

## **INFLUENCE OF HUMAN CAPITAL DEVELOPMENT ON WATER SERVICE DELIVERY IN LAKE VICTORIA SOUTH REGION, KENYA**

**1\* Ouma George Otieno**  
*gouma43@yahoo.com*

**2\*\* Kwasira Josphat (PhD)**  
*jkwasira@jkuat.ac.ke*

**3\*\*\* Imbambi Richard Misigo (PhD)**  
*rmimbambi@yahoo.com*

*1\*, 2\*\* Jomo Kenyatta University of Agriculture and Technology, Kenya*

*3\*\*\* Masinde Muliro University of Science & Technology, Kenya*

---

**Abstract:** *Water is undoubtedly a very important resource for mankind. Several intervention measures have been undertaken to improve the water service sub- sector in Kenya. However, provision of clean and safe drinking water is still a major challenge in the country. Empirical studies have indicated that of the current population in Kenya, about 17 million people (43 percent) still lack access to clean and safe drinking water.*

**Objective:** *The objective of this study was to establish the influence of human capital development on water service delivery in Lake Victoria south region in Kenya.*

**Significance:** *The study would contribute to the existing empirical literature by providing more insights on the relationship between human capital development and organizations' service delivery. It was envisaged that the study findings would also be helpful in supporting players in water service sub- sector make strategic decisions on the development of the organizations' human capital, through identification and filling of the skills gap, thereby improving organizational success and productivity.*

**Findings:** *The study findings indicated that human capital development has a positive significant influence on water service delivery. It is therefore recommended that the water firms should invest in human capital development programmes as a priority to support superior skills development, which would result into enhanced organizational growth and improve service provision. They should also consider creating an enabling environment for skills enhancement would in turn improve employees' competencies appropriate for the workplace environment.*

**Keywords:** *Human Capital, Service delivery, water service firms, Lake Victoria South*

---

### **I. HUMAN CAPITAL DEVELOPMENT**

Hudson (1993) indicates that the worth of an employee can be attributed to several factors such as his talent, the personal attitude; behavior towards business and life, experiences acquired, last but not least, education level the individual possesses. Therefore, an organization is said to develop its human capital when it invests in activities which enhance the employees' capabilities.

According to Hitt, Bierman, and Kochhhar (2001), just like other assets, the people in an organization need to have their effectiveness reviewed and improved from time to time, in order to realize growth and productivity

of the organizations. An organization would therefore consider improving the capabilities of an employee such as his knowledge, skills and ability to make him work effectively. Wiig (1997) describes Human capital as degree of competence and capabilities possessed by employees of any given organization. Bohlander and Snell (2007) identified some elements of human capital to be the commitment, know-how capabilities, skills, knowledge ideas and health. Bohlander *et al.*, further describe human capital as something which is naturally intangible since it adds value to an organization's ability to solve problem as well as make decisions in situations which are complex and also requires innovativeness.

Blundell (1999) observes that skills, experiences and abilities acquired by the employees constitute human capital. He further explains that these qualities can be acquired either through formal education or on-job training. Recently, organizations and institutions world over, recognized that recruiting employees who are skilled, experienced and well motivated makes a big difference in terms of their performance and their overall contribution towards organizational performance.

According to Martinez (2013), effective performance of an organization is largely dependent on the availability of skilled and competent employees within its ranks. This is because the combined contribution of individual employees in a way has effect on the organization's success and productivity. Thus to improve human capital, organizations need to scale-up investment in human capital development. In order to effectively improve workforce quality, organisations should provide enabling environment which allows for acquisition of new skills and competencies, learning and eventual application of the innovative ideas.

Ichniowski, Shaw and Prennushi (1997) observe that organizations should recognize that without human capital resources, little productivity can be realized. Organizations are known to invest in employee development through trainings, coaching, job rotation, job enhancement among others. They observed that when an organization invests in human capital, the morale and commitment of an employee get boosted.

In their study on effect of human capital management drivers on performance of investment and mortgages bank Ltd, Odhong', Were and Omollo (2014) sought to establish how leadership practices affect employee engagement, knowledge accessibility, workforce optimization and learning capacity on organizational performance. The study found that human capital management drivers can be used as a benchmark for identification of human capital management strengths and weaknesses, organizational capabilities.

Mehmood and Iqbal (2013) studied the effect of human capital investment on customer satisfaction in the banking sector of Pakistan. The customer satisfaction is largely attributed to the attitude of the employees and the quality of service offered to him. The study concluded that there exists a significant relationship between human capital investment and customer satisfaction.

Ibeto, Chukwuemeka, and Okechukwu, (2009) conducted a study to determine how human capital development and service delivery would be enhanced in Nigerian tertiary institutions with a focus on academic staff. The results indicated that Nigerian universities give little consideration to meritocracy, competency and right qualification while recruiting academic staff. The findings also established that there exists a significant relationship between merits, qualification, competency based academic staff recruitment, human capital development and service delivery.

In their effort to establish how human capital investment affect the performance of pharmaceutical companies in Kenya, Odhon'g, and Omolo (2015) revealed that there exists a positive significant relationship between human capital investment and organizational performance. It was recommended that for skills development to be enhanced, the organizations should provide; transferability skills, quality education, relevant training linked

to industry requirements, social networks and knowledge management systems, training on employability and also promote knowledge management through team work.

In his attempt to examine the role of human capital development on the performance of Benadir University in Somalia, Nor (2016) established that human capital has a significant role in its performance as it enhances organization's profitability index. In overall, he observed that human practice tends to play a crucial role in building the capacity of an organization's staff.

In their study to examine the relationship between quality of employee training and development on service delivery, Mpofu and Hlatywayo (2015) considered training and development as a tool for improving basic service delivery of municipal employees. The study findings revealed that more improved employee performance was likely to be achieved if employees were effectively trained, and in turn there would be improved provision of services to the communities.

## **II. WATER SERVICE DELIVERY**

While looking at Water service delivery in Kenya and Ghana, Bellaubi and Vesscher (2014) concluded that intervention measures taken by stakeholders in the water service sub- sector has resulted into changes in many organizations in both Kenya and Ghana, yet the overall performance in water service delivery has remained at all times low. Wutich (2007) also notes that low access to Water Service Delivery (WSD) is a common occurrence in urban areas in Sub-Saharan countries. He further describes how low efficiency and access in water service delivery determine social vulnerability of the poor who are 'disconnected' from water networks depend on informal water providers (such as water vendors and tankers). Obosi (2017) established that in water service companies where there is public- private partnership arrangements, improvement in water service delivery has been witnessed, to the extent that such water service utilities have realized increased service delivery when compared to those who are not in any partnership arrangement.

## **III. STATEMENT OF THE PROBLEM**

With a human population of 48 million, the current water coverage in Kenya stands at 55 % at the water service provision level, against a 2015 National Water Services Strategy (NWSS) target of 80%. Such shortcomings in water service provision are also experienced in Lake Victoria South region. The region is a home to some 600 water service providers, yet access to safe and clean water is as low as 56% and 29% in urban and rural areas respectively (WASREB, 2018). Technology adoption has been broadly researched with several empirical studies examining the nexus between technology adoption and organizational performance.

No empirical study was found to have examined the relationship between human capital development and water service delivery in Lake Victoria South region in Kenya. This existing research gap is what this current study sought to fill by establishing how human capital development relates to efficiency in water service delivery in the Lake Victoria south region.

### **Objective of the Study**

The general research objective was as follows:

1. To establish the influence of human capital development on water service delivery in Lake Victoria south region in Kenya.

### Research Hypothesis

The study tested the following null hypothesis

*H0<sub>1</sub>*; There is no significant relationship between human capital development and water service delivery in Lake Victoria south region.

## IV. RESEARCH METHODOLOGY

The study used descriptive approach with a survey research design. Self-administered questionnaire was used to collect primary data from 107 respondents. A pre-test of the questionnaire was conducted to identify and correct any anomalies. Data was analyzed through a combination of both descriptive and inferential techniques. Quantitative data was processed using SPSS version 20.0 and presented in summary statistics such as mean, percentages and standard deviation.

## V. RESEARCH FINDINGS AND DISCUSSION

### Descriptive Analysis for Human Capital Development

Descriptive analysis was performed where descriptive statistics such as mean, variance and standard deviations were computed to provide meaningful interpretation and description of the study results. In the presentation and data analysis, the scale for the questionnaire items and a decision rule were applied. The scale was a 5-point Likert scale with corresponding responses indicating that; 5- Strongly Agree, 4 Agree, 3- Neutral, 2- Disagree and 1-Strongly Disagree. On the other hand, the decision rule was that: If mean is equal to or greater than 3, then the respondents are in agreement, while if the mean is less than 3, then the respondents are not in agreement. The results of the analysis are presented in Table 1.

**Table 1:** Responses to Human Capital Development items

Research Questions	N	Min score	Max score	Mean	Std Dev
Company considers skilled employees as an important resource	107	1	5	4.14	0.758
Company uses appropriate strategies to retain skilled employees	107	1	5	4.15	0.845
The company gives staff opportunity to improve their skills through trainings & education.	107	1	5	4.17	0.986
Company invests on staff on-job training and development.	107	1	5	3.90	1.243
There is a coaching program in our organization to enhance personal skills.	107	1	5	3.47	1.276
Supervisors support delegation of duties to encourage learning and growth in the company.	107	1	5	3.80	1.185
Supervisors share experiences with the staff on job performance.	107	1	5	3.75	1.245

Employees acquire skills through expert advice from the superiors.	107	1	5	4.01	1.068
The organization has a good environment to nurture skills, and knowledge.	107	1	5	3.93	1.151
The organization employs staff with requisite skill & experience.	107	1	5	4.07	0.876
Employees are assigned responsibility based on their knowledge, experience and skills.	107	1	5	4.15	0.762
<b>Mean of means</b>				<b>3.96</b>	

From the study results presented in Table 1, majority of the respondents were of the opinion that the organizations considered skilled employees as an important resource (mean of 4.14); It was also found that most of the water companies used appropriate strategies to retain skilled employees (mean score, 4.15). In addition, majority shared the view that the water companies gave staff opportunity to improve their skills through trainings and education (mean score, 4.17); that water companies invested on staff on-job training and development (mean score of 3.90).

Such training programs when offered regularly would help to enhance the human capital base by imparting job-specific skills. On the issues of availability of coaching programs in the organization to enhance personal skills, the respondents who were in agreement were scored at a mean score of (3.47). That supervisors in such water companies supported delegation of duties to encourage learning and growth of staff (3.80); that supervisors shared experience with the staff (mean score, 3.75); that employees acquired skills through expert advice from the superiors while (4.01).

The organization has a good environment to nurture skills, and knowledge (mean score, 3.93); that the organizations employed staff with requisite skill and experience (4.07); and that the employees were assigned responsibility based on their knowledge, experience and skills (mean score, 4.15). Based on the decision rule, the mean of mean being 3.96, which is >3, it is deduced that majority of the respondents are in agreement that the water firms are investing in human capital development activities to improve water service delivery.

**Descriptive Analysis for water service delivery**

Descriptive analysis was performed on the responses to various questions which were asked in relation to the dependent variable, water service delivery. The study findings are presented in Table 2.

**Table 2:** Responses to Water Service Delivery items

<b>Research Statements</b>	<b>N</b>	<b>Min score</b>	<b>Max score</b>	<b>Mean</b>	<b>Std Dev.</b>
The company has capacity to supply water to all the customers in its designated service area.	107	1	5	3.68	1.256
Water supply is available to the customers on a 24 hour basis.	107	1	5	3.52	1.291
The company has an adequate storage facility to meet consumers’ demand.	107	1	5	3.76	1.235
The company has a mechanism for identifying and reporting of breakdowns.	107	1	5	4.21	0.919
The company has adequate funds to maintain and rehabilitate its water distribution infrastructure.	107	1	5	4.15	0.919

Machines at the head works are working at full capacity	107	1	5	3.94	1.273
The distribution system uses the latest technology for water leak detection and worn out pipes.	107	1	5	3.93	1.049
The company relies on external technical assistance to respond to water supply breakdowns.	107	1	5	4.02	0.981
<b>Mean of means</b>				<b>3.90</b>	

The analysis of results revealed that the majority of the respondents were in agreement with the following statements. That; the company had capacity to supply water to all the customers in its designated service area (mean score, 3.68), that water supply is available to the customers on a 24-hour basis (3.52), the company has an adequate storage facility to meet consumers’ demand (3.76), that the companies had mechanisms for identifying and reporting of breakdowns (4.21), the companies had adequate funds to maintain and rehabilitate its water distribution infrastructure (4.15), that the machines at the head worked at full capacity (3.94), the company uses the latest technology for detection of water leaks and worn out pipes in the distribution system (3.93), that the company relied on external technical assistance to respond to water supply breakdowns (4.02). Since the mean of means is 3.90, which is >3, it implies that majority of the respondents were in agreement with the issues raised in the questionnaire.

**Correlation Analysis**

Person correlation was used to determine the strength and direction of the relationship between human capital development and water service delivery. Table 3 gives a summary of the results of the correlation analysis.

**Table 3:** Correlation coefficients

		Human Capital Development	Water Service Delivery
Human Capital Development	Pearson Correlation	1	.522**
	Sig. (2-tailed)		.000
	N	107	107
Water Service Delivery	Pearson Correlation	.522**	1
	Sig. (2-tailed)	.000	
	N	107	107

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As presented in table 3, the results indicate that the correlation coefficient is 0.522, with a p- value <0.05, at a confidence level of 95%. This implies that there exists a moderate positive relationship between human capital development and water service delivery.

**Regression Analysis**

A linear regression analysis was performed to establish the extent of relationship between human capital development and water service delivery. The results are presented as shown in Table 4.

**Table4:** Regression Coefficients

Model	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	7.029	3.365		2.089	.039
Human Capital Development	1.441	.137	.462	10.513	.000

\*Dependent variable- Water Service Delivery

The coefficient of correlation was calculated for the sets of data obtained. From the study findings, human capital development was found to have an unstandardized coefficient value of ( $\beta=1.441, p<0.001$ ). To demonstrate the extent of the relationship, the unstandardized coefficients can be used to interpret the relationship as per cent age changes in dependent variable per unit change, with respect to independent variable. Therefore, it is interpreted to mean that when human capital development is increased by a unit, there will be a corresponding positive increase in efficiency in delivery of water service by 14.41%.

**Hypothesis Testing**

The study sought to establish whether human capital development had any significant influence on the delivery of water services. A null hypothesis was formulated with an assumption that it had no influence on water service delivery.

( $H_{01}$ ); Human capital development has no significant influence on water service delivery in Lake Victoria south region.

An analysis of variance (ANOVA) was performed to determine whether there was any significant influence of human capital development on water service delivery. The results of the analysis obtained were summarized and presented as shown in Table 5.

**Table 5: ANOVA for human capital development**

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1366.108	7	195.158	9.641	.000
Residual	2004.061	99	20.243		
<b>Total</b>	<b>3370.168</b>	<b>106</b>			

As indicated in Table 5, the results of the calculated F- distribution on table show that  $F= 9.641$ . However, the table value of F- distribution is 2.09 which is  $< 9.641$ . Since the calculated value is greater than the table value, we apply the decision rule and reject the null hypothesis ( $H_{01}$ ). It is therefore concluded that at 95% level of confidence, human capital development has a significant influence on water service delivery.

The study investigated the influence of human capital development on water service delivery. The

results based on the descriptive and inferential analysis reveal that there is a strong evidence that when the water firms invest in human capital development programmes, then their ability to improve in water service provision would be enhanced.

This is well corroborated by Subramaniam and Youndt (2005), who demonstrated empirically that human capital of a firm becomes a strategic asset when the staff becomes valuable by exhibiting proper knowledge and unique skill, thus generating greater competitiveness. They further concluded that organizations stand a better chance in improving the quality of their services by focusing on their human capital, as this can generate superior outcomes for the organization. In addition, the findings of this study corroborate previous studies by Chadwick (2007), who established a linear relationship between human capital and organizational performance.

The findings of this study further strengthen the argument of various scholars that human capital development has a positive effect on organizational performance. For instance, Wang, Shieh and Wang (2008) established that staff training and development was a key dimension in organizational performance. Onsomu (2013) also observed that the productivity of employees in water service organizations is an aspect which could greatly influence the efficiency and overall performance of such companies. The implication of this is that success of any organization is highly dependent on the quality of its human capital, with regard to knowledge, skills and competence levels. Therefore, it is imperative that water companies adequately invest in human capital development, as this would translate into improved water service delivery.

The value of this study on human capital development lies in the fact that it reveals the importance of providing skills development, training and knowledge to the employees as important assets of an organization. Notably, established water service providers have the capacity to access, easily attract qualified staff, and then invest in their training and development to improve their competencies. Human capital development can therefore be considered to be a very critical component with regard to improvement in service delivery by water service companies.

## **VI. SUMMARY OF THE FINDINGS**

The study investigated the influence of human capital development on water service delivery. The descriptive statistics indicated that the mean responses for both variables from all research questions were above 3 in the likert scale. Using the decision rule, it was considered that the study respondents were generally in agreement with the issues raised in the questionnaires.

To determine the strength and direction of the relationship between human capital development and water service delivery, Pearson correlation analysis was performed. The results indicated that with a correlation coefficient of 0.522, and a p- value  $<0.05$ , at a confidence level of 95%, there is a moderate positive relationship between human capital development and water service delivery.

A linear regression analysis was performed to establish the extent of the relationship between the study variables. Unstandardized regression coefficient of 1.441 was obtained. When interpreted as a per cent age change, it implies that whenever human capital development is increased by a unit, there will be a corresponding positive increase in water service delivery by 14.41%.

To further confirm the results, the study hypothesized that human capital development has no influence on water service delivery. From the analysis of variance performed, the null hypothesis was rejected, since the



calculated value 9.641 was > the table value of 2.09. This indicates that human capital actually plays a significant role in the improvement of water service delivery. This can be inferred to mean that an increase in human capital increases the efficiency in water service delivery.

## VII. CONCLUSION

In conclusion, the study found that human capital development is statistically significant for improvement of water service delivery in the large water service companies, which operate in Lake Victoria south region. The combined contribution of individual employees has been noted to have effect on the organization's success and productivity. Therefore, study findings would be helpful to players in the service industry as they make strategic decisions on the development of the organizations' human capital, with a view to enhancing organizational growth and service delivery.

## VIII. RECOMMENDATIONS

The study recommends that the water service companies should consider up-scaling investment in human capital development programmes in order to achieve sustainable growth and productivity. Equally important is that they should provide enabling environment which allows for acquisition of new skills and competencies, learning and eventual application of the innovative ideas in the work place.

## REFERENCES

- Bellaubi, F., & T. Visscher (2014). Water service delivery in Kenya and Ghana: an area-based assessment of water utility performance. International Journal of Water Governance 4, (11). 114- 118.*
- Blundell, R. (1999), Human capital investment: the returns from education, Institute for Fiscal Studies,*
- Bohlander, G., & Snell, S. (2007). Managing Human Resources, (14<sup>th</sup> Ed). Mason, Ohio: Thomson-Southwestern.*
- Chadwick, C. (2007). Examining non-linear relationship between human resource practices and manufacturing performance. Industrial and labor relations review, 60 (4), 499-521.*
- Government of Kenya, (2016). Laws of Kenya; The Water Act. Nairobi: Government Printer*
- Hitt, M, A., Bierman, S. K., & Kochhhar, P. (2001), Direct and Moderating Effects of Human Capital on Strategy and Performance in Professional Service Firms: A Resource-Based Perspective. Academy of Management Journal, 44 (1), 13–28.*
- Hudson, W. (1993). Intellectual Capital: How to Build It, Enhance It, Use It. New York: John Wiley & Sons.*
- Ibeto, C., Chukwuemeka, E., & Okechukwu, E. (2009). Enhancing human capital development and service delivery in Nigerian tertiary institutions through effective academic staff. Africa's Public Service Delivery & Performance Review. 6 (2)124-152.*
- Ichniowski, C., Shaw, K., & Prennushi, G. (1997). The effects of human resource management practices on productivity. American Economic Review, 87 (3),291–313.*

- Martinez, W. (2013), Factors that affects the maintenance of Qualified Employees today', Publishers, Howard & Thomas, USA.*
- Mehmood, F., & Iqbal, S.M. (2013). The Effect of Human Capital Investment on Customer Satisfaction. IOSR Journal of Business and Management. 7, (5) .77-81.*
- Mpofu M, & Hlatywayo. C. K. (2015). Training and development as a tool for improving basic service delivery; the case of a selected municipality. Journal of Economics, Finance and Administrative Science, 20 ,133–136.*
- Nor, A, A. (2016). The role of human capital development on organizational performance: case study Benadir University, Mogadishu, Somalia. European Journal of Business and Management .8 (4), 120-124.*
- Obosi, J. O. (2017). Impact of Public-Private Partnership on Water Service Delivery in Kenya. Open Journal of Political Science, 7(3), 211-228.*
- Odhon'g, E. A & Omolo, J. (2015). Effect of human capital investment on organizational Performance of pharmaceutical companies in Kenya. Global Journal of Human Resource Management. 3(6). 1-29.*
- Odhong', E. A., Were, A., & Omolo, J. (2014). Effect of human capital management drivers on organizational performance in Kenya. A case of investment and mortgages bank ltd. European Journal of Business Management, 2 (1), 341-356*
- Onsomu, L. N. (2013). Factors Influencing the Financial Viability of a Water Service Provider in Kenya: The Case of Gusii Water and Sanitation Company Limited. International Journal of Arts and Commerce,2(9), 107-127.*
- Subramaniam, M. & Youndt, M (2005). The influence of intellectual capital on the types of innovative capabilities. Academy of Management journal, 48 (3), 450-64.*
- UN- Water (2006). Coping with water scarcity: Challenges of the twenty first Century. FAO, Accessed UNEP & UN- HABITAT*
- UNDP. (2006). Human Development Report 2006 – Beyond scarcity: Power, poverty and the global water crisis. United Nations Development Programme: New York.*
- Wang, I., Shieh, C., & Wang, F. (2008). Effect of human capital investment on organizational performance, Society for personality Research (Inc), 36 (8), 1011-1022*
- WASREB. (2018). Impact: A Performance Review of Kenya's Water Services Sector, 2015 – 2016 and 2016/17, Nairobi: Water Services Regulatory Board.*
- Wiig, K.M. (1997). Integrating Intellectual capital and Knowledge Management. Long Range Planning, 30 (3), 399-405.*
- Wutich, A. (2007). Vulnerability, Resilience, and Robustness to Urban Water Scarcity: Cochabamba, Bolivia'. 62-71.*