

PROJECT LEADERSHIP FOR SUSTAINABLE PERFORMANCE OF WATER PROJECTS IN NIGERIA

¹Olowo O. A; ²Adindu C. C.

Department of Project Management Technology,
School of Entrepreneurship and Management Technology,
Federal University of Technology, Minna, Niger-State
opijogerrad09@gmail.com
+234-806-643-8889

Abstract

Water security is at the core of quality and sustainable socio-economic development. Project leaders are responsible to lead project works, engage project team and maintain project team dynamics throughout a project life. Water Projects are continually being utilized as a strategic means through which communities can access clean water both for domestic and economic uses. Shortage of water projects has largely contributed to water scarcity in most parts of Nigeria. This study therefore explores the role of project leadership in achieving sustainable performance of water projects in Nigeria. This study seeks to identify project leadership style that drives sustainable performance of water projects. It also examine functions of project leader's that best achieve sustainable performance of water projects. The study also seeks to identify the relationship between project leadership style and functions of project leaders that focus water project towards sustainable performance. The study employed a simple random sampling technique in selecting respondents also, uses the concept of questionnaires on Likert-scale. Correlation coefficient and Multiple regression model was use to analyze data. The study concludes that accountability responsibility of project leaders was found to be the project leadership function with greatest influence and Democratic Leadership style was the major project leadership style with greatest influencing capacity to achieve sustainable performance of water project in Nigeria. The study recommends that for water projects to perform better in Africa, democratic leadership style need to be exercise and project leaders need to be more accountable in their responsibility towards sustainable developmental cost and time/schedule performance of water projects.

Keywords: Nigeria, Project leadership, Sustainable performance, Water projects.

INTRODUCTION

Increasing access to clean water to the people of developing countries is one aim of the Millennium Development Goals (MDGs) now Sustainable Development Goals that have attracted attention of governments and development practitioners (Angmor, 2016).

The Sustainable Development Goals (SDGs) aim to achieve universal and equitable access to safe and affordable drinking water and sanitation for all by 2030 (Van den Berg & Danilenko, 2017). Water security is at the core of quality and sustainable socio-economic development (African Development Bank Group, 2019). Africa is a large continent with significant differences in institutional setup of water sectors, access to and quality of water resources, and levels of economic development across and within countries (Van den Berg & Danilenko, 2017). Water is considered mankind's most unique and indispensable natural resource to manage, because of its usefulness in different capacities for direct human consumption, agricultural irrigation, fisheries, hydropower, industrial production, recreation, environmental protection and industrial effluents (Federal Government of Nigeria, 2011). Falkenmark and Rockstrom, (2004) submitted that water is the life blood of the biosphere. Water is indispensable resources of which supply improvement cannot be underestimated based on serious risk people are exposed to in terms of water related diseases cognizance must be taken during the process of water supply and delivery (Mohammed et al., 2016). Many people lack access to water resources with every country having the core goal of providing its citizen with safe, sufficient and sustainable water (Mohammed et al., 2016).

The World Bank in a report as cited by Mohammed et al., (2016) reported that about 1.1 billion people globally lack access to safe and potable drinking water. The situation is even anticipated to worsen taking into consideration the recent surge in the world's population as cited by Adenike & Titus, (2009) in Mohammed et al., (2016). Mabogunje, (1993) as cited in Damina et al., (2016) describe access to basic water infrastructure as an indicator of community wellbeing. FAO, (2010) reported that there is an imbalance between demand and availability of water causing water scarcity. Molle & Molinga, 2003 posited that water scarcity exists when the demand for water exceeds the supply. Abaje et al, (2009) as cited in Ahile et al., (2015) reported that water demand already exceeds supply in many parts of the world and more areas are expected to experience continuous imbalance in the near future mostly due to population increase. According to UN-Water, (2007) as cited in Ahile et al., (2015) projected that by 2025, 1.8 billion people will be living in countries or regions of the world with absolute water scarcity and two-thirds of the world's

population could be living under water stressed conditions. Negoianu and Goldfaid, (2008) as cited in Ahile et al., (2015) added that by 2030, water demand will exceed supply by 50% in most developing regions of the world. Water scarcity is common virtually in all regions of Nigeria with public water supply unreliable, intermittent and in most cases inaccessible thereby giving rise to high dependency on unsafe supplementary sources of water supply and makes citizens susceptible to water borne diseases (Ocheri, 2006).

A survey conducted by the Federal Ministry of Water Resources in 2008 showed that about 80% of residents in Nigeria lacked access to improved drinking water infrastructure (Ezenwaji et al, 2014). The Economist, (2002) as cited in Sumila et al., (2005) submitted that access to safe water supply has been one of the top priorities in developing countries over the past three to four decades, and billions of dollars have been invested in pursuit of the goal of “universal water service” yet the general consensus at the 2002 United Nations World Summit on Sustainable Development was that the current realities—as well as the situation expected in the near future—are far from achieving this goal. Report of United Nations, (2003) as cited in Sumila et al., (2005) emphasized that the world “is facing a serious water crisis” and that water access and service delivery in the developing world need to be improved dramatically and urgently via water projects, especially if we are to make gains in the fight against poverty, hunger and disease.

World leaders not only agree that water is an important part of the core development agenda for the 21st century but have also committed to ambitious targets for expanding access to water services (Sumila et al., 2005).

Water Projects are continually being utilized as a strategic means through which communities can access clean water both for domestic and economic uses (Warui, 2017). A project is a set of activities, which must be implemented in a logical sequence in order to achieve a well-defined objective, which usually addresses the needs of people in a community locally or in a specific place (Warui, 2017). Project managers play a key role in project success (Montequin et al., \2015). Munns et al., (1996) as cited in Montequin et al., (2015) emphasizes the role of project managers in achieving project success. Moira, (2019) pointed that project managers play the lead role in planning, executing, monitoring, controlling and closing projects. Also, Project managers are accountable for the entire project scope, project team, resources, and the success or failure of the project. Ankit, (2018) pointed that project leaders are responsible to lead project works, engage project team and maintain project team dynamics throughout a project life.

Also, that project leaders shows leadership skills, team management and conflict resolution skills during a project life and keep the team focus intact on project deliverables. Project leaders are interested in project outcomes, team engagement to which they walk projects through to completion and keep project team motivated. Ahile et al., (2015) opined that dealing with water scarcity involves employing diverse measures or techniques to meet the water needs of the people. Also, that the major challenge in addressing water scarcity in Africa is the lack of coordinated investment in water project with inadequacy of water projects which is driven mainly by the central government of many Africa states. Ishaku et al, (2011) advocated the need for a paradigm shift to innovative approaches which include proper leadership coordination for water project due to the fact that supply of water hardly meets people's demand. Perkins, (2004) as cited in Angmor, (2016) opined that leadership structure is important for planning, implementing and managing water and sanitation projects to achieve the goal of water accessibility. Project leadership participation in water provision has also been advocated as a way out of the water scarcity problem because it involves leaders pooling resources together to provide water projects (Kholisa, 2006 as cited in Ahile et al., 2015). Therefore, this study explores project leadership for refocusing Africa Continent towards achieving sustainable performance of water projects in the 21st.

Problem statement

Africa population is growing rapidly with the urban population increasing at a fast rate where population increased by more than 80% to 373 million people between year 2000 and 2015, which resulted in the decline of water accessibility from 40% in 2000 to 33% in 2015 therefore, water project performance in Africa countries are generally weak (Van den Berg & Danilenko, 2017).

Life is supported by water and water projects create jobs and wealth in the water sector (Ntengwe, 2005 as cited in Abaje et al, 2009). Most Africa countries do not have sufficient water resources to meet reasonable per capital water needs for their rapidly expanding population. Swaminathan, (2001) as cited in Ahile et al., (2015) reported that less than ten countries have about 60% of globally accessible water thereby, suggesting inequitable distribution of water globally and nationally, indicating the scarcity of water resource to which there are needs for water supply projects. Water scarcity is the lack of access to adequate quantities of water for human and environmental uses which is increasingly being recognized in many countries as a serious and growing concern (White, 2012).

Water projects failure have led many countries to scarcity of water which affects all social and economic sectors that in turns threatens the sustainability of the natural resource base (UN Water, 2007). Ahile et al., (2015) pointed that shortage of water projects has largely contributed to water scarcity in most parts of Africa and there exists inadequate project investment in water sector. Also, where water projects existed, water supply is erratic and inconsistent. The imbalance in water infrastructure development, population increase and rapid urbanization rates has created a serious deficiency in the quality of life of an average Nigerian with its dire consequence on sanitation, food, security, health, employment and standard of living (Federal Government of Nigeria, 2011).

Musemwa (2008), cited in Mukuhlani & Mandlenkosi, (2014), reported that water supply projects in the past two decades has little or no effect on the people. Ndabula & Jidauna, (2010) have also attributed the water scarcity problem despite water projects in most parts of Nigeria to recurring leadership neglects. Population growth is a factor on water resources as established by Rockstrom, (2001) who posited that population growth is increase in population which is expected to put pressure on available water resources. White, (1976) as cited in Eja et al., (2011) observed that in cities of the developing countries, the state of water provision and expansion through water project does not match the scale and rate of population and urban growth which was supported by a study conducted by Uzoma (1990) in enugu town in eastern Nigeria. Many experts seem to agree that poor access to water supply is often a result of poor policies and management practices such as lack of leadership structure (Sumila et al., 2005).

The water available for human use is also shrinking because pollution from agriculture, industry, and other human activities is degrading the water quality in many rivers, lakes, streams and even groundwater sources which most people depend on (Galadima et al,2011;Ocheri et al,2012). Lack of adequate water infrastructure or project in Africa limits access to water for human survival and well-being which constrains livelihoods and undermines overall socio-economic development (Van den Berg & Danilenko, 2017).

Objectives of the study

1. Identify project leadership style that achieves sustainable performance of water projects.
2. Examine functions of project leader's that best achieve sustainable performance of water projects.
3. Identify the relationship between project leadership style, functions of project leadership and sustainable performance of water projects.

Research hypotheses

The following hypotheses were put forward to guide this research:

1. Project leadership style does not achieve sustainable performance of water project.
2. There is no Identify functions of project leader's that best achieve sustainable performance of water project.
3. There is no relationship between project leadership style, functions of project leadership and sustainable performance of water project.

LITERATURE REVIEW

Water/Water Project

Water is a natural resource of fundamental importance, a basic need that has become the dominant developmental priority for most countries especially in the developed parts of the world, major necessity of life with no substitute and its' highly needed to support socio-economic activities such as agriculture, mining, food production and for maintaining healthy ecosystems (Ahile et al., 2015). Adie et al., 2018 posited that the increasing relevance of water in human and national development cannot be overemphasized; water is generally seen as embodying a bundle of social, cultural, environmental, and economic values, every human organism requires clean drinking water for survival, farm produce and sustained food supply are also critically dependent on water availability and water plays a key strategic role in sustaining human life, promoting development, and maintaining human environment. Also, maintained that sustainable supply of safe drinking water is fundamental to health, survival, growth and a cornerstone for sustainable development.

Literature on the development of water resources acknowledges the importance of adequate and safe water for human health, economic production, and sustainable development (WHO, 2010).

This explains why European Union considers it as a critical part of human survival. According to the United Nations Development Program (UNDP) as cited in Adie et al., (2018) reported that more than 1 billion people – about one in six people in this world – have no access to clean and safe drinking water. The lack of access to safe and clean drinking water is a serious problem, which EU water projects in developing countries like Nigeria is centered to address (Adie et al, 2018). The World Bank estimates that to increase coverage of safe drinking water to 80 per cent by 2020 would require investment of over \$10 billion in water supply projects. WHO, (2011) estimated that 1.1 billion people worldwide lack access to improved water supply while John-Dewole, (2012) reported that, about 20 per cent of the world's population lack access to safe drinking water. Although all nations have deficiencies in providing adequate supplies of safe water for domestic use, the problem is most critical among the developing countries (Linda-Stalker, 2005). UNICEF/WHO, 2012 estimated that in developing countries, the majority of the population has no access to adequate safe and clean water. Aribigbola, (2010) posited that the failure of water project in Nigeria has led to many urban and rural dwellers resorting to obtaining water from unsafe sources such as hand dug shallow wells, rivers etc. Water from such sources is often contaminated with faecal material, domestic and industrial wastes and such polluted water results in an increased public health risk of waterborne diseases outbreaks.

Water resources sector projects and programmes can be broadly categories into the following seven (7) areas: Water Supply and Sanitation projects, Dams and Reservoirs projects, Irrigation and Food Security projects, Hydrology and Flood Control projects, Integrated Water Resources Management projects, Development of River Basin Development Authorities(RBDAs) projects and Capacity Building Projects (Federal Government of Nigeria, 2011).Lawal & Basorun, (2015) posited that the gains from improved water projects as well as water resource management benefit both the rural and urban dwellers. Sumila et al., (2005) submitted that water coordinators and planners need to understand that water demand in relationship water infrastructural projects is location sensitive. Ayanni, 2006 maintained that improved access to water services and improved management of water resources contribute substantially to economic growth through increased business productivity and development.

Improved water Projects and water resource management are essential and necessary condition for economic development and growth (Okereke, 2000; Ofuoku, 2001; Tinubu, 2007).

The International Water Management Institute (IWMI) as cited in Ahile et al., 2015 has classified water scarcity on the basis of two contexts. These include: physical water scarcity and economic water scarcity. Physical water scarcity occurs when water availability is limited by natural availability (Molle and Molinga, 2003) as cited in Ahile et al., 2015. It can be referred to as a situation where there is not enough water to meet all the demands of the population. Economic water scarcity refers to a situation where there is not enough human, institutional, and financial capital to facilitate access to water even though the water is naturally available to meet human demands. It is largely caused by lack of investment in managing water resources or insufficient human capacity to satisfy the demands of water. Most developing countries, particularly those in Africa suffer from economic water scarcity (as cited in Ahile et al., 2015). Evidences from literature show that only a small percentage of the population have access to portable water supplies (Ndabula and Jidauna, 2010; John-Dewole, 2012; Galadima et al, 2011).

Project leadership

Strider, (2002) submitted that Project leadership is the ability to lead project teams in most powerful manner to achieve project target. Project leadership impact on improving project management practices in order to reduce uncertainty and complexity associated with project pursuit (Birkinshaw et al., 2008). Project management focused on managing the project activities whereas leading others is focused more towards individuals on their ways of working to perform best work on projects (Strider, 2002). The project manager is responsible for leading projects in various aspects to the overall success of a project, including cost, schedule, quality and safety requirements (Edum-Fotwe and McCaffer, 2000). Kloppenborg et al., 2003 posited that all project leaders must face any of the three issues related to variety of task, personnel and commitment situations which are more complex in projects than on-going operations due to projects exceptional demands of their temporary nature and unique outcomes. Also, added that project leaders improve developmental processes in decision making as required by the art of project leadership. Project leaders must be able to facilitate subordinates for making sense of changes and provide guidance and support for ambiguous changes (Vaccaro et al., 2012). A move has been made from task perspective to a leadership perspective within project context in recent project management literature review (Kolltveit et al., 2007).

Ability of project leaders is essential for successful management of projects (Curran et al., (2009). The duties of project leader's include gathering and distributing information, leading, planning, coordinating, moderating, and controlling the project team (Burghardt, 2002). Project leadership is becoming important due to increase of project-based organizations (Lunenborg, 2011).

Africa's urban population is growing rapidly. Between 2000 and 2015, the urban population increased by more than 80 percent to 373 million people. Water project performance in Africa countries are general weak (Van den Berg & Danilenko, 2017).

Performance of Water Project

Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions such as time, cost, quality, client satisfaction, client changes, business performance, health and safety (Cheung et al., 2004). Time, cost and quality are however, the three predominant performance evaluation dimensions. Hill, (2010) pointed out that project performance analysis is that aspect of project management that examines planned project events and outcomes relative to actual project events and outcomes primarily in terms of cost, schedule, and resource utilization. It therefore provides the project leaders and project team with analytical indications of project progress and status of ongoing activities. Another interesting way of evaluating project performance is first through a set that is related to the owner, users, stakeholders, and the general public; the groups of people, who will look at project performance from the macro viewpoint. The second set comprises the developer and the contractor; the groups of people who will look at project performance from the micro viewpoint. As discussed by Purbey et al., (2007) performance measurement systems were developed as a mean of monitoring and maintaining organizational control. There is a lack of agreement on what constitutes good performance for water utilities according to Van den Berg & Danilenko, (2017), further reported that good performance can be define as utilities that provide water and wastewater services that are efficient, affordable, sustainable, and with a minimum quality service. Yet, for water projects to provide affordable and sustainable water services has proven to be difficult (Van den Berg & Danilenko, 2017). A well-performing utility is a utility that is able to provide high-quality water and/or wastewater services to its customers in a sustainable manner. This definition of a well-performing utility includes elements of good financial and operational performance, but also

universal access to water and wastewater services that are affordable to all (Van den Berg & Danilenko, 2017). Water utilities in Africa are diverse in nature (Van den Berg & Danilenko, 2017).

Theories of Leadership

Trait Theory

According to Nanus, (1989), most of the leadership research began in the 1920s; trait theory of leadership emerges from the perception that leaders are different from others and this theory has also become the basis for the notion of most research. Intan et al., (2015) posited that leadership can also be seen through the qualities or attributes of leadership that has been awarded. The idea behind the trait theory is that effective leaders share common traits. It effectively assumes that leaders are born, not made.

Situational or contingency Theory

Theory of situational leadership was popular in 1948. According to Butler & Reese, (1991) the theoretical model is in a class that prescriptive model describes various approaches to leadership contingency. Intan et al., 2015, posited that there are four leadership styles in situational theory; high service with low relationship, high task with high relationship, low task with high relationship and low task with low relationship. Situational leadership assumed that effective leaders adopt certain styles or behaviors.

Behavioural Theory

Behavioural theory believes that leaders are responsible for shaping an environment that empowers followers to realize specific tasks. In other words, leaders can manage behaviours of their subordinate through staging antecedents and consequences of behaviour. There is a dynamic, mutual interaction between the leader, the follower, and the environment. Environmental factors include technology, organizational structure, type of task, and the size of the organization (Mosley, 1998).

Leadership Style

Hersey and Blanchard (1982) define leadership style as a consistent pattern of behaviour that a leader uses when working with and through people.

Leader's style is a behaviorally oriented approach to understand leadership. The leadership style approach focuses on behavior and explains how leaders combine task and relationship behaviors to influence subordinates in their efforts to reach a goal.

1. Autocratic Leadership: is a style characterized by individual control over all decisions and little input from group members. These Leaders make decisions based on their ideas and judgments without input from other project team members. The benefits of this style depend upon factors such as situations, amount of risk, type of task and characteristics of team members (Gadirajurrett et al.,(2018). Autocratic leadership style is centered on the boss. Leaders holds all authority, responsibility and reach decisions, communicate them to subordinates and expect prompt implementation. Autocratic work environment does normally have little or no flexibility.

2. Democratic Leadership: is a leader style where inputs from team members and peers are considered and valued. The democratic leader holds final responsibility, but he or she is known to delegate authority to other people, who determine work projects. Democratic Leadership style is one of the most effective types which lead to high productivity (Gadirajurrett et al., 2018). A mature Project leader will never hold a vote without first consulting with the primary stakeholders in the vote. This is necessary to ensure that the vote properly addresses the issue at hand, and that all parties including the project leaders know what is at stake (Hodgkinson J., 2009)

3. Laissez-faire Leadership: is a leadership style in which leaders hands-off and allow group members to make the decisions.

Laissez-faire is a French phrase meaning —leave it alone. Laissez-faire leader lacks direct supervision of employees and fails to provide regular feedback to those under their supervision. Laissez-faire leadership gives authority to employees. Laissez-faire leadership has a hands-off policy and the team is entirely self-directed in their activities. As with a laissez-faire decision making style, this style is only appropriate for very mature self-motivated teams.

4. Transactional Leadership: Focuses on supervision, group performance and organization. Transactional leaders are good at setting expectations and standards that maximize the efficiency and productivity of project team. This is a leadership that maintains or continues the status quo. It is also the leadership that involves an exchange process, whereby followers get immediate, tangible

rewards for carrying out the leader's orders. Transactional leadership can sound rather basic, with its focus on exchange. Being clear, focusing on expectations, giving feedback are all important leadership skills.

Transactional leadership behaviors can include: clarifying what is expected of project teams; explaining how to meet such expectations; and allocating rewards that are contingent on meeting objectives.

5. Transformational Leadership: Depends on high levels of communication from management to meet goals. Transformational leaders motivate employees and enhance productivity and efficiency through communication and high visibility. Transformational leadership enhances the motivation, morale and performance of followers through a variety of mechanisms like, being a role model to his followers to inspire them, understanding strengths and weaknesses of followers. The great value of a transformational leadership style is the level of commitment and enthusiasm it elicits from the team.

6. Charismatic Leadership: Leads a team primarily through magnetism of personality. Charismatic leaders focus on the project goals and team development. Charismatic leadership style can be very effective if combined with preferred styles, such as democratic, consensus, coaching or empowering
Hodgkinson J. (2009). Charismatic leadership involves transformation of followers' values and beliefs.

Functions of project Leaders

Ankit R, (2018) Posited that a project leader is responsible for setting the expectations for their team members, set the direction for their team during project work, act as a problem solver in a project, responsible for conflict resolutions, responsible for reviewing team performance, add value to projects, recognizing efforts of team members, ensures team rewards and ensure the team stay focus on the project goal. A project leader is tasked with making critical decisions regarding the project (Asma, (2018). Chititoor, (2012) as cited in Asma, (2018) posited that any process that has to be conducted or an action that has to be taken in any particular angle of a project has to have the approval of the project leader as the decision maker of the project. Project leader is accountable for

the entire project plan; costs, schedules and process plans. Management of the entire project is the duty of the project leaders; they are responsible for selecting teams, allocating duties, authorizing payments, among other managerial responsibilities (Asma, (2018).

RESEARCH METHODOLOGY

The study uses the concept of questionnaires to ensure that the study is conducted as practical and realistic ways from the point of view of the various respondents and professionals with vast knowledge in water projects in water sector. Target population is 150 respondents and the sampling size of 109 was obtained using Taro Yamane’s formula. Simple random sampling technique was used for the study. The questionnaire used Likert Scale and open ended answers. Correlation coefficient model and Multiple regression model was use to analyze data.

$n = N/1 + N (e) ^2$ ----- Taro Yamane’s sampling formula.

Where: n = Sample size, N = Total population, e = Error limits (0.05 on the basis of 95 per cent confidence level).

RESULTS AND ANALYSIS

Table 1: Number of Questionnaire Administered and Retrieved for the Study

Questionnaires Distributed	Questionnaires Retrieved	Percentage Retrieved (%)	Percentage Withheld (%)
109	101	93%	7%

Source: Field Survey (2019)

Table 4.1 showed the copies of questionnaire administered and retrieved. The total numbers of questionnaires distributed were 101 copies. 8 copies of administered questionnaire were withheld amount to 7% while 101 copies were retrieved amounting to 93% which made a very good number out of 109 copies of questionnaire administered.

Table 2: Demographic Statistics

Demographics	Categories	Frequency	Percent
Gender	Male	79	78%
	Female	22	22%

Education Level	PhD/M.Sc/Tech	17	17%
	B.Sc./B.Tech	29	29%
	HND/OND	50	50%
	SSCE	5	5%
Age bracket in Years	Below 30	13	13%
	31 to 44	49	49%
	45 to 54	34	34%
	55 Above	5	5%
Designation/Job position	Project Manager	11	11%
	Engineer/Suppliers	41	41%
	Geo/ Water scientist	21	21%
	Others	28	28%
Type/Title of the water project	Water supply & irrigation	45	45%
	Water Storage	24	24%
	Water quality & drainage	15	15%
	Others	17	17%

Source: Field Survey (2019)

A total of 101 valid responses obtained from individuals of which majority of the gender population were males (79) 78% and (22) 22% were females. Most of the respondents had HND/OND and B.sc/B.Tech level of education at (50) 50% and (29) 29% respectively; a good number had PhD/M.Sc/M.Tech level of education at (17) 17% whereas; small proportion of (5) 5% respondents had SSCE level of education. (13) 13% of respondents are below 30 years, (49) 49% of respondents were between 31 to 44 years, (34) 34% of respondents are within 45 to 54 years and (5) 5% of respondents are 55 years and Above. For respondents Job position; 41% of respondents are engineers and suppliers. 28% of the respondents belong to the categories of Other Job position. 21% of respondents belong to the category of Geo/Water physicians and scientist and 11% are Project Managers. For respondents water project types; 45% were for water supply & irrigation projects, 24% were for water storage & irrigation projects, 15% were for water quality & drainage and 17% for others types of project.

Table 3: Correlation Coefficient result for constructs measure

	Decision Making	Team Mgt.	Solving Prob.	Conflict Resolu.	Accountability.	Change Mgt.	Autocratic.	Democratic.	Laissez-faire.	Transactional	Transformational	Charismatic.	Time perf.	Cost performance.
Decision Making	1.000													

Team Mgt.	0.882	1.00												
Solving Prob.	0.855	0.85	1.000											
Conflict Resolu.	0.838	0.91	0.920	1.000										
Account ability	0.794	0.74	0.877	0.859	1.000									
Change Mgt.	0.816	0.88	0.878	0.939	0.840	1.000								
Autocra.	0.853	0.90	0.902	0.971	0.873	0.931	1.00							
Democr.	0.813	0.84	0.900	0.927	0.871	0.918	0.94	1.000						
Laissez-faire	0.818	0.87	0.875	0.936	0.843	0.932	0.93	0.963	1.000					
Transact ional	0.842	0.92	0.885	0.948	0.855	0.972	0.94	0.932	0.947	1.000				
Transfor mat.	0.828	0.87	0.892	0.939	0.841	0.979	0.94	0.931	0.940	0.953	1.000			
Charism atic	0.902	0.92	0.912	0.924	0.821	0.908	0.90	0.888	0.899	0.914	0.903	1.000		
Time perform ance	0.759	0.77	0.890	0.891	0.888	0.874	0.90	0.907	0.879	0.879	0.887	0.819	1.000	
Cost p.	0.671	0.63	0.746	0.727	0.825	0.814	0.74	0.803	0.791	0.822	0.798	0.692	0.857	1.000

Source: Field Survey (2019)

Correlation Analysis

Table 3 above shows Pearson correlation coefficient of variables under study. The correlation coefficient result shows that all relationships between dependent and independent variables are significantly correlated. Table 3 result shows the following information; that the strongest relationships between Time/schedule performance of water project and functions of project leaders exist in conflict resolution responsibility ($r= 0.891$), problem solving responsibility ($r=0.890$) and accountability responsibility ($r=0.888$).

Also, the strongest relationships between Time/schedule performance of water project and project leadership style exist in democratic leadership style ($r=0.907$) and autocratic leadership style ($r=0.904$).

Furthermore, the strongest relationships between cost performance of water project and functions of project leader exist in accountability responsibility ($r=0.825$) and management of change responsibility ($r=0.814$). Also, the strongest relationships between cost performance of water project and project leadership style exist in transactional leadership style ($r=0.822$) and democratic leadership style ($r=0.803$). There is a strong correlation between cost performance of water project and time performance of water project ($r=0.857$)

Table 4: Linear Regression Result for Time/Schedule Performance of Water Project

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.9291							
R Square	0.8631							
Adjusted R Square	0.8603							
Standard Error	0.3657							
Observations	101.0000							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	2.0000	82.6566	41.3283	309.0375	4.75456E-43			
Residual	98.0000	13.1058	0.1337					
Total	100.0000	95.7624						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-0.686	0.287	-2.391	0.019	-1.256	-0.117	-1.256	-0.117
Accountability	0.568	0.106	5.362	0.000	0.358	0.779	0.358	0.779
Democratic	0.434	0.060	7.267	0.000	0.315	0.552	0.315	0.552

Source: Field Survey (2019)

Multiple-Linear regression analysis was performed on project leadership style and functions of project leaders with the view to measure their individual contributions towards achieving sustainable developmental time/schedule performance of water projects.

In table 4, regression model shows coefficient of determination of R square= 0.8631 that is 86.31% of the changes in time/schedule performance of water project can be jointly explained by project leadership style and functions of project leaders. Table 4 shows that F= 309.0375, coefficient= -0.686, p value= 0.019, indicated that there is a significant relationship between project leadership style, functions of project leaders and time/ schedule performance of water projects.

Table 4 shows that there is a positive and significant relationship between Democratic Leadership style and time/schedule performance of water project with coefficient= 0.434, t stat= 7.267, P value= 0.000 which is <0.05). This implies that a unit change in Democratic leadership style will improve time/schedule performance of water projects by 0.434 units.

Also, table 4 Regression result shows positive and high significant relationship between Accountability function of a project leader and time/schedule performance of water project (coefficients= 0.568, t stat= 5.362, P value= 0.000 <0.05). This implies that a unit change in accountability function of a project leader will achieve sustainable developmental time/schedule performance of water projects by 0.568 units. Therefore, a multiple linear regression equation shows the relationship between project leadership styles, function of project leaders for achieving sustainable developmental time/schedule performance of water projects as thus: $(Y) = 0.434(\text{Democratic leadership style}) + 0.568(\text{Accountability function of Project leaders}) + (-0.686)$

Table 5: Linear Regression Result for Cost Performance of Water Project

SUMMARY OUTPUT	
<i>Regression Statistics</i>	
Multiple R	0.868
R Square	0.754
Adjusted R Square	0.749
Standard Error	0.459
Observations	101.000

ANOVA									
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>				
Regression	2.000	63.155	31.577	150.167	1.43848E-30				
Residual	98.000	20.608	0.210						
Total	100.000	83.762							
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>	
Intercept	-0.215	0.346	-0.622	0.536	-0.902	0.472	-0.902	0.472	
Accountability	0.396	0.142	2.778	0.007	0.113	0.678	0.113	0.678	
Time performance	0.550	0.102	5.382	0.000	0.347	0.752	0.347	0.752	

Source: Field Survey (2019)

Multiple-Linear regression analysis was performed on project leadership style and functions of project leaders with the view to measure their individual contributions towards achieving sustainable developmental cost performance of water projects. In table 5, regression model shows coefficient of determination of R square= 0.754 that is 75.4% of the changes in cost performance of water project can be jointly explained by project leadership style and functions of project leaders. Table s shows that F= 150.167, coefficient= -0.215, p value= 0.536, indicated that there is a significant relationship between project leadership style, functions of project leaders and cost performance of water projects.

Table 5 shows that there is a positive and significant relationship between Cost performance of water project and time/schedule performance of water project with coefficient = 0.550, t stat= 5.382, P value= 0.000 which is <0.05). This implies that a unit change in time/schedule performance of water project will affect cost performance of water project of water projects by 0.550 units.

Also, table 5 Regression result shows positive and high significant relationship between Accountability function of a project leader and cost performance of water project (coefficients= 0.396, t stat= 2.778, P value= 0.007 <0.05). This implies that a unit change in accountability function of a project leader will achieve sustainable developmental cost performance of water projects by 0.396 units. Therefore, a multiple linear regression equation shows the relationship between function of project leaders for

achieving sustainable developmental time/schedule and cost performance of water projects as $(Y) = 0.396(\text{Accountability function of Project leaders}) + 0.550(\text{Time/schedule performance of water project}) + (-0.215)$.

CONCLUSION

This study explores project leadership for refocusing Africa Continent towards achieving sustainable performance of water projects in the 21st with the objectives of identifying project leadership style that achieves sustainable performance of water projects, examine functions of project leaders that best achieve sustainable performance of water projects and Identify the relationship between project leadership style, functions of project leadership and sustainable performance of water projects.

The study concludes that functions of project leaders and project leadership style are critical in determining sustainable development performance of water projects. Accountability responsibility of project leaders was found to be the project leadership function with the greatest influence in achieving sustainable performance of water projects in Africa. Democratic Leadership style is the major Project leadership style with greatest influencing capacity to achieve sustainable performance of water project in Africa.

The study also concludes that cost performance of water project is significantly influence by time/schedule performance of water project towards achieving sustainable performance of water project in Africa.

Therefore, project leaders should be more accountable to water project activities by maximizing democratic leadership style to achieve sustainable performance in terms of cost and time/schedule on the Africa continent in the 21st century.

RECOMMENDATIONS

The study recommends that for water projects to perform better in Africa, democratic leadership style need to be exercise and project leaders need to be more accountable in their responsibility towards sustainable performance of water projects.

The study also recommended that similar studies be carried out to other aspect of water projects so that a more standardized list of factors can be arrived at to enhance performance of water project in

the Africa continent, as this will lead to fewer water project failures hence less wastage of funds and more access to water.

REFERENCE

- Abaje, I.B., Ati, O. F. & Ishaya, S. (2009). Nature of Potable Water Supply and Demand in Jema'a LGA of Kaduna State, Nigeria, *Research Journal of Environmental and Earth Sciences*, 1(1):16-21.
- Adenike, A. A. & Titus, O. B. (2009). Determinants of willingness to pay for improved water supply in Osogbo metropolis; Osun State, Nigeria, *Research Journal of Social Sciences*. 4:1-6.
- Adie, C. U., Idris, I. & Udom, H. T. (2018). Development Partners in Nigeria's Infrastructural Projects: An Evaluation of European Union Water Project in Odukpani Local Government Area of Cross River Stat, *Research on Humanities and Social Sciences*. Nsukka, Vol.8, No.9, 42-50

- African Development Bank Group, (2019). AfDB Water Sector Activities and Initiatives Report for 2018, Water Development and Sanitation Department/African Water Facility (AHWS)
- Ahile, S. I., Udoumoh, E. F. & Adzande, P. (2015) Residents Coping Strategies with Water Scarcity in Makurdi Town, Nigeria. Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy. Vol 6 No 4 S2, July
- Angmor, E. N., Tettey, C. & Amoah, T. (2016). Management of community water projects: Assessing the challenges of indigenous arrangements, Journal of Geography and Regional Planning. Vol. 9(6), pp. 122-127, June, Ghana.
- Ankit, R. (2018). Product Manager vs Project Manager vs Project Leader: Key differences you must know. Sept
- Aribigbola, A. (2010). Meeting the millennium development goals (MDGs) targets for water and sanitation in urban areas of Africa: The example of Akure, Ondo State, Nigeria, Journal of Sustainable Development in Africa, 12(3)
- Asma, T. H. (2018). The Role of Leadership in Project Management. <https://www.ligsuniversity.com/en/blogpost/the-role-of-leadership-in-project-management>
- Ayanni, G. (2006). Poverty in sub-Saharan Africa: Issues of policy concern. Nairobi: African Economic Research Consortium.
- Birkinshaw, J., Hamel, G. & Mol M. J. (2008). Management Innovation, Acad Manage Rev, 33, 825-845
- Butler, J. K. & Reese, R. M. (1991). Leadership style and sales performance: A test of the situational leadership model. Journal of Personal Selling & Sales Management, Sept, 11(3), 37-47.
- Burghardt M., (2002). Project management, Publicis Kommunikationsagentur,
- Cheung, H., Baker, T. & Traeger, C. (2004). Risk matrix: An approach for prioritizing risks and tracking risk mitigation progress: Proceedings of the 30th Annual Project Management Institute, Philadelphia: PA
- Curran C.S., Niedergassel B., Picker S. & Leker J., (2009). Project leadership skills in cooperative projects, Management Research News, 32, 458-468
- Damina B. G., Adegboyega A. A., Agabi J.(2016). Bridging the Divide: The Challenges of Sustainable Water Supply to Peripheral Settlements of Kaduna Metropolis. IJSRST. Birnin-Kebbi, Volume 2, Issue 6
- Edum-Fotwe, F. T. & McCaffer, R. (2000). Developing project management competency: perspectives from the construction industry, International Journal of Project Management, 18, 111-124

- Eja, E. I., Otu, J. E., Atu, J. E. & Edet, E. O.(2011). Urban Water Supply as a Catalyst for Socio-Economic Transformation of Port-Harcourt City, Nigeria, *International Journal of Humanities and Social Sciences*; 1(2),89-94.
- Ezenwaji, E. E., Anyaeze, E., Otti, V. I. & Obienusi, E. A. (2014). Manifestations of water supply shortages and implication for rural development in Anambra state, Nigeria, *Journal of Environmental Sciences and Water Resources*. 3(7), 149-155.
- Falkenmark, M & Rockstrom, J. (2004). *Balancing Water for Human and Nature: The New Approach in Ecology*, Earthscan Publication. London.
- FAO, (2010). *Enduring Farms: Climate change, Small holders and Traditional Farming Communities*. FAO, Rome.
- Federal Government of Nigeria, (2011). *Executive Summary of the Nigeria Water Sector Roadmap*
- Intan, B. H. (2015). A Study on Leadership Skills of Project Manager for a Successful Construction Project, *International Academic Research Journal of Social Science* 1(2), Perak, 89-94
- John-Dewole, O. O. (2012). Adverse effects of inadequate water supply on human health: A case study of Kajola Local Government in Oyo State, Nigeria, *Greener Journal of Medical Sciences*. 2(5), 115-119
- Galadima, A., Garba, Z. N., Leke, L., Almustapha, M. N. & Adam, I. K. (2011). Domestic Water Pollution among Local Communities in Nigeria: causes and consequences, *European Journal of Scientific Research*, 52(4), 592-603.
- Gadirajurrett, H., Srinivasan, R., Stevens, J. & Jeena, N. (2018), *Impact of Leadership on Team's Performance*, published Thesis,. Portland State University, 1912.
- Hodgkinson, J. (2009). *Leadership Styles for Program and Project Managers*, published at www.asapm.org
- Ishaku, H. T., Rafee M, M., Ajayi, A. & Haruna, A. (2011). Water Supply Dilemma in Nigerian Rural Communities: Looking towards the Sky for an Answer, *Journal of Water Resources and Protection*.3, 598- 606.
- Kimani-Murage, E. W. & Ngindu, A. M. (2007). Quality of water the Slum Dwellers use: The case of a Kenyan Slum, *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 84(6), 829-838.
- Kholisa, S. (2006). *The Role of Women in Mitigating Water Scarcity*, published M.Sc Thesis, University of the Free State, Bloemfontein, South-Africa.
- Kloppenborg, T. J., Shriberg, A. & Venkatraman, J. (2003). *Project Leadership*, 1-137 *Management Concepts*,

- Kolltveit, B. J., Karlsen, J. T. & Gonhaug, K. (2007). Perspectives on project management, *International journal of project management*, 25, 3-9
- Lawal, O. L. & Basorun, J. O. (2015). Access to safe water in Akure: A paradox in Nigerian urbanized regions. *International Journal of Emerging Knowledge*, 3(3), 39 – 45
- Linda-Stalker, P. (2005). The relationship between participation and project outcomes: Evidence from rural water supply projects in India. *World Development*, 33(11): 1801-1819.
- Lunenburg F.C., (2011). Leadership versus Management: A Key Distinction — At Least in Theory, *International journal of management, business and administration*, 14, 1-4
- Mabogunje, A. L. (1993). *Infrastructure: The Crux of Modern Urban Development*, Urban Edge 1(3) 3, World Bank, Washington DC.
- Mohammed, T., Fuseini, A. & Abukari, I. (2016). Challenges Faced by Consumers of Ghana Water Company and the Way Forward: The Case of Tamale Metropolis, Ghana. *University for Development Studies, Tamale, Ghana, Journal of Scientific Research & Reports* 10(2): 1-13,
- Molle, F. & Mollinga, P. (2003). Water poverty indicators: Conceptual problems and policy issues. *Water Policy*, 5:529- 532.
- Moira, A. (2019). What is a project manager? The lead role for project success., May. <https://www.cio.com/article/3224865/what-is-a-project-manager-the-lead-role-for-project-success.html>.
- Montequin, V. R., Nieto, A. G., Ortega, F. & Villanueva J. (2015). Managerial style profiles of successful project managers: a survey. Conference on ENTERprise Information Systems / International Conference on Project MANagement/Conference on Health and Social Care Information Systems and Technologies, CENTERIS/ProjMAN/HCist. Project Engineering Area, University of Oviedo, Spain, oct., 7-9
- Mosley, A. L., (1998). Organizational studies approach to leadership: Implications for diversity in today's organizations, *The Journal of Leadership Studies*, 5(1), pp. 38–50.
- Munns, A. & Bjeirmi, B. (1996). The role of project management in achieving project success, *International Journal of Project Management*: 14(2):81-7.
- Mukuhlani, T. and Mandlenkosi, T.N. (2014). Water Scarcity in Communities, Coping Strategies and Mitigation Measures: The Case of Baluwayo. *Journal of Sustainable Development*; 7(1)
- Nanus, B., (1989). *The leader's edge: The seven keys to leadership in a turbulent world*. Chicago: Contemporary Books.
- Ndabula, C. & Jidauna, G. G. (2010). Domestic Water Use in Selected Settlements in the Sudano-Sahelian Region of Nigeria, *International Journal of Water and Soil Resources*, 1(1), 1-11.

- Negoianu, D. & Goldfaid, S. (2008). Just Add Water, *Journal of American Society of Nephrology*, 19(6):1041-1043.
- Ocheri, M. (2006). Analysis of Water Consumption Pattern in Makurdi Metropolis, *Journal of Geography and Development*, 1(1):71-83.
- Ofuoku, A. U. (2001). Effect of community participation on sustainability of rural water projects in Delta Central Agricultural Zone of Delta State, *Journal of Agriculture Extension and Rural Development*. Vol. 3(7), 130-136.
- Okereke, P. A. (2000). The water problem in old Imo State, Paper Presented at the National Conference on Housing and Environment (CEENACON), Warri, Imo State University 23-24 March.
- Perkins, P. E. (2004). Participation and Watershed Management: Experiences From Brazil, paper presented at the conference of the International Society for Ecological Economics (ISEE), ontreal, Canada, 10–14 July.
- Purbey, S., Mukherjee, K. & Bhar, C. (2007). Performance measurement system for healthcare processes, *International Journal of Productivity and Performance Management*. 56 (3), 241 – 251.
- Rockstrom, J. (2001). Green water security for the food makers of tomorrow: windows for opportunity in drought- prone savannahs, *Water Science and Technology*, 43(4), 71-78.
- Economist, T. (Sept. 7–13, 2002): 13–14, 69–70.
- Sumila, G., Debabrata T., & Kariuki, M. R. (2005). Water for the Urban Poor: Water Markets, Household Demand, and Service Preferences in Kenya, Water supply and sanitation sector board discussion paper series p a p e r n o. 5, j a n u a r y 2 0 0 5
- Strider, W., (2002). Powerful Project Leadership, 1-238, *Management Concepts*
- Swaminathan, M. S. (2001). Ecology and Equity: Key Determinants of Sustainable Water Security, *Water Science and Technology*, 43(4), 35-44.
- Uzoma, E.C. (1990). Water Supply: A case study of Enugu Metropolis. Published B.Sc Project, Anambra State University of Technology, Enugu
- UN-Water, (2007). Coping with water scarcity-challenge of the 21st century, World Water Day
- United Nations. (2003). Water for People, Water for Life. World Water Development Report, (Executive Summary).
- Vaccaro, I. G., Jansen, J. J. P., Van Den Bosch F. A. J. & Volberda H. W., (2012). Management Innovation and Leadership: The Moderating Role of Organizational Size, *J Manage Stud*, 49, 28-51

Van den Berg, C. & Danilenko, A. (2017). Performance of Water Utilities in Africa, Water Global Practice report, International Bank for Reconstruction and Development/The World Bank

Warui, W. M., (2017). Social-economic factors influencing performance of community based water projects in Meru County, Kenya: A case of Kathita Kiirua water extension project. Published Master's thesis in project planning and management, University of Nairobi

White, C. (2012). Understanding water scarcity: Definitions and Measurements, GWF Discussion Paper 1217, Global Water Forum, Canberra, Australia. <http://www.globalwaterforum.org>.

WHO/UNICEF, (2011). Drinking Water Equity, Safety and Sustainability: Thematic report on drinking water, WHO/UNICEF, Geneva.

APPENDIXES

Questionnaire

Please, provide the following information

Section A: Personal Information

1. Please specify your gender Male Female

2. Please indicate your highest level of education attained so far.
 PhD/M.Sc./Tech B.Sc./B.Tech HND/OND SSCE
3. Kindly, indicate your age bracket in years
 Below 30 31 to 44 45 to 54 Above 54

Section B: Experiential Information

4. What is your job position?
 Project Manager Engineer/Suppliers Geo/Water physicians/Scientist Others,
 please specify _____
5. Type/Title of the water project?
 Water supply & irrigation Water Storage project Water quality and drainage project
 others please specify _____
6. Rating of water project in terms of time/schedule performance (Please tick one as appropriate)
 Very Good Good Average Bad Very Bad
7. Rating of water project in terms of cost performance (Please tick one as appropriate)
 Very Good Good Average Bad Very Bad

Section C: Research Constructs under Measure

8. Kindly indicate the extent to which you agree with each of the following Project leadership functions as a factor that best achieve sustainable performance of water projects.

Note: Strongly - 5 points, Agree - 4 points, Partially Agree - 3 points, Partially Disagree - 2 points, Disagree -1 point.

Functions of Project leader's	Disagree	Partially Disagree	Partially Agree	Agree	Strongly Agree
Decision Making					
A project leader is tasked with making critical decisions regarding the project.					

Team Management					
A project leader set project direction and expectations for their team members during project work.					
Solving Problem					
A project leader act as a problem solver.					
Conflict Resolutions					
A project leader is responsible for conflict resolutions.					
Accountability					
A project leader is accountable for the entire project plan, cost, schedule and processes.					
Change Management					
A project leader gives approval for whatever change is to occur in a project.					

9. Kindly, indicate the extent to which you agree with each of the following Project leadership style as a factor that best achieve sustainable performance of water project.

Project leadership Skills	Disagree	Partially Disagree	Partially Agree	Agree	Strongly Agree
Autocratic Leadership (a)					
Leaders make decisions based on their ideas and judgments without input from other project team members.					

Democratic Leadership (b)					
Leader style where inputs from team members and peers are considered and valued.					
Laissez-faire Leadership (c)					
Laissez-faire leader lacks direct supervision of employees and fails to provide regular feedback to those under their supervision.					
Transactional Leadership (d)					
Transactional leaders are good at setting expectations and standards that maximize the efficiency and productivity of project teams.					
Transformational Leadership (e)					
Transformational leaders motivate employees and enhance productivity and efficiency through communication and high visibility.					
Charismatic Leadership (f)					
Charismatic leader leads a team primarily through magnetism of personality.					