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QUALITY CONTROL PRACTICES AND ORGANIZATIONAL EFFECTIVENESS OF LISTED TABLE WATER PRODUCING COMPANIES IN RIVERS STATE

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ABSTRACT

The research examined quality control practices and organizational effectiveness of listed table water producing companies in Rivers State. The dimensions of quality control practices (quality planning, improvement and resources) and measures of organizational effectiveness (profitability, productivity and standard equipment). Ten research questions and ten hypotheses guided the study. Cross sectional survey design was used for the study. The accessible population derived was 9 listed public agencies which give total respondents of 176 through the census approach and purposive technique. The instrument used for data collection was a structured questionnaire validated by the supervisors, and the instrument had a Cronbach alpha coefficient of 0.86. Descriptive analysis of data was done using frequency, mean and standard deviations while the null hypotheses were tested sing the Spearman Rank Order Correlation coefficient at a 0.05 level of significance. Results showed that dimensions of quality control practices (quality planning, improvement and resources) have a positive and significant correlation with measures of organizational effectiveness (profitability, productivity and standard equipment). Therefore, the study concluded that dimensions of quality control practices (quality planning, improvement and resources) enhance measures of organizational effectiveness (profitability, productivity and standard equipment). Thus, the researcher recommended that Management of the table water producing companies should establish clear production plans that integrate quality standards at every stage, from sourcing raw materials to final finishing, minimizing waste and maximizing profitability.

KEYWORDS: quality control practices, organizational effectiveness, quality planning, improvement, resources.

INTRODUCTION

Technological advancements, changes in customer demands, and changes in the business world have made it more difficult to attain organizational effectiveness. For efficiency and performance at work, organizations focus more on strategic design, training of the workforce, and the work of the greater resources. Effectiveness of the organization is defined as the organization's ability to use sustainable and efficient means in attaining its goal (Zada et al., 2025). It describes how well the organization transforms its inputs of resources, which includes labor, materials, and technology to attain the desired goal. Desired output from the organization may range from provision of services to products and other beneficial growths in the market. The concept is influenced by internal and external factors. Internal factors include leadership systems, employee motivation, structure and work culture. External factors, on the other hand, include issues like competition, government policies, and the economy. This concept is fundamental in business organizations, because organizational effectiveness determines the ability of the organization to maintain its growth and evolve along with changes in the environment and customer demands over time.

Organizational effectiveness can be measured in many different ways, but the most common include profitability, productivity, and the provision and use of adequate technology (Ogonna, 2025). Profitability is the ability of an organization to make money from its operational activities. Productivity is concerned with the extent to which resources are used efficiently in the production of outputs.

Standard equipment refers to the tools and technologies, which, when put together, enhance the quality, efficiency, and overall effectiveness of an operation, thereby assisting the organization to achieve its goals with greater ease. According to Liang et al. (2025) and Mwangi et al. (2025) Organizational profitability focuses on the organization's ability to have surplus income since expenses have been deducted from total revenue. Profitability is essential as stated by Okeke (2024) since there are competitive and regulatory pressures. Okeke states that profitability is not sustainable for an organization if it does not have the ability to reinvest its profit in technology and infrastructure. Profitability is also a direct indicator of a firm's ability to streamline operations as it meets the needs of consumers demanding quality and price competitive safe drinking water.

Adopting strategies that enhance profitability through improvement of operational efficiency and reduction of waste have been the focus of organizations in the recent past. In the production of table water, productivity levels are a core determinant of organizational effectiveness. Adeyemi (2025) states that productivity of water bottling firms in Nigeria is directly dependent on the efficient production processes, skilled labor availability, and the effectiveness of the supply chain. Adeyemi states that an organization that boosts productivity is one that also reduces operational costs and meets the market needs.

Without compromising quality, companies must scale their operations while still being able to focus on productivity. Especially in Nigeria, the concern regarding the access to clean drinking water makes it critical (Igbinovia et al., 2025). Meeting customer demand and being able to experience greater production while resulting in a positive cost effect makes it evident. This has brought emphasis to the concept of productivity level, which is the extent to which an organization efficiently transforms input resources like labor and material into profitable, quality products.

Organizational productivity level is the extent to which an organization is efficient in the use of resources such as labor, materials, capital, and technology, and how such resources created economic value through the production of goods and services. It is a crucial indicator of an organization's performance, as a high degree of productivity suggests the organization is doing a lot more (Nyiwul et al., 2025). There are a number of factors that affect productivity such as the level of employee skills, the management of the organization, the system and processes within the organization, the overall work environment, the level of innovation, and the structure of the organization. The positive impact which, in turn, sustains the ability of organizations to serve their clients makes productivity an essential element of organizational growth and sustainability (Khan et al., 2023). Organizations seek to improve productivity through investment in employee training, adoption of new management practices, and the modernization of their work processes.

One contributing factor to increasing productivity is having accurate, appropriate and reliable, up-to-date machinery, equipment, and tools. According to Sekar et al. (2025), standard equipment organization is defined as the machinery, tools, and technological systems an organization utilizes to perform its production or service activities. The reliability and effectiveness of such equipment influence an organization's performance to a great

extent. Up-to-date, well-distributed equipment targeted for the organization's objectives drives efficiency, minimizes production delays, and encourages the maintenance of available operating quality. Outdated or poorly tempered with equipment leads to production errors, increased cost of running the operations, and may escalate to taps within production (Mahmud, 2025). This explains why most organizations target maintaining equipment to smoothen the performance of the organization by sustaining an improvement in productivity. Standard equipment ensure that work is done in a more functional manner and aids in eliminating downtimes as a result of breakdowns and unhinged manufacturing quality. Having the right and functional equipment helps workers accomplish tasks within a shorter duration and with great precision. This underlines that the appropriate use of standard equipment directly and very significantly contributes to the level of productivity in an organization and its competitive performance. Standard equipment is vital for quality assurance and productivity in table water businesses. (Nyiwul et al. (2025) states that Nigerian water producers struggle with low quality and outdated equipment and inefficient quality control systems, and as a result, the products may become contaminated and recalled. Eze suggested that businesses should invest in modern equipment that is both nationally and internationally certified, as this would enhance the reliability of the production and increase consumer trust. Profitability, productivity, and the presence of standard equipment are the pillars of organizational success with Nigeria's table water industry. Thus, the value of organizational success is determined fundamentally by these three.

However, organizations understand that the effective use of standard equipment is integral to successful management systems and operational frameworks (Mwangi et al., 2025). This has shed light into control quality systems, which involve monitoring and assessing production systems to ensure that pre-defined standards are achieved (Sotirelis & Grigoroudis, 2020). Quality control systems identify defects in the production process and eliminate substandard products from the process, by doing this, systems that enhance customer satisfaction by stopping defects from reaching the customers have been created. Where standard equipment is strengthened with quality control systems, consistency of output, production quality, and customer trust as well as competitiveness in the market are achieved.

It is critical for companies that produce packaged table water to implement effective control practices, such as managing quality, moderating improvement, and allocating quality resources. These practices are discussed by Okafor (2025), who describes quality planning

within the context of developing clear goals and establishing frameworks that will ensure the organization's water products are compliant with and safe to use within the country's regulatory frameworks. Well-placed and effective quality planning sustain brand reputation by protecting the public and ensuring companies are self-empowered to mitigate potential risks of contamination.

Systematic quality planning identifies specific standards as it relates to an organization in overcoming and achieving desired consistency in outputs (Dhumal et al., 2023; OECD, 2022). There is considerable efficiency manifested in an organization as disparate organizational inputs and outputs transform with clear definitions of the processes involved, and appropriate resource allocation, along with expectations of organizational performance. There is also considerable profitability as organizational waste diminishes, along with the unproductivity of unconstructive disruptions due to error and excessive product failure. Higher levels of quality diminish unconstructive disruptions due to error and excessive product failure, while also fostering productivity levels by ensuring that tasks are clearly outlined, resources are properly allocated, and employees understand their roles in meeting organizational objectives. These practices are discussed by Okafor (2025), who describes quality planning within the context of developing clear goals and establishing frameworks that will ensure the organization's water products are compliant with and safe to use within the country's regulatory frameworks. Well-placed and effective quality planning sustain brand reputation by protecting the public and ensuring companies are self-empowered to mitigate potential risks of contamination.

Planned actions inform the selection and utilization of standard equipment, ascertaining that the equipment and tools being used are appropriate, up-to-date, and able to produce results uniformly. With quality planning, organizations can enjoy better workflows, less downtime, and better resource allocation, all of which contribute to the sustainable level of productivity and profitability (Sekar et al. 2025). With the focus on foundation improvement, the shift moves to the other axis of focus, which is the improvement of the quality of outputs, and with it the organization is bound not to stagnate.

Quality improvement is the augmentation of processes, the products, and services to attain a higher level of performance and control of customer satisfaction. It is critical to organizational profitability as it lowers the operational costs by removing the inefficiencies of the system, eliminates the wastage of resources, and prevents the recurrence of mistakes

(Mansoor et al. 2025). Reviewing and refining process systems flows that outputs high quality are encouraged to the satisfaction of customers that leads to repeat business and market competitiveness. quality improvement supports productivity enhancement by promoting the changes of working systems, systems and workflow restructuring with up-to-date skills of employees. to ensure the operational systems meet the level of modern production and demands.

Moreover, improving quality impacts the functional utilization of standard equipment due to the regular evaluation of equipment, the ongoing schedule for proper maintenance, and, when warranted, the modified technological interventions to enhance performance (Sekar et al, 2025). Improvement of quality is the ongoing enhancement of processes, products, and services to provide superior performance and increased satisfaction to the customer. In the interest of profitability of the organization, it assists in the reduction of operational costs by systematically determining the weaknesses in the system, removing inefficiencies, eliminating waste, and addressing the repetitive problems (Sekar et al, 2025). By improving equipment maintenance, the organization prevents unnecessary breakdowns and disruptions of the production schedule. In continuous enhancement of quality, the performance of the work is more efficient and dependable, and there is no doubt that the improvement of performance will lead to an increase in both the productivity and profitability of the organization. The next element that will sustain the benefits already described is the provision of quality resources.

Quality resources are the expert workforce, suitable and adequate funding, dependable and quality materials, and relevant technological operations (Laradi et al, 2024; Sotirelis & Grigoroudis, 2020). These resources directly affect the profitability of an organization, since the combination of skilled personnel and superior materials will lead to the production of products that perform better and will not present defects. Organizations that improve the quality of resources should result to better outcomes that will satisfy customer needs, higher market retention, and enhanced financial success and sustainability.

Educational materials are imperative to increasing efficiency in the workplace (Mwangi et al., 2025; Sekar et al., 2025). The establishment of training opportunities available to employees, as well as the establishment of an encouraging workplace atmosphere, where employees have the ability to access workplace tools and resources, have a positive impact on the swift and accurate completion of occupational tasks. This also encompasses the utilization of adequate

tools and standard equipment, in which quality resources guarantee the appropriate selection of instruments, as well as the routine upkeep, and the upgrading of tools as required. The incorporation of quality materials in the organization streamlines the workflow, lessens operation downtime, and boosts general efficiency (Mwangi et al., 2025). Hence, the incorporation of educational materials is the fundamental aspect which allows for the development and enhancement of a system that in turn boosts efficiency, profit, and stability in operations. Kuo et al. (2014) states that systematic quality improvement initiatives in table water companies result in a decline of product defects and an increase in customer satisfaction. These enhanced quality control measures increase the dependability of table water companies in Nigeria.

There are issues with organizational effectiveness because of low profitability, low productivity, and lack of equipment when addressing the need for packaged drinking water. Table water companies are faced with high operational costs and inefficient resource allocation which curb the ability of firms to invest in the technologies required for growth (Okeke, 2024). Due to the reliance on old production processes and the presence of untrained workers who cause inefficiency and high error rates, productivity is diminished (Adeyemi, 2025). An absence of maintenance on the equipment that is <ere potentially worse than other issues is the reason for product quality and downtime issues and potentially worse than other issues is the reason for product quality and downtime issues (Eze, 2024). Predictably the measures directed at quality costs have to do with improvements and the intended objectives have to do with unsuccess because of lack of proper quality of planning, defective improvements for management of improvements, and defective allocation of improvements for management of defective systems in quality, and production complications (Okafor, 2025; Nwosu, 2024; Ibrahim, 2025). There is a need to examine quality control and organizational effectiveness in table water companies in order to address the lack of research on these issues.

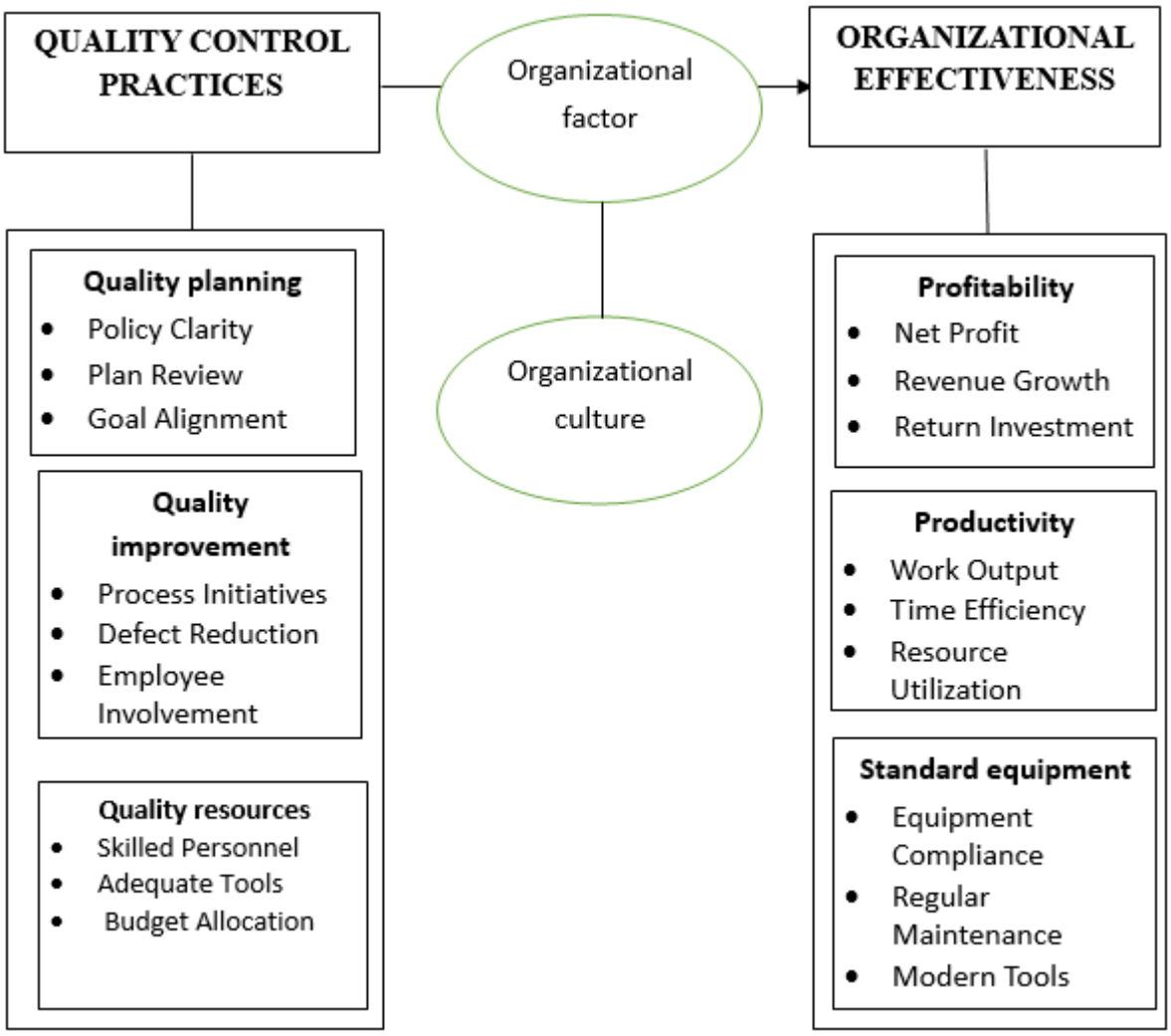

Figure 1: Conceptualization on quality control practices and organizational effectiveness.

Source: Adapted from Obi and Oparanma (2018).

Aim and Objectives of the Study

The aim of this study was to examine the relationship between quality control practices and organizational effectiveness of table water producing companies in Rivers State, with the following objectives. Specifically, the objectives were to:

i. examine the extent to which quality planning relate with profitability of table water producing companies in Rivers State.
ii. determine the extent to which quality improvement relate with productivity of table water producing companies in Rivers State.
iii. evaluate the extent to which empathy relate with standard equipment of table water producing companies in Rivers State.

Research Questions

The following research questions were raised to guide the study.

i. What is the relationship between quality planning and profitability of table water producing companies in Rivers State?
ii. What is the relationship between quality improvement and productivity of table water producing companies in Rivers State?
iii. How does quality planning relate with standard equipment of table water producing companies in Rivers State?

Hypotheses

The following null hypotheses were stated to guide the study:

H_{01}: There is no significant relationship between quality planning and profitability of table water producing companies in Rivers State

H_{02}: There is no significant relationship between quality improvement and productivity of table water producing companies in Rivers State

H_{03}: There is no significant relationship between quality planning and standard equipment of table water producing companies in Rivers State

METHODOLOGY

The rationale for adopting a cross-sectional survey research methodology for this study relates to the framework provided for measurement and data analysis (Ernest et al., 2015). In this cross-sectional survey design, the researcher is able to gather empirical and factual data associated with an existing phenomenon in the scope of the study.

The study's focus was 44 table water production companies situated in Rivers State. According to Cooper and Schindler (2003), sample size is proportional to the amount of dispersion in the population attribute under study, as well as the degree of estimation accuracy by the researcher. Therefore, a census approach was employed, resulting in the inclusion of all 44 table water companies in the study. Additionally, a purposive sampling technique was utilized to obtain the sample based on the quality control practices and organizational effectiveness of table water production companies in Rivers State. This resulted in 176 participants consisting of 1 Manager, 1 Quality Control Head, 1 Quality Assurance Head, and 1 Human Resources Head, respectively.

The researcher employed self-administered questionnaires whereby data for the study was collected. This instrument comprised two sections. Part 1 captured the demographic information of the research participants. The second part of the questionnaire surveyed the relationship between the quality control practices of money deposit banks and the organizational effectiveness. The response system was a Likert 5-point scale, and the response categories include Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree.

The research utilized face and content validity as a model which was ascertained with the help of three evaluators which included the research supervisor and another two from the Human Resource Management Department. To determine the reliability of the research instrument, a pilot test was conducted on a set of 30 sample respondents obtained from the general population of the study and to this case, the set was considered to be outside the sample so as to avoid any contamination on data. The instrument's internal consistency was measured with or by Cronbach's Alpha which assesses the closeness of the variables within a construct. For Alphas ascertained to be 0.70 or higher, the research instrument is assumed to be reliable as per the reliability rule. The reliability test results showed that the study variables had records with values higher than the 0.70 which is considered the 0.70 cut off value hence, the items which were used to measure the constructs were reliable and consistent for the study. The reliability coefficients for the major variables are presented in Table 1 below.

Table 1: Reliability Test Result for Research Variables.

S/N	Variables/Constructs	Reliability Index (Cronbach's Alpha)	Decision
1	Quality Planning	0.81	Reliable
2	Quality Improvement	0.85	Reliable
3	Quality Resource	0.78	Reliable
4	Profitability	0.83	Reliable
5	Productivity	0.88	Reliable
6	Standard Equipment	0.80	Reliable

One hundred seventy-six questionnaires were distributed to respondents from the sampled organizations. To maximize response rates and ensure adequate understanding of the questionnaire items, a direct delivery and collection strategy was employed. From the 176

questionnaires distributed, 170 were retrieved and completed, while 6 questionnaires were neither returned nor completed.

The collected data were analyzed using both descriptive and inferential statistics using the Statistical Package for Social Sciences (SPSS) version 25. To investigate the relationship between the dimensions of strategic human resource management and organizational performance, Spearman's Rank Order Correlation Coefficient (rho) was employed. The formula used was

$$rho = 1 - \frac{6\sum d^2}{N(N^2-N)}$$

Where $\sum d^2$ = Sum of the squared differences in the ranking of the data on the two variables

N = Number of subjects being ranked.

Where:

- $\sum d^2$ = sum of the squared differences in rank
- N = number of paired observations

Furthermore, partial correlation was used to test the moderating effect of organisational culture on the relationship between SHRM and organisational performance. The SPSS software program version 24.0 was used to compute the bivariate and multivariate analysis since it has the capability of ensuring a speedy and more accurate computation.

RESULT

***H_{01}:* There is no significant relationship between quality planning and profitability.**

This section intends to measure the correlation between quality planning and profitability.

Table 2 Analysis of the effect of Quality planning on profitability

			Quality planning	Profitability
Spearman's rho	Quality planning	Correlation Coefficient	1.000	.701**
		Sig. (2-tailed)	.	.000
		N	170	170
	Profitability	Correlation Coefficient	.701**	1.000
		Sig. (2-tailed)	.000	.
		N	170	170

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

In Table 2 the Spearman correlation coefficient is 0.701 indicating that there is a strong positive linear relationship between quality planning and profitability. Additionally, the correlation test significance level is greater than 0.001, validating the relationship and indicating that correlation is not a result of random chance. Therefore, quality planning and profitability have a direct correlation hence, the null hypothesis, which claimed there was no correlation between the two variables, is incorrect.

H_{02}: There is no significant relationship between quality improvement and productivity.

Table 3: Analysis of the effect of quality improvement on productivity.

			Quality improvement	Productivity
Spearman's rho	Quality improvement	Correlation Coefficient	1.000	.762**
		Sig. (2-tailed)	.	.000
		N	170	170
	Productivity	Correlation Coefficient	.762**	1.000
		Sig. (2-tailed)	.000	.
		N	170	170
**. Correlation is significant at the 0.01 level (2-tailed).				

In Table 3 we find a value of 0.762 for the Spearman correlation coefficient. Such value suggests there is a strong and positive linear relationship between quality improvement and productivity. Additionally, the correlation test is of a very high level of significance ($p < 0.001$). This suggests that the stronger the quality improvement, the stronger the productivity, thus, allowing the conclusion of a strong impairment of positive quality improvement on productivity. Thus, the null hypothesis is considered rejected.

H_{03}: There is no significant relationship between quality resources and standard equipment

Table 4: Analysis of the effect of quality resources on *standard equipment.*

			Quality resources	***Standard equipment***
Spearman's rho	*Quality resources*	Correlation Coefficient	1.000	.769**
		Sig. (2-tailed)	.	.000
		N	170	170
	Standard equipment	Correlation Coefficient	.769**	1.000

		Sig. (2-tailed)	.000	.
		N	170	170
**. Correlation is significant at the 0.01 level (2-tailed).				

In Table 4 you can see the Spearman correlation coefficient is 0.769 which underlines a strong positive linear relationship between quality resources and standard equipment. This correlation is also significant at ($p<0.001$). The positive correlation also indicates that quality resources leads to increased standard equipment. This leads to the conclusion of the study which is that the relationship between quality resources and increased standard equipment is undeniable. Thus the null hypothesis is rejected.

Discussion of Findings

Completion of analysis on first hypothesis indicates the presence of a strong correlation between planning of quality and the profitability of a firm. Within this context, planning of quality is key to the enhancing the profitability of a firm, as it focuses on optimal allocation of resources, streamlining of processes, and defect reduction. Favorable quality planning results in a reduction in operational costs and an increase in customer satisfaction through reduced wastage, reduced rework, and lower customer complaints. When customers are satisfied, retention is higher, as is the propensity to recommend the firm to others, resulting in an increase in sales and profit margins. Thus, businesses that integrate quality at every step of the production or service delivery process, increase the likelihood of becoming profitable in an economically viable manner.

The findings also show strong significant positive relationships between quality improvement and productivity. In quality improvement, there is a strong positive correlation to productivity, and it is for the reason of emphasizing the improvement of processes, products, and services to at the least meet customer expectations, if not exceed those. The reduction of errors and defects, building trust from customers, and customer operating costs incurred are all reduced during the improvement initiatives of quality. These adjustments are converted to customer loyalty, increased sales, and a strong competitive edge, all of which are very desirable and, therefore, translated to profit margins at greater value. Creating and sustaining improvement remains a reputation for excellence quality, and in the long run profit margins.
Additionally, an increase in productivity, as a result of improvement in all areas, highlights the need for standard equipment. Reliability of standard, well-maintained equipment improves quality during production and reduces costs during production. Improved quality

with productivity and collaboration improves the competitive edge of an industry. Skills of human effort with equipment improve the overall productivity and human resource a business has. These findings are in agreement with the works of Aigboje et al (2021).

In addition, an extremely strong important connection between quality resources and standard equipment was observed. The stipulation is that quality resources greatly enhance productivity and aid in the efficient application of standard equipment. Skilled workers, high-tech machinery, and quality materials allow for faster completion of tasks with increased accuracy, thereby minimizing delays and wasted motion. Also, these resources, when used with standard equipment, allow for more efficient operation, uniformity in production, and compliance with the required standards in the industry. This increased integration of resources improves the quality of production and increases production at the same time. Therefore, the optimal utilization of standard equipment and productivity are influenced by quality resources. This is also in accordance with Oluwole (2023).

CONCLUSION

This study showed that the organization performed better by making a profit, being productive, and making better and fuller use of standard equipment when it has effective planning of quality, continuous improvement of quality, and sufficient quality of resources. Effective quality planning drives companies toward more clear and specific objectives, leads to better and fuller use of the company's resources, overall and specific, toward the objectives, and results in less cost and more profit. Continuous improvement in quality drives ongoing refinement of the organization, and it has less and less defects and more and more satisfaction from the consumers, and it is more competitive in the long term. Quality resources, too, from skilled workers to good, durable, and reliable raw materials and good technologies, support effective operations, enhanced productivity, and sufficient use of standard equipment, more and more, of high quality. These practices Crichton 2015 it's in the name of the organization to be able to improve available real and potential and at the same time continue to be able to use sustainable available real business improvement.

RECOMMENDATIONS

Based on the findings in this study, the following recommendations were made regarding quality control practices and organizational effectiveness:

1. Management of the table water producing companies should develop detailed production plans which incorporate integration of quality at all levels of the production cycle from

procurement of the raw materials to final finishing, aiming at waste reduction and profitability maximization.

2. Management of the table water producing companies should instill a workplace culture where all employees prioritize quality, responsibility, and collaboration, integration of which makes improvement of the quality an ongoing process.
3. Management of the table water producing companies should partner with trustworthy suppliers of raw materials and machinery to ensure consistent quality of inputs which affect the final quality of the products positively.

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