

**QUALITY IMPROVEMENT AND PRODUCTIVITY OF TABLE WATER PRODUCING
COMPANIES IN RIVERS STATE**

Elemele, Deborah O.

**Department of Employment Relations and Human Resource Management, Faculty of
Administration and Management, Ignatius Ajuru University of Education,
Rumuolumeni, Port Harcourt**

EMAIL; deborah.elemele@iaue.edu.ng.

ABSTRACT

The research examined quality improvement and productivity of listed table water producing companies in Rivers State. 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 and purposive technique. However, instrument used for data collection was a structured questionnaire after validated by the supervisors, and the instrument was reliable through the test of Cronbach alpha at 0.70. Univariate and bivariate analysis were carried out using the Spearman Rank Order Correlation coefficient at a 0.05 level of significance. The data retrieved was analyzed. Results shown that quality improvement has a positive significant correlation with productivity. Therefore, the study concluded that quality improvement enhances productivity and. Thus, the researcher recommended that companies should establish clear production plans that integrate quality standards at every stage.

Keywords: Quality Improvement, Productivity, Quality Standard

INTRODUCTION

Organizational productivity level refers to the efficiency with which an organization utilizes its resources including labor, materials, capital, and technology to produce goods and services. It serves as an essential measure of performance because high productivity indicates that the organization is able to achieve more output with the same or fewer inputs. Productivity levels are influenced by various factors such as employee skills, management practices, work environment, innovation, and organizational structure. Organizations with high productivity tend to experience lower production costs, improved competitiveness, and greater capacity to meet customer demands, making productivity a key component of organizational growth and sustainability. In efforts to improve productivity, many organizations invest in training, adopt modern management strategies, and upgrade their operational processes. One critical factor that supports higher productivity is the use of standard equipment machinery and tools that are reliable, up-to-date, and suitable for the tasks required.

Organizational standard equipment refers to the tools, machinery, and technological systems that an organization uses to carry out its production or service activities. The effectiveness and reliability of this equipment have a significant impact on the overall performance of the organization. When equipment is modern, well-maintained, and appropriate for the organization's operations, it enhances efficiency, reduces operational delays, and supports consistent output quality. Conversely, outdated or poorly maintained equipment can lead to frequent breakdowns, production errors, and higher operational costs, which negatively affect both productivity and competitiveness. For this reason, organizations often invest in upgrading equipment and implementing maintenance schedules to ensure smooth workflow and sustained performance.

Standard equipment ensures that work is performed efficiently, reduces downtime caused by breakdowns, and supports consistent product quality. When workers have access to well-functioning and appropriate equipment, they can complete tasks faster and with greater accuracy. Thus, the availability and proper utilization of standard equipment play a major role in enhancing organizational productivity levels and sustaining competitive performance. The use of standard

equipment is essential for ensuring product quality and operational efficiency in table water companies. Eze (2024) highlights that many Nigerian water producers face challenges related to outdated machinery and inadequate quality control systems, which can lead to contamination and product recalls. Eze advocates for investment in modern, certified equipment that complies with national and international standards to improve production consistency and consumer trust. Together, profitability, productivity, and standard equipment form the foundation of organizational effectiveness in Nigeria's table water industry.

Also, organizations have recognized that having standard equipment alone is not enough; the equipment must be used in alignment with effective management practices and operational guidelines. This has brought attention to the role of quality control practices, which involve monitoring and evaluating production processes to ensure products or services meet established standards.

Quality control practices help detect defects early, prevent waste, and ensure customer satisfaction. When standard equipment is supported by strong quality control systems, organizations are better able to maintain consistency in production, improve output quality, and achieve higher levels of customer trust and market competitiveness. Quality control practices such as quality planning, quality improvement, and quality resources are vital for the success of table water producing companies. Okafor (2025) explains that quality planning involves setting clear standards and procedures to ensure that water products meet safety and regulatory requirements. Effective quality planning helps companies anticipate potential contamination risks and implement preventive measures, thereby safeguarding public health and enhancing brand reputation.

Research Hypothesis

H₀₁: There is no significant relationship between quality improvement and productivity of table water producing companies in Rivers State

Quality Improvement

Olaniran (2021) defined quality improvement as a context-specific, adaptive process aimed at enhancing healthcare delivery through continuous assessment and stakeholder engagement. Ogah (2024) described quality improvement as systematic efforts to implement best practices in primary healthcare to overcome challenges and improve service quality. Endalamaw (2024) emphasized continuous quality improvement as an iterative, evidence-based approach to enhance healthcare systems by addressing barriers and leveraging facilitators. Ibidunni (2023) viewed quality improvement as the application of total quality management principles to elevate institutional performance and research output in Nigerian higher education.

Eboreime (2018) noted quality improvement as the use of models and frameworks to strengthen decentralized health planning and service delivery at various system levels. Abubakar (2022) observed quality improvement as critical to reducing maternal and child mortality by improving health system responsiveness and care quality. Olaniran (2022) highlighted quality improvement as a dynamic process shaped by facility-level priorities and contextual factors to achieve sustainable health outcomes. Ogah (2024) also defined quality improvement as a continuous process of identifying gaps in healthcare delivery and implementing evidence-based interventions to enhance patient care. Endalamaw (2024) described quality improvement as a collaborative, data-driven process that fosters ongoing learning and adaptation within healthcare organizations.

Ibidunni (2023) emphasized quality improvement as a strategic management approach that integrates quality principles into organizational culture to drive excellence. Russ (2022) observed that quality improvement involves changing provider behavior and organizational processes to achieve better patient experiences and outcomes. Endalamaw (2024) described continuous quality improvement (CQI) as an ongoing, systematic effort to improve healthcare services through iterative cycles and stakeholder involvement. Backhouse (2020) stated quality improvement results in

enhanced patient outcomes, system performance, and professional development through structured interventions.

Mensah Abrampah (2018) noted that quality improvement reorients care delivery towards integrated, people-centered health services to strengthen health systems. Dolansky (2024) defined quality improvement as systematic and continual actions that lead to measurable improvements in local healthcare settings. Hempel (2022) described evidence-based quality improvement (EBQI) as integrating scientific evidence and methods systematically into the QI process. Martin (2025) emphasized that quality improvement encompasses evolving meanings but fundamentally focuses on enhancing quality management practices over time. Albaadani (2024) highlighted quality improvement initiatives as tools to standardize healthcare processes and improve patient safety. The Institute for Healthcare Improvement (IHI) (2020) defined quality improvement as a structured approach to closing gaps between expected and actual care quality through system-wide changes.

Productivity

Productivity can be defined as the ratio of output to input. This definition aligns with the traditional understanding of productivity (William and Edward, 2002). Productivity can also refer to the efficiency with which resources are utilized in generating output. This perspective emphasizes the optimal allocation and utilization of resources (Paul, 2002). Productivity can be viewed as the ability to create value over time, considering both quantity and quality aspects of output (Robert, 2002). Productivity is that innovation and technological progress seen as key drivers of output growth in an organization (Erik & Lorin, 2002). Productivity can be understood as the result of investments in human capital, where the skills, knowledge, and capabilities of individuals contribute to enhanced output. Productivity can also be measured by total factor productivity, which captures the efficiency with which all inputs are utilized in the production process (Daron, 2000).

The ability of a management and an organization to achieve its objectives while employing the minimum number of resources necessary is the single best indicator of productivity. The volume of output, the quality of output, the pace of resource utilization, and the cost of resource utilization are some of the ways productivity may be measured. It can be challenging to ascertain exactly how much of an impact productivity has on a company's bottom line. To assure the highest levels of employee productivity, businesses fill available positions with candidates that excelled in interviewing. However, peak performance can also be contributed to by other aspects of a working environment (Lake, 2016). Human resources are subjected to the greatest amount of scrutiny of any organizational resource because of the potential impact they can have on output.

The term "production" is frequently confused with "productivity." On the other hand, there is a distinction between the two. The term "production" refers to the entire amount of work that is completed at any particular moment by all of the personnel. The amount of work that is completed in a specific amount of time is referred to as the worker's productivity. The term "productivity" refers to the ratio of the number of products and services produced to the number of resources that are put into production. In the field of management research, one of the concepts that receive the greatest attention is organizational productivity.

According to Pitcher (2016), the level of collaboration between members of an organization to achieve a common goal is inversely proportionate to that organization's level of productivity. It includes comparing the actual results that an organization has achieved with the results that it aspired to achieve. However, extremely effective organizational productivity can only be achieved when all of an organization's components are performing together to produce extraordinary outcomes. This is the only condition under which it is possible to achieve such productivity. According to Eyenubo (2013), productivity can be defined as the degree to which goals are accomplished within a predetermined amount of time. According to Bernardin and Russel's definition of productivity, which is cited from Obiageli et al., (2015), productivity is "the documentation of results achieved on a given job function or activity over a given time period."

According to Onafalujo (2012), an increase in organizational production can be accomplished by properly allocating both material and intangible resources. Worker productivity is defined as the extent to which workers are able to achieve the expected value of everyday tasks within the context of the organization's stipulated processes and time limits, as stated in the research conducted by Liao et al., (2019). According to Liao et al. (2019), the amount of work produced can serve as a substitute for monetary compensation, disciplinary actions, performance evaluations, as well as pay increases or decreases.

According to Sadikoglu and Cemal (2020), this is one way in which a company's productivity, quality, and the level of customer happiness can all grow thanks to its employees who are skilled, inspired, and enthused about the work that they do. Productivity can be defined as the level of quality and quantity that is expected from a worker in a particular position. Productivity is frequently impacted by the level of motivation and desire that individuals have to do well in their jobs.

Systems Theory - Ludwig von Bertalanffy (1936)

Systems Theory assumes that an organization is an open system made up of interdependent subsystems such as people, processes, technology, and equipment, which must function together harmoniously to achieve effectiveness. The theory holds that quality control practices are necessary to maintain balance among these subsystems because a weakness in one area (e.g., defective equipment or untrained staff) will negatively affect the entire system. It further assumes that organizations must constantly interact with their external environment, meaning quality standards must adapt to customer expectations, regulatory requirements, and competitive pressures.

Another key assumption is that effectiveness depends on integration and coordination. Systems Theory posits that quality control practices, such as feedback loops, monitoring, and corrective actions, ensure that all subsystems are aligned toward organizational goals. By assuming that every part of the organization influences overall output, the theory emphasizes that improving productivity, profitability, and equipment reliability requires collective effort rather than isolated interventions. Thus, quality control becomes a unifying mechanism that sustains organizational effectiveness across all levels.

The relevance of Systems Theory to quality control practices and organizational effectiveness lies in its focus on interconnectedness. Quality control processes act as monitoring tools that provide feedback on how different subsystems (e.g., machines, workers, suppliers) are performing. This ensures early detection of errors, proper maintenance of standard equipment, and alignment of processes with organizational objectives. By applying Systems Theory, managers can design holistic quality improvement strategies that not only raise productivity and profitability but also enhance long-term adaptability and resilience, thereby sustaining organizational effectiveness.

Research Design

Cross sectional survey research design was adopted in this study because it constitutes the blueprint for the measurement and analysis of data (Ernest et al. 2015). The purpose of cross sectional survey design will enable the researcher to collect details and factual information that describes an existing phenomenon. This design deals with incidences of distribution and relationships among variables; it will be deemed the best strategy to fulfill the objectives of this study.

Population of the Study

The population of the study was 44 table water producing companies in Rivers State.

Sample and Sampling Technique

Cooper and Schindler (2003) stated that the size of a sample should be a function of the variation in the population parameter under study and the estimated precision by the researcher. Therefore Census technique and purposive sampling technique was employed in getting the sample based on the studied quality control practices and organizational effectiveness of table water producing

companies in Rivers State. Hence 176 respondents via 1 Manager, 1 Head of quality control, 1 Head of quality assurance and 1 Head of Human Resource respectively.

Sources of Data

This study employed primary and secondary data. The primary source of data was on a first-hand basis. This study made use of questionnaire to generate the primary data. Prior to the distribution of the questionnaire, secondary data was used for data collection from relevant literature including journals, books, research papers, conference papers, government reports, and relevant electronic data, which informed the empirical study.

Instruments for Data Collection

The instrument that was employed for data collection was questionnaire construction by the researcher.

Reliability of the Instrument

To establish the reliability of the research instrument, a pilot test was conducted using 30 respondents selected from the study population but outside the main sample to avoid contamination of data. The internal consistency of the instrument was assessed using Cronbach's Alpha, which measures how closely related the items in each construct are. According to the reliability rule, a Cronbach's Alpha value of 0.70 and above indicates that the instrument is reliable for data collection. The result of the reliability test revealed that all variables in the study recorded values above the acceptable threshold, indicating that the items used to measure the constructs were consistent and dependable for the study.

Method of Data Analysis

The data collected from the administered questionnaires were sorted, coded, and analyzed using both descriptive and inferential statistical methods. The Statistical Package for Social Sciences (SPSS) was employed for computation and accuracy. The method of analysis was guided by the research questions and hypotheses of the study. The analysis consisted of four levels, namely: analysis of demographic variables, univariate analysis, bivariate analysis, and multivariate analysis. Data from questionnaire was coded and entered into the computer using Statistical Package for Social Sciences (SPSS Version 23) for analysis. The study employed simple percentage and Spearman rank order correlation coefficient to determine the relationship of each independent variable on the dependent variable.

Hypothesis one.

H₀₁: There is no significant relationship between quality improvement and productivity.

This section intends to measure the correlation between quality improvement and productivity

Table 1: Analysis of the effect of quality improvement on productivity

Correlations			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).

Table 1. reveals that the Spearman Correlation coefficient is 0.762 which reflect a strong positive linear relationship between quality improvement and productivity. And the Correlation test is highly significance at ($p < 0.001$). Positive relationship means that as quality improvement increases productivity also increases. Hence, the study concludes that there is a significant relationship between quality improvement and productivity. Therefore null hypothesis was rejected.

CONCLUSION

From the discussion of findings, quality improvement serves as powerful drivers of organizational success by positively influencing productivity. Quality improvement ensures continuous refinement of processes, reducing defects while boosting customer satisfaction and long-term competitiveness. Moreover, the integration of these quality strategies translates into measurable improvements in organizational efficiency and market performance.

RECOMMENDATIONS

1. The firms should regularly service machines and adopt modern, standardized equipment that guarantees consistency in production, reduces downtime, and ensures compliance with industry benchmarks.
2. Management of the table water producing companies should promote a workplace culture where all employees value quality, accountability, and teamwork, ensuring that quality improvement is part of daily operations.
3. Management of the table water producing companies should train workers on modern production techniques, equipment handling, and safety measures to boost efficiency and minimize errors.

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