affected the water utility efficiency in both countries because the performance result obtained for both countries highlight significant level of inefficiency

Haziq and Panezai (2017) presented An Empirical Analysis of Domestic Water Sources, Consumption and Associated Factors in Kandahar City: the researcher carried out their observation from December 2011 to January 2012, through a field survey, the data were collected from 400

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households in 10 districts of Kandahar city while Pearson correlation analysis was done. The results of the Pearson correlation analysis indicated that water consumption was significantly correlated with household size ($r = -0.13$, $P < 0.05$), age of household's head ($r = 0.26$, $P < 0.01$), household income ($r = 0.45$, $P < 0.01$), time to collect water ($r = -0.21$, $P<0.01$), availability of tap water ($r = 0.17$, $P < 0.05$), bathing times per month ($r = 0.16$, $P < 0.05$) and ground water table ($r = -0.43$, $P < 0.01$). The present study has concluded that fewer households had access to water supply by CAWSS Kandahar which showed government's inability to meet households' water demand. Therefore, majority of the households had to rely on other sources of water to meet their households water demand.

Olajuyigbe, Rotowa and Adewumi (2012) Studied Water Vending in Nigeria - A Case Study of Festac Town, Lagos, Nigeria. The result of the findings showed that there are two main categories of water vending namely; formal and informal vendors. All formal vendors obtain their supplies from improved sources while most informal vendors obtain theirs from unimproved sources. Majority of the households consider vended water as a coping strategy since they are aware of the safety implications. Therefore, most households are willing to pay for water services.

Nzilano (2017) Studied Factors Influencing Organization Efficiency of Water Supply and Sanitation Authorities in Tanzania. The findings shows that human resource competency under water pipe and industrial were significantly affected water supply efficiency with T-value of 2.693, misuse of financial resources 2.733, low rate of returns on investment 3.311, and lack of efficiency of budget with 11.581 respectively.
Ohwo and Abotutu (2014) accessed potable water supply in nigerian cities evidence from yenagoa metropolis. The analyses revealed that both the quality and quantity of water supply in Yenagoa were inadequate. For instance, turbidity values (20.70-41.20 NTU) in all the sampled water were above the WHO 5 NTU threshold; while 7 (46.67%) samples have pH values below the WHO minimum value of 6.5, indicating acidity. Similarly, iron and lead also have 4 (26.67%) and 3 (20%) samples above the WHO thresholds of 0.3mg/l and 0.01mg/l respectively. The analyses of the quantity of water supply in Yenagoa also show that in spite of the proliferations of wells and boreholes, and the short distances to sources of major water supply, 29.28% of sampled respondents used below 20 litres of water per capita per day.

Saal and Parker (2001) studied productivity and price performance in the privatized water and sewerage companies of England and Wales, the study observed the effects of tariff structure on productivity of water industry in England and Wales. The study was aimed to evaluate the success of new regulatory pricing system, to estimate the productivity growth, and derive quality adjusted output indices. The study adopted Total Factor Productivity (TFP) model to generate index for retail price (RP), The industry's economic regulator, the Office of Water Services (Ofwat), implemented a unique RPI + K pricing system which was designed simultaneously to compensate the WASCs for efficient capital investment programs, encourage gains in operating efficiency, and maintain fair prices for customers. The findings indicated that despites the reduction in labour usage, total factor productivity growth has not improved since the company has been privatized. More significantly, South West Water also had the highest average rate of capital expansion of all the WASCs except Northumbrian. Given these two factors, South West's aggregate input usage

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expanded by 29.4 percent after 1990, while the average WASC's capital expansion was only 15.2 percent

2. METHODOLOGY

The study adopted longitudinal and cross- sectional study of management and productivity of public water industry in Nigeria. The study considered time series data for a 13year period from 2006 to 2018. The choice of the period was necessitated by the desire to take a long-term view of influencing factors affecting the productivity of Ekiti State water corporation. This study adopted secondary data. The data were sourced from Ekiti State Ministry of Budget and planning where the update of financial implication on public water supply in Ekiti State from 2006 to 2018 was obtained, Data was also sourced from Ekiti State Water Corporation where water bill, annual volume of water pumped and consumed by customers and annual cost of operation's estimate.

Model Specification

The analysis is based on theoretical framework of Total Factor Productivity propounded by Link (1983) based on work of Kendrick (1961) it was used to measure public water productivity trends in the United States as the starting point, and the variables implicated in several papers on water industry efficiency and productivity, (Mayer 1999; Saal and Parker 2001; Abott and Cohen 2010; Nourali et al, (2014) Specifically, the model hypothesizes that water supply productivity evolves as follows:

In general term, let Productivity (P) and Productivity Determinant Factors (PDF) of a firm be denoted by

Dependent Variable = Productivity (P)

Independent Variables (IDV) =Management of public water supply (PDF)

DV=*f* (IDV)

P= *f* (WPDF)

Therefore P = *f* (FI, RP, OCE,WCR)

Where P is dependent variable, β_0 is an intercept, $\beta_1 \ldots\ldots \beta_n$ are coefficient of independent variables in equation

$WP = \beta_0 + \beta_1 FI + \beta_2 RP + \beta_3 OCE + \beta_4 WCR + \varepsilon_t$(parameter) …… (1)

Where: $\beta_0$is constant

P = productivity in water industry

F&I = Funding and Investment (Government Capital Expenditure in the Water Industry)

RP = Retail Prices of Water

OCE= Operational Cost Estimate

WCR=Water Consumption Rate

ε = Error Term.

The econometric structure is specified below;

$WP = \beta_0 + \beta_1 FI + \beta_2 RP + \beta_3 OCE + \beta_4 WCR + U_t$……(2)

The a priori specifications of the coefficients of the explanatory variables are:

$\beta_{1>0}$, $\beta_2>0$, $\beta_3<0$,$\beta_4>0$.

Based on the study objectives, descriptive statistics and ordinary least squares (OLS) techniques were used to estimate the multiple linear regressions between public water productivity and factors affecting the efficiency of Ekiti State water corporation.

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3. RESULTS

Descriptive statistics

Descriptive statistics was employed to show minimum, maximum, Standard Deviation**,** skewness and kurtosis of data.

TABLE 1: Descriptive Statistic

Viables	N	Mini	Maxi	Mean	Deviation	Skewness	Kurtosis
Water Productivity	13	.770	1.088	.908	.089	.261	.535
Funding and Investment	13	.010	.306	.047	.080	3.296	11.274
Retail Prices of Water	13	.900	.700	331.5	204.9	.459	1.074
Operational Cost Estimate	13	6.500	28.219	14.909	6.555	0.744	.791
Water Consumption Rate	13	250.95	783.9	.357	178.5	1.036	.292
Valid N (List wise)	13						

Source: Author's Compilation 2021

As observed in the descriptive statistics in table 1, water productivity among sampled observations remains relatively constant with a mean of 0.908 and low variability (SD = 0.089), meaning that there is no significant variation among the cases. Funding and investment, however, had very low mean (0.047) with extreme skew (3.296) and kurtosis (11.274), indicating that there are few extreme values that push the whole distribution to the minimum. The retail prices of water are averaged at wide variance (M = 331.5, SD = 204.9) and the cost of operation is also varied (M = 14.9, SD = 6.555) but reasonably skewed (0.744). The rate of water consumption has the greatest disparity with the lowest and highest value (250.95-783.9) and a big SD (178.5), demonstrating uneven pattern of access and usage across households. In general, the statistics indicate a high level of variation and disparity in funding, pricing, costs, and consumption, and water productivity is relatively stable.

Multiple Regression Analysis

A multiple regression analysis was performed in this section to identify the predictor and its contribution towards the criterion. It aims to determine the prediction of a single dependent variable from a group of independent variables.

Multiple regressions is the most common form of linear regression analysis. As a predictive analysis, the multiple regressions are used to explain the relationship between one continuous dependent variable and two or more independent variables.

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Table 2 Results of multiple regression analysis

Variables	Coefficients	Std. Error	Statistic	Prob.
(Constant)	.792	0.079	10.001	.000
Funding and Investment GOVT (EXP)	-9.676	.000	-2.111	.020
Retail Prices of Water (RP)	.308	.000	3.126	.014
Operational Cost Estimate (OCE)	1.476	.000	2.882	.068
water consumption rate (WCR)	.401	.000	1.564	.156

R2	0.686,	Sum of Squared Resid	0.45
F-stats(4, 8)	4.361,	Adjusted R Squared	0.213,
D.W-STATS	2.090,	S.E of Regression	0.60763172,

Source: Researcher's Compilation 2021

Water Productivity A-priori Criteria

The aim of the test is to determine whether the sizes and signs of the results are in line with what Water Productivity theory postulates. In Water Productivity theory the coefficients are either positively or negatively related to dependent variable, if increase in explanatory variables leads to an increase in the dependent variable.

Therefore, the variables under consideration and their parameter exhibition of A priori signs were summarized in the table 3. This table will be guided by these criteria

When $\beta > 0$(Has Significant Relationship)

When $\beta < 0$ (Has no Significant)

Table 3

Variables(S)	Expected sign	Estimates	Remarks
F& I	-	$\beta_1 > 0$	Conform but negatively sig
RP	+	$\beta_2 > 0$	Conform and sig
OCE	+	$B_3 < 0$	Not Conform but sig
WCR	+	$B_4 > 0$	Not Conform and not sig

Source: Author's Computation 2021

Therefore: A prior sign can be rewrite as follow**:** $\beta_1 > 0$, $\beta_2 > 0$, $B_3 > 0$, $B_4 < 0$

WP = 0 .792 - 9.676-12FI+0.308RP + 1.476-6OCE + 0.401WCR +ε_t

S.e	(0.079)	(0.000)	(0.000)	(0.000)	(0.000)
T-Stat	{10.001}	{-2.111}	{3.126}	{2.882}	{1.564}

From the table 2, above, the intercept value was 0 .792 which means, water productivity (WP) has 0.792 units when other variables were held constant, which means the water production has positive value when others variables were held constant and can stand alone without independents variables. It serves as a factor that determined the development of service of public water supply in the state.

Funding and Investment (F&I) showed that 1unit increase in government capital expenditure would bring - 9.676-12 unit decrease in water productivity (i.e budget estimate). It is statistically significant using rules of thumb and T-test statistic. It has negative significant influence on water production.

Retail Prices of Water (RP) established that 1unit increase in retail price of water would bring 0.308 unit increase in water production. It is statistically significant using rules of thumb and T-

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test statistic. It has positive influence on water production. lead to one unit increase in water production.

Operational Cost Estimate (OCE) indicated that 1 unit increase in Operational Cost Estimate will lead to 1.476-6 unit decrease in water production, and also not statistically significant using rules of thumb and T-test statistic. It has no effect on water production not as expected.

Water Consumption Rate (WCR) revealed that one unit increase in water consumption rate result to increase in water production by 0.401, and also not statistically significant using rules of thumb and T-test statistic. It has no effect on water production not as expected.

Statistical Criteria {First Order Test}

The R-squared (R^2 = 0.686), adjusted R-squared (0.528) confirmed that the model is a preferred one for water production. 68.6% variation change in the dependent variable (WP) is explained by the independent variables.

Comparing F- statistics (4.361) with F- table value of (3.84) at 5% level of significance affirms the fact that the entire model is statistically significant as well as the Durbin Watson statistics (2.090).

Econometrics Criteria {Second Order Test}

Test for Autocorrelation

The Durbin - Watson testis used in comparing empirical d* and du in d-u tables to their transforms {4–dL} and {4–dU}. This is been govern by some decision rules, which are:

Decision Rules

1. If d* < DL, then reject the null hypothesis of no correlation and accept that there is positive autocorrelation of first order.
2. If d* > {4–dL}, then reject the null hypothesis and accept that there is negative autocorrelation of first order.
3. If dU< d* <{4-dU}, we accept the null hypothesis of no autocorrelation.
4. If dL< d* <dU or if {4-dU} < {4–dL}, that test is inconclusive.

Where: dL = Lower limit, DU = Upper limit, D* = Durbin Watson.

From the regression result, D* = 2.090, dL= 0.715, dU= 1.816, 4-dL= 3.285, 4-dU= 2.184

Since dU {1.816} <d* {2.090} < 4-dU {2.184}, then we accept null hypothesis (H0) of no autocorrelation

4. DISCUSSION OF FINDINGS

Hypotheses Reports

Four hypotheses were formulated from the research questions of the study. Based on outcome of regression table, these hypotheses results were reported below:

H_{01}: *Funding and investment has no significant relationship with the productivity of Ekiti State water corporation services.*

As shown in Table 2, the regression analysis showed parameters β = -9.676, t = -2.111, and p = .020. These results show that at 95% level of significance (0.05), the null hypothesis of significant effect of funding and investment on productivity of Ekiti State Water Corporation was rejected (p < 0,05). Therefore, funding and investment had a negative and significant effect on productivity of Ekiti State Water Corporation. Iin terms of contribution of funding and investment to

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productivity, the beta coefficient (β) showed that one unit increase in funding and investment, given all other variables are held constant, will yield -9.676 increase in productivity. It can be concluded that funding and investment had a negative contribution to productivity of Ekiti State Water Corporation. The findings of significant effects are in consonance with the studies of Nourali, et al. (2014) and Nyathikala and Kulshrestha (2017).

H_{02}: *Tariff structure does not significantly effect on productivity of Ekiti State Water Corporation.*

As indicated in Table 2, the results of the regression analysis revealed parameters β = .308, t = 3.126, and p = .014. These results indicate that at 95 % level of significance (0.05), the null hypothesis tested on whether tariff structure had significant effect on productivity of Ekiti State Water Corporation were rejected. Therefore, it can be concluded that tariff structure had a positive and significant effect on productivity of Ekiti State Water Corporation. In terms of the contribution of tariff structure, the results also revealed that given one unit increase in tariff structure will yield .308 increase in productivity of water corporation. The findings of significant effect were also in agreement with the previous studies of Olajuyigbe and Fasakin (2010) and Bayowa, et al. (2014).

H_{03} *Operational cost has no significant effect on productivity of Ekiti State water corporation services*

As shown in Table 2, the results of the regression analysis revealed parameters β = 1.476, t = 2.882, and p = .068. These results indicate that the null hypothesis of no significant effect of operational cost on productivity of Ekiti State Water Corporation was not statistically significant and therefore the null hypothesis is not rejected. These results then mean that operational cost had no significant effect on productivity of Ekiti State Water Corporation. Though operational cost had positive contribution towards productivity, the hypothesis to that effect was not significant and therefore the contribution has no effect.

H_{04}: *The water consumption rate has no significant effect on productivity of Ekiti State water corporation services*

As shown in Table 2, regression parameters of β = .401, t = 1.564, and p = .156 indicate the hypothesis tested was not statistically significant. Therefore, the null hypothesis of no significant effect of water consumption rate on productivity of Ekiti State Water Corporation is not rejected. Since the probability level is greater that the level of confidence at 0.05, then the contribution that rate of water consumption has on productivity of Ekiti state Water corporation has no statistical effect. The findings of no significant effect in this study contrast with previous studies (Olajuyigbe & Fasakin 2010; Bayowa, et al., 2014) that found significant effect.

5. CONCLUSION

The study concluded that adequate fund is the yardstick for the production of improved water and water supply efficiency. The study also concluded that implementation of performing policy of cost reflective tariff charges enhanced best management practices and control and thereby enhanced the productivity of Ekiti State water corporation services. The study really exposed the

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avenues, which can be used for further improvements to improve quality service of public water production, supply, and quality management control for the productivity enhancement and water user's satisfactions.

Recommendations

Arising from the findings of this study, the following recommendations had been provided for the efficiency increase in the services of Ekiti State Water Corporation for water production and water supply management efficiency.

Funding and Investment: Since the empirical evidence had proved that funds is an essential and one of the fundamental factors determining the efficiency of water production and supply it is therefore recommended that adequate funds should be provided by Government for Ekiti State Water Corporation for adequate investment and extension of water supply network services. Also, financial autonomy should be granted to water management sector in the state.

Tariff Structure: The result of the findings of this study had proved that tariff is one of the factors affecting the management and productivity of water supply services in Ekiti State, therefore, it is recommended that Ekiti State Water Corporation should be allowed to charge cost reflective tariff for their services in order to boost their revenue base. Increased revenue will enable the corporation to provide efficient services to their customers.

Operational Cost: Since Ekiti State Water Corporation have limited institutional power for financial capability without government support, it is also observed that cost of water materials were too expensive, because, they were imported, therefore, this study recommended that operating materials should be well utilized, corruptions should be checked, lost and wastetages should be reduced and properly managed for better performance through adequate monitoring in other to boost the efficiency of water production and supply in the state.

Rate of Water Consumption: Since water is a daily consumption and utility commodity and existence of every human depended on water quality and its availability. Therefore, this study recommended that water supply quality should be put under effective control in other to ensure that volume of water produced is good and fit for different uses, because water quality control increase the consumption rate and thereby enhance the efficiency of water production. In addition, baseline monitoring team should be set up to ensure the satisfaction of stakeholders and meet the citizenry demands.

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