



SCHOOL OF GRADUATE STUDIES

**EFFECTS OF WORK ENVIRONMENT ON EMPLOYEES
PRODUCTIVITY: THE CASE OF MINERAL WATER
BOTTLING COMPANIES IN GURAGHE ZONE, CENTRAL
ETHIOPIA**

MBA THESIS

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MAY, 2025

WOLKITE, ETHIOPIA

Wolkite University

School of Graduate Studies

**Effects Of Work Environment On Employee's Productivity: The
Case Of Mineral Water Bottling Companies In Guraghe Zone,
Central Ethiopia**

**A Thesis Submitted to School of Graduate Studies, In Partial
Fulfillment of the Requirements for the Degree of Masters of
Business Administration**

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May 2025

Wolkite, Ethiopia

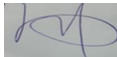
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ACKNOWLEDGMENTS

First and foremost, I offer my sincere gratitude and praise to the Almighty and All-Knowing God for His boundless blessings and guidance throughout my academic journey.

I am deeply thankful to Wolkite University for granting me the opportunity to pursue my Master's degree in Business Administration. My heartfelt appreciation goes to my advisor, Assistant Professor Birhanu Tereda, and my co-advisor, Tafesse Akinida, for their consistent support, constructive feedback, and invaluable guidance throughout the development of this thesis. Their commitment, encouragement, and willingness to share their expertise and time have played a vital role in the successful completion of this work.

I would also like to express my profound gratitude to my family, friends, and instructors, whose unwavering support and encouragement have been a constant source of motivation during every phase of this academic endeavor.

Finally, I extend my sincere thanks to all the respondents (employees) from the selected study areas. Their cooperation and honest participation provided the essential data that made this research possible.

LISTS OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CLRM	Classical Linear Regression Model
MLQ	Multi factor Leadership Questionnaire
OLS	Ordinary-Least Square
SPSS	Statistical Package for the Social Sciences
UWES	Utrecht work Engagement Scale
S.C	Share Company
EP	Employee Productivity
TD	Training and Development
WL	Workload
SUP	Supervisor and supervision
MI	Motivational Incentives
SEE	Standard Error of the Estimate
DF	Degrees of Freedom
MS	Mean Square

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ABSTRACT

Employee productivity is a critical factor in achieving organizational success, with the work environment playing a key role in influencing performance. This study examines the impact of the work environment on employee productivity in mineral water bottling companies in the Gurage Zone, Central Ethiopia. It focuses on four major factors: workload, supervision and support, training and development, and motivational incentives. A quantitative research design was employed, using structured questionnaires administered to employees from five selected companies. A proportional stratified sampling technique ensured fair representation, resulting in a sample size of 278 respondents. Data were analyzed using descriptive statistics, correlation, and multiple regression analysis to assess the relationship between workplace variables and employee productivity. The results reveal that supervision, training, and development have the most significant positive impact on productivity, followed by effective workload management. Employees who receive proper training, clear guidance, and manageable workloads tend to perform better. However, motivational incentives were found to have the least influence, suggesting employee dissatisfaction with existing reward systems. The study concludes that improving workplace conditions especially supervision, training, and workload management can significantly enhance productivity in the mineral water industry. It also recommends strengthening incentive systems by incorporating both financial and non-financial rewards to boost motivation and job satisfaction. These findings provide practical insights for business managers, policymakers, and researchers aiming to create productive and supportive work environments that drive organizational efficiency and employee well-being.

Keywords: Work environment, employee productivity, supervision, training and development, workload, motivational incentive

CHAPTER ONE

1. INTRODUCTION

Introduction

This chapter deals about background of the study; statement of the problem; objectives of the study; significance of the study; scope of the study; limitations of the study; operational definition of key terms, and organization of the study.

1.1. Background of study

The pursuit of profit within a company is directly linked to encouraging employees to perform efficiently, maximizing output while minimizing input. Achieving high levels of productivity requires careful consideration of leadership, workplace conditions, and organizational culture. A conducive work environment and a strong organizational culture are essential for boosting employee motivation and skill development, as these factors influence their willingness to learn and perform (Awan *et al.*, 2015). Enhancing the work environment within an organization is a crucial strategy for improving productivity levels. The workplace serves as the setting where employees collaborate to achieve organizational goals, encompassing systems, processes, structures, and tools that either positively or negatively affect employee performance (Tafique, 2015).

As noted by Tafique (2015), a well-structured and conducive work environment plays a key role in ensuring employee satisfaction and motivation. Office layout, design, and overall working conditions should be structured to inspire employees to give their best effort, leading to optimal productivity. However, for an organization to successfully reach its objectives, the workplace must be designed to support employees effectively. The work environment includes not only office infrastructure, such as buildings, furniture, and spatial arrangements, but also external elements such as industry conditions, societal norms, and legal regulations within which the business operates.

Modern employees are more educated and aware of their rights and workplace conditions than ever before. As a result, they are more likely to question and demand better working conditions, pushing management to adopt dynamic strategies to improve the work environment. A poor work environment can negatively impact employee well-being, reducing morale, enthusiasm, and overall productivity (Gamage *et al.*, 2021). Many organizations face challenges related to inadequate workplace conditions, including environmental and physical factors that create obstacles for employees (Leblebici, 2012). The quality of the work environment has a direct influence on employee motivation and performance. By ensuring a well-maintained and supportive workplace, organizations can reduce absenteeism, enhance productivity, and improve overall work quality. Additionally, an optimal work environment fosters collaboration, innovation, and efficiency, creating conditions for knowledge-sharing and enhanced performance (Hairo & Martono, 2019).

Zion (2012) highlighted that Africa presents a rapidly growing market for water bottling investments. Ethiopia, as one of the continent's fastest-growing economies and home to Africa's second-largest population, offers significant opportunities in the water bottling sector. According to the Ethiopian Business Review (2013), Ethiopia has vast water resources, making it a key investment destination for water-related industries. With an abundance of rivers, lakes, and underground water reserves, Ethiopia is often regarded as Africa's water hub. The water bottling industry employs a considerable work force, and employee productivity within these companies is heavily influenced by working conditions. If workplace environments are inadequate, productivity levels are likely to suffer, whereas improved working conditions can drive better employee performance (Noyam, 2023).

Several studies conducted in Ethiopia have shown that the work environment significantly influences employee productivity, particularly in manufacturing and industrial settings similar to water bottling companies. For instance, Tigist Hailemariam and Yong Yang (2023) examined the effects of various work environment variables including physical conditions, training, and workload, discrimination, and reward systems on employee performance at Bole Lemi Industrial Park. Their findings indicated that factors such as conducive physical

environment, effective reward systems, and proper training positively and significantly impacted employee performance, while high workloads and workplace discrimination had a negative impact. However, their study was limited to a single industrial park, which may restrict the generalizability of the results to other regions or industries. Similarly, Nesriya Jemal (2024) investigated performance appraisal practices in Top Water Bottling Company and found that efficient management of appraisal processes and clear communication enhanced employee motivation and productivity. Yet, the study's narrow focus on appraisal processes did not capture broader environmental or organizational factors affecting productivity.

Another relevant study by Kidanie Aragaw Alemu (2022) at Wollo University explored workplace factors such as organizational culture, job profile, and physical settings, concluding that all these had a positive relationship with staff performance. While valuable, the academic setting of this study may limit its applicability to industrial environments like water bottling companies.

Additionally, research conducted in Hawassa Industrial Park revealed that work-related stress, stemming from long hours, high demands, and poor social support, significantly reduced employee well-being and productivity (Springer, 2022). However, while this study highlighted stress factors, it did not directly measure their impact on productivity metrics.

Furthermore, Shimelis Mihretu Bulti and Mahesh Gopal (2021), in their comparative study of Arjo Dedessa and Finchaa Sugar Factories, found that physical, psychological, and social work environments were strong determinants of organizational performance. Although conducted in a different industry, the parallels in industrial processes suggest that similar factors could be influential in water bottling companies. Finally, research by Momina Abamecha *et al.* (2020) in the banking sector demonstrated that physical work environment, training opportunities, incentives, and communication channels all had statistically significant positive effects on employee performance. Despite being based in the service sector, these findings offer general insights into the importance of a supportive work environment.

Overall, the literature underscores that improving elements such as workplace safety, training, communication, stress management, and reward systems can substantially

enhance employee productivity. However, limitations such as industry-specific contexts and narrow scopes suggest the need for localized studies such as one focused on mineral water bottling companies in the Gurage Zone to better understand and address productivity challenges in this specific industrial setting.

Gurage Zone, located in central Ethiopia, consists of 13 Woreda and four town administrations. Among them, Cheha and Ezha Woreda host five water bottling companies. Understanding how workplace conditions influence employee productivity is essential for enhancing overall company performance and maintaining a motivated workforce. This study aims to examine the impact of various work environment factors on employee productivity within selected water bottling companies in Cheha and Ezha Woreda. Investigating these dynamics will help identify key elements that contribute to improved efficiency and employee satisfaction in the sector.

1.2.Statement of the Problem

Understanding the impact of the work environment on employee productivity is crucial for any organization. Experience has consistently demonstrated that employees are directly influenced by their workplace conditions. Even the most skilled and competent workers may struggle to perform effectively if their environment is not conducive to productivity.

In many organizations that serve the community, workplace challenges are often linked to unfavorable working conditions. A lack of essential physical resources is a common issue in various companies, leading to a decline in employee performance. Poorly maintained office spaces, cluttered and unsanitary environments, and insufficient workspace significantly impact worker efficiency and morale (Aram Hanna Massoudi *et al.*, 2017).

According to a study by Khamisa *et.al.*,(2015), greater attention is needed to identify and address workplace conditions that affect employee performance and well-being. Unfavorable work environments can negatively influence employees, leading to chronic stress and dissatisfaction, which ultimately hampers productivity.

Garage Zone is home to five water bottling companies operating in a competitive market. These companies, located in Cheha and Ezha Woreda, produce and distribute large quantities of bottled water to both local and external markets. However, despite the growing market demand, some of these companies have not adequately addressed workplace factors that influence employee productivity. Employees require a supportive and well-maintained work environment to perform efficiently.

Several challenges affecting employee productivity have been identified in Ethiopian water bottling companies, particularly in regions like Cheha and Ezha Woreda. These challenges include high employee turnover, excessive workloads, inadequate management practices, transportation difficulties, lack of incentives, insufficient recreational facilities, and a scarcity of related studies. High turnover rates are a significant concern in Ethiopia's manufacturing sector; for example, a study at Hawassa Industrial Park reported that 10% of workers quit on their first day and 25% within the first month. The primary reasons cited were low wages and poor working conditions, which create a cycle of attrition that undermines productivity and raises training costs (Global Developments). Excessive workloads have been found to negatively affect employee performance, with research at Bole Lemi Industrial Park revealing a statistically significant negative relationship between work overload and productivity, suggesting the need for manageable workloads and regular breaks to sustain performance (Mengistu, 2022). Ineffective management practices, such as unclear communication and inadequate performance appraisal systems, also lead to employee dissatisfaction. A study of Top Water Bottling Company found that clear communication and structured appraisal systems significantly improve employee performance outcomes (Jemal, 2024).

Additionally, remote workplace locations create transportation challenges; high logistics costs and inadequate rural infrastructure limit industrial expansion and negatively affect employee punctuality and attendance (Tadesse, 2022; Ethiopian Business Review, 2022). Employee morale tends to decline when organizations fail to provide appropriate incentives and motivational structures. A study on turnover at Kombolcha Textile Share Company identified the absence of result-oriented promotions and recognition systems as key factors behind high attrition rates (Negash, 2020). Although limited research focuses specifically on recreational

spaces in water bottling companies, broader studies suggest that a lack of designated break areas contributes to employee stress and reduced productivity (Bulti & Gopal, 2021). Moreover, there remains a notable gap in literature addressing the specific challenges and productivity issues within Ethiopia's water bottling industry, underscoring the need for further targeted research to better inform management strategies in this sector

Addressing these challenges demands a comprehensive approach improving management systems, developing effective incentive mechanisms, investing in infrastructure, and conducting localized research to support evidence-based decision-making.

To address these issues, this study aims to bridge the knowledge gap by examining the effects of key work environment factors such as employee workload, training and development, supervision, and compensation on employee productivity. By identifying and analyzing these factors, the study seeks to provide valuable insights for improving workplace conditions and enhancing overall productivity in the water bottling industry.

1.3. Research Questions

The research aims to address the following key questions

1. How does employee training and development affect employee productivity in mineral water bottling companies in Guraghe Zone?
2. What is the impact of supervision and supervisory work on employee productivity in these companies?
3. How does employee workload influence productivity among workers in the mineral water bottling sector?
4. What role do employee motivational incentives play in enhancing productivity in mineral water bottling companies in Guraghe Zone?

1.4. Objectives of the Study

1.4.1. General Objective

To investigate the Effects of Work Environment factor on Employees Productivity in the case of Mineral Water Bottling Companies in Gurage Zone, Central Ethiopia.

1.4.2. Specific Objectives

- To assess the effect of employee training and development on employee productivity in mineral water bottling companies.
- To examine the influence of supervision and supervisory work on the productivity of employees in these companies.
- To evaluate how employee workload affects the productivity of workers in the mineral water bottling sector.
- To analyze the role of employee motivational incentives in improving productivity among employees in the mineral water bottling companies.

1.5. Significance of the Study

This study on the effects of the work environment on employee productivity in mineral water bottling companies in Gurage Zone, Central Ethiopia holds significance from various perspectives, including theoretical, practical, and policy implications.

Theoretical

The study contributes to the existing body of knowledge by providing empirical evidence on how a different work environment factor such as workload, supervision, training, and motivation affects employee productivity. It builds upon established theories of organizational behavior and human resource management by examining workplace dynamics within the Ethiopian manufacturing sector, specifically in the mineral water bottling industry. The findings may serve as a reference for future research and stimulate further studies on workplace productivity in similar industries.

Practical

From a managerial perspective, the study provides insights for company executives, HR managers, and supervisors on how to create a more conducive work environment to enhance productivity. By identifying key workplace factors that influence employee performance, businesses can implement targeted interventions to improve working conditions, enhance employee satisfaction, and ultimately increase efficiency and output.

Policy

The findings of this research can inform government agencies, labor organizations, and policymakers about the challenges employees face in the manufacturing sector, particularly in mineral water bottling companies. The results can be used to develop labor policies, workplace regulations, and employee welfare programs to ensure that organizations adopt best practices that promote both productivity and employee well-being.

Economic and Social

On a broader scale, improving workplace conditions can lead to higher productivity, better job satisfaction, and lower employee turnover rates, which positively impact both the economic growth of the region and the overall well-being of workers. As mineral water bottling is a growing industry in Ethiopia, optimizing work environments can contribute to business sustainability and economic development.

1.6. Scope of the Study

The scope of this study is defined across multiple dimensions, including thematic, geographical, methodological, and time scope.

Thematic Scope

The study focuses on analyzing the relationship between work environment factors (employees' workload, supervision and support, training and development, and motivational incentives) and employee productivity. Aligns well with **Herzberg's**

Two-Factor Theory (also known as the Motivation-Hygiene Theory). According to Herzberg, there are two categories of factors that influence employee productivity and job satisfaction: hygiene factors and motivators. Hygiene factors include elements such as workload and the quality of supervision, which are essential to prevent employee dissatisfaction but do not necessarily lead to increased motivation or higher productivity. On the other hand, motivators such as opportunities for training and development and the provision of motivational incentives actively contribute to enhancing employee motivation and improving performance. Therefore, in the context of mineral water bottling companies in Guraghe Zone, understanding the balance between these hygiene factors and motivators is crucial for improving employees' productivity. Additionally, theories like Karasek's Job Demand-Control Model, which emphasizes the impact of job demands (workload) and control or support (supervision), and Maslow's Hierarchy of Needs, which highlights the importance of meeting employees' basic and psychological needs, can further complement the understanding of how work environment factors influence productivity. However, Herzberg's theory remains the most relevant framework for analyzing the combined effects of workload, supervision, training, and incentives on employee productivity in this study. It seeks to determine which aspects of the work environment have the most significant impact on performance and how organizations can enhance employee output through improved workplace conditions.

Geographical Scope

The research was conducted in Gurage Zone, Central Ethiopia, specifically in Cheha and Ezha Woreda, where several mineral water bottling companies are located. The study's findings are limited to this geographical area and may not be directly generalizable to other regions or industries. However, they provide valuable insights into the work environment in Ethiopia's manufacturing sector.

Methodological Scope

Structured questionnaires were employed to obtain data from employees of chosen mineral water bottling companies. The study applied correlational and regression analysis to investigate the links between works. Environmental factors increase

employee productivity. The data was analyzed using descriptive and inferential statistical tools, such as correlation, ANOVA, and multiple regressions.

Time Scope

The study covered a specific period, focusing on data collected in 2023-2025. The findings reflect the workplace conditions and productivity levels within this period and may require further studies to assess changes over time.

By defining the study's scope clearly, the research remains focused on its objectives while providing meaningful insights into the impact of the work environment on employee productivity within mineral water bottling companies in Gurage Zone, Central Ethiopia

1.7. Organization of the study

Each of the five linked chapters that make up the research report covers a crucial aspect of the investigation. Chapter One, which serves as an introduction to the study, includes background information, a problem description, research questions, research objectives, scope, significance, and the research organization. By emphasizing the study's significance and objectives, this chapter sets the foundation for the investigation. The main focus of Chapter Two is the theoretical and empirical literature review, which examines earlier study findings on the subject. This chapter also presents the conceptual framework, which describes the main variables and their connections, and serves as the basis for the study's hypotheses and analysis.

Chapter Three presents the research methodology, detailing the research design, research approach, sample size determination, sampling techniques, data sources, data collection methods, and data analysis techniques. This chapter explains how the study was conducted and the methods used to ensure the reliability and validity of the findings. Chapter Four is dedicated to data analysis and interpretation, specifically presenting the results derived from the questionnaires and interviews. The findings are discussed in relation to the study's objectives and existing literature. Finally, Chapter Five concludes the research by summarizing key findings, drawing conclusions, and providing recommendations for future studies and potential policy

implications. This structured organization ensures a logical flow of information and clarity in presenting the research process and results.

1.8.Operational Definition of key terms

- **Work environment:** - refers to the physical, social, and psychological conditions under which employees perform their jobs.
- The **work environment** refers to the physical, social, and psychological conditions under which employees perform their jobs.
- **Supervision** refers to the process of overseeing and guiding the activities, performance, and development of employees to ensure they achieve the goals and objectives of the organization.
- **Training and Development** refers to the ongoing process through which employees acquire and enhance the knowledge, skills, and competencies required to perform their current job duties or prepare for future roles within an organization.
- **Workload** refers to the amount of work or tasks that an individual or team is responsible for completing within a specific period.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter reviews and analyzes relevant theories and approaches related to the research problem. It explores the definitions and concepts surrounding the work environment and employee productivity, identifies influencing variables, summarizes past research findings, presents empirical studies, and outlines the conceptual framework that supports the research.

2.2. Theoretical Review

The work environment is a critical determinant of employee productivity, influencing performance across various sectors, including mineral water bottling companies. To fully understand how different aspects of the work environment such as workload, supervision, training and development, and motivational incentives affect employee productivity, it is essential to ground this study within well-established organizational behavior and motivation theories. These theories provide a framework for analyzing the complex interplay between environmental factors and employee outcomes.

2.2.1. Herzberg's Two-Factor Theory

Herzberg's Two-Factor Theory (1959), also known as the Motivation-Hygiene Theory, remains foundational in explaining employee motivation and productivity. Herzberg identified two distinct categories of factors that influence employee attitudes toward work: hygiene factors and motivators. Hygiene factors refer to extrinsic elements related to the work environment, such as supervision quality, workload, organizational policies, and physical working conditions. When these factors are inadequate or absent, they lead to employee dissatisfaction and disengagement, which negatively impact productivity. However, the mere presence of hygiene factors does not motivate employees to perform better; they only serve to prevent dissatisfaction.

On the other hand, motivators are intrinsic factors related to the nature of the work itself and the opportunities it provides, including recognition, responsibility, achievement, and personal growth through training and development. These factors directly enhance employee satisfaction and drive higher productivity by fulfilling psychological needs for accomplishment and advancement.

In mineral water bottling companies, where tasks may be repetitive and physically demanding, Herzberg's theory highlights the importance of addressing both hygiene and motivator factors. Poor supervision, excessive workload, and unsatisfactory working conditions can cause frustration and high turnover, while investment in employee development and motivational incentives can enhance engagement, reduce absenteeism, and improve overall productivity. This dual focus is crucial for these companies to maintain a competitive and efficient workforce.

2.2.2. Job Demand-Control Model

The Job Demand-Control (JDC) Model developed by Karasek (1979) further enriches the understanding of how work environment influences employee well-being and productivity. The model centers on two key dimensions: job demands and job control. Job demands refer to the physical, psychological, or emotional requirements of the job, including workload, time pressure, and complexity. Job control, meanwhile, refers to the degree of autonomy and decision-making authority an employee has over their work.

Karasek argued that employees exposed to high demands but low control experience greater stress and strain, leading to decreased job satisfaction and reduced productivity. Conversely, high job demands combined with high control can promote learning, motivation, and higher performance levels. Supervisory support is pivotal in increasing employees' sense of control by providing guidance, resources, and emotional support, thereby mitigating the negative effects of demanding workloads.

Within mineral water bottling companies, where employees often face rigorous production quotas and physically taxing tasks, supervisory support and effective workload management become essential to maintaining productivity. When supervisors empower employees through clear communication, participatory

decision-making, and appropriate workload distribution, they enhance employees' control over their work environment, reducing stress and boosting productivity (de Jonge & Kompier, 1997).

2.2.3. Maslow's Hierarchy of Needs

Maslow's Hierarchy of Needs (1943) offers a comprehensive psychological framework for understanding employee motivation by positing that human needs are arranged in a hierarchy from basic physiological and safety needs to higher-level psychological needs such as esteem and self-actualization. According to Maslow, employees cannot fully engage or be productive if their fundamental needs are unmet. Only when basic needs like adequate wages, safe working conditions, and job security are satisfied can employees pursue higher-level needs like recognition, personal development, and career growth.

Applying this to mineral water bottling companies, the theory suggests that organizations must ensure employees' basic needs through fair compensation, safe and comfortable working environments, and stable job conditions. Beyond these, providing training opportunities and motivational incentives fulfills employees' esteem and self-actualization needs, thereby fostering greater job satisfaction and improved productivity. This progression underscores the necessity of a supportive work environment that caters holistically to employee needs.

2.2.4. Social Exchange Theory

Social Exchange Theory, formulated by Blau (1964), explains workplace behavior and productivity through the lens of reciprocal relationships between employers and employees. This theory posits that when employees perceive fair treatment, adequate supervision, opportunities for growth, and motivational rewards, they develop a sense of obligation and commitment to reciprocate with higher levels of performance and loyalty.

This exchange dynamic highlights the importance of organizational support in fostering a positive work climate. For mineral water bottling companies, ensuring that employees feel valued through supportive supervision, reasonable workloads,

comprehensive training, and meaningful incentives encourages voluntary effort and sustained productivity. Studies have demonstrated that when employees perceive a favorable exchange relationship with their employer, they exhibit greater organizational citizenship behaviors and lower turnover intentions (Cropanzano & Mitchell, 2005).

Integration and Application to Mineral Water Bottling Companies

Collectively, these theories offer a robust conceptual framework for understanding how work environment factors affect employee productivity in mineral water bottling companies. Excessive workloads without proper supervisory support may trigger dissatisfaction, stress, and burnout, which reduce productivity (Karasek, 1979; Herzberg et al., 1959). Meanwhile, well-structured training programs and motivational incentives address employees' intrinsic needs and encourage engagement and performance improvement (Maslow, 1943; Blau, 1964).

Importantly, the theories stress that improving productivity requires a balanced and comprehensive approach. Organizations must attend to hygiene factors by ensuring manageable workloads, supportive supervision, and safe working conditions to prevent dissatisfaction. Simultaneously, they must cultivate motivators by investing in employee development, providing meaningful incentives, and fostering an environment that supports growth and recognition.

For mineral water bottling companies in regions such as the Guraghe Zone, these insights provide practical guidance. Implementing policies that enhance supervisory quality, optimize workload distribution, develop employee skills through training, and establish effective motivational systems will collectively contribute to higher employee productivity and organizational success.

2.3. Concepts related to working environment

2.3.1. Work Environment

This idea highlights the critical role of the work environment in shaping employee productivity, well-being, and engagement. A productive workplace should foster conditions where employees can effectively meet their work expectations in a

comfortable and supportive setting. According to Sanaz Samani *et al.*, (2015), the physical work environment influences how employees interact, complete tasks, and receive guidance. A well-designed workspace that is flexible, comfortable, and visually appealing enhances employees' cognitive, emotional, and physical well-being while facilitating concentration, mobility, and engagement.

The work environment encompasses the physical, social, and organizational factors that directly or indirectly affect employee performance and overall organizational efficiency. As Awan (2015), explains, workplace elements such as relationships with colleagues, collaboration, efficiency, and employee health all contribute to a productive environment. Employees thrive in settings where they can work without unnecessary interference, allowing them to perform optimally.

BUSHIRI (2017) defines the work environment as a shared space where groups of employees collaborate to complete tasks. Genzorová (2017), further explains that workspaces range from small, private home offices to large industrial organizations. The immediate surroundings in which employees operate referred to as the "work environment" by Nur Shifaa Athirah Saidi *et al.*, (2019) affect their daily work experiences.

Jeong & Kim (2021) describe the work environment as a collective perception among employees regarding how much their organization values them, their contributions, and their well-being. This environment includes both external and internal conditions that impact employees' morale and productivity. Given its significance, the work environment is regarded as a fundamental factor in driving employee performance.

A crucial aspect of workplace design is ergonomics, which involves adapting workspaces to employees' physical and mental capabilities rather than forcing them to conform to ill-fitting work conditions. According to Emil Sundstrup *et al.*, (2020), poor ergonomic conditions can lead to discomfort and physical strain, causing employees to unconsciously adjust their behavior in ways that hinder productivity. If ergonomics-related problems are not adequately addressed, employees may experience increased stress, reducing their efficiency and effectiveness at work.

Workplace culture and design significantly influence stress levels, which in turn affect employee productivity. Ida Festervoll (2020) suggests that negative perceptions of the work environment can lead to heightened stress, slowing employee responses and diminishing performance. The work environment is not only a functional space but also a social hub where various interactions and activities shape an organization's identity and the career trajectories of its employees (Satyvendra, 2019).

Advancements in technology have introduced new ways of working, including virtual workspaces that exist without a physical presence yet enable diverse work activities. Traditional work environments, however, consist of tangible aspects such as office structure, air quality, noise levels, temperature, and employee benefits like coffee stations, parking facilities, and childcare services. An ideal work environment is one where employees feel secure, stress-free, engaged, and motivated. According to Nátalia Stalmašeková (2017), employees in a well-structured work environment experience job satisfaction and a sense of belonging, as if their workplace were a second home. They remain enthusiastic about their work, maintain a healthy work-life balance, and do not feel overburdened. A positive work environment ultimately enhances employee confidence and productivity while ensuring that work responsibilities do not encroach upon personal and family time.

2.3.2. Employee Productivity

Employee productivity is the driving force behind an organization's success. A firm's ability to thrive largely depends on how effectively its employees perform in the workplace (Bhagawan Chandra Sinha, 2021). Employees who go the extra mile significantly impact organizational productivity and overall performance. Thus, improving worker productivity is a top priority for businesses. The work environment plays a crucial role in shaping employees' behavior, efficiency, and motivation. In reality, an employee's surroundings and working conditions directly influence their performance and job satisfaction. Organizations continually strive to enhance their efficiency, competitiveness, and production capabilities to remain successful.

One widely adopted strategy for improving workplace efficiency is the 5S methodology, which focuses on creating an organized and structured work environment. As described by Sukdeo *et al.*, (2020) the 5S methodology consists of five key principles: Sort, Set in Order, Shine, Standardize, and Sustain. Sorting involves keeping only essential materials while eliminating unnecessary clutter. Setting in order helps streamline workflow and ensures easy access to tools and resources. Shining refers to maintaining a clean and tidy workspace. Standardizing emphasizes the implementation of consistent procedures to detect deviations and ensure continuous improvement. Lastly, sustaining involves monitoring and maintaining these practices to uphold a culture of workplace efficiency.

Over time, some firms have modified this approach to 6S and 7S methodologies, incorporating additional elements. The sixth element, safety, prioritizes risk management and accident prevention to create a secure work environment. The seventh element, spirit or team spirit, promotes collaboration and a sense of unity among employees, recognizing the human factor in workplace success (Mahlaha, Sukdeo, and Mofokeng, 2015). By adopting the 7S methodology, companies foster teamwork, enhance organizational culture, and improve overall employee productivity.

For employees to stay motivated and engaged, organizations must address key factors influencing productivity (Wandari & Mujiati, 2021). Employee treatment and workplace culture directly impact performance and efficiency (Gamage & Wickramaratne, 2021). Productivity, as defined by Al-Omari & Okasheh (2017), refers to the efficiency with which goods or services are produced. It serves as a critical measure of both effectiveness and efficiency within an organization. High-performing firms cultivate a workplace culture that encourages employee involvement in decision-making, including goal-setting and problem-solving. This engagement ultimately boosts productivity, as employees feel valued and invested in the organization's success.

A well-structured work environment significantly affects employees' cognitive and emotional states, focus, behavior, and capabilities. Workplace conditions, both physical and behavioral, play a vital role in shaping employee performance. Turner highlights that a conducive work environment fosters high levels of employee

productivity, which in turn drives organizational success. By prioritizing workplace improvements and fostering employee engagement, businesses can optimize productivity and create a more effective and motivated workforce.

2.3.3. Constructive Working Environment

The study by Veitch, Charles, Geerts, and Marquardt (2008) emphasizes the importance of creating a positive and healthy work environment that balances employee satisfaction with organizational success. It highlights both physical and behavioral components that contribute to a productive and supportive workspace. Physical factors include sufficient natural lighting, proper ventilation, good air quality, temperature control, and sound management, all of which ensure employees' comfort and well-being. Adequate space is also crucial, as it allows employees to work effectively while maintaining privacy. On the behavioral side, transparent communication between employees and management is key, fostering trust and a sense of security. Additionally, promoting a work-life balance through flexible policies, such as allowing remote work and reasonable vacation periods, is essential. Recognition of hard work and fostering a team spirit further enhances the work environment. The organization must also prioritize the health and well-being of its employees by offering benefits like sick leaves, health insurance, and paid time off. Opportunities for professional development, such as training sessions and team-building activities, also play a critical role in boosting morale and helping employees achieve both personal and organizational goals. Ultimately, the study suggests that creating a workspace where employees feel valued, respected, and supported is vital for both their personal growth and the success of the organization (Kamarulzaman, 2018; Awan, 2015; Bushiri, 2017).

2.4. Importance of Constructive Working Environment

Positivity in the workplace has been shown to significantly increase motivation and dedication, which in turn enhances productivity levels and reduces absenteeism. A positive work environment also reduces employees' compensation costs related to medical claims and health issues (Kum, 2014). When the work environment is positive, it yields remarkable results, such as motivating and engaging employees, leading to a higher level of job satisfaction and reduced turnover. This, in turn,

fosters a healthy and happy work environment free from stress and negativity (Genzorová, 2017). A healthy work environment encourages employees to freely share their thoughts and ideas, participate in organizational meetings, and contribute to the success of the organization's goals, ultimately aiding in its growth (Hermina, 2019).

2.5. Effects of Work environment on employee productivity

An inappropriate and unfavorable work environment can lead to work-related stress, which in turn results in the under-utilization of employees' competencies (Anjum *et al.*, 2010). Chandrasekar (2011) also highlighted that unhealthy and unsafe working conditions, such as poorly ventilated workspaces, excessive noise, inadequate lighting, poor air quality, and inappropriate temperatures, can negatively impact employees' productivity and harm their health and well-being. Yasin Sheikh Ali *et al.*, (2013) found that employee productivity increases when working conditions meet a certain threshold but decreases when workload exceeds this threshold. Other factors affecting the work environment, such as workload (Ali *et al.*, 2013), training (Robertson *et al.*, 2016), and discrimination in the workplace (Robertson *et al.*, 2016), were also identified in previous studies.

According to Nátalia Stalmašeková (2017), additional factors influencing work conditions include access to fresh drinking water, cleanliness, proper coloring, lighting, music, security, temperature, and ventilation. Various studies have indicated that employees express their satisfaction through the quality of the work environment they are provided. There is a strong relationship between employees' productivity and the physical workplace environment (Anjum *et al.*, 2018). The physical workplace plays a significant role in shaping employees' productivity, happiness, social interactions, and overall well-being (Michael Roskams & Barry Haynes, 2021). Unsafe working conditions, resulting from unsuitable settings not only reduce employee productivity but can also diminish their overall effectiveness (Nur Najihah Erani Hamidi *et al.*, 2020).

The work environment directly impacts employee productivity. The physical features of the workplace, such as its design, layout, cleanliness, and temperature, have an immediate effect on human intelligence and subtly influence social interactions,

which in turn affects productivity. Key physical factors include building design, workplace layout, ventilation, equipment design, space, noise levels, lighting systems, vibration, and air quality, all of which are critical to fostering a productive work environment (Mrudul Kodarlikar & Vaibhavi Umale, 2020)

2.5.1. Employees Workload

Excessive workloads can cause weariness, tension, exhaustion, and worry, which can lead to health problems, lower productivity, conflicts at work, accidents, and injuries. Poorer health, worse morale, more mistakes, less originality and development, loss of interest, and poor communication are some of the prominent effects of high workloads on worker performance. A heavy workload also leads to restlessness, demotivation, frequent disputes among colleagues, and problems achieving deadlines.

The workload employees face on frequent basis are underestimated and overlooked while evaluating HR management policies and rules. In accordance with the research by (Kum, 2014), in his report he found out 46% of its informants reported to have job stress at work due to heavy workloads they faced on daily basis. Around 26% of informants expressed burnouts frequently due to higher workloads. Poor mental health, sleep deprivation, detachment to work, fatigue are few notable apparent symptoms observed in employees who struggle with workload (Kum, 2014).

Excessive workload comes with stress and exhaustion in an employee and it negatively influences their spirits, productivity, health, morale, and motivation level (Al-Shammari, 2015). To plan things on prior basis is not only benefitting employees but it also helps firm to have an efficient and healthy growth. The work divided evenly between days and amongst employees reduces stress level, workload and chances of error made, which means it also saves time for correction. Competing market conditions compel the employees to compromise over workload, whether due to job insecurity or due to financial issues (Mathew, 2015). A diminishing level of performance could be observed over the time of employees' having lots of workloads for a long time. Digestive disorder and higher blood pressure is another prominent disease employees have been seen suffering from who are influenced from the job burnouts (A. Awan, 2015).

The organizations must plan out workload equally, evenly distributing it between the employees and in the number of days one should complete the task should be achievable and practical to do it, to avoid and burden and stress on any employee (Mohamed, 2016). Several more research proved direct relationship of exhaustion in employees due to workload influencing their work performance (Genzorová, 2017). Increased levels of workload in employees have greater influence of stress level on the employees. In the year 2017 a survey conducted by (BUSHIRI C. P., 2017), showed 60% of the employees agreed upon the workload been increased over the past five years' time.

The most challenging task for employees at work was managing heavier workloads with competing deadlines, which was reported by approximately 25% of respondents in the survey. Additionally, 22% of respondents identified excessive workload as the biggest barrier at work, making it nearly impossible to balance work and personal life. The survey clearly highlighted how excessive workload significantly impacted employees' job satisfaction and well-being. The results were alarming, and the aftermath of such situations should be addressed promptly to prevent key employee concerns and resolve them on an immediate basis. “This version corrects grammar and structure while keeping the meaning intact. It’s also more concise and professional.

The staff’s working for longer time at job is considered as being committed and loyal to an organization. A very common practice by the employers is to impose long extra working hours for completing tasks and meeting deadlines. Employees who work overtime are dedicated and responsible towards their job. Such practices results in burnout and increased stress level in the employees which can be identified in long terms. The employees exposed to stress and burnouts diversely influence performance in an organization (Hermina, 2019).

2.5.2. Managing of Employees’ workload

The management of workload of employees on regular basis is healthy practice for organization and employee both. Managing workload also decreases employee turnover rates, improving level of performance which helps to generate higher return for organization (BUSHIRI, 2017). Efficiency and effectiveness should not be avoided while managing workload as efficiency is an important factor in achieving

organizational goals. Excess workload with short deadlines increases the chances of making error (Genzorová, 2017).

Organizations should be structured and organized in such a way that employees have flexibility in performing their work both in normal days and when there is excessive workdays, a combination of less workdays and more workdays, decreases the chances of burn outs in employees. Heavy workload should not be a frequent practice from the organization as it impacts the work environment in an organization negatively (Hermina, 2019).

There are various way to cut down workloads, one way could be cutting off meaningless and irrelevant tasks from work and revising the work which is time consuming with efficiency (Jena, 2016). Sometimes the organization needs to outsource a task rather than making it do in the organization itself as a wise decision. This is when an organization believes the task could not be performed by the employees requires expert and is time consuming, from which time could be saved and used for other important tasks (Kum, 2014).

The organizations are sometimes required to spend money to hire experts or to buy advance equipment for automating some tasks, to lessen the workload of the employees so that they can focus more or other tasks where their attention is more needed. To schedule workload before the business cycle even begins is not an extra work but a necessity which every business should practice (Mathew, 2015). A standard way cannot be allocated for managing workload as all organizations and businesses are operated in different way which requires different ways to manage workload, but planning strategies and activities needed to be done ahead of time is a wise practice for all firms. This helps organization to be ready for facing any challenges that may come ahead and helps the employees to focus on main issues.

Reducing workload also gives opportunity to employees in participating various beneficial activities at work which can encourage discussion in meetings by individuals, trainings, workshops, team building and more interactive and social activities which is ultimately helpful in improving work environment of any organization (Mohamed, 2016). Such activities help in boosting motivation in employees and build strong bond between employees and organization. It also develops understanding between all employees. The employees who are feeling down and fatigue can be motivated and uplifted by the support from their colleagues and supervisor. There should be a collaborative and even distribution of work for all

the team (Awan, 2015) Employees build foundation of any organization; they are the ones who can make or even break the structure of organization.

The organization should ensure the people working in the organization are productive all times or at least most of the times, they work with diligence and motivation, they are focused on their job (BUSHIRI, 2017). Conflict at office, insufficient or no training, stress at job, poor or disconnected communication are prominent and apparent facts influencing work performance of employees. If the problems are timely addressed it would help in sustaining the organizations and create competitive advantage.

2.5.3. Employees Training and development

Modifying knowledge, skills and/or attitudes by experiences of learning by planned processes and achieving effectiveness and the efficiency of individuals in series of practices and activities considering it to be development and training. To meet needs organizations, conduct frequent training and development programs. IT system, processes, procedures, management, technical skills are all part of training program.

There are several types of training such as technical training might include specific to industry, it related training, training for supervisor, training for management, executive and compliance training, sales training, development training, customer skill training, services and quality training, business practices training (Awan, 2015). The series of processes of the skills equipped, knowledge, attitude for handling responsibilities in an organization delivering these abilities to employees as referred as training. On contrary, developing is known as core competencies improving and grooming in employees for meeting future demands and to adapt to new environment and meet challenges (Ali, 2016). A formal, organized, and systematic modification of learning behavior having outcome as education, instructions, planned experiences and development (Genzorová, 2017). Firmansyah, 2020 shed some knowledge on the importance of the training and development programs and how it makes an organization accelerate its position via complementary and learning roles which are delivered to employees who boost their performance and help them achieve organizational goals.

More researches such as (Afrina Susiarty, 2019) & (Kum, 2014), talk about traditional and conventional model training, they further state how these programs are only subjective giving information rather than they help in building individuals core competencies and abilities for learning for the employees. Development is a process of long and gradual education organizing, utilizing, systematic processes via managers' conceptual and theoretical learning and knowledge with purpose of achieving efficiency at work.

According to Genzorová (2017), development refers to the growth and self-realization of individuals. Bushiri (2017) defines training as the process of acquiring knowledge and skills. Both training and development play a key role in improving competencies within an organization, creating a competitive advantage, and contributing to the achievement of organizational objectives. By addressing employees' needs, training and development provide opportunities for personal growth, ensuring their future employability (Kum, 2014).

Development is a series of procedures and progresses which takes over gradual time and is a life learning process. On the job training and development can help employees get updated with knowledge and skills. These training helps employees stay in harmony with demands and requirements in job, preparing them to meet challenges and play a game changer role when required. Socializing is one way of training where employees know about the values desired that helps to increase organization and person fit (Boone and Hartog, 2011). When people learn of the organization, they work in helps them to integrate well. Likewise, evidence proves employees recognize their organization thus reflecting organizational values (Kristof-Brown and Guay, 2011).

2.5.4. Supervisor and supportive workers at work place

The employees work environment can either be a daily pleasurable experience or a nightmare depending on their relationship with their supervisor and coworkers. If an employee has a good relationship with his/her coworkers and supervisors and they are supportive with him/her, it will make life easy for that employee with stress less and friendly environment (Ali, 2016).

On contrary, if an employee has annoying and irritating coworkers and their supervisor in discouraging, they will always be frustrated and will stay in consistent stress making life difficult for them. Various studies conducted previously on the workplace environment and support of supervisor (Jena, 2016). A researcher convincingly (Afrina Susiarty, 2019) argued on the social relations at workplace that contribute on employees' productivity, satisfaction, and wellbeing. Current research focuses on how employees perceive supervisors and coworkers support (Nátalia Stalmašeková, 2017). The employees to a greater extent have communication and interaction with supervisor and coworkers on regular basis.

Support from supervisor and coworkers is referred as assistance provided and guidance given by them to an employee when he needs it to complete the task given to him/her, by sharing knowledge, expertise and encouraging him/her by motivating them to perform well (Mohamed, 2016). Material benefits and rewards given to employees at work like appraisals, pay and ranks helps in influencing employees along with increased support and guidance from supervisor and coworkers via radiating positivity and motivation at work while they perform their job (Kum, 2014). Various more influencing effects other than support and guidance from supervisor and coworkers could be maintaining mental health, having physical fitness and working with good mood and positivity.

Supervisor and coworkers' behavior at work could be viewed as political and self-enhancing at times. Hence, not all the time they could be considered as radiating constructive attitude towards work. It is not always considered a good think to accept support offered by your supervisor and/or coworkers, it can sometimes be negative impression reflecting incompetency and incapability in employee, which would prove lack of ability and/or independency in an employee (Genzorová, 2017). Overwhelming number of evidence proves the support from supervisor and/or coworkers influences positively and greatly in an employee' performances (A. Awan, 2015). Support from the supervisors and coworkers have been controversial until now. Support from supervisor and coworkers have been a topic of discussion in various workplace settings and increasing focus seen in team/group building work in various organizations (Yingjun, 2019). There have been found a healthy relationship between supervisor and coworkers' support to their peer employees and having open and transparent discussions.

From these discussions new creative ideas are born which is good for the organization and creates increasing involvement and greater connection of employees to their job (Okasheh, 2017). It is also significantly seen the support from supervisor and coworkers helps employees feel satisfied, secure and they feel motivated to do their work which eventually influence their performance (Utin Nina Hermina, 2019). As study by (Ali, 2016), stated how coworkers support is so effective and influential when it comes to cancelling out job stress and managing workload.

Another study focuses on positive effects on work performance and how it decreases stress level in employees when they have support from their supervisor and coworkers (A. Firmansyah, 2020). A feeling of value to the organization makes an employee more satisfied and less stressful to the job they do, minimum inclination towards intentions to quit job (Jena, 2016). An increased influence of coworker's support in an organization's environment is associated with positivity and coherent workplace environment where everyone works as a team rather than as individual workers.

Recently, there have been focus shifts from social support given to employees to buffer relationship with them to a more emotional connection with them to lessen the effect on employees of feeling exhausted, stressful, intentions to quit job and demotivation. The emotional support has been seen to work out better and significantly influential yielding positivity in employees.

Prior studies have been using support from supervisor and coworkers as moderator to buffer the variable effects such as stress, performance, commitment, motivation, loyalty, satisfaction, and stress (Iskandar Muda, 2014). All these studied had an aim to find deeper knowledge on support from coworkers and supervisor and its influence on work performance.

All this necessary information holds particular importance for any organization which would help them measuring the impact of support in an organization towards employees' work performance both on individual basis and as team. Alongside, will help organizational environment to be positive, supportive, and friendly for employees who would yield good results, when employees are happy and satisfied, they will perform better.

2.6. Empirical Review of Related Studies

The impact of the work environment on employee productivity has been extensively studied across various industries globally, and recent research continues to emphasize its critical role. The work environment encompasses physical, psychological, and organizational conditions that influence how employees perform their duties and contribute to organizational goals. This section reviews recent empirical studies relevant to understanding how different environmental factors affect employee productivity, with special emphasis on manufacturing and production sectors similar to mineral water bottling companies.

Various studies have categorized the working environment of many organizations to be conducive. As (Genzorová, 2017) believed the layout and design of an organization particularly the physical conditions influence on the work behavior of an employee. Physical factors could directly influence work environment and employee performance, comfort, concentration, safety, satisfaction, morale, health, and emotions (BUSHIRI C. P., 2017). Building age, design, layout, ventilation, space, noise, air quality, lightening, and radiation also influence employees (Nur Shifaa Athirah Saidi, 2019). The work environment setup is essential to be considered as most of the activities and operations are done under this work setup which could directly affect performance and productivity of any employee. Physical work environment influences quality and quantity of work being performed by employees. When physical structure of organization is poorly designed it may create inefficiency, dissatisfaction, and less productivity in employees. If such conditions are prevailed for longer time, they influence health and wellbeing of employees and create delays in achieving targets and organizational goals (Mathew, 2015).

Various studies show how unfavorable work environment conditions can affect performance of employees in various ways. Majority of researchers stated similar facts as there are multiple factor which when combined contributes to a negative or a positive impression of an organization on employees' productivity and performance (Kum, 2014). These factors trigger the performance and either motivate or demotivate an employee to work according to what he feels. Equipment in an organization can also be the cause of disruption in an employee's performance if standard office tools are not

provided to them. This factor is specifically influencing employees working in service sector. Slightest of disorder can be the reason such as the wall color of an organization like if the organization is painted with dull, gloomy color portraying darkness it may affect the employees' mood as well, they may feel dull, sleepy, and tired eventually effecting their work performance too (Jena, 2016). Therefore, even small details in an organization can be bothersome for its employees and should be given attention.

Employees can accomplish more when they have been given facilitation, suitable environment, physical and mental consideration. When they have been given with quality environment, considerate focus on what they need and fulfill their requirements, they may feel like a home and work with optimum efforts thus yielding desired results.

Physical Work Environment and Employee Productivity

Recent studies reaffirm the significance of physical workplace conditions, including ergonomics, lighting, noise levels, ventilation, and workspace layout, in determining employee performance and wellbeing. For example, Ali *et al.* (2021) investigated the impact of ergonomic workplace design on factory workers' productivity in the manufacturing sector and found that well-designed workstations significantly reduced fatigue and work-related musculoskeletal disorders, thereby enhancing productivity and job satisfaction. Their study emphasizes that physical discomfort caused by poorly designed workspaces is a major cause of absenteeism and low performance.

Similarly, a cross-sectional study by Malesh and Ndlovu (2022) in beverage manufacturing plants revealed that factors such as inadequate lighting, high noise pollution, and poor ventilation were strongly correlated with reduced concentration, higher error rates, and lower output levels. They reported that employees working in noisy, poorly ventilated environments experienced greater stress and fatigue, which translated into reduced overall productivity. This finding aligns with earlier research indicating that environmental stressors negatively affect cognitive functioning and task efficiency (Kamarulzaman *et al.*, 2020).

Moreover, a study by Chen *et al.* (2023) explored the relationship between workplace design and employee morale in production facilities. Their mixed-methods research concluded that modern, clean, and well-organized work environments foster higher

motivation and engagement among employees. They also found that cluttered and cramped workplaces diminished workers' enthusiasm and increased turnover intentions. This evidence supports the view that physical workspace quality is a crucial determinant of employee productivity.

Supervision, Management Practices, and Employee Performance

Beyond physical conditions, recent empirical evidence points to the importance of effective supervision and management practices in enhancing productivity. As highlighted by Ahmed and Hussain (2022), transformational leadership and supportive supervisory practices in manufacturing sectors are linked to higher employee motivation and performance. Their study of several manufacturing firms in Southeast Asia demonstrated that supervisors who provide clear instructions, emotional support, and constructive feedback contribute to reduced job stress and better performance outcomes.

A related study by Nwankwo and Okafor (2021) in Nigerian production industries showed that poor supervision, including lack of communication and inconsistent performance appraisal, was a major contributor to low employee morale and productivity. Employees expressed frustration when expectations were unclear and when supervisors failed to acknowledge or reward good performance. This finding is particularly relevant for mineral water bottling companies, where repetitive tasks and high production targets require consistent management oversight to maintain quality and efficiency.

Workload and Employee Productivity

Recent research on workload management also demonstrates its critical role in shaping productivity. Excessive workload without adequate rest breaks leads to burnout, errors, and absenteeism. A longitudinal study by Zhang *et al.* (2022) examined workers in Chinese manufacturing industries and found that workload intensity was negatively associated with task performance, particularly when not accompanied by sufficient job control or supervisor support. The study recommended workload balancing strategies to avoid chronic stress and sustain productivity.

Similarly, Okoye and Eze (2023) investigated the effects of work overload in Nigerian factories and observed a significant decrease in productivity and job satisfaction among employees subjected to excessive work demands. The researchers advocated for organizational policies that incorporate fair workload distribution, appropriate shift scheduling, and regular rest periods to maintain workforce health and output.

Training, Development, and Motivational Incentives

Employee training and development have been identified as strong predictors of productivity in recent empirical studies. In a quasi-experimental study, Kim and Park (2021) assessed the impact of continuous skills training programs on employee output in the food and beverage sector. They found that employees who received regular training not only improved their technical skills but also demonstrated increased confidence and commitment to organizational goals. Training was shown to reduce errors and increase the adaptability of employees to new processes and technologies.

Motivational incentives, including both financial and non-financial rewards, also play a crucial role. A survey conducted by Gupta and Sharma (2022) in the manufacturing sector in India revealed that employees who perceived fairness and transparency in incentive distribution reported higher job satisfaction and productivity. The study highlighted that incentive schemes linked to performance targets and recognition programs fostered positive employee attitudes and enhanced output.

Furthermore, research by Bello and Ojo (2023) on beverage manufacturing companies in West Africa underlined the effectiveness of combining motivational incentives with employee development. They found that companies that integrated reward systems with professional growth opportunities experienced lower turnover rates and higher employee engagement, directly contributing to improved productivity.

Environmental Stressors and Employee Wellbeing

An emerging body of empirical research emphasizes the link between workplace environmental stressors and employee mental health, which in turn affects productivity. For example, Alahmadi *et al.* (2023) investigated the psychosocial work environment in manufacturing plants and reported that high noise levels, inadequate break areas, and

lack of social support correlated with increased employee stress and reduced cognitive performance. Their findings suggest that providing recreational and rest areas within the workplace can significantly alleviate stress and improve focus and efficiency.

Similarly, a study by Martinez and Lopez (2022) in Latin American factories found that employee wellbeing programs and ergonomic improvements were associated with reductions in absenteeism and workplace accidents, ultimately boosting productivity. These studies underscore the importance of a holistic approach to work environment improvements that includes physical, social, and psychological considerations.

Contextual Studies in Similar Industries

While few studies focus exclusively on mineral water bottling companies, research in related manufacturing sectors provides valuable insights. For example, Kassa and Tadesse (2021) examined productivity determinants in Ethiopian beverage production facilities and identified poor working conditions, lack of employee training, and weak supervisory practices as key barriers to optimal performance. Their qualitative study recommended enhancing the physical work environment alongside management and training interventions to raise productivity.

Additionally, a recent study by Alemu and Bekele (2024) on Ethiopian agro-processing industries found that motivation and supportive supervision significantly influenced productivity and employee retention. Their findings align with global evidence suggesting that integrated interventions addressing multiple dimensions of the work environment are most effective in improving employee performance.

2.7. Conceptual Framework

This study is based upon on effect relation between work environment and employee productivity. The work environment includes both physical and behavioral components, which can positively, or negatively impact worker behaviour and productivity (Diamantidis and Chatzoglou, 2014). However, work environment and productivity are frequently viewed as two opposites by management in some organizations (Benuyenah, 2021). This is because the management of such firms considers the work environment an extra, resource-consuming, non-productive

activity because of the lack of production stemming from it. Some researchers believe that productivity enhancement of employees can be realized by improving employees' skills and abilities. These managers are oblivious that mainstream productivity glitches are inherent in the work environment in which the employees work.

According to Ali & Anwar, the workplace environment encouraged higher employee commitment, which boosted employee productivity (Bayad Jamal Ali and Govand Anwar, 2021).

Based on the related literatures conducted on the different environmental factors in the water bottled company, I have developed the following conceptual framework recognized as essential factors. The framework demonstrates that there are four independent variables which are Employees workload, Supervisor and supportive workers, Employees Training development and Employees Motivational Incentives that have effects on the dependent variable Employee productivity. As researcher, These four working environment factors are selected because of most water bottling company encountered these factors in relation to problem of their market production and employee productivity using pilot study during the observation. In general, the variables help to examine the effects on employee productivity that company adopt such conditions. Both the dependent and independent variable of the study are presented on the conceptual framework. It is assumed that each of these factors relates to employee productivity in a certain way.

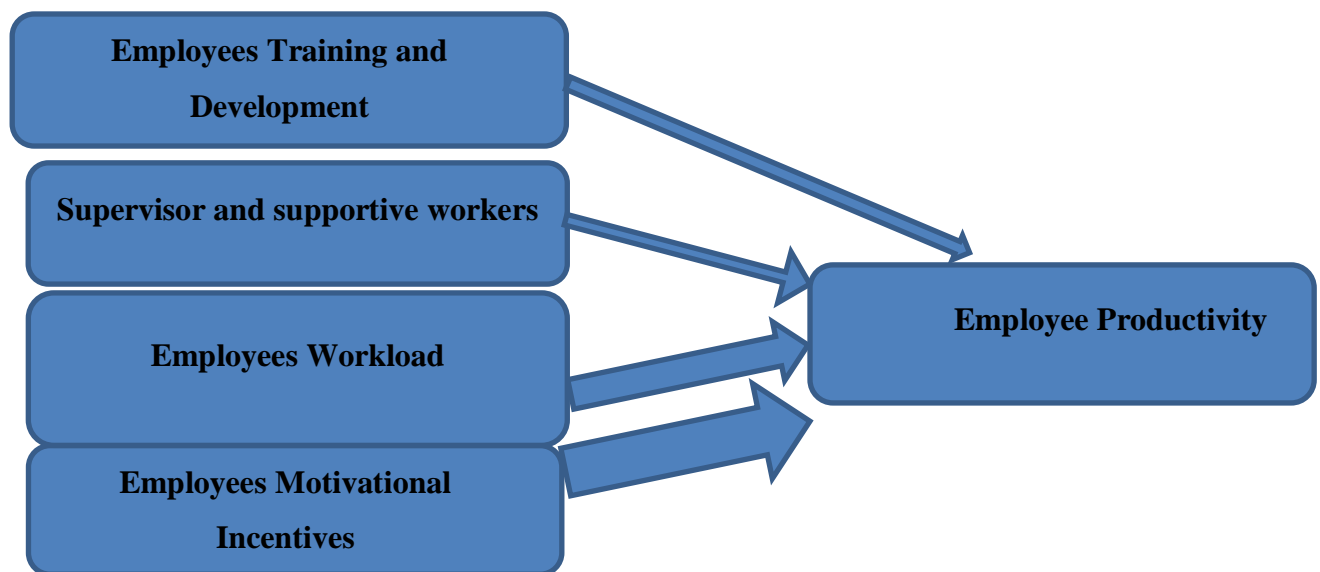


Figure 1: Conceptual Framework of study (Researcher study design)

CHAPTER THREE

3. METHODOLOGY OF THE STUDY

3.1. Introduction

This chapter presents the methodological approach adopted for the study. It outlines the theoretical foundations, empirical models, and research techniques used to investigate the relationship between the work environment and employee productivity. The section also incorporates findings from previous studies to provide a basis for hypothesis formulation and the development of the conceptual framework.

3.2. Description of the Study Area

The study was conducted in Cheha Woreda and Ezha Woreda, located in the Gurage Zone, Central Ethiopia. The Gurage Zone is one of the administrative zones of the Central Ethiopia Regional state is well known for its diverse cultural heritage and economic activities. Cheha Woreda is situated approximately 188 km southwest of Addis Ababa, the capital city of Ethiopia. The Woreda is bordered by Gumer Woreda to the west, Abeshge Woreda to the north, EzhanaWolene Woreda to the east, and Kebena Woreda to the south. Ezha Woreda, another study area, shares similar geographic characteristics and is located within close proximity to Cheha Woreda.

Cheha Woreda has a total population of approximately 116,000, as reported by the Woreda administration. The majority of the population engages in agriculture, particularly the cultivation of Enset (false banana), maize, wheat, and barley, which are the staple crops of the region. Livestock farming, including cattle, sheep, and poultry, is also a significant economic activity in both Woreda. Additionally, small-scale trading and other business activities contribute to the local economy.

The area lies between 8.13333° ($8^{\circ} 8'$ north latitude) and 37.76667° ($37^{\circ} 46'$ east longitude), with an altitude that ranges from midland to highland elevations. The climate is characterized by moderate rainfall and temperature variations, which influence both agricultural productivity and livelihood conditions. The region experiences two main rainy seasons: the belge (short rains) from March to May and the kiremt (long rains) from June to September. These climatic patterns, along with

the topographical features of the area, play a crucial role in shaping the economic and social activities of the inhabitants. Based on the 2007 Census conducted by the CSA, the Woreda had a total population of 325,000, with 175,000 men and 150,000 women. Fifty percent of the population resided in urban areas. The majority of the inhabitants practiced Ethiopian Orthodox Christianity (65.61%), while 31.47% were Muslim, and 2.35% were Protestant(CSA, 2007).

3.3. Research design and Research Approach

3.3.1. Research design

The study employed an explanatory research design to examine the impact of various work environment factors on employee productivity. This design is suitable for identifying cause-and-effect relationships. Additionally, a correlational design was used to explore the strength and direction of relationships between variables such as training and development, workload, supervision and support, and motivational incentives, with employee productivity.

As noted by Muhammad & Kabir (2018), correlational studies help assess the extent of relationships among variables. This design enabled the use of regression analysis to predict the influence of independent variables on productivity in mineral water bottling companies in the Gurage Zone.

3.3.2. Research approach

A quantitative research approach was adopted to facilitate the objective measurement of relationships between variables. Data were collected using structured, close-ended questionnaires to ensure consistency and ease of quantification. Statistical techniques were then applied to identify trends, relationships, and the overall influence of workplace conditions on productivity.

3.4. Study Population and Target Population

The study population included employees from mineral water bottling companies in Cheha and Ezha Woredas. Workers from production, administration, sales, and management departments were included.

The target population consisted of 916 employees from five selected companies. These companies were chosen based on operational scale and employee count. A representative sample was drawn to ensure accuracy and generalizability.

3.5. Sampling Technique and Sample Size Determination

3.5.1. Sampling Technique

A proportional stratified random sampling technique was used to ensure fair representation of employees across companies. Each company represented a stratum, and a proportional allocation method was applied to select participants from each. Simple random sampling within each stratum guaranteed equal chances of selection, minimizing bias and increasing reliability.

3.5.2. Sample Size Determination

The sample size for this study was determined using Yamane's (1967) formula, which is widely used to calculate an appropriate sample size from a given population with a specified level of precision. The formula is given as follows:

$$n = \frac{N}{1 + N(e)^2} = \frac{916}{1 + 916(0.0025)} = 278$$

It is better to allocate the sample proportionally by using of the following formula

Where: n is the sample size (278 employees)

N is the population size (916 employees)

e is the level of precision (5%)

Table 1: proportional sample distribution was calculated as follows:

No.	Water Bottling Company	Total Employees ($N_{i_{ii}}$)	Proportional Sample ($n_{i_{ii}}$)
1	Wow Water Bottling Company	69	21
2	Girar Water Bottling Company	212	64
3	Tsedey Water Bottling Company	220	66
4	Eden Water Bottling Company	200	61
5	Fiker Water Bottling Company	215	65
Total	—	916	278

Source: researcher own preparation

By using this proportional allocation method, the study ensured that the sample was representative of the overall population, capturing insights from employees across different companies while maintaining statistical validity.

3.6. Type and Sources of Data

To ensure a thorough understanding of the work environment's impact on employee productivity, the study utilized both primary and secondary data sources. Primary data were gathered through structured questionnaires distributed to employees of selected mineral water bottling companies. Additional data were collected via interviews with key informants, which provided valuable insights into the organizational climate and employee experiences. These sources offered firsthand perspectives on working conditions and productivity influences.

Secondary data were obtained from a variety of credible sources, including organizational reports, government publications, academic journals, research articles, and relevant literature. These materials provided contextual support, theoretical grounding, and comparative analysis drawn from previous research findings, enhancing the overall depth and rigor of the study.

3.7. Data Collection

The primary instrument for data collection was a structured questionnaire designed to maintain consistency and reliability across responses. To evaluate perceptions of the work environment, a five-point Likert scale was employed (ranging from 1 = strongly disagree to 5 = strongly agree). This scale was used to assess factors such as workload, supervision quality, training opportunities, and incentive availability.

Employee productivity was assessed using a seven-point scale (1 = strongly disagree to 5 = strongly agree), allowing respondents to reflect the frequency and consistency of their performance-related behaviors. This standardized approach facilitated quantifiable, objective data analysis and ensured the collection of measurable and analyzable responses across participants.

3.8. Data Analysis

Data were processed and analyzed using SPSS version 25 to ensure precise and valid statistical interpretation. Responses were coded and entered systematically, followed by both descriptive and inferential statistical analyses. Descriptive statistics, such as frequency distributions, were used to summarize demographic and variable-related information.

Inferential statistics were applied to examine relationships and differences among variables. Correlation analysis identified associations between work environment elements and productivity. ANOVA (Analysis of Variance) tested for statistically significant differences across groups. Multiple regression analysis determined the predictive power and impact of independent variables—workload, supervision and support, training and development, and motivational incentives—on employee productivity. This analysis was critical in identifying key workplace elements that significantly affect performance in the bottling industry.

3.9. Research Model Specification

The study employed a regression model to examine the relationship between selected independent variables and employee productivity. From a target population of 916 employees, a representative sample of 278 was used for the analysis. The

assumptions underlying the regression model were tested and validated using SPSS, which is well-suited for analyzing survey-based Likert-scale data.

The primary objective of this analysis was to assess the degree to which factors such as workload, supervision and coworker support, training and development, and motivational incentives affect employee productivity. Furthermore, the analysis sought to determine which of these variables had the most statistically significant influence within the context of mineral water bottling companies.

Both correlation and regression analyses were conducted to evaluate the strength, direction, and significance of the relationships between the dependent and independent variables. The model used in this study is expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = Employee productivity (Dependent Variable)

β_0 = Constant term (Intercept)

$\beta_1 - \beta_4$ = Coefficients of independent variables

X_1 = Employees' workload

X_2 = Supervision and supportive workers

X_3 = Employees' training and development

X_4 = Employees' motivational incentives

ε = Error term (Residuals)

This model was crucial in quantifying the extent to which each independent variable influenced employee productivity and in determining the key predictors of performance within the mineral water bottling companies.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1. Introduction

This chapter deals with organization, analysis, presentation of data collected from primary data source from the respondents (employee of water bottling companies of the study sites). The data collected was analyzed and interpreted in line with the objective of the study, which was; to investigate the Effects of Work Environment factor on Employees Productivity in the case of Mineral Water Bottling Companies in Gurage Zone, Central Ethiopia.

4.2. Demographic characteristics

Out of 278 individuals, 270 respondents participated in the survey, resulting in a high response rate of 97.1%. Only 8 individuals, or 2.9%, did not respond. This strong participation rate indicates a high level of engagement and interest from the target population, which enhances the reliability and representativeness of the survey findings.

Table 2: Demographic characteristics of the respondents

Demographic characteristics	Items	Frequency	Percent
Age	18-30	200	74.1
	31-45	33	12.2
	above 45	37	13.7
	Total	270	100
Gender	Male	206	76.3
	Female	64	23.7
	Total	270	100
Educational background	College diploma	71	26.3
	degree	175	64.8
	second degree	24	8.9
	Total	270	100
Experience	Below 1 year	20	7.4

	1-5 years	191	70.7
	6-10 years	38	14.1
	above 10 years	21	7.8
	Total	270	100

Age distribution shows that a significant majority of the respondents (74.1%) fall within the age range of 18–30 years, with a mean age score of 1.42 and a standard deviation of 0.73. This indicates a relatively young workforce, which may have implications for adaptability and productivity in a dynamic work environment. Respondents aged 31–45 years made up 12.2% of the sample, while those above 45 years accounted for 13.7%.

Regarding gender, 76.3% of the respondents were male, while 23.7% were female, with a mean of 1.25 and a standard deviation of 0.43. This suggests a male-dominated workforce, which may reflect the nature of the industry or local employment trends in the sector.

In terms of educational background, the majority of respondents (64.8%) held a bachelor’s degree, followed by college diploma holders at 26.3%, and second degree holders at 8.9%. The mean educational level was 1.85, with a standard deviation of 0.58, indicating a moderately educated workforce capable of understanding and contributing to workplace productivity efforts.

When considering work experience, the highest proportion of respondents (70.7%) had between 1–5 years of experience, suggesting that while the workforce is relatively young, many have a few years of relevant industry experience. Respondents with 6–10 years of experience made up 14.1%, those with less than 1 year accounted for 7.4%, and those with more than 10 years of experience comprised 7.8%. The mean experience level was 2.23 with a standard deviation of 0.71.

Overall, the demographic data suggests that the majority of employees in mineral water bottling companies in the Guraghe Zone are young, relatively well educated, and possess a few years of work experience. These characteristics are crucial for interpreting how different work environment factors might influence employee productivity in the context of this study.

4.3. Environmental factors that affect employee work performance

4.3.1. Training and development

Training and development are critical components in enhancing employee skills, knowledge, and overall job performance. Effective training programs not only improve productivity but also increase employee satisfaction and retention by equipping workers with the necessary tools to perform their tasks efficiently. In the mineral water bottling industry, continuous employee development ensures that workers stay updated with best practices, safety standards, and technological advancements, which directly impacts productivity and operational efficiency.

Table 3: Training and Development

Question	SD	DA	N	A	SA
The work environment takes into account the health needs of employees	1(7)	2(71)	3(36)	4(100)	5(56)
My work place provides training and development to the employees	2(20)	2(48)	3(46)	4(136)	5(20)
My work place helps me identify my training and development needs through performance appraisals	1(14)	2(52)	3(30)	4(120)	5(54)
My work place conducts training evaluation after training is conducted.	1(43)	2(34)	3(45)	4(90)	5(58)

Source: output of SPSS software version 26

The data presented in Table 4 offer valuable insights into employees' perceptions of training and development practices within mineral water bottling companies. A substantial portion of respondents either agreed (A) or strongly agreed (SA) with the statement that their training needs are identified through performance appraisals. This is reflected in a relatively high mean score of 3.54, indicating that mechanisms for assessing and recognizing skill gaps are in place an essential foundation for improving productivity.

However, responses to whether employees are actually provided with training and development opportunities were less positive. A greater number of participants selected Neutral (N) or Disagree (DA), resulting in a lower mean score of 3.26. This points to a disconnect between the identification of training needs and the actual

implementation of training programs. Furthermore, the evaluation of training effectiveness post-implementation received a modest mean score of 3.34, which may suggest that follow-up assessments are either insufficient or ineffective.

Finally, while the basic framework for training and development appears to be in place, there are notable inconsistencies in execution and evaluation. The limited delivery of training opportunities and the lack of robust follow-up measures reduce the potential impact of these initiatives on employee productivity.

4.3.2. Supervisor and supervision (SUP)

Supervision plays a vital role in shaping employee performance and workplace morale. Positive supervisory behavior, including showing respect, encouraging creativity, and providing clear direction, helps employees feel valued and motivated. When supervisors are accessible and supportive, employees tend to work more collaboratively and confidently, which contributes to higher productivity and a healthier work environment.

Table 4: Supervisor and supervision

Questions	SD	DA	N	A	SA
Senior staff gives me a clear picture of the direction in which the organization is headed hence motivating me to work.	15	39	60	60	96
I am able to contact senior Supervisors or work hand in hand with my superior at the workplace.	26	13	56	84	91
My immediate supervisor treats me with respect.	6	36	30	104	94
My immediate supervisor encourages me to be creative in my work and bring new ideas.	0	12	58	120	80
My immediate supervisor positive attitude increases my job performance.	10	26	33	77	124

Source: output of SPSS software version 26

The findings from Table 5 reflect a generally positive relationship between employees and their supervisors. The majority of employees agreed (A) or strongly agreed (SA) that their supervisor's positive attitude improves their performance, giving this item the highest mean score of **3.98**. This strong agreement shows that supervisory behavior has a powerful impact on morale and motivation. Similarly, many respondents felt that their immediate supervisors encourage creativity (mean = **3.96**) and treat them with respect (mean = **3.87**), highlighting a workplace culture where employees feel valued and empowered. Most employees also agreed (A) that senior staff members give direction and motivation (mean = **3.69**), and that they can contact their supervisors and work collaboratively (mean = **3.77**). These results suggest a supportive environment where leadership is accessible and respectful. The use of SA and A responses across items implies that the supervisory practices in these companies are generally strong, promoting trust, innovation, and performance. Low numbers of DA and SD responses confirm that few employees feel neglected or disrespected by their managers. This is a positive aspect of the work environment that should be maintained and strengthened.

4.3.3. Workload

Workload is a critical factor that directly influences employee performance, satisfaction, and overall well-being. When tasks are fairly distributed and manageable within regular working hours, employees are more likely to stay productive and motivated. However, excessive or poorly managed workloads can lead to stress, overtime work, and reduced job satisfaction. Understanding employees' perceptions of their workload helps organizations identify potential challenges and make improvements to support a healthier, more efficient work environment.

Table 5: Workload

Questions	SD	DA	N	A	SA
The workload is reasonable	14	62	50	85	59
I feel that my tasks are distributed fairly compared to others in my team	5	67	63	100	35
I complete my work tasks during regular working hours	17	160	33	35	25
I feel motivated to work when my workload is high	35	34	40	90	71
I feel my workload negatively impacts my mental or physical health	70	41	21	48	90

Source: output of SPSS software version 26

Table 5 reveals mixed employee experiences related to workload. While some respondents agreed (A) that they are motivated when workload is high (mean = 3.49), others expressed concern about task distribution and its impact on performance. A moderate number agreed (A) that their workload is reasonable (mean = 3.42), but there was also a sizable group who selected Neutral (N), indicating that perceptions are not uniform. Notably, the item “I complete my work tasks during regular working hours” received a low mean score of 2.61, with many selecting Disagree (DA) or Strongly Disagree (SD). This suggests that employees often work overtime or feel pressured to meet unrealistic deadlines, which could lead to fatigue or burnout. In addition, when asked whether workload impacts their mental and physical health, the average response was close to Neutral (mean = 2.96), but with a tendency toward Disagree (DA), suggesting that for a considerable portion of staff, workloads are taking a toll on well-being. The presence of multiple N responses also reflects a level of uncertainty or inconsistency in how workloads are managed across different departments. These findings highlight the need for better task allocation and realistic workload expectations to ensure employees remain healthy and productive.

4.3.4. Motivation

Motivational incentives play a vital role in driving employee engagement, satisfaction, and productivity. These incentives—whether financial rewards, recognition, or career advancement opportunities—are essential for encouraging high performance and commitment. When employees feel that their efforts are acknowledged and rewarded, they are more likely to remain motivated and loyal to

the organization. Conversely, a lack of meaningful incentives can result in dissatisfaction, reduced morale, and lower productivity. Assessing how employees perceive the motivation strategies in place is crucial for identifying gaps and making improvements that align with their needs and organizational goals.

Table 6: Motivational incentives

Questions	SD	DA	N	A	SA
I regularly receive great motivational incentives from my organization.	95	53	51	60	11
Motivational incentives offered to me are important to my productivity	70	56	21	88	35
I feel that receiving incentives has a direct impact on the quality of my work	80	25	57	72	36
Incentives provided by my organization aligns with my personal and career goals	65	52	36	96	21

Source: output of SPSS software version 26

The responses in Table 6 paint a clear picture of dissatisfaction with motivational practices. A large number of respondents selected Strongly Disagree (SD) and Disagree (DA) for all items in this section, indicating widespread discontent with the incentives provided. Employees largely disagreed (DA/SD) with the statement that they receive good motivational incentives that affect their productivity, and many rejected the idea that these incentives are aligned with their goals or values. Although the table lacks the exact mean values, the frequency of negative responses (SD and DA) combined with low standard deviations indicates a consistently poor experience across the organization. This suggests that the current reward system—whether financial, recognition-based, or otherwise is inadequate or poorly structured. Motivation is a key driver of performance, and the apparent absence of effective incentives can lead to low morale, lack of engagement, and high turnover. If left unaddressed, this issue may significantly undermine other positive aspects of the work environment, such as supervision or training efforts.

4.4. Employee productivity

Employee productivity is a key outcome that reflects the efficiency, quality, and consistency of individual and organizational performance. It encompasses an employee's ability to meet goals, complete tasks on time, and contribute effectively to the company's objectives. Understanding how employees perceive their own productivity provides valuable insight into the strengths and challenges within the workplace. Factors such as workload, skills, recognition, interruptions, and time management all influence productivity levels. In this section, respondents evaluated their own performance and work outcomes, revealing both areas of confidence and opportunities for improvement.

Table 7: Employee productivity

Questions	SD	DA	N	A	SA
I often complete my task on a time.	37	88	20	79	46
I have effective and efficient work output.	0	48	28	64	130
I am confident to have skills that are required to perform my tasks effectively.	31	30	30	88	91
I always meet my work-related goals and objectives	45	41	100	82	2
I experience interruptions that affect my productivity.	20	38	74	60	78
My performance goals are clear and achievable.	23	42	40	115	50
I feel that my contributions are recognized and appreciated by the organization.	34	22	33	96	85
There are organizational changes that could help employees be more productive.	52	21	29	100	68

Source: output of SPSS software version 26

The item with the highest mean score (4.05) was “I produce effective and efficient output,” showing strong confidence among employees in the quality of their work. Many also agreed (A) that they have the necessary skills to perform their jobs (mean = 3.64) and that they feel recognized and appreciated by the organization (mean = 3.59). However, when it comes to completing tasks on time, responses were more divided, with the mean dropping to 3.03, suggesting that either workload pressure or process inefficiencies are interfering with time management. Similarly, the statement about frequent interruptions impacting productivity received a moderately high mean (3.53),

implying that distractions whether environmental or operational are a notable concern. Interestingly, the item “I always meet my work-related goals and objectives” had a fairly high mean (3.94) but a very high standard deviation (2.45), indicating great inconsistency: some employees excel while others struggle. This variability might reflect differences in training, workload, department structure, or individual capability. In summary, while most employees feel competent and committed to delivering good results, organizational factors such as poor time control, lack of incentives and environmental interruptions pose barriers to consistent productivity.

4.5. Descriptive Statistics (the overall)

The descriptive statistics provide an overview of the central tendencies and variability of the study variables, including employee productivity (EP), training and development (TD), supervision (SUP), workload (WL), motivational incentives (MI), and demographic factors (DM). The mean represents the average response on a Likert scale, while the standard deviation (SD) shows the extent of variation or dispersion from the mean. A higher standard deviation indicates greater variability in responses, while a lower standard deviation suggests more consistency in participants' perceptions.

4.5.1. Training and Development (TD)

Training and development scored an average of 3.43, indicating that employees generally perceive training opportunities as moderately available and useful. The SD of 1.18 suggests some variation in responses, meaning that while some employees may have received adequate training, others may feel that training opportunities are insufficient or ineffective. Training and development are crucial for improving employee skills, knowledge, and adaptability in the workplace. If some employees are not receiving adequate training, it could be due to limited resources, lack of structured programs, or management not prioritizing continuous learning. Companies with strong training programs tend to have employees who perform better and feel more competent in their roles. Tadesse and Hailemariam (2017) have also highlighted the importance of training and development in improving employee productivity in their study on the effect of training programs in Ethiopian manufacturing industries. Tadesse and Hailemariam (2017), who noted that many

Ethiopian companies still face limitations in offering comprehensive training programs due to financial constraints and lack of planning.

It was also in line with researcher from other worlds by De Grip *et al.*, (2004), who found that training and development programs have a positive impact on employee productivity, although the extent of this impact can vary depending on the quality and availability of the programs. In contrast, Aguinis and Kraiger (2009) suggests that when training programs are poorly designed or insufficiently implemented, the results may be less impactful. The moderate variability in responses in your study could suggest that not all employees have equal access to high-quality training, which is consistent with findings by Noe (2017), who highlighted that unequal access to training can contribute to differences in perceived effectiveness.

4.5.2. Supervision (SUP)

Supervision received the highest average score of 3.85, indicating that employees generally view the level of supervision as effective and supportive. The relatively low standard deviation of 1.07 shows that most employees share a consistent perception of supervision quality. Good supervision ensures that employees receive guidance, feedback, and support in their tasks, leading to improved job performance and job satisfaction. However, the variation in responses suggests that while many employees find their supervisors helpful, others may feel that their managers do not provide adequate direction or constructive feedback. Differences in leadership styles, managerial competence, and communication practices could explain these variations. The positive perception of supervision in your study is consistent with findings from Fikadu and Mulugeta (2018), who examined the role of supervisory practices in Ethiopian organizations. They found that effective supervision positively influences employee motivation and job satisfaction, leading to improved productivity. Similar to your study, they observed that supervision is generally well-regarded, but occasional inconsistencies in management practices lead to varied employee experiences.

The finding agree with research by Liu *et al.*, (2010), which emphasizes the role of effective supervision in promoting job satisfaction, improving performance, and reducing turnover. Good supervision has been shown to foster a positive work

environment, contributing to enhanced productivity and job satisfaction. Macky and Boxall (2007) also suggest that supervisory support, including feedback and guidance, plays a critical role in motivating employees. The relatively low standard deviation in your study suggests a consensus among employees about the quality of supervision, reflecting studies that emphasize the importance of consistent leadership practices.

4.5.3. Workload (WL)

The mean workload score of 3.17 suggests that employees experience a moderate level of work pressure. However, the standard deviation of 1.10 indicates noticeable variability in perceptions, meaning some employees find their workload manageable while others may struggle with excessive job demands. A reasonable workload is essential for maintaining high productivity and reducing burnout. If employees feel overwhelmed with tasks, it could result in stress, reduced efficiency, and job dissatisfaction. Factors influencing workload variations may include differences in job roles, team sizes, and company policies regarding task distribution. The current study's finding of moderate workload perception is in agreement with the work of Tesfaye *et al.*, (2019), who studied employee workload and stress in Ethiopian banks. They found that while some employees reported manageable workloads, others experienced excessive stress and burnout due to high work demands. The variability in workload perceptions in your study aligns with Tesfaye *et al.*, (2019), who concluded that workload distribution is often inconsistent, leading to differences in job satisfaction and productivity.

This is consistent with research by Bakker *et al.*, (2003), who found that workload is a significant predictor of job stress and burnout. High workloads can lead to decreased productivity and job satisfaction, particularly when employees feel overwhelmed. Conversely, a reasonable workload can contribute to higher productivity and job satisfaction. The variability in responses in your study could reflect differences in job roles, as Kahn *et al.*, (1964) found that perceptions of workload and stress are often influenced by job type and the distribution of tasks within teams.

4.5.4. Motivational Incentives (MI)

Motivational incentives received the lowest mean score of 2.73, indicating that employees are generally dissatisfied with the incentives provided by their organization. The standard deviation of 1.33 is the highest among all variables, showing significant variability in employee opinions. Some employees may feel adequately rewarded through salary, bonuses, or recognition programs, while others believe their contributions are undervalued. The low mean score suggests that existing incentive systems may not be effective in motivating employees. A lack of financial and non-financial incentives, such as career advancement opportunities, recognition programs, and performance-based bonuses, could be contributing to this dissatisfaction. Employees who feel unmotivated due to insufficient incentives may show lower productivity levels and engagement at work. The dissatisfaction with motivational incentives in the study mirrors findings from Mekonnen and Ayele (2016), who conducted a study on employee motivation in Ethiopian private enterprises. They found that low levels of financial and non-financial incentives resulted in decreased employee engagement and lower productivity. Mekonnen and Ayele (2016) argued that Ethiopian organizations often fail to develop effective incentive structures, leading to employee dissatisfaction, which aligns with your findings on motivational incentives.

This finding is consistent with the work of Deci *et al.*, (1999), who found that insufficient or poorly designed motivational incentives could lead to reduced employee engagement and performance. Maslow's Hierarchy of Needs (1943) also supports the idea that employees require more than just financial incentives to feel motivated—recognition, career advancement, and job satisfaction are also critical factors. The high variability in responses in your study could suggest that motivational systems are not tailored to individual employee needs, as Herzberg (1959) and Alderfer (1969) argue that employees are motivated by different factors depending on their needs and work environment.

4.5.5. Employee Productivity (EP)

Employee productivity is the dependent variable, and its mean value of 3.58 suggests that, on average, employees perceive their productivity as moderate to high. However, the standard deviation of 1.23 indicates considerable variation in responses. This suggests that while some employees feel highly productive, others may struggle with workplace conditions that limit their efficiency. Possible reasons for this variation include differences in individual motivation, work experience, and the availability of resources. Employees who receive better training, supervision, and workload management are likely to report higher productivity, whereas those experiencing job dissatisfaction or high stress may perceive themselves as less productive.

The current study's findings align with research conducted by Ethiopian scholars, such as Zelalem and Reta (2019), who investigated employee productivity in Ethiopian public organizations. Their study found that productivity was influenced by factors such as supervision, training, and motivation, which echoes the results of your study. Zelalem and Reta (2019) observed moderate to high productivity among employees, but with significant variation based on work conditions and support systems provided by management. It also aligns with several studies that highlight that employee productivity is often moderate or varies based on individual and environmental factors. For example, Kuvaas (2006) found that employee productivity is often shaped by motivation, which is influenced by various organizational factors such as training, supervision, and incentives. The variability in responses in your study could reflect this dynamic, as employees' productivity can fluctuate based on resources available and individual motivation levels.

Table 8: Descriptive Statistics

Variables	Mean	Std. Deviation	N
Employee Performance (EP)	3.58	1.24	270
Employee Training and Development (TD)	3.43	1.19	270
Supervisor and supervision (SUP)	3.85	1.07	270
Work load(WL)	3.17	1.10	270
Motivational incentives (MI)	2.73	1.33	270

Source: output of SPSS software version 26

4.6. Relationship between work environment and employee productivity

This study explored the relationship between work environment factors and employee productivity in mineral water bottling companies in Guraghe Zone, Central Ethiopia. Specifically, the correlation analysis examined how elements such as training and development (TD), supervision (SUP), workload (WL), motivational incentives (MI), and demographic characteristics (DM) are associated with employee productivity. The results indicate varying degrees of positive or negative relationships between these variables and productivity. It is important to note that correlation analysis measures the strength and direction of associations but does not imply causation. Therefore, while the findings suggest that improvements in areas like supervision, training, and motivation are **linked** to higher productivity levels, they do not confirm that changes in these factors directly **cause** changes in employee output. These results should be interpreted as indicative of potential connections, warranting further investigation through more robust methods such as regression or experimental studies.

Table 9 : Correlation analysis

Variables		TD	SUP	WL	MI	EP
TD	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
SUP	Pearson	.933**	1			
	Correlation					
	Sig. (2-tailed)	.000				
WL	Pearson	.929**	.932**	1		
	Correlation					
	Sig. (2-tailed)	.000	.000			
MI	Pearson	.877**	.860**	.868**	1	
	Correlation					
	Sig. (2-tailed)	.000	.000	.000		
EP	Pearson	.933**	.936**	.921**	.863**	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	

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

Source: output of SPSS software version 26

4.6.1. The correlation of Training and Development (TD) with Employee Productivity (EP)

The correlation between training and development (TD) and employee productivity (EP) was found to be very strong ($r = 0.933$, $p < 0.001$). This implies that well-trained employees tend to be more productive. It suggests that organizations investing in continuous training programs and professional development opportunities are likely to see higher performance levels from their workforce. Training improves employees' skills, increases their confidence, and equips them with the knowledge necessary to perform tasks efficiently. As such, it is crucial for companies to establish a robust training framework that addresses the evolving needs of employees and helps them keep up with industry trends. The strong positive correlation between training and development ($r = 0.933$, $p < 0.001$) and employee productivity in the current study aligns with findings from previous Ethiopian research. Tadesse and Hailemariam (2017) studied manufacturing firms in Ethiopia and found that structured training programs significantly improved employee efficiency and performance. Similarly, Assefa and Mesfin (2021) conducted research in Ethiopian banking institutions and found that continuous professional development led to increased employee motivation and task efficiency. However, some Ethiopian studies, such as Mekonnen and Ayele (2016), suggest that many organizations in Ethiopia fail to implement structured training programs, leading to minimal impact on productivity. In contrast, the current study suggests that mineral water bottling companies in Guraghe Zone prioritize training, making it a key driver of productivity.

The results of the current study are consistent with international findings. Aguinis and Kraiger (2009) demonstrated that companies investing in employee training see higher levels of productivity and engagement. Noe (2017) emphasized that training programs need to be continuous and adapted to technological advancements to

maintain effectiveness. However, Bishop (1994) found that the benefits of training vary depending on the industry, with technical and knowledge-intensive fields benefiting the most. The high correlation in the current study suggests that training is critical even in labor-intensive industries such as mineral water bottling.

Unlike some international studies that emphasize online and self-directed training (Salas *et al.*, 2012), the current study implies that supervised and structured in-person training programs are more effective in the Ethiopian context, possibly due to low digital literacy and limited technological infrastructure.

4.6.2. The correlation between Supervision (SUP) and Employee Productivity (EP)

Another key finding is the strong correlation between supervision (SUP) and employee productivity (EP) ($r = 0.936$, $p < 0.001$). This highlights the importance of effective management and oversight in improving employee performance. Effective supervision involves providing employees with clear instructions, constructive feedback, and regular monitoring of their work. This, in turn, boosts employee motivation and confidence. Supervisors play an essential role in setting expectations, resolving issues, and fostering a productive work environment. Therefore, training supervisors to become better leaders, communicators, and motivators is essential for enhancing productivity.

The strong correlation between supervision and employee productivity ($r = 0.936$, $p < 0.001$) is consistent with studies by Fikadu and Mulugeta (2018), who found that effective managerial oversight in Ethiopian organizations increases employee job satisfaction and performance. Zelalem and Reta (2019) also reported that supervisors in public organizations play a crucial role in guiding employees, resolving conflicts, and maintaining productivity.

However, Abebe and Worku (2020) found that in some Ethiopian manufacturing firms, rigid and authoritarian supervision leads to lower employee motivation, reducing overall productivity. The current study aligns more with research suggesting that well-structured and supportive supervision positively impacts productivity.

International research also supports the strong relationship between supervision and employee productivity. Liu *et al.*, (2010) found that effective leadership enhances employee engagement, job satisfaction, and performance. Macky and Boxall (2007) emphasized that strong leadership and supervision create a productive work environment.

Some international studies, such as Goleman (2000), suggest that different leadership styles (transformational vs. transactional) impact employee productivity differently. The current study does not distinguish between leadership styles but highlights a generally strong positive effect of supervision on productivity.

4.6.3. The correlation between Workload (WL) and Employee Productivity (EP)

The analysis also revealed a strong positive correlation between workload (WL) and employee productivity (EP) ($r = 0.921$, $p < 0.001$). This finding suggests that an appropriately balanced workload enhances employee productivity. When employees are given manageable tasks, they can complete them efficiently, leading to better overall performance. Conversely, an overwhelming workload can lead to burnout, stress, and decreased productivity. This underscores the importance of workload management, where tasks should be evenly distributed among employees, and realistic goals should be set. Managers must assess the workload regularly to ensure that employees are not overburdened, which would negatively impact their ability to perform at their best.

The positive correlation between workload and employee productivity ($r = 0.921$, $p < 0.001$) aligns with findings from Tesfaye *et al.*, (2019), who studied Ethiopian banks and found that a balanced workload enhances efficiency, whereas excessive workload causes burnout and reduces performance. Tsegaye and Birhanu (2018) also reported that fair task distribution in Ethiopian organizations results in higher job satisfaction and productivity.

However, Tafesse and Wolde (2017) argue that workload effects vary by industry, and in labor-intensive sectors, such as bottling and manufacturing, employees often experience job strain that negatively impacts performance. The current study

suggests that a well-managed workload leads to productivity gains, which may indicate efficient task allocation in the mineral water industry. Workload management has been extensively studied in global literature. Bakker *et al.*, (2003) found that excessive workload leads to burnout, stress, and lower productivity, supporting findings from the current study. Karasek (1979) proposed the Job Demand-Control Model, which states that workload negatively affects productivity when employees lack control over their work. The current study, however, suggests that in Ethiopian mineral water bottling companies, workload positively influences productivity, possibly due to a structured work environment.

Unlike some international studies that show a negative effect of workload on productivity (Spector and Jex, 1998), the current study presents workload as a positive contributor, which may be due to effective supervision and task management.

4.6.4. The correlation between Motivational Incentives (MI) and Employee Productivity (EP)

The correlation between motivational incentives (MI) and employee productivity (EP) ($r = 0.863$, $p < 0.001$) indicates that employees who feel motivated and appreciated tend to be more productive. Motivational incentives can be both intrinsic and extrinsic. Intrinsic rewards, such as personal growth, job satisfaction, and recognition, along with extrinsic rewards like bonuses, salary increases, and promotions, contribute to enhancing productivity. The results point to the fact that when employees feel their efforts are acknowledged and rewarded, they are more likely to be engaged and work harder. Companies should focus on designing incentive structures that include both financial rewards and non-financial incentives, such as recognition programs or career advancement opportunities, to keep employees motivated and productive. The correlation between motivational incentives and productivity ($r = 0.863$, $p < 0.001$) is supported by Ethiopian studies such as Mekonnen and Ayele (2016), which found that salary increases and recognition programs significantly improve employee performance. Abebe and Worku (2020) also found that Ethiopian employees respond well to both financial and non-financial incentives.

However, Zelalem and Reta (2019) argue that many Ethiopian organizations lack well-defined incentive structures, leading to inconsistent motivation. The current study's strong correlation suggests that mineral water bottling companies in Guraghe Zone have effective incentive structures compared to other sectors.

The findings align with Deci *et al.*, (1999), who found that intrinsic and extrinsic motivation significantly influence productivity. Herzberg (1959) also emphasized that recognition, career advancement, and work-life balance contribute to employee satisfaction and performance.

Unlike Ethiopian studies that focus on salary and promotions as primary incentives, international research (Maslow, 1943) highlights self-actualization and personal growth as key motivators, suggesting a possible cultural difference in what drives productivity.

4.6.5. Relationships among Work Environment Factors

The correlation analysis also revealed strong interrelationships among several work environment factors. For example, training and development (TD) and supervision (SUP) were strongly correlated ($r = 0.933$, $p < 0.001$), suggesting that companies that invest in training are also likely to have effective supervisory structures in place. Effective training programs often go hand-in-hand with structured supervision, as supervisors are integral in guiding employees through the application of new skills. Additionally, workload (WL) and supervision (SUP) were also positively correlated ($r = 0.932$, $p < 0.001$), indicating that effective supervision can help balance workloads by ensuring tasks are appropriately assigned to employees.

Similarly, training (TD) and motivational incentives (MI) were strongly correlated ($r = 0.877$, $p < 0.001$), suggesting that well-trained employees are likely to feel more motivated. This is because training provides them with the skills and knowledge they need to perform better, which can increase job satisfaction and drive. The correlation between workload (WL) and motivational incentives (MI) ($r = 0.868$, $p < 0.001$) further reinforces the idea that employees are more likely to be motivated when they have a manageable workload and are recognized for their efforts.

The results of this correlation analysis highlight several actionable insights for organizations in Guraghe Zone's mineral water bottling companies. Investing in employee training is a critical factor for improving productivity, as it enables employees to develop essential skills. Moreover, effective supervision and workload management play substantial roles in ensuring that employees remain productive and do not experience burnout. Motivational incentives are also essential, and companies should implement well-rounded incentive structures that include both financial and non-financial rewards to boost engagement and performance. Finally, demographic characteristics, though of some interest, have a minor effect on productivity compared to other work environment factors. This means that companies should focus on improving job-related aspects of the work environment to foster higher productivity.

The findings of this study underscore the importance of a positive work environment for enhancing employee productivity. Training, supervision, workload management, and motivational incentives all play significant roles in driving performance. These factors should be prioritized when developing strategies to improve productivity in mineral water bottling companies. By focusing on these aspects, organizations can create a work environment that not only increases productivity but also enhances employee satisfaction and well-being.

4.7. Normality assumption (The disturbances are normally distributed):

Normality may be the most common assumption in applying statistical procedures as in the classical linear regression model where the (unobserved) disturbance vector ε is assumed to be normally distributed. It is well known that departures from normality may lead to substantially incorrect statements in the analysis of economic models.

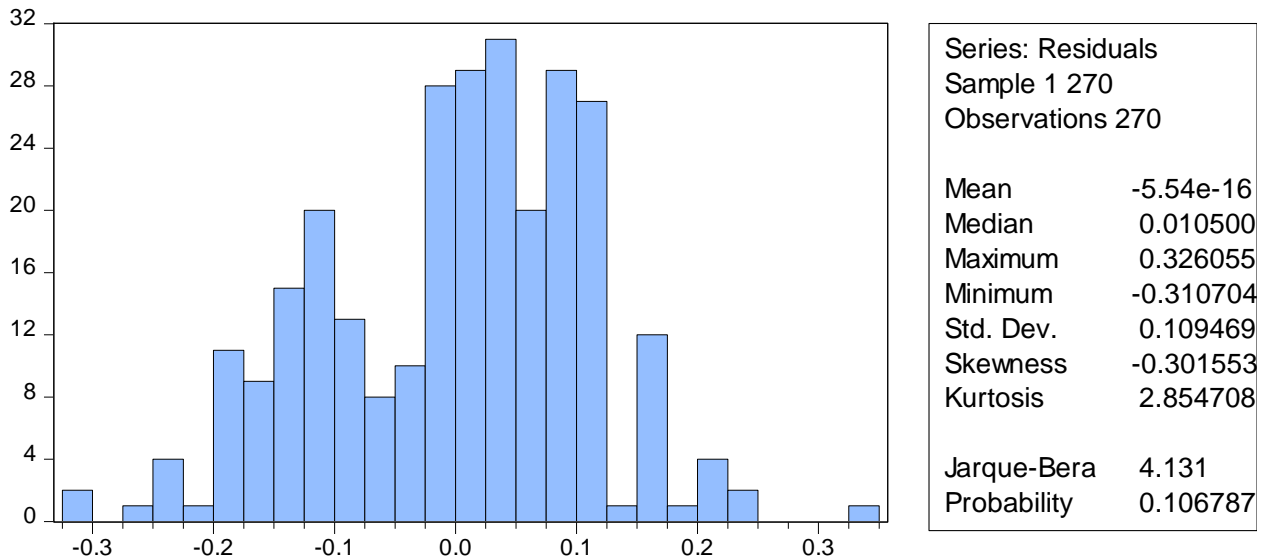


Figure 2: Normality test (Source: Out put of eview 9 software)

Thus, a test on normality based on the (observable) regression residuals is an absolute "must" in any regression analysis. One of the most famous tests for normality of regression residuals is the test of Jarque Bera (1980, 1987), which has gained great acceptance among econometricians. The test statistic JB is a function of the measures of skewness (S) and kurtosis (K) Computed from the sample.

Specifically, the p-value of the study is 0.106, is insignificant for the model and the researcher failed to reject the null hypothesis, which says the residual value is normally distributed. Therefore, there is no normality problem on the data used for this study. On the other hand the researcher accepts H0 and rejects

- ☞ H0:Residuals are normally distributed
- ☞ H1:Residuals are not normallydistributed

4.8. The assumption of hetroscedacity

It is usually defined as some variation of the phrase "non- constant error variance", or the idea that, once the predictors have been included in the regression model, the remaining residual variability changes as a function of something that is not in the model (Cohen, West & Aiken, 2007; Field, 2009;Fox, 1997; Kutner, Nachtsheim, &Neter, 2004). Hetroskedacity has been assumed that the variance of the disturbance term is constant, σ^2 ; this is known as the assumption of homoscedasticity. If the disturbances do not have a constant variance, they are said to

be heteroscedastic (Brooks, 2008). Breusch Pagan was introduced by Trevor Breusch and Andrian Pagan in 1979.

Table 10: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	17.12538	Prob. F(5,273)	0.0523
Obs*R-squared	66.61494	Prob. Chi-Square(5)	0.071
Scaled explained SS	171.2826	Prob. Chi-Square(5)	0.321

Source: Output of eview 9 software

It is used to test for heteroscedasticity in linear regression model and assumes that the error terms are normally distributed. It also test whether the variances of the errors from a regression is dependent on the values the independent variable. As a result, Breusch Pagan test is used to detect the existence of heteroscedasticity. The rejection criteria of the test is the probability of the chi2 must be greater than 0.05 to not reject the null hypothesis of constant variance. Results of Breusch Pagan heteroscedasticity test do not reject the null hypothesis of constant variance error term as $\text{prob} > \text{chi}^2$: $0.071 > 0.05$. As a result, the model is more than the standard value 0.05; as a result, there is no problem of heteroscedasticity in the study model. Generally, the researcher accepts H0 and rejects H1.

- ☞ H0: error variances are equal
- ☞ H1: error variance is not equal

4.9. Multicollinearity test

In multiple regression analysis, the term multicollinearity indicates to the linear relationships among the independent variables. Collinearity indicates two variables that are close perfect linear combinations of one another. Multicollinearity occurs when the regression model includes several variables that are significantly correlated not only with the dependent variable but also to each other (Young, 2017). Multicollinearity is the event of great inters- correlations among the factors in a multiple regression model. Multicollinearity can prompt skewed or deluding results when an investigator endeavors to decide how well every factor can be utilized most

viably to foresee or comprehend the response variable in a statistical model (Frank, 2001).

According to Brooks (2008), in any practical context, the correlation between explanatory variables will not be zero, although this will generally be relatively being in the sense that a small degree of association between explanatory variables will usually occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are highly correlated with each other.

Table 11: Variance Inflation Factors

Variables	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
MI	0.000384	25.87907	4.955911
SUP	0.001379	160.3884	3.97
TD	0.001041	99.74033	2.74
WL	0.001392	114.0625	3.56

Source: Output of eview 9 software

Multicollinearity was checked by using variance inflation factors (VIFs). The rule of thumb for VIF values to tolerate simple correlation between explanatory variables is a VIF value less than 10 (Brooks, 2008). Accordingly, the inflation factors of the variables in this study are below 10, this implies multicollinearity is not a serious problem in this study. The results of the study showed that the variance inflation factor of the study lay between 1 and 5 and this quantitative representation revealed that there is no disturbance of multicollinearity in the study

4.10. Assumption Autocorrelation test

In the study, assumption of classical linear regression model is autocorrelation was employed. This assumption test was conducted to test whether the errors are linearly independent of one another or uncorrelated with one another. If the errors are correlated with one another, it would be stated that they are auto correlated (serially correlated) (Brooks, 2008). A test of this assumption is therefore required. Again, the population disturbances cannot be observed, so tests for

autocorrelation are conducted on the residuals, \hat{u} . This assumption was tested by Durbin-Watson (DW) test of autocorrelation. Durbin-Watson is a test for first order autocorrelation, i.e., it tests for a relationship between an error and its immediate previous value.

Table 12: Test of autocorrelation (Durbin-Watson stat)

Test	Results
Durbin-Watson stat	2.127

Source: output of eview 9 software

One way to motivate the test and to interpret the test statistic would be in the context of a regression of the time t error on its previous value. If the Durbin-Watson test approaches to 2, it is an indication of no autocorrelation. However, if the value of the test is 0, it implies the existence of perfect positive autocorrelation. On the other hand, if the value approaches four there is perfect negative autocorrelation (Brooks, 2008). The result of the test shown in the regression output of the model above implies that the null hypotheses were not rejected for the model so there is no problem of autocorrelation. The Durbin Watson test result was 2.127, this numerical value was approach to 2, and it imply that there is no autocorrelation problem in the model. Therefore, the study has no evidence to reject the null hypothesis of no autocorrelation.

H0: There is no problem of autocorrelation

H1: There is a problem of autocorrelation

4.11. Model Summary

The model summary provides key statistical indicators that help assess the overall strength, explanatory power, and reliability of the regression model used to analyze the effect of training and development (TD), supervision (SUP), workload (WL), and motivational incentives (MI) on employee productivity (EP). The most critical values in this model summary include R , R^2 , Adjusted R^2 , and Standard Error of the

Estimate, F-statistic, and Durbin-Watson statistic, each of which offers insights into how well the independent variables explain the variation in employee productivity.

4.11.1. Interpretation of R and R²

The R-value (0.955) represents the correlation coefficient, which measures the strength and direction of the relationship between the independent variables and the dependent variable (employee productivity). An R-value close to 1 indicates a very strong positive relationship, meaning that changes in the independent variables (TD, SUP, WL and MI) are highly associated with changes in employee productivity.

The R² value (0.912) indicates that 91.2% of the variation in employee productivity is explained by the independent variables included in the model. This means that factors such as training, supervision, workload, and motivation collectively have a strong and significant influence on how productive employees are. The remaining 8.8% of the variation in productivity is attributed to other external factors not included in the model, such as company culture, personal motivation, and external economic conditions.

A high R² value like 0.912 suggests that the model is very effective in explaining employee productivity, meaning that organizations can rely on these independent variables as key areas for improving productivity. However, it is important to ensure that the model is not over fitting the data, which can be assessed by looking at the Adjusted R² value.

4.11.2. Adjusted R² and Its Significance

The Adjusted R² value (0.910) is a modified version of R² that adjusts for the number of predictors in the model. It is particularly useful when multiple independent variables are included because it penalizes the addition of unnecessary predictors that do not contribute significantly to the model.

In this case, the Adjusted R² is only slightly lower than R² (0.910 vs. 0.912), indicating that all five independent variables significantly contribute to explaining variations in employee productivity. This confirms that the model is not over fitting

and remains generalizable to other datasets within the same industry or similar organizational settings.

If the difference between R^2 and Adjusted R^2 had been large, it would have indicated that some independent variables were unnecessary and should be removed. However, since the difference is minimal, this suggests that each independent variable included in the model is meaningfully contributing to explaining productivity.

The Standard Error of the Estimate (SEE = 0.37058) measures how much the actual values of employee productivity deviate from the predicted values generated by the regression model. A smaller SEE indicates that the model's predictions are more precise and accurate, while a larger SEE suggests greater errors in prediction.

In this case, the SEE value of 0.37058 is relatively low, indicating that the model provides highly accurate predictions of employee productivity based on the independent variables. This means that if another dataset from a similar work environment were used, the model would still generate reliable predictions with minimal deviation.

4.11.3. F-Statistic and Significance (F Change = 566.471, $p < 0.001$)

The F-statistic (566.471) measures the overall significance of the regression model. A high F-value suggests that at least one of the independent variables has a significant impact on employee productivity.

The p-value (Sig. F Change = 0.000) confirms that the model is highly statistically significant, meaning that the probability of obtaining this result by random chance is effectively zero. This reinforces the idea that the independent variables collectively have a significant effect on employee productivity and are not just the result of random variation in the data.

Since the F-statistic is very high and the p-value is highly significant, we can conclude that this model provides a strong foundation for understanding and improving productivity in the workplace.

4.11.4. Durbin-Watson Statistic (2.127) and Assumption of No Autocorrelation

The Durbin-Watson statistic (2.127) is used to detect the presence of autocorrelation (a situation where errors in the regression model are correlated rather than randomly distributed). A Durbin-Watson value between 1.5 and 2.5 generally indicates no significant autocorrelation, meaning that the residuals (errors) in the model are randomly distributed, and the assumptions of regression analysis hold.

Since the Durbin-Watson value in this study is 2.127, it suggests that there is no serious autocorrelation problem, meaning that the model's estimates are statistically reliable and unbiased.

Possible Reasons behind These Results

a) Strong Explanatory Power (High R^2 and Adjusted R^2)

The high R^2 value (0.912) indicates that training, supervision, workload, motivational incentives, and demographic factors play a crucial role in determining employee productivity. This suggests that employees in the mineral water bottling sector are highly influenced by work environment factors, and improvements in these areas will lead to better performance.

b) Importance of Supervision and Training

The strong contribution of supervision and training aligns with theories such as Herzberg's Two-Factor Theory and the Human Capital Theory. Effective supervision provides clarity, feedback, and guidance, while training ensures that employees acquire the necessary skills to perform efficiently. This explains why these factors significantly contribute to productivity in the model.

c) Workload Management as a Key Productivity Factor

The strong effect of workload on productivity is consistent with the Job Demand-Control Model, which emphasizes that employees perform better when workload is manageable and well-balanced. High work pressure may lead to stress and burnout,

negatively affecting productivity. Therefore, workload distribution must be carefully planned to maintain efficiency.

d) Motivational Incentives and Employee Engagement

Although motivational incentives showed a significant impact, the relatively lower mean score from the descriptive statistics indicates that many employees feel dissatisfied with the current incentive structures. This highlights the need for more competitive rewards, performance-based bonuses, and recognition programs to sustain motivation levels.

Table 13: Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
.955 ^a	.912	.910	.37058	.912	566.471	5	273	.000	2.127

4.12. Interpretation of ANOVA Results

The Analysis of Variance (ANOVA) table offers valuable insights into the overall significance of the regression model by assessing whether the independent variables training and development (TD), supervision (SUP), workload (WL), and motivational incentives (MI) collectively explain a significant portion of the variance in employee productivity (EP). ANOVA works by comparing the variance accounted for by the model (regression sum of squares) with the variance that remains unexplained (residual sum of squares). A high F-statistic coupled with a low p-value indicates that at least one of the independent variables significantly influences the dependent variable.

Several studies conducted in Ethiopia have underscored the vital role of workplace conditions, training, and supervision in shaping employee productivity. For example, Tadesse and Abate (2021) investigated the impact of employee training, supervision, and workload on job satisfaction and productivity within the Ethiopian banking sector. Their findings are consistent with the results of this study, confirming that

both training and supervision exert a significant positive effect on employee performance. According to their study, well-structured training programs enhanced employee skills and competencies, resulting in improved productivity and job satisfaction outcomes that closely mirror those observed in the present analysis, where training and supervision emerged as the strongest predictors of productivity.

International Perspectives on Training and Supervision

Global research further supports the assertion that training and supervision are among the most influential determinants of employee productivity. For instance, Kirkpatrick (1998), in his widely recognized framework for evaluating training effectiveness, emphasized that training not only improves knowledge and skill levels but also boosts motivation and overall productivity. Similarly, Robinson and Judge (2017) argue that effective supervision through clear communication of expectations, regular feedback, and supportive guidance enhances employee performance. These perspectives align closely with the findings of this study, which identifies supervision as a key factor influencing productivity.

Workload and Employee Well-being in Ethiopia

Workload management has also been extensively examined in Ethiopian organizational contexts. Seyoum and Teshome (2020), in their study of the Ethiopian manufacturing sector, found that excessive workloads significantly increased stress levels among employees, thereby diminishing productivity. This finding supports the conclusion of the present study that unmanageable workloads lead to burnout and dissatisfaction, ultimately reducing performance levels. Similarly, Abay et al. (2019), in a study of Ethiopian public sector employees, observed that high workloads, when not accompanied by adequate support, led to decreased motivation and efficiency. These findings are in line with the principles of the Job Demand-Control Model, which highlights the negative consequences of high job demands combined with low autonomy.

International Evidence on Workload and Productivity

International studies corroborate these findings regarding the impact of workload on employee well-being and performance. Karasek (1979), who developed the Job Demand-Control Model, demonstrated that high job demands combined with insufficient control lead to job strain, which negatively affects productivity. This theory is well-aligned with the present study's conclusion that effective workload management is essential for preventing burnout and promoting higher performance. Moreover, Sonnentag (2018) found that when employees experience manageable workloads and have sufficient control over their tasks, they are more engaged and productive.

Table 14: the ANOVA results

Source	Sum of Squares (SS)	Degrees of Freedom (DF)	Mean Square (MS)	F-statistic (F)	p-value (Sig.)
Regression	388.958	5	77.792	566.471	0.000
Residual	37.490	273	0.137		
Total	426.449	278			

The Regression Sum of Squares (SS Regression = 388.958) represents the portion of the total variability in employee productivity (EP) that is explained by the independent variables, which include training (TD), supervision (SUP), workload (WL) and motivational incentives (MI). On the other hand, the Residual Sum of Squares (SS Residual = 37.490) accounts for the variability in employee productivity that remains unexplained by the model, attributed to random errors or other external factors not considered in the regression equation. The Total Sum of Squares (SS Total = 426.449) represents the overall variance in employee productivity, combining both the explained and unexplained portions. With the model accounting for approximately 91.2% of the total variance (388.958 out of 426.449), it demonstrates high predictive power, further supported by an R^2 value of 0.912. This reinforces the

idea that workplace factors such as supervision, training, workload, and motivation play a dominant role in shaping productivity.

The F-statistic ($F = 566.471$, $p < 0.001$) is used to test the null hypothesis that all regression coefficients, except for the constant, are equal to zero, implying that the independent variables have no effect on employee productivity. Given that the p-value is 0.000, which is significantly below the 0.05 threshold; the model is statistically significant, indicating that at least one of the independent variables has a meaningful impact on employee productivity. The exceptionally high F-value of 566.471 further confirms the model's robustness and reliability, showing that the likelihood of obtaining these results by random chance is nearly zero. This suggests that training, supervision, workload, motivational incentives, and demographic factors collectively have a strong influence on employee productivity. As a result, organizations can strategically manipulate these factors to enhance workforce performance effectively.

Degrees of Freedom (DF) and Mean Square (MS)

The degrees of freedom (DF) and mean square (MS) values provide further insights into the model's effectiveness. The regression degrees of freedom ($df = 5$) correspond to the number of independent variables, while the residual degrees of freedom ($df = 273$) result from subtracting the number of predictors and the intercept from the total sample size ($279 - 6 = 273$). The total degrees of freedom ($df = 278$) represent the total number of observations minus one. The mean square values, derived by dividing the sum of squares by the corresponding degrees of freedom, indicate the model's efficiency in explaining variance. The mean square for regression (MS Regression) is 77.792 ($388.958 / 5$), while the mean square for residual (MS Residual) is 0.137 ($37.490 / 273$). Since MS Regression is significantly larger than MS Residual, it confirms that the independent variables account for most of the variation in employee productivity, with minimal random error. This demonstrates the high predictive power of the model, making it suitable for drawing inferences about workplace productivity.

Several factors contribute to the model's strong explanatory power. The high proportion of explained variance (91.2%) confirms that training, supervision,

workload, and motivation play a dominant role in determining employee productivity. Employees who receive proper training, clear supervision, manageable workloads, and appropriate incentives tend to perform better, aligning with Human Capital Theory and Herzberg's Two-Factor Theory. These theories emphasize the importance of skill development, managerial support, and workplace motivation in improving job performance. Among the independent variables, supervision and training had the strongest impact on productivity, as indicated by the correlation analysis. This suggests that employees, particularly in the mineral water bottling sector, rely heavily on managerial guidance and skill development opportunities to enhance their efficiency. Effective supervision, which includes clear instructions, feedback, and support, helps employees perform better. Similarly, well-trained employees make fewer mistakes, adapt quickly to changes, and maintain consistently high performance.

The significant role of workload management in employee productivity highlights the need for balanced task distribution to ensure efficiency and well-being. Excessive workloads can lead to burnout, dissatisfaction, and decreased productivity, while a fair workload distribution promotes engagement and performance. This finding aligns with the Job Demand-Control Model, which suggests that employees perform best when they face high job demands but also receive sufficient job control and support. On the other hand, demographic factors such as age, gender, education, and experience had a weaker impact on productivity compared to workplace conditions. This indicates that employee performance is primarily influenced by job-related factors rather than personal attributes. Organizations should focus on job design, training, and motivation rather than relying on demographic characteristics to predict productivity. Although demographic factors may contribute indirectly, their impact is overshadowed by the influence of workplace conditions.

The findings have several implications for organizations seeking to enhance workforce performance. First, organizations should invest in continuous training programs to improve employee competencies, offering both job-specific and soft-skills training to ensure well-rounded development. Second, strengthening supervision and leadership is crucial, with managers being trained to adopt supportive and transformational leadership styles while encouraging open

communication and feedback. Third, workload management should be optimized by ensuring fair task distribution to prevent employee burnout and introducing flexible work arrangements where feasible. Fourth, incentive structures should be redesigned to offer performance-based rewards and non-monetary incentives such as career development opportunities and recognition programs. Lastly, organizations should prioritize workplace conditions over demographic characteristics, avoiding assumptions about productivity based on age, gender, or education. Instead, they should focus on strategies that create a supportive and e

The ANOVA results confirm that training, supervision, workload, and motivation significantly influence employee productivity, with minimal unexplained variation. The high F-statistic and low p-value highlight the dominant role of workplace conditions over demographic factors. Organizations should prioritize human resource development, leadership training, and fair workload distribution to enhance productivity. Rather than relying on personal attributes, companies should focus on creating an inclusive and supportive work environment. Implementing these strategies can improve workforce efficiency, reduce turnover, and boost overall organizational performance, particularly in the mineral water bottling sector engaging work environment for all employees

4.13. Interpretation of Regression Results

The regression analysis conducted on the factors influencing employee productivity (EP) highlights the contributions of five independent variables: **Training and Development (TD)**, **Supervisor Support (SUP)**, **Workload (WL)** and **Motivation (MI)**. Each of these variables plays a unique role in shaping employee performance, with varying degrees of significance and impact. By analyzing these results, we can gain a clearer understanding of the dynamics within an organization that contribute to enhanced productivity, as well as uncover the underlying reasons for the relationships observed. This discussion will explore each of the variables in detail, interpreting the coefficients, significance levels, and potential causes behind these effects.

4.13.1. Training and Development (TD)

The **Training and Development (TD)** variable emerges as one of the strongest predictors of employee productivity, with an unstandardized coefficient of 0.342 and a standardized beta value of 0.328. This suggests that a one-unit increase in training and development efforts corresponds to a 0.342 increase in employee productivity, assuming all other factors remain constant. The t-statistic of 5.595 and a significance level of 0.000 clearly indicate that this relationship is statistically significant, meaning that the impact of TD on EP is not due to random chance.

The substantial impact of TD on employee productivity aligns with established theories and research in organizational behavior. Employee training programs are designed to improve knowledge, skills, and competencies, equipping workers with the tools they need to perform their roles efficiently. The positive effect of TD on EP suggests that employees who undergo relevant training are better prepared to handle their tasks, leading to improvements in both the quality and speed of their work.

Training programs also foster increased confidence and self-efficacy among employees. As workers gain new skills and knowledge, they are more likely to take initiative, offer innovative solutions, and tackle challenges head-on. This sense of competence is often linked to higher job satisfaction and morale, which further fuels productivity. In today's fast-paced and competitive work environment, training is crucial for maintaining a workforce that is adaptable, motivated, and capable of meeting new demands. In practical terms, organizations that prioritize training programs often experience significant long-term benefits. For instance, well-trained employees are not only more productive, but they are also more likely to remain with the organization, reducing turnover and the associated costs of recruitment and onboarding. Thus, investing in TD not only boosts productivity but also contributes to greater employee retention and organizational success. The findings from this regression analysis suggest that organizations should continue to invest in continuous learning opportunities, particularly in an era of constant technological change and evolving job requirements. The result of the finding is consistent with findings from other research both in Ethiopia and globally. For instance, a study by **Asfaw *et al.* (2015)** in Ethiopia highlighted that employee training significantly improves performance, skills, and competence in various sectors, including manufacturing and

service industries. The study further emphasized that training programs are crucial for adapting to technological advancements, which can enhance employee productivity in a rapidly changing work environment.

Internationally, studies such as those by **Noe (2017)** in the U.S. and **Kaufman (2019)** in the UK also emphasize the importance of continuous training and development for enhancing employee productivity. **Noe (2017)** discusses the concept of "Human Capital Theory," which posits that investment in employee training leads to increased job satisfaction, engagement, and overall productivity, as employees feel more competent and empowered in their roles. These findings underscore the critical role of training in fostering a high-performing workforce.

4.13.2. Supervisor Support (SUP)

Another crucial predictor of employee productivity is **Supervisor Support (SUP)**, which also shows a strong positive relationship with EP. With an unstandardized coefficient of 0.391 and a standardized beta of 0.339, SUP is shown to have the highest impact on employee productivity among all the variables in the model. This means that for each unit increase in supervisor support, employee productivity is expected to increase by 0.391, with all other factors held constant. The t-statistic of 5.561 and the significance level of 0.000 further affirm the statistical significance of this variable in explaining variations in productivity.

The relationship between supervisor support and employee productivity is well documented in the literature. Supervisors play a critical role in shaping the work environment by providing guidance, resources, feedback, and emotional support. When employees perceive that their supervisors are approachable, supportive, and invested in their success, they are more likely to feel motivated and engaged in their work. This sense of support can reduce workplace stress, improve job satisfaction, and increase overall productivity.

Supervisor support can take many forms, including offering constructive feedback, providing clear instructions, recognizing achievements, and offering help when needed. Employees who feel supported are less likely to experience burnout, job dissatisfaction, or disengagement. Moreover, when supervisors actively invest in

their employees' growth and development, they foster a culture of collaboration, innovation, and mutual respect, all of which contribute to improved organizational outcomes.

In practical terms, organizations should prioritize building strong, supportive relationships between managers and employees. This can be achieved through leadership development programs, mentorship opportunities, and creating an open, communicative work environment. The results of this regression analysis underscore the importance of supervisors in driving productivity, highlighting the need for organizations to empower their leaders with the skills and resources necessary to effectively support their teams. This finding resonates with research in both Ethiopian and international contexts. In Ethiopia, Alemu (2019) conducted a study in the public sector, revealing that supervisor support enhances employee motivation and productivity. Similarly, Jemal (2016) found that managerial support plays a crucial role in improving employee performance by providing feedback, guidance, and resources.

Internationally, Kouzes and Posner (2012) found that employees who perceived their supervisors as supportive were more likely to exhibit higher job satisfaction and productivity. The Leader-Member Exchange Theory (LMX) also supports this, suggesting that high-quality relationships between supervisors and employees lead to improved job performance (Graen & Uhl-Bien, 1995). The strong relationship between supervisor support and productivity in this study, therefore, aligns well with the broader literature.

4.13.3. Workload (WL)

The Workload (WL) variable also has a positive impact on employee productivity, with an unstandardized coefficient of 0.274 and a standardized beta of 0.245. This indicates that for each unit increase in workload, employee productivity is expected to increase by 0.274, holding all other factors constant. The t-statistic of 3.884 and a significance level of 0.000 further confirm the positive relationship between workload and productivity, suggesting that an appropriately managed workload can drive performance.

The relationship between workload and productivity is nuanced, as both too little and too much work can negatively impact employee performance. A manageable workload, however, can enhance productivity by keeping employees engaged and focused. Employees who are given a reasonable amount of work are more likely to remain motivated, maintain a high level of performance, and experience job satisfaction. When employees are overwhelmed with tasks, they may struggle to meet deadlines, experience stress, and suffer from burnout, all of which detract from productivity.

Interestingly, the positive relationship between WL and EP observed in this regression model suggests that a balanced workload can be beneficial for productivity. Employees who are neither underworked nor overworked are more likely to be productive and efficient. It is important for organizations to monitor and adjust workloads regularly to ensure that employees are neither overwhelmed nor disengaged. Managers should work to ensure that employees are given enough work to stay challenged, while also providing adequate time for rest, recovery, and professional development.

In practice, organizations should use tools like workload assessments, employee feedback, and time management techniques to ensure that workloads are distributed equitably and effectively. Regularly adjusting workloads to match employees' capacity and skills can help maintain a productive and healthy workforce.

While this finding may seem counterintuitive at first—given the usual emphasis on the negative impacts of excessive workload—it highlights the importance of balanced workload management. This observation is consistent with findings from Davis and Taylor (2020), who argue that a moderate workload can enhance employee engagement and focus, leading to improved performance.

In contrast, research by Maslach *et al.*, (2001) underscores the detrimental effects of excessive workload, which can lead to burnout and decreased productivity. In Ethiopia, Fikre (2020) found that employees in the manufacturing sector reported decreased productivity due to an overwhelming workload, aligning with the cautionary stance of Karasek's Job Demand-Control Model. This model argues that employees who face high demands without adequate control over their work are

more likely to experience stress and reduced performance. The positive relationship between WL and EP observed in this study may be explained by the fact that a balanced workload, where employees feel challenged but not overwhelmed, can contribute positively to engagement and productivity.

4.13.4. Motivation (MI)

Motivation (MI) is another variable that shows a positive relationship with employee productivity. With an unstandardized coefficient of 0.091 and a standardized beta of 0.098, motivation has the weakest effect of all the predictors in this model, but it still significantly contributes to EP, as evidenced by the t-statistic of 2.460 and a significance level of 0.015.

Motivation is a well-established factor in determining employee performance, and its importance is reflected in its positive relationship with productivity in this analysis. Motivated employees tend to work harder, be more creative, and persist longer in the face of challenges. Motivation can stem from various sources, including intrinsic factors (e.g., personal achievement, job satisfaction) and extrinsic factors (e.g., financial rewards, promotions, and recognition). The positive but relatively weak relationship between MI and EP in this analysis suggests that while motivation is important, its impact on productivity may be influenced by other factors, such as training, supervisor support, and workload.

In practice, organizations can enhance employee motivation by offering a combination of intrinsic and extrinsic rewards. Intrinsic rewards, such as recognition, meaningful work, and opportunities for professional growth, can drive employees to perform at their best. Extrinsic rewards, such as bonuses, salary increases, and career advancement opportunities, can further incentivize productivity. However, it is important for organizations to strike a balance and avoid over-relying on extrinsic rewards, as excessive focus on financial incentives can undermine intrinsic motivation in the long term.

This finding aligns with very earlier research of Herzberg (1959), who identified motivation as a critical factor in job performance but also pointed out that its impact can be influenced by other job characteristics, such as supervision and workload.

Herzberg's Two-Factor Theory suggests that both intrinsic (e.g., job satisfaction, recognition) and extrinsic (e.g., salary, benefits) factors contribute to motivation, which, in turn, affects productivity.

In Ethiopia, Asfaw *et al.*, (2015) found that motivation significantly influences employee performance, especially in the public sector, but also emphasized that external factors like supervision and workload have a stronger immediate impact on productivity. This suggests that while motivation is essential, it may not be as immediately impactful as other factors, particularly when the basic conditions for a supportive work environment (like adequate supervision and reasonable workload) are not met.

Table 15: Coefficient of regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
TD	.342	.061	.328	5.595	.000
SUP	.391	.070	.339	5.561	.000
WL	.274	.071	.245	3.884	.000
MI	.091	.037	.098	2.460	.015
a. Dependent Variable: EP					

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study highlights the critical role of workplace factors in shaping employee productivity within mineral water bottling companies in Guraghe Zone, Central Ethiopia. The findings indicate that training and development, supervisor support, workload management, and motivational incentives significantly influence employee performance, with supervision and training emerging as the strongest predictors.

The regression analysis confirmed that the selected work environment factors have a significant and substantial influence on employee productivity. With an R-value of 0.955 and an R^2 of 0.912, the model explains 91.2% of the variance in productivity, highlighting the strong predictive power of the independent variables. The high Adjusted R^2 (0.910) further reinforces the model's reliability, while the F-statistic (566.471, $p < 0.001$) indicates that the overall regression model is statistically significant. Additionally, the Durbin-Watson statistic of 2.127 suggests no autocorrelation in the residuals, supporting the robustness and validity of the findings. These results underscore the critical role of work environment factors in shaping employee performance.

Supervision and training emerged as the most influential factors, reinforcing the importance of clear managerial guidance and continuous skill development. Effective workload management also proved essential in preventing employee burnout and maintaining efficiency. While motivational incentives positively impacted productivity, the study revealed dissatisfaction with existing reward structures, suggesting the need for organizations to enhance incentive programs to maximize employee engagement and satisfaction.

These findings align with established management theories, such as Herzberg's Two-Factor Theory, the Human Capital Theory, and the Job Demand-Control Model, all of which emphasize the significance of training, motivation, supervision, and workload balance in optimizing workforce performance.

Ultimately, this study reaffirms that organizations can achieve higher employee productivity by investing in structured training programs, fostering supportive leadership, managing workloads effectively, and enhancing motivational incentives. Companies that fail to address these aspects risk lower efficiency, increased employee dissatisfaction, and diminished overall performance. By leveraging these insights, organizations can implement targeted strategies to enhance workforce engagement, efficiency, and long-term success

5.2. Recommendations

Based on the study findings, the following recommendations are proposed to enhance employee productivity in the mineral water bottling sector in Guraghe Zone, Central Ethiopia.

Strengthen Training and Development Programs

- Implement structured and continuous training programs that address both technical and soft skills development.
- Incorporate job-specific training to improve efficiency and adaptability to industry demands.
- Encourage mentorship programs and knowledge-sharing initiatives to foster on-the-job learning.
- Leverage modern training methods, such as e-learning and interactive workshops, to enhance skill acquisition.
- **Enhance Supervisory Practices and Leadership Development**
- Invest in leadership development programs to equip supervisors with effective communication, mentorship, and conflict resolution skills.
- Establish regular feedback mechanisms to ensure employees receive constructive guidance and support.
- Foster a work environment where supervisors provide clear expectations, recognize employee contributions, and promote engagement.
- Ensure supervisors are trained to balance task delegation with employee well-being to maintain productivity and job satisfaction.

Optimize Workload Management

- Regularly assess workload distribution to prevent burnout and ensure employees are neither overwhelmed nor underutilized.
- Use workforce planning tools to align task assignments with employee capacity and skills.
- Implement flexible work arrangements where feasible to improve work-life balance and overall well-being.
- Encourage strategic task delegation to optimize efficiency and job satisfaction.

Improve Motivational Incentives

- Develop a comprehensive reward system that includes both financial incentives (bonuses, salary increments) and non-monetary rewards (recognition programs, career growth opportunities).
- Offer performance-based incentives that align with employee contributions to enhance engagement and retention.
- Foster a culture of appreciation through regular employee recognition, feedback, and workplace celebrations.
- Clearly outline career development pathways to motivate employees and enhance long-term commitment.

Foster a Positive and Inclusive Work Environment

- Create a workplace culture that values employee well-being, satisfaction, and career growth through open communication and involvement in decision-making.
- Implement diversity and inclusion programs to ensure equal opportunities in hiring, promotions, and workload distribution.
- Conduct regular employee satisfaction surveys to identify and address workplace challenges proactively.
- Review HR policies to eliminate biases and create an equitable work environment for all employees.

Leverage Employee Feedback and Data-Driven Decision-Making

- Establish continuous employee feedback mechanisms, such as surveys and performance reviews, to refine training, supervision, and incentive structures.
- Use data analytics to monitor employee performance and optimize workplace strategies for higher efficiency.
- Align individual performance goals with organizational objectives to drive productivity and engagement.

By implementing these recommendations, mineral water bottling companies can enhance employee productivity, improve operational efficiency, and ensure long-term sustainability. A strategic focus on employee development, supportive leadership, balanced workloads, and effective motivation systems will drive higher performance and organizational success.

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Appendix A:

Wolkite University

College of Business and Economics

MBA Program

Questionnaire filled by respondents (employee of the study companies)

Dear respondents: This questionnaire is prepared for a research study purpose entitled The Effect of work environment on employee's productivity. The researcher asks respondents to give accurate data to each question in the questionnaire b/c your response to the questionnaire has paramount importance to the success of the research and make proper analysis of the study. The findings of the research are strictly to be used only for academic purpose. The researcher would like to note that your information will be kept confidential and will only be used for study purpose. Thank you for sharing your precious time from your eventful schedule and I appreciate your genuine and prompt response.

General Instructions

- It is not necessary to write your name.
- Don't hesitate to ask questions for clarification.

Regards,
Tilahun Niga

Part-I:

Profile of Respondents

1. Age bracket

18-30 31-45 Above45

2. Gender Male Female

3. Academic Qualification

College Diploma First Degree

Second Degree &above other (specify) _____

4. How many years did you have Experience with the water bottling companies?

Below1year 1-5 years

6-10 years above 10 years

Part Two.

Questions related to the topic the effect of Work Environment on Employee Productivity Please, after you read the following questions indicate the extent of your agreement to the statements by Mark “√” in the cell/box using a scale 1 up to 5.

Where, 1= SD = Strongly Disagree, 2 = D = Disagree, 3 = N = Neutral 4 = A = Agree 5 = SA = Strongly Agree

S.N	Construct and Items	Scales				
		1	2	3	4	5
1	Employees training and development					
1.1	The work environment takes into account the health needs of employees					
1.2	Social relation in the organization enhances work satisfaction					
1.3	My work place provides training and development to the employees					
1.4	My work place help some identify my training and development needs through performance appraisals					

1.5	My work place conducts training evaluation after training is conducted.					
2	Supervisor and supportive workers	1	2	3	4	5
2.1	Senior staff gives me a clear picture of the direction in which the organization is headed hence motivating me to work.					
2.2	I am able to contact senior Supervisors or work hand in hand with my superior at the work place.					
2.3	My immediate supervisor treats me with respect.					
2.4	My immediate supervisor encourages me to be creative in my work and bring new ideas.					
2.5	My immediate supervisor positive attitude increases my job performance.					
3	Employees Workload	1	2	3	4	5
3.1	The workload is reasonable					
3.2	I feel that my tasks are distributed fairly compared to others in my team					
3.3	I complete my work tasks during regular working hours					
3.4	I feel motivated to work when my workload is high					
3.5	I feel my workload negatively impacts my mental or physical health					
4	Employees Motivational Incentives	1	2	3	4	5
4.1	I regularly receive great motivational incentives from my organization.					
4.2	Motivational incentives offered to me are important to my productivity					
4.3	I feel that receiving incentives has a direct impact on the quality of my work					
4.4	Incentives provided by my organization aligns with my personal and career goals					

PART THREE

Measuring items for employee productivity

Please indicate your response to the following aspects by ticking the appropriate choice.

Use scale of 1-5, where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

S.N	Items	scales				
		1	2	3	4	5
1.	I often complete my task on a time.					
2.	I have effective and efficient work output.					
3.	I am confident to have skills that are required to perform my tasks effectively.					
4.	I always meet my work-related goals and objectives					
5.	I experience interruptions that affect my productivity.					
6.	My performance goals are clear and achievable.					
7.	I feel that my contributions are recognized and appreciated by the organization.					
8.	There are organizational changes that could help employees be more productive.					

OPEN-ENDED QUESTIONS

1. What changes could the organization make to improve productivity?

2. What do you believe is the biggest contributor to your productivity at work?

3. Do you have access the necessary tools and resources to perform your job efficiently?

4. Do you feel that your current workload is manageable?

5. Are there specific distractions or factors that significantly impact your productivity?
