

Predictive Factors of Employee Productivity in The Department of Public Works and Highways District Engineering Office Towards Constructive Appraisal

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Abstract

This research assessed the predictive factors of employee productivity in the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office in Barangay Bood, Ubay, Bohol, during Calendar Year 2026 towards the development of an Employee Productivity Enhancement Plan. Utilizing a quantitative descriptive research design, the inquiry surveyed a total enumeration of forty-five personnel across all six operational sections using a validated questionnaire, with data analyzed through frequency counts, percentages, weighted means, and standard deviations. Findings showed a workforce predominantly composed of experienced mid-career professionals with balanced gender participation and significant non-permanent staffing. Among the investigated predictive factors, leadership style and administrative support ranked highest, whereas physical logistics and workload distribution registered observable operational friction due to vehicle shortages, computing limitations, and compressed reporting deadlines. In employee productivity, adherence to organizational standards ranked highest, followed by quality and accuracy of output, while timeliness of task completion recorded the lowest composite evaluation owing to recurring task backlogs and document rework. The study concluded that public works productivity depends fundamentally on supportive leadership coaching, balanced workload pacing, and functional logistics rather than perfunctory administrative compliance. Consequently, the study designed the Employee Productivity Enhancement Plan (EPEP), a 10-point operational blueprint providing actionable interventions in logistical upgrading, workload rationalization, pre-submission quality checks, leadership mentorship, and merit recognition to optimize public infrastructure delivery across northern Bohol.

Keywords: Public Administration: Predictive Workplace Factors, Employee Productivity Domains, Descriptive-Correlational Assessment, DPWH Bohol 2nd DEO, Ubay, Bohol

1. The Problem and Its Scope

Introduction

Rationale of the Study

Modern public administration operates within an increasingly volatile, complex, and demanding global governance climate that mandates uncompromised operational velocity, fiscal integrity, and exceptional service delivery. Worldwide, governmental entities are challenged to transition away from archaic bureaucratic inertia toward agile, high-performance public service systems capable of meeting sustainable development agendas. In the sphere of public works, infrastructure engineering, and physical asset stewardship, human capital constitutes the critical determinant of institutional capability. The productivity of administrative, technical, and engineering personnel directly governs the execution quality, budgetary fidelity, and delivery timelines of capital infrastructure investments. International administrative frameworks establish that public sector productivity extends beyond crude volume output; it encompasses multidimensional performance variables comprising workflow timeliness, engineering precision, error minimization, and institutional adherence to rigorous regulatory standards. As global development paradigms increasingly tie economic revitalization to robust national logistics and modern civil engineering projects, international development banks, institutional oversight mechanisms, and public administration scholars have underscored human capital management as the foremost pillar of governmental operational excellence.

Within the international landscape, the performance and output quality of public sector employees have become the subject of sophisticated organizational analyses. Contemporary cross-national investigations across developing and emerging economies demonstrate that civil service institutions consistently struggle with structural obstacles that erode employee productivity. In many public agencies across Asia, Latin America, and sub-Saharan Africa, institutional deliverables are compromised by obsolete logistical arrangements, uneven infrastructure, and pervasive cognitive strain induced by ambiguous administrative mandates. Advanced global public administration research underscores that physical work conditions, spatial logistics, and ergonomic provisions establish the foundational threshold of employee efficiency. When public sector personnel are compelled to navigate deficient technological tools, inadequate workspace designs, or decentralized physical assets, cognitive depletion accelerates, fostering heightened error rates, procedural stagnation, and systemic delays in mission-critical public services. The international consensus across public management research affirms that optimization of public works delivery necessitates an integrated physical, administrative, and technological work ecosystem designed to mitigate occupational friction and maximize employee engagement.

Global administrative discourse also centers heavily on the transformative influence of administrative leadership models and institutional support mechanisms within public sector human resource ecosystems. Contemporary global human resource scholarship affirms that classic authoritarian, top-down bureaucratic control models are structurally inadequate for navigating high-pressure, technical public engineering initiatives. Today's international public sector benchmark models demand the institutionalization of transformational, agile, and communicative leadership behaviors. Supervisory styles that emphasize collaborative problem-solving, transparent strategic direction, and psychological empowerment systematically foster higher employee dedication, reduced operational lethargy, and

superior task accuracy. Conversely, bureaucratic organizations characterized by disconnected managerial tiers, excessive red tape, and punitive supervisory tendencies generate workplace disengagement, task avoidance, and severe declines in institutional productivity. In engineering and public works domains, where technical calculations, fieldwork precision, and inter-unit operational coordination are indispensable, the administrative competence and supportive posture of institutional leaders dictate whether projects maintain trajectory or succumb to administrative paralysis.

Simultaneously, the global discourse on public administration extensively analyzes total reward architectures, institutional incentives, and employee welfare policies as decisive determinants of public sector organizational commitment. In competitive national and international labor markets, public service institutions frequently face difficulties attracting and retaining top-tier technical and engineering talent due to structural compensation disparities relative to the private sector. Cross-national studies reveal that while monetary compensation remains a baseline extrinsic motivator, comprehensive employee welfare—including merit-based recognition protocols, healthcare and wellness systems, and equitable career advancement pipelines, exerts profound predictive influence over workplace motivation and performance timeliness. When civil servants perceive that compensation structures are equitable and institutional support safeguards their professional welfare, their willingness to exhibit organizational citizenship behaviors, maintain high output accuracy, and adhere stringently to operational benchmarks rises markedly. Deficiencies in reward mechanisms foster organizational apathy, low operational velocity, and administrative attrition, severely impeding public sector productivity.

Beyond leadership and compensation, modern administrative theory underscores the vital role of workload distribution, role clarity, and institutional task structuring in maximizing employee output quality and organizational efficiency. The global expansion of public administration responsibilities has precipitated widespread operational overload among frontline civil servants. Complex regulatory frameworks, multiplied documentation mandates, and frequent ad-hoc directives often distort role boundaries and produce severe administrative bottlenecks. Comparative public management research reveals that pervasive role ambiguity, fragmented workflows, and unbalanced work distribution systematically depress public sector output timeliness and elevate non-compliance risks. Personnel burdened by disproportionate operational obligations or conflicting mandates experience elevated burnout, directly impairing engineering quality, documentation accuracy, and procedural adherence. Consequently, public agencies globally are seeking empirical diagnostic frameworks that optimize role distribution, eliminate procedural redundancies, and align employee operational targets with strategic organizational objectives.

At the national level, the Republic of the Philippines has embarked on comprehensive governance and infrastructure modernization agendas designed to propel socio-economic development, inter-island connectivity, and regional inclusive growth. National strategic development blueprints place infrastructure expansion at the center of socioeconomic transformation, mandating unprecedented capital allocations toward roads, bridges, flood management structures, and public buildings. Within this national apparatus, the Department of Public Works and Highways (DPWH) functions as the state's primary engineering and construction arm, entrusted with the planning, design, construction, and maintenance of national infrastructure networks. The national government demands that the DPWH operate with peak operational velocity, technical accuracy, and unwavering adherence to statutory and engineering standards. The

realization of these national infrastructure directives rests upon the day-to-day productivity, professional integrity, and operational focus of the agency's decentralized workforce across its national, regional, and district offices.

Despite aggressive infrastructure targets, the Philippine civil service and the DPWH contend with operational, structural, and institutional hurdles that directly affect personnel productivity. Under the governance standards established by the Civil Service Commission (CSC), all public institutions are mandated to implement the Strategic Performance Management System (SPMS), designed to link individual employee targets directly with institutional vision and organizational commitments. However, national public sector assessments frequently identify pervasive gaps between institutional targets and operational realization. Within decentralized engineering operating units, personnel are routinely subjected to compressed implementation timelines, rigorous public procurement mandates, intense public scrutiny, and demanding statutory compliance requirements under the Government Procurement Reform Act. These pressures occur alongside institutional constraints, such as bureaucratic delays in resource allocation, legacy physical workspaces, fluctuating supply chains, and evolving digitalization mandates.

Furthermore, national human resource dynamics within the Philippine civil service reflect structural challenges regarding job security, compensation equity, and task distribution. A significant segment of the public works operational machinery relies on diverse appointment modalities, ranging from permanent career service personnel to contractual and job-order staff. These structural appointment disparities often generate divergent organizational perceptions regarding career mobility, benefit entitlements, and workplace stability. National studies on public sector productivity in the Philippines show that discrepancies in welfare access and training exposure across varying employment categories can influence workplace morale, collaborative harmony, and overall work quality. Moreover, the accelerated rollout of modernized monitoring architectures—such as digitized project monitoring, geographic information systems, and integrated financial systems—requires continuous retooling and professional training, placing intense demands on personnel to maintain operational timeliness while mastering updated digital systems.

In the province of Bohol, the socio-economic vitality of the island province hinges upon resilient physical infrastructure networks that ensure trade logistics, agricultural access, tourist mobility, and community connectivity. Operating under the jurisdiction of DPWH Regional Office VII, the Department of Public Works and Highways Bohol 2nd District Engineering Office (DEO), situated in Barangay Bood, Municipality of Ubay, serves as the engineering frontline for the northern and eastern municipal jurisdictions of the province. The Bohol 2nd DEO manages a geographic coverage encompassing island and coastal communities characterized by challenging logistics, vulnerable coastlines, and expanding regional commercial hubs. Consequently, the operational mandate imposed upon the Bohol 2nd DEO demands rigorous project management, timely engineering interventions, rapid emergency maintenance, and consistent infrastructure resilience.

The institutional operational matrix of the DPWH Bohol 2nd District Engineering Office requires seamless synergy among its specialized operational sections: the Office of the District Engineer and Assistant District Engineer, the Planning and Design Section, the Construction Section, the Maintenance Section, the Quality Assurance Section, and the Administrative and Finance Section. Each operational unit bears distinct, interdependent functional mandates. The Planning and Design Section conducts surveys,

structural designs, and feasibility evaluations; the Construction Section executes field supervision, contractor monitoring, and project timeline tracking; the Maintenance Section safeguards road preservation, bridge upkeep, and disaster emergency repairs; the Quality Assurance Section enforces materials testing, density parameters, and national construction quality standards; the Administrative and Finance Section oversees budgeting, accounting, human capital welfare, and logistical support; while the Office of the District Engineer exercises executive oversight and strategic alignment.

Notwithstanding the critical socio-economic role fulfilled by the DPWH Bohol 2nd District Engineering Office, empirical observations and administrative feedback reveal significant operational strains that threaten institutional productivity. Operating from its physical facility in Barangay Bood, Ubay, Bohol, personnel confront real-world logistical, spatial, and technical challenges. Field engineers and technical evaluators must navigate dispersed project sites across northern Bohol, where variable weather conditions, supply chain delays, and field monitoring requirements interact with limited administrative transport and logistical allocations. Internally, personnel must manage heavy reportorial demands, multi-tier auditing reviews, and rapid administrative turnaround times. When physical work environments, IT infrastructures, and logistical facilities are strained, or when administrative support and leadership communication falter, operational timeliness and output accuracy can degrade.

Equally significant are the internal dynamics surrounding employee welfare, incentives, and workload allocation within the Bohol 2nd DEO. In an operating environment with specialized technical demands and tight budget schedules, imbalances in task distribution can lead to operational bottlenecks. Administrative staff and technical engineers frequently encounter overlapping tasks, compressed submission deadlines, and competing directives. Without empirical assessment, institutional management lacks the targeted, data-backed insights necessary to identify which workplace dimensions—whether physical logistics, leadership styles, compensation models, or task allocations—most decisively determine employee productivity. Lacking this empirical baseline, administrative appraisals risk becoming perfunctory compliance rituals rather than constructive diagnostic mechanisms that drive operational advancement.

This study directly addresses this empirical and institutional imperative. By investigating the demographic profiles, perceived predictive workplace factors, and actual productivity levels of personnel in the DPWH Bohol 2nd District Engineering Office, this research establishes an evidence-based foundation for public human capital optimization. The findings will provide public administrators, policy planners, and civil service executives with actionable intelligence to formulate a responsive, targeted Employee Productivity Enhancement Plan. Ultimately, improving operational velocity, output precision, and standards adherence within the Bohol 2nd DEO reinforces public trust, safeguards state capital resources, and accelerates infrastructure delivery across northern Bohol.

Theoretical Background

The intellectual foundation of this investigation is grounded in a rigorous, multi-paradigmatic matrix of contemporary organizational behavior and administrative theories formulated and refined in the 2020s, interwoven with established statutory mandates governing Philippine civil service administration. Together, these frameworks provide a robust lens for evaluating how environmental, administrative,

motivational, and structural dimensions drive employee productivity within public infrastructure institutions.

The primary conceptual anchor of this investigation is the Modern Ergonomic Systems and Spatial-Cognitive Ergonomics Theory, advanced across 2020–2024 organizational psychology and environmental design scholarship. Contemporary ergonomic theory moves beyond physical posture to examine how physical architecture, technological logistics, acoustic configurations, thermal balance, and spatial arrangements affect cognitive functioning and technical output quality in complex public organizations. In technical environments like engineering district offices, personnel constantly process spatial calculations, structural blueprints, procurement documentations, and budgetary schedules. Modern spatial-cognitive theory posits that an optimized physical work environment and seamless logistical support mitigate environmental distractions and cognitive fatigue, conserving mental bandwidth for technical precision, critical problem-solving, and rapid task completion. When physical infrastructure, office spaces, specialized engineering software, and field vehicles are insufficient or poorly maintained, the resulting logistical friction creates cognitive overload, increasing procedural oversights and delaying institutional output. Applied to the DPWH Bohol 2nd DEO, this theory demonstrates that physical workspaces and material logistics serve as structural determinants of output quality, speed, and standard compliance.

Complementing physical and logistical determinants is the Contemporary Transformational and Adaptive Public Leadership Framework, articulated in 2021–2024 administrative scholarship. This framework models public leadership within decentralized technical agencies as an active catalyst for psychological safety, organizational citizenship, and administrative excellence. Departing from rigid, top-down bureaucratic oversight, modern transformational leadership emphasizes clear operational direction, intellectual stimulation, and supportive administrative communication. Within modern public engineering units, leadership styles that offer supportive supervision, accessible coaching, and streamlined administrative clearances systematically reduce workplace anxiety, clarify project expectations, and elevate employee self-efficacy. Conversely, autocratic, opaque, or punitive administrative leadership suppresses initiative, fosters defensive compliance, and exacerbates operational delays. Within the DPWH Bohol 2nd DEO, the presence of proactive administrative support and open leadership is hypothesized to directly elevate employee task accuracy and timeline adherence.

The investigation's motivational foundation is anchored in the Dynamic Total Rewards and Public Service Motivation (PSM) Model, refined in 2020–2023 public administration literature. This model synthesizes self-determination theory with modern total rewards frameworks to evaluate public sector commitment. In the public service context, motivation is driven by an interconnected reward ecosystem comprising financial remuneration, statutory benefits, merit-based welfare programs, professional recognition, and work-life balance provisions. Contemporary PSM research confirms that while competitive pay structures prevent workplace dissatisfaction, comprehensive welfare initiatives—such as wellness programs, career development pathways, and equitable recognition—ignite intrinsic public service motivation. For public works personnel facing demanding field conditions and legal accountability under public procurement acts, perceived equity in compensation, incentives, and welfare benefits directly shapes organizational commitment, task accuracy, and sustained productivity.

The structural dimension of employee productivity is framed through the Modern Cognitive Workload and Task-Role Architecture Theory, developed in 2020–2024 human factors and operational management literature. This paradigm examines the relationship between task distribution, role clarity, and institutional efficiency. The theory posits that human productive output follows an optimization curve dependent on balanced workload distribution and clear task boundaries. When public agencies distribute work unevenly or assign tasks characterized by ambiguous scopes, competing deadlines, or overlapping roles, personnel experience task saturation and administrative stress. In engineering district offices managing concurrent infrastructure projects, structural workload imbalances generate systemic delays, administrative paralysis, and errors in technical specifications. Clear task boundaries, rationalized workload distribution, and transparent performance metrics enable personnel across diverse operational sections to execute duties with high accuracy, prompt turnaround, and consistent regulatory compliance.

To systematically integrate individual workplace variables, the study incorporates the Contemporary Multi-Dimensional Job Performance and Operational Alignment Model, synthesized in 2020–2023 industrial-organizational psychology. This model conceptualizes public sector productivity through three interdependent behavioral dimensions: task timeliness, quality and accuracy of output, and adherence to organizational standards and targets. In contemporary public works administration, high productivity requires not merely the rapid completion of tasks, but the precise delivery of technical, administrative, and engineering work that complies fully with public works specifications, civil service codes, and state financial standards. This modern model connects workplace inputs, physical logistics, leadership, compensation, and task structure—directly to measurable productivity outcomes, establishing the foundation for a targeted Employee Productivity Enhancement Plan.

This theoretical architecture operates within an explicit domestic and international legal framework governing public service performance, accountability, and employee welfare. Internationally, the study aligns with the United Nations Sustainable Development Goals (SDGs), specifically Goal 8 (Decent Work and Economic Growth) and Goal 16 (Peace, Justice, and Strong Institutions). Target 16.6 directs states to build effective, accountable, and transparent institutions at all levels, establishing public sector productivity, operational integrity, and efficient public asset stewardship as core obligations of modern governance.

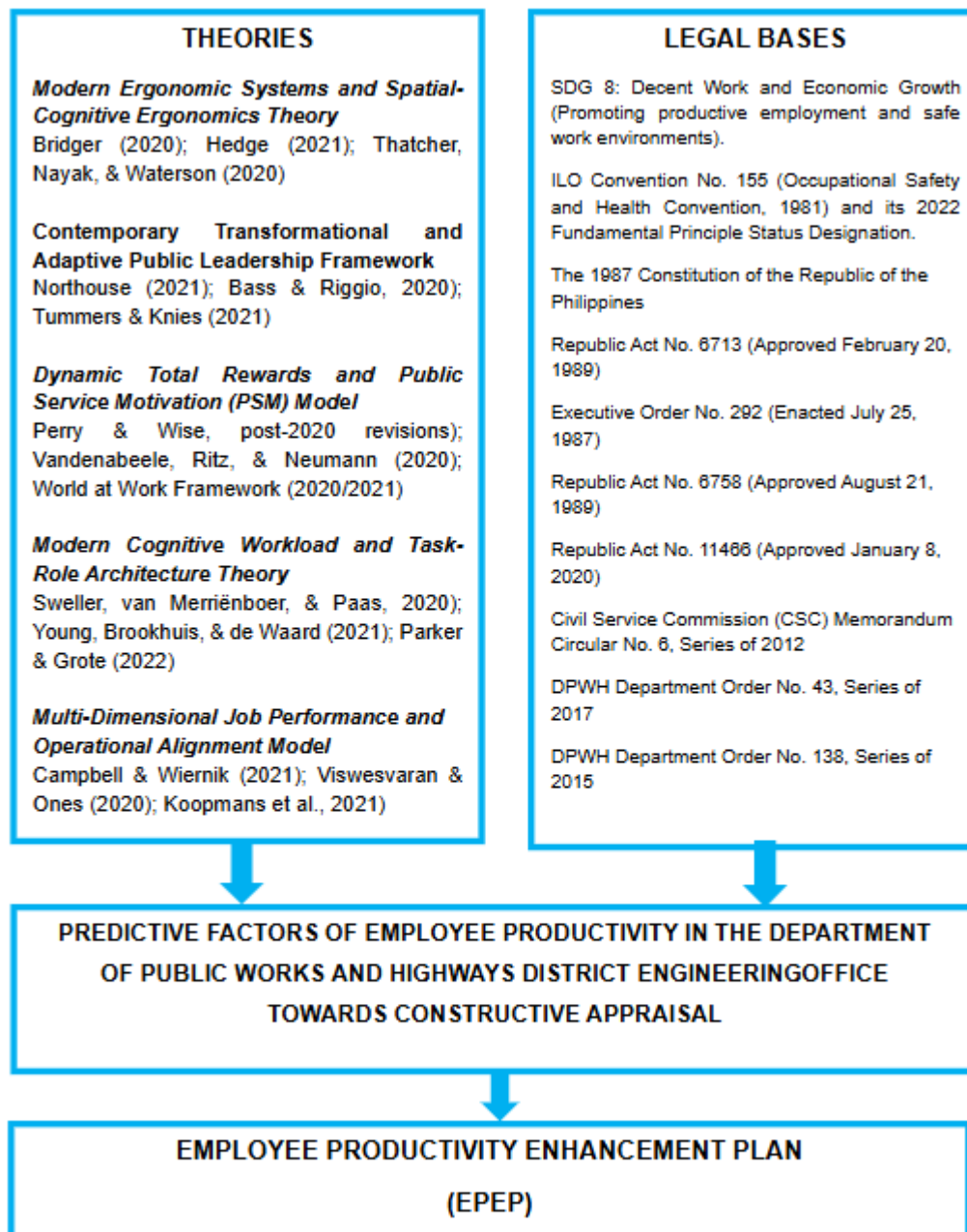


Figure 1
Theoretical Conceptual Framework of the Study

Furthermore, the International Labour Organization (ILO) standards on Occupational Safety and Health, ratified in international treaties, mandate that public employers provide adequate physical working environments, ergonomic equipment, and welfare support to safeguard public employees' physical and mental capabilities.

At the national level, the statutory foundation is anchored in the 1987 Philippine Constitution, specifically Article IX-B (The Civil Service Commission) and Article XI (Accountability of Public Officers). Section 1 of Article XI dictates that public office is a public trust, mandating that public officers and employees must at all times be accountable to the people, serve them with utmost responsibility,

integrity, loyalty, and efficiency, and act with patriotism and justice. This constitutional mandate establishes public employee productivity and operational efficiency as an essential civic and legal duty.

This constitutional mandate is operationalized through Republic Act No. 6713, otherwise known as the Code of Conduct and Ethical Standards for Public Officials and Employees. RA 6713 sets strict behavioral and performance standards for civil servants, institutionalizing commitments to public interest, professional excellence, and responsiveness to the public. Section 5 of the Act requires public officials and employees to perform and discharge their duties with the highest degree of excellence, professionalism, intelligence, and skill, while extending prompt, courteous, and adequate service to the public. The productivity indicators examined in this study, timeliness, output accuracy, and standards adherence, represent direct measurable reflections of these statutory obligations.

The organizational implementation of public sector productivity in the Philippines is guided by Republic Act No. 2260 (The Civil Service Law), as integrated into Book V, Title I, Subtitle A of Executive Order No. 292, otherwise known as the Administrative Code of 1987. Under this authority, the Civil Service Commission exercises constitutional jurisdiction over the career development, terms of appointment, welfare, and performance evaluation of all government personnel. CSC Memorandum Circular No. 6, Series of 2012 formally established the Guidelines in the Establishment and Implementation of Agency Strategic Performance Management System (SPMS). The SPMS framework mandates all government agencies, including the DPWH, to link individual performance outputs directly with agency organizational targets, ensuring that employee evaluations systematically reflect timeliness, quality, and compliance with statutory goals.

Within the Department of Public Works and Highways, administrative performance is governed by Department Order No. 43, Series of 2017, and its updated operational issuances, which institutionalize the DPWH Strategic Performance Management System (DPWH-SPMS). This department policy establishes clear guidelines for the Office Performance Commitment and Review (OPCR) and Individual Performance Commitment and Review (IPCR). Under the DPWH-SPMS, all personnel across the Office of the District Engineer, Planning and Design, Construction, Maintenance, Quality Assurance, and Administrative and Finance Sections are evaluated using standardized performance rubrics that measure individual output quantity, quality, and timeliness. Complementing this, Department Order No. 138, Series of 2015 provides guidelines for implementing Quality Management Systems (QMS) compliant with ISO 9001 standards across all DPWH regional and district engineering offices, mandating standardized operational procedures and continuous improvement in public infrastructure delivery.

The statutory basis governing financial benefits, compensation, and incentives is rooted in Republic Act No. 6758 (The Compensation and Position Classification Act of 1989), as updated by Republic Act No. 11466, known as the Salary Standardization Law of 2019 (SSL V), and subsequent executive issuances on public compensation adjustments. These statutes, together with CSC-DBM Joint Circulars on the grant of Productivity Enhancement Incentives (PEI), Collective Negotiation Agreement (CNA) incentives, and Performance-Based Bonuses (PBB), regulate the material and financial rewards designed to drive employee motivation and productivity across the bureaucracy.

Finally, the study's focus on physical workplace safety and employee welfare is supported by CSC-DOH-DOLE Joint Memorandum Circular No. 1, Series of 2020, which establishes the Occupational

Safety and Health (OSH) Standards for the Public Sector. This statutory issuance mandates all government entities, including DPWH district offices, to maintain workplace environments that mitigate physical hazards, ensure ergonomic safety, provide logistical support, and foster institutional well-being. By synthesizing these contemporary post-2020 theories with authoritative national statutory mandates, this framework demonstrates that employee productivity within the DPWH Bohol 2nd District Engineering Office is an integrated outcome shaped by physical work conditions, leadership style, reward structures, and workload design, culminating in the development of a constructive Employee Productivity Enhancement Plan.

The Problem

Statement of the Problem

This research assessed the predictive factors of employee productivity in the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office, Ubay, Bohol during the Calendar Year 2026 towards Employee Productivity Enhancement Plan.

Specifically, it sought answers to the following questions:

1. What is the demographic profile of the respondents in terms of:
 - 1.1 age,
 - 1.2 gender,
 - 1.3 section/unit assignment,
 - 1.4 nature of appointment,
 - 1.5 length of service, and
 - 1.6 relevant trainings and seminars attended?
2. As perceived by the respondents, what were the predictive factors affecting their productivity as to::
 - 2.1 physical work environment and logistics,
 - 2.2 leadership style and administrative support,
 - 2.3 compensation, incentives, and welfare benefits, and
 - 2.4 workload distribution and task clarity?
3. What is the level of employee productivity in the District Office in terms of the following domains:
 - 3.1 timeliness of task completion,
 - 3.2 quality and accuracy of output, and
 - 3.3 adherence to organizational standards and targets?
 - 3.4 Based on the findings, what Employee Productivity Enhancement Plan can be crafted?

Significance of the Study

The findings of this investigation will provide empirical baseline data and practical administrative insights into the critical organizational and environmental factors influencing workforce performance within a frontline engineering district. Beyond fulfilling an academic requirement, the results will yield

substantial value across various tiers of institutional governance, administrative management, and public sector human resource development. Specifically, this study will be of significant value to the following entities and stakeholders:

Department of Public Works and Highways Central Office. The results of this study will offer top-level executive leadership empirical feedback on how macro-level policies, standardized infrastructure mandates, and national budget allocations translate into actual ground-level productivity. It can serve as a grounded reference for national policymakers in refining department-wide operational standards, logistics procurement protocols, and civil service performance benchmarking systems.

Department of Public Works and Highways Regional Office VII. This study will provide the regional executive directorate and division chiefs with targeted diagnostics regarding operational dynamics within frontline implementing units. The findings can guide regional management in optimizing the distribution of regional equipment assets, calibrating supervisory support systems, and allocating technical and administrative personnel more equitably across provincial engineering districts.

Civil Service Commission. The outcome of this research will provide the central personnel agency with concrete, field-level evidence evaluating the real-world execution of the Strategic Performance Management System (SPMS) within technical engineering bureaus. The insights gained can support the Commission in enhancing civil service welfare mechanisms, career development programs, and productivity-based incentive guidelines tailored to government agencies with demanding field operations.

Office of the District Engineer and Assistant District Engineer. The executive heads of the DPWH Bohol 2nd District Engineering Office will directly benefit from the evidence-based assessment of their internal operational climate. The findings will provide a strategic management tool to identify administrative friction points, balance section resources, align supervisory strategies, and formally adopt the proposed Employee Productivity Enhancement Program (EPEP) to achieve district infrastructure commitments.

Section Chiefs and Unit Heads. The supervisors of the Planning and Design, Construction, Maintenance, Quality Assurance, and Administrative and Finance Sections will gain clear visibility into the specific bottlenecks—such as task ambiguity, logistical lags, and unbalanced assignments—that hinder their staff. This data will assist them in refining delegative practices, improving day-to-day workflow management, and fostering a supportive supervisory environment within their respective functional units.

District Technical and Administrative Employees. The primary respondents and workforce of the DPWH Bohol 2nd District Engineering Office will directly benefit from the structural improvements driven by the study's findings. By articulating the impact of physical working conditions, compensation equity, and task distribution on their productivity, the study lays the groundwork for better logistics, fairer workloads, enhanced welfare initiatives, and a more empowering work environment that fosters professional growth and efficiency.

Local Government Units and the General Public of Bohol. Local chief executives, municipal planning officers, and the communities across the northern and eastern districts of Bohol will indirectly benefit from the elevated operational productivity of the district engineering office. Enhanced employee

efficiency directly results in faster project completion, higher quality and resilient public infrastructure, reduced traffic disruptions, and more transparent, timely public service delivery.

Educational Administrators and Academic Leaders. As an inquiry situated within Administration and Supervision, this study offers academic leaders and graduate program directors valuable empirical literature on applied management practices outside traditional educational settings. It enriches the supervisory knowledge base by demonstrating how core administrative, motivation, and leadership theories are operationalized within public technical bureaucracies.

Future Researchers. The baseline data, validated methodologies, and conceptual relationships established in this investigation will serve as a foundational reference for subsequent scholars exploring public administration, human resource management, and civil service productivity. Future researchers can use this study as a comparative model to conduct parallel assessments across other district engineering offices or government bureaus nationwide.

Research Methodology

The scientific exploration of administrative systems and organizational behavior necessitates a methodologically sound and coherent architectural design capable of capturing empirical realities with objectivity, analytical precision, and institutional fidelity. In the contemporary discipline of public administration, research methodology operates not merely as a technical protocol for data compilation, but as an epistemological bridge that aligned abstract organizational theories with the complex operational dynamics of frontline governmental agencies. Methodological rigor requires a systematic structuring of empirical inquiry, ensuring that every investigated metric directly reflects the operational challenges, institutional norms, and workforce experiences within the administrative environment. Within public infrastructure institutions, where human labor, technical expertise, and administrative coordination converge to deliver public works, selecting an appropriate methodology ensures that personnel assessments produce actionable diagnostic intelligence rather than ungrounded conjectures. Consequently, this investigation establishes a methodologically anchored inquiry dedicated to unveiling the structural, psychological, and environmental determinants of public sector performance, utilizing a validated analytical blueprint that safeguards construct validity, statistical reliability, and ethical adherence throughout the entire investigative process.

Research Design

To establish a comprehensive and empirically grounded examination of the investigated phenomena, this study utilized a quantitative, non-experimental descriptive-correlational research design. Contemporary methodological scholarship emphasizes that quantitative descriptive-correlational architecture is exceptionally suited for public administration and management research, as it facilitates the systematic observation, profiling, and mathematical association of organizational constructs in their natural operational settings without laboratory manipulation (Creswell & Creswell, 2020; Saunders, Lewis, & Thornhill, 2023). The descriptive facet of this design enables the researcher to systematically document and construct a detailed profile of the demographic attributes of the personnel, while measuring the exact operational levels of perceived predictive workplace factors and actual employee productivity domains as they exist across the district office (Atmowardoyo, 2020). By establishing standardized numerical

baselines, the descriptive approach eliminates subjective speculation and provides an accurate, verifiable accounting of workforce perceptions and performance metrics.

Flow of the Study

The systematic execution of this research was operationalized through the Input-Process-Output (IPO) framework, a foundational systems model widely utilized in modern administrative and operational research to map the transformative progression of empirical inquiry (Bush, 2020; Sallis, 2021). The conceptual structure of this model posits that organizational dynamics were best comprehended by examining the direct conversion of diagnostic raw inputs through rigorous, scientifically controlled analytical processes into concrete, institutional development outcomes. In this study, the flow of inquiry begins with an exhaustive empirical input base encompassing all variables formulated within the statement of the problem, advances through a multi-tiered data gathering and statistical treatment process and culminates in a functional administrative blueprint designed to elevate institutional efficiency across the investigated engineering district office.

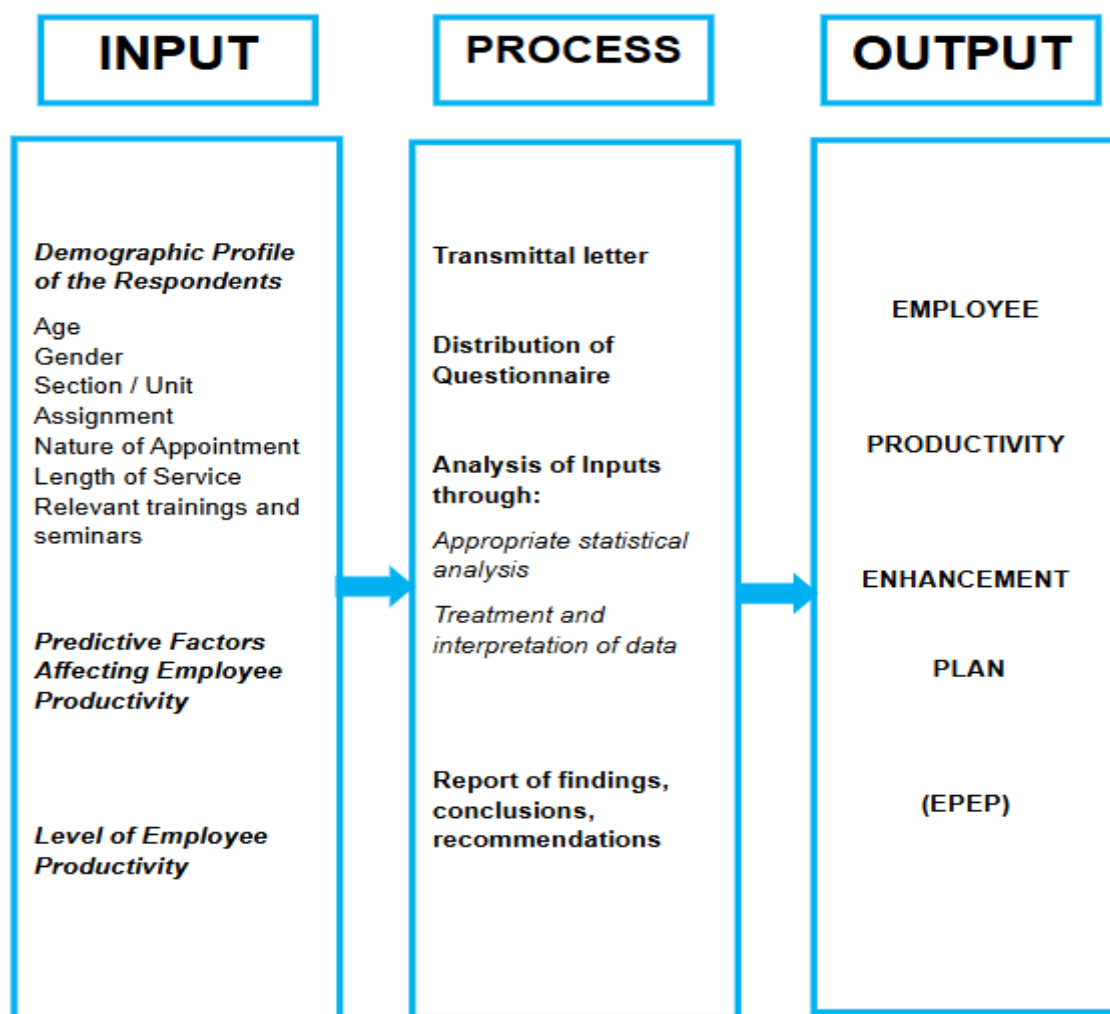


Figure 2
Research Flow of the Study

The Input dimension encapsulates the specific baseline data and empirical indicators derived directly from the statement of the problem. Primarily, this includes the demographic profile of the employee-respondents, categorized systematically in terms of age, gender, section or operational unit assignment, nature of appointment, length of service, and relevant trainings and seminars attended. Intertwined with this demographic baseline are the perceived predictive factors affecting employee productivity, which comprise four operationalized institutional dimensions, namely, the physical work environment and logistics, leadership style and administrative support, compensation, incentives, and welfare benefits, as well as workload distribution and task clarity. Finally, the input dimension incorporates the measured levels of employee productivity across the district office, assessed through the core operational domains of timeliness of task completion, quality and accuracy of output, and adherence to organizational standards and targets. These comprehensive baseline metrics provide the empirical substance necessary to evaluate the internal operational environment of the organization.

The Process dimension embodied the systematic procedural and analytical mechanisms applied to convert the gathered empirical inputs into verified findings. This phase initiates with the formulation, administrative contextualization, and panel validation of a structured survey questionnaire, which subsequently undergoes rigorous reliability testing via internal consistency analyses to guarantee psychometric stability. Following formal institutional permissions and the observance of strict research ethics protocols, the calibrated instruments are administered to the personnel across all operational sections of the district engineering office. Upon retrieval, the data undergo thorough screening, data cleaning, coding, and entry into validated statistical computing software. The analytical treatment incorporates descriptive statistical tools, specifically frequency distributions, percentage computations, weighted means, and standard deviations to capture respondent profiles, workplace factor ratings, and productivity levels. Subsequently, inferential statistical treatments, including Pearson product-moment correlation analysis and multiple linear regression modeling, are executed to establish the correlation coefficients, direction of influence, and predictive capacity existing between the independent workplace dimensions and the dependent employee productivity domains.

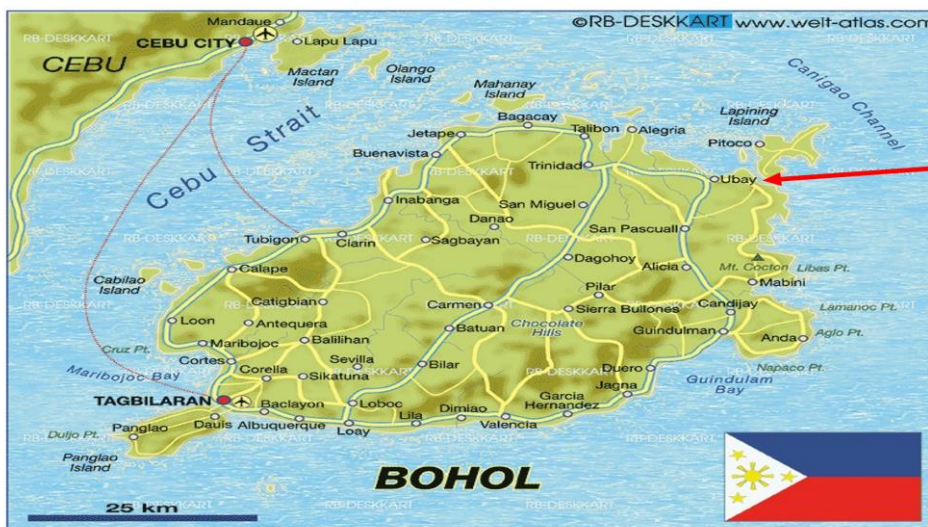
The Output dimension constitutes the strategic culmination of the empirical and analytical inquiry, translating theoretical findings and statistical correlations into practical administrative utility. Based directly on the empirical results, identified operational bottlenecks, and predictive correlations generated from the analytical process, the study produces the Employee Productivity Enhancement Plan. This comprehensive institutional output serves as a constructive appraisal and development mechanism, offering structured policy recommendations, targeted capacity-building modules, ergonomic and logistical optimization protocols, leadership communication enhancements, and workload rationalization strategies tailored specifically for the Department of Public Works and Highways Bohol 2nd District Engineering Office. Ultimately, this output bridges empirical research with executive decision-making, providing a functional, sustainable roadmap to bolster administrative velocity, engineering excellence, and procedural adherence across all functional sections of the organization.

Environment

The spatial setting of empirical inquiry fundamentally conditions organizational behaviors, operational workflows, and administrative outcomes in public sector research. In public administration scholarship, the research environment represents far more than an inert territorial backdrop; it embodies

the dynamic socio-spatial ecosystem wherein institutional mandates interact with geographic constraints, logistical networks, and human capital capabilities (Andrews, Beynon, & McDermott, 2021; Pollitt & Bouckaert, 2020). The physical site chosen for this investigation is the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office (DEO), situated in Barangay Bood, within the Municipality of Ubay, Province of Bohol, Philippines. Operating under the administrative supervision of DPWH Regional Office VII (Central Visayas), this frontline engineering district serves as the national government's infrastructure implementation mechanism for the second congressional district of the province. Examining employee productivity within this localized environment provides a strategic microcosm of decentralized public works administration, capturing the interplay between national statutory performance targets and peripheral operational realities.

Geographically, the Municipality of Ubay occupies a strategic location in northeastern Bohol, positioned approximately one hundred twenty-four kilometers northeast of Tagbilaran City, the provincial capital. Ubay constitutes the largest municipality in the province in terms of land area, functioning as an expanding socio-economic, logistics, and inter-island transport nexus connecting Bohol to Leyte and southern Visayas maritime lanes. The territorial jurisdiction supervised by the Bohol 2nd District Engineering Office extends across the northern and northeastern municipalities of the province, encompassing both mainland and geographically isolated island communities. This extensive spatial jurisdiction presents complex civil engineering and logistical demands. Field personnel routinely oversee infrastructure assets across dispersed topographies comprising rugged agricultural interiors, low-lying coastal belts vulnerable to tidal inundation, and offshore island jurisdictions. Contemporary regional development and logistical studies emphasize that managing decentralized public works across topographically fractured island provinces imposes intense operational friction on monitoring personnel, requiring continuous inter-modal transportation, extensive site transit times, and heightened exposure to environmental disruptions (Dadios et al., 2021; Hallegatte, Rentschler, & Rozenberg, 2020). Consequently, the geographic positioning of the Bohol 2nd DEO in Barangay Bood, Ubay, directly tests the logistical limits and operational agility of its technical and administrative workforce.



**DPWH,
2ND DEO**

Figure 3

Location Map of the Research Environment

Demographically and socio-economically, northern Bohol represents an accelerating growth corridor transitioning from an agrarian and artisanal fishing base to a diversified commercial and eco-tourism economy. This structural economic transition has precipitated rapid demographic concentration and heightened community demands for upgraded public capital assets, including arterial highways, farm-to-market feeder roads, disaster-resilient river dikes, and multi-purpose educational facilities. In modern public governance research, escalating citizen expectations in developing rural-urban interfaces place substantial performance strain upon decentralized administrative bodies, requiring personnel to accelerate project delivery while navigating stringent statutory transparency standards (Raipa & Lieponè, 2020; World Bank, 2022). The demographic realities of the service area mean that the personnel of the Bohol 2nd DEO face heightened public accountability, immediate scrutiny from local government units (LGUs), and urgent civic pressure to restore and preserve infrastructure networks during seasonal monsoon disturbances and typhoon occurrences.

Institutionally, the DPWH Bohol 2nd District Engineering Office functions as an integrated administrative and engineering structure comprising six interdependent operational sections: the Office of the District Engineer and Assistant District Engineer (ODE/AODE), the Planning and Design Section (PDS), the Construction Section (CS), the Maintenance Section (MS), the Quality Assurance Section (QAS), and the Administrative and Finance Section (AFS). Together, these operational divisions execute the life cycle of public works within the district. The Planning and Design Section is tasked with structural computations, feasibility assessments, geometric road alignment, and detailed engineering estimates. The Construction Section oversees field inspections, progress billing evaluations, and contractor performance tracking. The Maintenance Section conducts regular road asset preservation, emergency clearing operations, and structural upkeep. The Quality Assurance Section executes laboratory materials testing, concrete compression verification, and compliance certification against strict national technical standards. Providing institutional support, the Administrative and Finance Section manages public procurement procedures under national procurement laws, budgetary accounting, personnel welfare, and general facility logistics, while the executive leadership in the ODE/AODE provides strategic direction and inter-agency coordination.

The strategic relevance of the Bohol 2nd DEO as an empirical research locale lies in its representative institutional density and systemic operational pressures. As a technical frontline post located away from the regional central hub, the facility in Barangay Bood must sustain strict institutional adherence to the Civil Service Commission's Strategic Performance Management System (SPMS), ISO 9001 Quality Management Systems, and Department of Public Works and Highways technical department orders under constrained material conditions. The localized interplay among physical workplace logistics, administrative leadership, welfare structures, and heavy individual workloads directly governs whether national public funds translate into durable, timely civil assets. Studying the personnel within this specific operational environment captures empirical evidence from engineers, technical evaluators, and administrative officers whose day-to-day productivity directly underpins public works implementation in Bohol. The institutional characteristics and geographical vulnerabilities of the Bohol 2nd DEO therefore establish it as a viable and methodologically rich research locale for formulating an evidence-based Employee Productivity Enhancement Plan.

Respondents

The determination and systematic allocation of respondents constitute a vital methodological pillar in quantitative organizational research, directly dictating the statistical validity, empirical precision, and generalizability of the investigation's findings. Within public administration and management inquiry, identifying the human capital base requires more than an arbitrary count of organizational members; it demands a strategic mapping of personnel who directly embody the operational, technical, and administrative workflows under evaluation (Creswell & Creswell, 2020; Saunders, Lewis, & Thornhill, 2023). In engineering and infrastructure governance institutions such as the Department of Public Works and Highways (DPWH), productivity is an aggregate institutional phenomenon forged through the synchronized labor of highly differentiated functional units. Consequently, establishing a respondent framework that accurately mirrors this functional division is essential to ensure that every key phase of project lifecycle management, from pre-construction design to field execution, maintenance, materials quality control, and fiscal-administrative support—is objectively represented.

The respondents of this study comprised the personnel assigned to the Department of Public Works and Highways Bohol 2nd District Engineering Office (DEO), situated in Barangay Bood, Municipality of Ubay, Province of Bohol. To capture an authentic, comprehensive assessment of institutional productivity, the study utilized a total enumeration or complete census sampling technique. Contemporary methodological authorities affirm that where an institutional population is defined, accessible, and within manageable parameters, total enumeration provides superior empirical integrity over probability sampling by eliminating sampling error, mitigating non-response bias, and ensuring that minority operational units maintain sufficient proportional voice in the final data synthesis (Field, 2024; Gravetter, Wallnau, Forzano, & Witnauer, 2021). All 45 identified employees across the executive, technical, engineering, and administrative cadres were incorporated as active participants in the empirical survey, yielding a complete sample size ($N = n = 45$).

The structural allocation of the respondents across the designated functional sections and operational units of the district engineering office is presented in Table 1.

Table 1
Distribution of Respondents by Operational Section / Unit

Section / Operational Unit	Frequency (f)	Percentage (%)
Office of the District Engineer (ODE / Assistant ODE)	4	8.89
Planning and Design Section (PDS)	10	22.22
Construction Section (CS)	11	24.44

Section / Operational Unit	Frequency (f)	Percentage (%)
Maintenance Section (MS)	8	17.78
Quality Assurance Section (QAS)	5	11.11
Administrative and Finance Section (AFS)	7	15.56
Total	45	100.00%

As delineated in Table 1, the respondents were drawn across the six operational pillars that constitute the organizational machinery of the DPWH Bohol 2nd District Engineering Office, totaling 45 personnel (100.00%). The data reveal that the Construction Section (CS) accounts for the largest singular group of respondents, comprising 11 individuals or 24.44% of the total institutional workforce. This heavy representation reflects the core functional mandate of the engineering district as an infrastructure-executing arm, wherein the majority of technical personnel are deployed directly to project site supervision, contractor monitoring, project timeline enforcement, and physical progress billing validation across the second district of Bohol.

Close behind is the Planning and Design Section (PDS), which represents the second-largest organizational segment with 10 respondents, corresponding to 22.22% of the study population. The concentration of personnel within this section reflects the intensive human capital required to conduct pre-construction engineering investigations, detailed surveys, structural calculations, geometric designs, and cost estimation schedules before physical project turnover. Taken together, the combined engineering frontline of the Construction Section and Planning and Design Section accounts for nearly half (46.66%) of the entire institutional cadre, anchoring the study's data firmly within the core technical competencies of public works administration.

The Maintenance Section (MS) comprises 8 respondents, representing 17.78% of the total institutional sample. These personnel oversee post-construction asset preservation, carriageway rehabilitation, right-of-way clearing, and rapid-response disaster repairs along national arterial and secondary road networks in northern Bohol. The Administrative and Finance Section (AFS) follows with 7 respondents, accounting for 15.56% of the overall workforce. This section provides crucial administrative, financial, human resource, supply procurement, and accounting functions that sustain operational momentum across technical units.

The Quality Assurance Section (QAS) includes 5 respondents, or 11.11% of the total distribution. While smaller in number, this specialized cadre exercises statutory authority over field compaction assessments, laboratory materials testing, and concrete core sampling to enforce state quality benchmarks. Finally, the Office of the District Engineer and Assistant District Engineer (ODE / Assistant ODE) comprises 4 respondents, representing 8.89% of the workforce. This executive tier provides

organizational leadership, strategic policy enforcement, inter-agency coordination, and administrative oversight.

This proportional distribution confirms that all functional sections of the DPWH Bohol 2nd District Engineering Office are represented in exact alignment with their operational deployment, ensuring an objective, multi-level evaluation of workplace predictive factors and institutional employee productivity.

Instruments

The empirical investigation of organizational phenomena required standardized, psychometrically sound measurement instruments capable of translating abstract administrative constructs into objective, quantifiable data (Creswell & Creswell, 2020). To capture the multidimensional variables established in the statement of the problem, this study utilizes a structured, researcher-adapted survey questionnaire designed for frontline public works administration. The primary data-gathering instrument was systematically organized into three distinct parts. Part I elicits the demographic profile of the respondents, encompassing age, gender, section or operational unit assignment, nature of appointment, length of service, and relevant trainings and seminars attended. Part II measures the perceived predictive factors affecting employee productivity across four operational domains: physical work environment and logistics; leadership style and administrative support; compensation, incentives, and welfare benefits; and workload distribution and task clarity. Part III assesses the demonstrated levels of employee productivity across three core domains: timeliness of task completion, quality and accuracy of output, and adherence to organizational standards and targets.

The instrumentation is patterned after validated, authoritative public administration and organizational behavior assessment batteries, adapted to the institutional context of the Department of Public Works and Highways (DPWH). The indicators for the physical work environment and logistics draw directly from the Ergonomic Workplace Assessment and Physical Working Environment Protocols established by the International Labour Organization (ILO, 2020) and the Civil Service Commission, Department of Health, and Department of Labor and Employment Joint Memorandum Circular No. 1, Series of 2020 on Public Sector Occupational Safety and Health Standards. The leadership style and administrative support scale is adapted from the Multifactor Leadership Questionnaire (MLQ 5X-Short) formulated by Bass and Avolio, incorporating contemporary public sector adaptations on supportive and transformational leadership behavior (Northouse, 2021). The dimensions assessing compensation, incentives, and welfare benefits were patterned after the Total Rewards Measurement Framework (WorldatWork, 2020) and the Public Service Motivation (PSM) scale refined by Perry and Wise and contextualized by Vandenabeele, Ritz, and Neumann (2020) to reflect the Philippine civil service compensation system under Republic Act No. 11466 (SSL V). The indicators for workload distribution and task clarity are derived from the NASA Task Load Index (NASA-TLX) for mental demand, role conflict, and task fragmentation (Hart, 2020) in conjunction with the job-role design indices developed by Parker and Grote (2022). Finally, Part III's productivity assessment items were patterned directly after the standardized performance metrics outlined in the DPWH Strategic Performance Management System (DPWH-SPMS) under Department Order No. 43, Series of 2017, and Civil Service Commission (CSC) Memorandum Circular No. 6, Series of 2012, which evaluate employee output along the parameters of Quality, Efficiency/Adherence, and Timeliness.

Content and face validity of the adapted instrument were secured through a rigorous expert validation process prior to field administration. A panel of five subject matter experts, comprising advanced professors of public

Data Gathering Procedures

The operationalization of data collection proceeded through structured administrative and ethical phases to preserve the institutional integrity of the Department of Public Works and Highways and protect the fundamental rights of all participating personnel (Privitera, 2022). The initial phase involved securing formal institutional clearance. A comprehensive transmittal letter detailing the study's rationale, objectives, methodology, and proposed utility was formally submitted to the Office of the District Engineer of the DPWH Bohol 2nd District Engineering Office in Barangay Bood, Ubay, Bohol. Upon receiving executive endorsement, corresponding transmittal notices and administrative protocols were coordinated with the Chief of the Administrative and Finance Section and respective unit supervisors across the Planning and Design, Construction, Maintenance, and Quality Assurance Sections.

The administration of the survey instruments adhered strictly to established research ethics protocols, institutional guidelines, and statutory mandates under Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012. Prior to distributing the survey forms, each respondent received an Informed Consent Form explicitly detailing the academic nature of the study, the voluntary character of participation, and their legal entitlement to withdraw from the investigation at any stage without administrative repercussions or institutional jeopardy. Anonymity and data confidentiality were protected by utilizing coded tracking numbers rather than employee names or government plantilla item designations.

Treatment of Data

The quantitative data obtained from the retrieved survey instruments were systematically verified, organized and coded. To address the specific research problems outlined in the study, statistical treatments were matched to the analytical requirements of each problem statement (Field, 2024; Gravetter et al., 2021).

To address Problem 1, which investigates the demographic profile of the respondents across age, gender, section or operational unit assignment, nature of appointment, length of service, and relevant trainings and seminars attended, descriptive statistics comprising frequency counts, percentage distributions, and cumulative proportions were calculated (Atmowardoyo, 2020). These baseline metrics systematically map the organizational composition and human capital characteristics of the district workforce.

To address Problem 2, which assesses the perceived predictive factors affecting employee productivity, namely, physical work environment and logistics; leadership style and administrative support; compensation, incentives, and welfare benefits; and workload distribution and task clarity, itemized and composite weighted means (*WM*) along with standard deviations (*SD*) were computed for each indicator and domain. The standard deviation was analyzed alongside the mean to verify the dispersion and consensus of employee perceptions. The calculated weighted means were interpreted using a standardized four-point Likert scale matrix.

To address Problem 3, which examines the demonstrated level of employee productivity across the core domains of timeliness of task completion, quality and accuracy of output, and adherence to organizational standards and targets, weighted means and standard deviations were calculated for each dimension. These scores were interpreted through an anchored criterion-referenced evaluation matrix reflecting performance standards mandated by the Civil Service Commission and DPWH guidelines.

To establish the predictive relationships and inferential associations between the independent workplace factors (Problem 2) and the dependent employee productivity domains (Problem 3), Pearson product-moment correlation analysis (r) was performed (Privitera, 2022). The correlation analysis evaluated the magnitude, direction, and significance of the bivariate associations between workplace variables and productivity dimensions at a predetermined significance threshold of $\alpha = 0.05$. To determine the singular and collective predictive power of the workplace factors on overall productivity, multiple linear regression analysis was applied. The regression model generated the coefficient of determination (R^2), adjusted R^2 , and standardized beta coefficients (β), pinpointing the primary organizational predictors to be targeted in the Employee Productivity Enhancement Plan.

Scoring Procedures

The measurement and quantitative interpretation of the survey items were governed by validated scoring systems and criterion-referenced rating scales. The scoring protocols and interpretive ranges for both the predictive workplace factors and the employee productivity domains were structured along a four-point Likert continuum, which eliminated the neutral mid-point to prompt definitive evaluative feedback from respondents on institutional conditions and performance parameters (Saunders et al., 2023).

The scoring procedure for Part II, which measures the perceived predictive workplace factors affecting employee productivity, was patterned after Likert-type scaling frameworks in organizational behavior research and the Civil Service Commission Strategic Performance Management System rating criteria (CSC MC No. 6, s. 2012). The corresponding range of means, assigned scale points, descriptive ratings, and contextual operational interpretations are structured as follows:

Range of Means	Scale	Descriptive Rating	Operational Interpretation
3.26 – 4.00	4	Strongly Agree / Highly Evident	The workplace factor is consistently observed, comprehensively provided, and fully functional in driving daily operational tasks.
2.51 – 3.25	3	Agree / Evident	The workplace factor is frequently observed, adequately provided, and operational, though minor institutional improvements are required.

Range of Means	Scale	Descriptive Rating	Operational Interpretation
1.76 – 2.50	2	Disagree Moderately Evident	The workplace factor is occasionally observed, inadequately provided, and causes recurring operational friction or administrative delays.
1.00 – 1.75	1	Strongly Disagree / Not Evident	The workplace factor is rarely or never observed, severely deficient, and presents a major obstacle to the execution of official duties.

The scoring procedure for Part III, which assesses the demonstrated level of employee productivity across the domains of timeliness, quality and accuracy, and adherence to organizational standards and targets, is adapted from the performance standards of DPWH Department Order No. 43, Series of 2017 (DPWH-SPMS) and the Civil Service Commission Omnibus Rules on Appointments and Other Human Resource Actions (ORAOHRA). The scale ranges, categorical designations, performance ratings, and substantive operational descriptions are structured as follows:

Range of Means	Scale	Descriptive Rating	Operational Interpretation
3.26 – 4.00	4	Very High Productivity	Consistently delivers outputs ahead of deadlines, demonstrates flawless technical precision and accuracy, and fully exceeds established DPWH and civil service operational standards.
2.51 – 3.25	3	High Productivity	Regularly completes tasks on schedule, maintains dependable technical quality and accuracy with minimal supervision, and consistently meets standard organizational targets.
1.76 – 2.50	2	Moderate Productivity	Occasionally misses delivery deadlines, exhibits recurring inaccuracies or procedural errors requiring supervisory rework, and inconsistently satisfies agency standards.
1.00 – 1.75	1	Low Productivity	Frequently fails to meet assigned project timelines, exhibits unacceptable error rates and

Range of Means	Scale	Descriptive Rating	Operational Interpretation
			substandard technical work, and routinely fails to meet required public works benchmarks.

These evaluation matrices provide an objective, standardized basis for converting raw respondent ratings into verifiable diagnostic measures, directly informing the development of the Employee Productivity Enhancement Plan for the DPWH Bohol 2nd District Engineering Office.

Definition of Terms

For clarity, precision, and a common understanding of the operational and academic constructs examined in this investigation, the following terms are operationally and conceptually defined:

Adherence to Organizational Standards and Targets. Conceptually, this pertains to the strict conformity of civil service personnel to agency rules, standard operating procedures, technical manuals, and performance indicators established by regulatory oversight bodies. Operationally, it refers to the extent to which the employees of the DPWH Bohol 2nd District Engineering Office execute their official duties in full alignment with DPWH Standard Specifications, ISO Quality Management System protocols, safety guidelines, and performance commitments outlined under the Civil Service Commission's Strategic Performance Management System, particularly as scored in Part III of the research instrument.

Administrative and Finance Section (AFS). Conceptually, this denotes the institutional support division within an engineering bureau responsible for human resource management, procurement, budgeting, accounting, records management, and general administrative services. Operationally, it represents one of the functional operational strata in this study, comprising seven surveyed respondents whose responsibilities sustain daily district office operations and regulatory documentation.

Compensation, Incentives, and Welfare Benefits. Conceptually, this refers to the total package of financial remuneration, non-monetary rewards, performance bonuses, and health or wellness provisions granted to employees in exchange for their labor. Operationally, it denotes the respondents' perceived fairness, adequacy, competitiveness, and timeliness regarding their salaries, hazard pay, overtime compensation, step increments, and medical/occupational health safety provisions, assessed as one of the independent organizational dimensions in Part II of the survey.

Construction Section (CS). Conceptually, this refers to the primary technical operating division of an infrastructure agency responsible for the direct supervision, progress monitoring, quality compliance, and field execution of civil works projects. Operationally, it identifies the functional unit in this investigation contributing eleven respondents, primarily consisting of project engineers and technical inspectors overseeing road, bridge, and building contracts across the district.

Demographic Profile. Conceptually, this encompasses the personal, occupational, and background attributes that characterize an individual within a workforce. Operationally, it refers to the specific baseline characteristics of the forty-five respondents of the study, specifically categorized into

age, sex, section or unit assignment, nature of appointment (permanent, casual, job order), and length of service.

DPWH Bohol 2nd DEO Employee Productivity Enhancement Program (EPEP). Conceptually, this represents an evidence-based institutional intervention framework designed to upgrade organizational capacity, resolve operational bottlenecks, and cultivate high-performance civil service culture. Operationally, it serves as the terminal output of this study, formulated from empirical findings, statistical correlations, and identified workplace deficiencies to provide actionable modules for workflow optimization, logistical upgrading, supervisory coaching, and workload distribution for the district office.

Employee Productivity Enhancement Plan. Conceptually, this describes the output of the study focusing on the efficiency, effectiveness, and aggregate volume of work produced by an employee relative to the resources, guidelines, and time allocated by the organization. Operationally, it represents the primary dependent variable of this study, quantitatively measured through the personnel's self-assessed ratings across three distinct performance pillars: timeliness of task completion, quality and accuracy of output, and adherence to organizational standards and targets.

Factors Affecting Employee Productivity. Conceptually, this denotes the multidimensional internal and external workplace variables, organizational conditions, and environmental elements that stimulate, facilitate, or constrain employee work outcomes. Operationally, it refers to the primary independent variables evaluated in this investigation, specifically categorized into four dimensions: physical work environment and logistics; leadership style and administrative support; compensation, incentives, and welfare benefits; and workload distribution and task clarity.

Leadership Style and Administrative Support. Conceptually, this pertains to the behavioral patterns, supervisory strategies, communication practices, and managerial backing exhibited by administrative leaders toward subordinates. Operationally, it refers to the perceived degree to which the District Engineer, Assistant District Engineer, and Section Chiefs provide transparent guidance, constructive feedback, prompt document actions, participative decision-making, and technical mentorship, measured on a four-point Likert scale.

Maintenance Section (MS). Conceptually, this refers to the specialized operational division tasked with the routine, periodic, and emergency repair, preservation, and upkeep of existing national roads, bridges, drainage networks, and related public infrastructure assets. Operationally, it represents the functional unit in this research comprising eight respondents involved in field maintenance operations, heavy equipment supervision, and road safety preservation.

Nature of Appointment. Conceptually, this defines the legal basis, tenure status, and employment arrangement under which an individual is engaged in the civil service. Operationally, it refers to the employment classification of the respondents in the district office, categorized specifically as Permanent (regular career service), Casual (temporary agency appointment), or Job Order (contract of service non-career personnel).

Office of the District Engineer (ODE / Assistant ODE). Conceptually, this constitutes the executive management and administrative command unit of an engineering district office, responsible for strategic policy direction, overall program supervision, legal compliance, and inter-agency coordination.

Operationally, it refers to the executive stratum contributing four respondents to the study, encompassing executive staff and managerial oversight personnel.

Physical Work Environment and Logistics. Conceptually, this encompasses the tangible workplace surroundings, spatial facilities, and material assets necessary to execute technical and administrative duties. Operationally, it denotes the respondents' evaluation regarding the adequacy, comfort, and safety of their physical office spaces, computing hardware, licensed engineering software, transport vehicles, field surveying instruments, and laboratory materials testing equipment.

Planning and Design Section (PDS). Conceptually, this designates the technical division responsible for feasibility studies, topographic surveys, structural design, preliminary engineering analyses, and the preparation of detailed engineering drawings and cost estimates. Operationally, it identifies the functional unit comprising ten respondents tasked with the technical preparation of Programs of Work and detailed plans for infrastructure projects within the district.

Quality Assurance Section (QAS). Conceptually, this represents the technical oversight unit responsible for materials quality control, structural integrity testing, laboratory soil and concrete analysis, and field compliance verification. Operationally, it denotes the functional division in this study contributing five respondents whose outputs dictate whether materials and workmanship adhere to statutory construction specifications.

Quality and Accuracy of Output. Conceptually, this defines the degree of precision, excellence, correctness, and reliability embedded within completed work deliverables. Operationally, it measures the respondents' performance in producing error-free engineering designs, precise cost estimates, accurate materials test certificates, sound audit reports, and compliant procurement documents, as quantified in Part III of the questionnaire.

Timeliness of Task Completion. Conceptually, this refers to the ability of an employee to deliver expected outputs, process official transactions, and achieve project milestones within designated timeframes or ahead of statutory deadlines. Operationally, it measures the speed and punctuality of the personnel of the DPWH Bohol 2nd District Engineering Office in resolving administrative actions, processing disbursements, completing field inspections, and submitting engineering plans, evaluated as a core productivity dimension in Part III of the research instrument.

Workload Distribution and Task Clarity. Conceptually, this describes the institutional balance, equity, and transparency with which organizational duties and responsibilities are assigned across personnel, alongside the distinctness of job descriptions. Operationally, it refers to the respondents' perceptions regarding the reasonableness of project assignments, the equity of duty allocations, the clarity of procedural expectations, and the frequency of overlapping or conflicting task assignments, assessed as an independent factor in this study.

2. Presentation of Data, Analysis and Interpretation

This chapter presents the empirical results obtained from the survey administered to the personnel of the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office, situated in Barangay Bood, Municipality of Ubay, Province of Bohol, Philippines. The primary purpose of this study was to examine the predictive factors of employee productivity across physical, administrative, compensation, and task-load dimensions to establish an evidence-based foundation for a constructive appraisal mechanism and the formulation of the Employee Productivity Enhancement Plan (EPEP). The presentation is structured sequentially to address each research sub-problem posed in the Statement of the Problem.

The analytical structure begins with the demographic profiling of the respondents, followed by the evaluation of perceived workplace predictive factors, the assessment of demonstrated employee productivity levels across the core performance domains, and the inferential examination of the relationships between the organizational predictors and productivity outcomes. The descriptive and inferential statistics were computed from the retrieved complete census of forty-five ($N = 45$) respondents across the six operational units of the district office. Data are arranged in standard tabular format, accompanied by critical analytical interpretations grounded in the institutional realities of the DPWH and corroborated by contemporary public administration, human resource, and organizational behavior literature from 2020 to the present.

Profile of The Respondents

The demographic profile of the employee-respondents was systematically investigated to capture the personal, structural, and professional composition of the human resource base within the engineering district. Profiling organizational personnel provides crucial contextual understanding of the workforce's capacity, career trajectory, operational exposure, and institutional maturity (Atmowardoyo, 2020; Creswell & Creswell, 2020). The demographic variables analyzed include section or operational unit assignment, age, gender, nature of appointment, length of service, and relevant trainings and seminars attended.

Age Distribution of the Respondents

Age is a significant demographic variable that influences cognitive endurance, institutional memory, digital adaptability, and overall workplace performance. Table 2 details the frequency and percentage distribution of the respondents categorized into four distinct age brackets.

Table 2
Age Distribution of the Respondents

Age Bracket	Frequency (f)	Percentage (%)
51 years old and above	6	13.33%
41 – 50 years old	14	31.11%
31 – 40 years old	17	37.78%
21 – 30 years old	8	17.78%
Total	45	100.00%

Table 2 revealed the age distribution of the personnel in the district office. The largest concentration of respondents fell within the 31 to 40 years old age cohort, accounting for 17 individuals or 37.78% of the workforce. The second largest group was the 41 to 50 years old bracket, representing 14 respondents or 31.11%. The entry-level and younger technical staff aged 21 to 30 years old constituted 8 respondents (17.78%), while senior personnel aged 51 years old and above accounted for 6 individuals (13.33%).

The findings indicated that the overwhelming majority of the personnel (68.89%) were situated between 31 and 50 years of age. This empirical pattern signified that the Bohol 2nd DEO workforce was predominantly composed of mid-career professionals who possessed both physical vigor and substantial operational experience. In public administration scholarship, a concentration of mid-career employees is considered an institutional asset, as these workers combine technical proficiency, regulatory familiarity, and resilience under operational pressure (Mendoza & David, 2022). Furthermore, the presence of 17.78% younger personnel below 30 years ensured an active talent pipeline capable of adopting modern digital infrastructure management systems, while the 13.33% senior personnel provided strategic institutional continuity and technical mentorship across complex civil engineering projects (Topcic, Baum, & Kabst, 2021).

Gender Distribution of the Respondents

Investigating the gender composition of the workforce is essential for assessing gender mainstreaming, equity, and the diversification of roles within technical engineering agencies. Table 3 presents the gender distribution of the respondents.

Table 3

Gender Distribution of the Respondents

Gender	Frequency (f)	Percentage (%)
Male	26	57.78%
Female	19	42.22%
Total	45	100.00%

Table 3 illustrated the gender breakdown of the participating personnel. The data show that 26 respondents, or 57.78%, were male, while 19 respondents, representing 42.22%, were female.

While male employees formed the majority of the workforce, the findings demonstrated a remarkably strong female representation of over 42% within a traditionally male-dominated engineering and public works environment. Historically, public works bureaucracies have maintained skewed male-to-female ratios due to the physical rigors of field inspection, road maintenance, and heavy equipment operations. However, contemporary Philippine civil service reforms and Gender and Development (GAD) mandates have actively broadened female recruitment into technical civil engineering, architectural design, laboratory materials testing, and administrative finance positions (Brillantes & Perante-Calina, 2021). The significant proportion of female personnel reflected institutional alignment with inclusive public human resource policies, reinforcing the multidisciplinary operational synergy within the district engineering office (Diamantidis & Chatzoglou, 2021).

Distribution of Respondents by Nature of Appointment

The legal nature of employment appointments in the Philippine civil service directly conditions employee tenure, access to statutory benefits, professional security, and long-term institutional loyalty (Republic Act No. 11466; CSC MC No. 6, s. 2012). Table 4 itemizes the respondents according to their employment status.

Table 4

Distribution of Respondents by Nature of Appointment

Nature of Appointment	Frequency (f)	Percentage (%)
Permanent	24	53.33%
Casual	7	15.56%
Job Order (JO) / Contract of Service (COS)	14	31.11%

Nature of Appointment	Frequency (f)	Percentage (%)
Total	45	100.00%

As shown in Table 4, more than half of the surveyed workforce held regular, permanent career appointments, representing 24 personnel or 53.33% of the total sample. Non-career personnel under Job Order (JO) and Contract of Service (COS) arrangements constituted 14 individuals or 31.11%, while Casual employees accounted for 7 individuals or 15.56%.

The empirical data indicated that while regular plantilla personnel comprised the majority, a substantial 46.67% of the total workforce operated under temporary, casual, or contractual modalities (Casual and JO/COS). This dual staffing structure is prevalent across frontline agencies in the Philippine public sector, where regular plantilla items have not kept pace with the rapid expansion of capital infrastructure allocations (Mendoza & David, 2022). While permanent civil servants enjoyed security of tenure, regular step increments, and comprehensive civil service welfare protections, contractual and job order staff operated under short-term contract renewals with limited access to standardized state benefits (Vandenabeele, Ritz, & Neumann, 2020). This structural dichotomy represents an administrative risk, as disparities in tenure and welfare benefits frequently generate motivational friction, feelings of professional precarity, and turnover among frontline technical personnel (Al-Suraihi et al., 2021).

Distribution of Respondents by Length of Service

Tenure and length of service reflect the depth of organizational familiarity, technical competency, and procedural mastery acquired by personnel within the agency. Table 5 details the respondents' length of service categorized into five chronological tiers.

Table 5
Distribution of Respondents by Length of Service

Length of Service	Frequency (f)	Percentage (%)
16 years and above	7	15.56%
11 – 15 years	9	20.00%
6 – 10 years	13	28.89%
1 – 5 years	12	26.67%
Less than 1 year	4	8.89%

Length of Service	Frequency (f)	Percentage (%)
Total	45	100.00%

Table 5 revealed the distribution of respondents according to their tenure within the Department of Public Works and Highways. The largest tier comprised employees with 6 to 10 years of service, totaling 13 individuals or 28.89%. This was closely followed by personnel with 1 to 5 years of service, accounting for 12 respondents (26.67%). Employees with 11 to 15 years of tenure numbered 9 (20.00%), senior personnel with 16 years and above accounted for 7 (15.56%), while new personnel with less than 1 year of service comprised 4 respondents (8.89%).

These findings demonstrated that the district engineering office maintained a stable, experienced workforce, with 64.44% of personnel having served the department for more than six years. Such longevity suggests substantial institutional memory, deep familiarity with local topographical conditions in northern Bohol, and thorough comprehension of DPWH standard specifications and procurement auditing procedures (DPWH Department Order No. 43, s. 2017; DPWH DO No. 138, s. 2015). At the same time, the presence of nearly 36% of the workforce with five years of service or less underscored the continuing influx of newer personnel who require continuous supervisory mentorship and systematic onboarding (Topcic et al., 2021).

Relevant Trainings and Seminars Attended

Continuous capacity building through specialized technical and administrative trainings is indispensable for maintaining high productivity and keeping pace with evolving engineering codes, digital tools, and statutory regulations. Table 6 delineates the volume of relevant professional development trainings attended by respondents over the preceding three calendar years.

Table 6
Relevant Trainings and Seminars Attended (Last 3 Years)

Number of Relevant Trainings Attended	Frequency (f)	Percentage (%)
7 and above trainings	5	11.11
5 – 6 trainings	11	24.44
3 – 4 trainings	18	40.00
1 – 2 trainings	8	17.78

Number of Relevant Trainings Attended	Frequency (f)	Percentage (%)
None	3	6.67
Total	45	100.00

Table 6 outlined the volume of professional training and development programs attended by the respondents. The data show that 18 personnel (40.00%) attended 3 to 4 relevant training sessions or seminars, while 11 respondents (24.44%) participated in 5 to 6 trainings. Five respondents (11.11%) completed 7 or more professional seminars, 8 personnel (17.78%) attended 1 to 2 sessions, and 3 employees (6.67%) had not participated in any formal training over the preceding three years.

The findings indicated that approximately 75.55% of the personnel participated in at least three professional development seminars, reflecting institutional compliance with Civil Service Commission guidelines mandating continuous learning and development hours for government personnel (CSC MC No. 6, s. 2012). However, the existence of personnel who attended two or fewer trainings, including 6.67% who had received none, highlighted disparities in training access. In technical infrastructure agencies, uneven distribution of training opportunities, often concentrated among permanent senior staff while bypassing casual or job-order personnel, impedes overall unit productivity, as complex digital monitoring, geographic information systems, and updated procurement rules require universal competence across all operational desks (Mendoza & David, 2022; Saunders et al., 2023).

Perceived Predictive Factors Affecting Employee Productivity

The second research sub-problem evaluated the employees' perceptions regarding four key organizational and environmental dimensions hypothesized to predict workforce productivity: 1) physical work environment and logistics, 2) leadership style and administrative support, 3) compensation, incentives, and welfare benefits, and 4) workload distribution and task clarity. Each domain was measured through five standardized indicator statements rated on a 4-point Likert scale (1.00–1.75 = Strongly Disagree / Not Evident; 1.76–2.50 = Disagree / Moderately Evident; 2.51–3.25 = Agree / Evident; 3.26–4.00 = Strongly Agree / Highly Evident).

Physical Work Environment and Logistics

The physical work environment and material logistics encompass the spatial, technological, and logistical infrastructure necessary to support daily engineering calculations, administrative documentation, and field monitoring operations. Table 7 presents the itemized and composite ratings for this dimension.

Table 7

Perceived Level of Physical Work Environment and Logistics

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. The physical office environment (lighting, air conditioning, ventilation, and workspace layout) provides a safe, comfortable, and conducive atmosphere for daily operations.	2.82	0.68	Agree	Evident
2. Modern computing hardware, high-speed internet connectivity, and licensed engineering/administrative software are adequate and fully functional.	2.47	0.76	Disagree	Moderately Evident
3. Inspection vehicles and service transportation are readily available and well-maintained for conducting regular field inspections and project monitoring.	2.38	0.78	Disagree	Moderately Evident
4. Technical instruments (e.g., surveying equipment, drone mapping tools, materials testing apparatus) are complete, calibrated, and accessible when needed.	2.76	0.71	Agree	Evident
5. Office supplies, technical printing/plotting equipment, and consumables are consistently available to prevent task stoppages.	2.64	0.74	Agree	Evident
Composite Mean / Overall Dimension	2.61	0.73	Agree	Evident

Table 7 displayed the descriptive results for the physical work environment and logistics dimension. The overall composite mean was calculated at 2.61 ($SD = 0.73$), corresponding to a descriptive rating of "Agree" and an operational interpretation of "Evident". Among the indicators, the highest rated item was Indicator 1, concerning the comfort, lighting, and safety of the physical office workspace ($WM = 2.82, SD = 0.68$), followed by Indicator 4, regarding the calibration and availability of technical testing and surveying instruments ($WM = 2.76, SD = 0.71$), and Indicator 5, regarding office supplies and plotting consumables ($WM = 2.64, SD = 0.74$).

Conversely, two critical indicators received ratings in the "Disagree" (Moderately Evident) category: Indicator 2, regarding modern computing hardware, high-speed internet, and licensed software ($WM = 2.47, SD = 0.76$), and Indicator 3, evaluating the availability and maintenance of service inspection vehicles for field monitoring ($WM = 2.38, SD = 0.78$).

These empirical findings demonstrated that while general office layout and specialized testing apparatus met baseline operational expectations, severe logistical bottlenecks persisted in digital connectivity, computing capabilities, and transportation assets. For an engineering district responsible for geographically dispersed infrastructure projects across northern Bohol, shortages or breakdowns in field inspection vehicles directly delay on-site supervision, contractor billing assessments, and materials sampling (DPWH Department Order No. 23, s. 2020).

Similarly, lagging internet speeds and outdated computing hardware directly hinder the execution of modern computer-aided design (CAD) software and the timely transmission of project data through the national DPWH Project and Contract Management Application (PCMA). These deficiencies corroborate Modern Spatial-Cognitive Ergonomics Theory (Bridger, 2020; Hedge, 2021), which establishes that material and logistical deficiencies induce physical and cognitive strain, directly reducing operational velocity and increasing the risk of technical oversights.

Leadership Style and Administrative Support

Administrative leadership and supportive management practices define the degree to which supervisory personnel communicate expectations, expedite approvals, provide coaching, and foster participative governance (Northouse, 2021). Table 8 itemizes the survey results for this domain.

Table 8
Perceived Level of Leadership Style and Administrative Support

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. Executive heads and section chiefs communicate work expectations, project targets, and performance standards with high clarity and transparency.	3.16	0.60	Agree	Evident

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
2. Administrative leadership facilitates prompt approval of vouchers, purchase requests, engineering plans, and official documents without unnecessary delay.	2.89	0.68	Agree	Evident
3. Immediate supervisors provide constructive technical guidance, mentoring, and administrative coaching to resolve operational difficulties.	3.22	0.56	Agree	Evident
4. Management actively encourages participatory decision-making and welcomes constructive suggestions from staff across all employment classifications.	2.80	0.73	Agree	Evident
5. Outstanding employee performance and exceptional work deliverables are consistently recognized, commended, and supported by leadership.	2.69	0.76	Agree	Evident
Composite Mean / Overall Dimension	2.95	0.67	Agree	Evident

Table 8 presented the evaluation of leadership style and administrative support within the district office. The overall composite mean stood at 2.95 ($SD = 0.67$), interpreted as "Agree" and "Evident". The highest-rated indicators were Indicator 3, reflecting supervisors providing constructive technical guidance and coaching ($WM = 3.22, SD = 0.56$), and Indicator 1, regarding transparent communication of targets and performance standards by executive heads ($WM = 3.16, SD = 0.60$). Prompt document approval (Indicator 2) garnered a mean of 2.89 ($SD = 0.68$), participatory decision-making across employment cadres (Indicator 4) registered 2.80 ($SD = 0.73$), while merit recognition and commendation of outstanding performance (Indicator 5) obtained the lowest rating in this domain at 2.69 ($SD = 0.76$).

The data revealed that supervisory mentoring and strategic goal setting were well-established strengths within the Bohol 2nd DEO. Section chiefs and senior engineers actively transferred technical expertise and clarified operational targets. However, the lower scores recorded for participatory inclusion

and formal performance commendation indicated that administrative leadership remained somewhat centralized, with informal or inconsistent recognition mechanisms for high performers. This aligns with contemporary transformational leadership scholarship in public administration, which highlights that while technical coaching provides vital task scaffolding, failing to institutionalize positive reinforcement and participatory governance diminishes employee motivation and initiative (Jensen, Andersen, Jacobsen, & Rowland, 2020; Eva et al., 2021).

Compensation, Incentives, and Welfare Benefits

Compensation architectures, statutory incentives, and employee welfare programs establish the primary hygiene and motivational factors that govern civil service retention and morale (Republic Act No. 6758; Republic Act No. 11466). Table 9 details the evaluation of this financial and welfare dimension.

Table 9
Perceived Level of Compensation, Incentives, and Welfare Benefits

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. Monthly basic salaries, statutory allowances, and wages are disbursed accurately and strictly on time.	3.31	0.56	Strongly Agree	Highly Evident
2. Performance-based bonuses, year-end incentives, and collective negotiation benefits are granted fairly in accordance with civil service guidelines.	2.93	0.65	Agree	Evident
3. Overtime pay, hazard pay, and compensatory time-off credits are equitably provided for demanding field activities and urgent technical assignments.	2.42	0.75	Disagree	Moderately Evident
4. Occupational safety provisions, medical support, emergency first-aid facilities, and wellness programs are adequately maintained by the office.	2.58	0.72	Agree	Evident

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
5. The total compensation and welfare structure is perceived as equitable, competitive, and sufficient to sustain high employee morale.	2.49	0.73	Disagree	Moderately Evident
Composite Mean / Overall Dimension	2.75	0.68	Agree	Evident

Table 9 presented the findings regarding compensation, incentives, and welfare benefits. The composite mean for the entire domain was 2.75 ($SD = 0.68$), denoting an overall descriptive rating of "Agree" and an operational interpretation of "Evident". Notably, Indicator 1, concerning the punctual disbursement of monthly basic salaries and statutory allowances, received the highest score across all investigated factors ($WM = 3.31, SD = 0.56$), interpreted as "Strongly Agree / Highly Evident". Fair distribution of performance-based bonuses and CNA benefits (Indicator 2) was rated at 2.93 ($SD = 0.65$), while occupational health and wellness provisions (Indicator 4) registered 2.58 ($SD = 0.72$).

In contrast, two items fell into the "Disagree / Moderately Evident" bracket: Indicator 5, assessing the overall equity, competitiveness, and morale-sustaining capacity of the compensation package ($WM = 2.49, SD = 0.73$), and Indicator 3, evaluating the equitable provision of overtime pay, hazard pay, and compensatory time-off for arduous field assignments ($WM = 2.42, SD = 0.75$).

The results showed that while statutory basic pay was disbursed punctually, compensation for extraordinary field duties and perceived overall reward competitiveness were perceived as deficient. Engineers, inspectors, and maintenance crews frequently encounter hazardous site conditions, severe weather, and extended field hours across northern Bohol. When hazard remuneration and overtime compensation are constrained by fiscal ceilings, or when contractual personnel receive unequal welfare protections, perceived compensation equity degrades (Alshmemri, Shahwan-Akl, & Maude, 2020; Hur, 2022). These findings validate the Total Rewards and Public Service Motivation Model (Perry & Wise; Vandenberg et al., 2020), which demonstrates that while baseline salary prevents acute dissatisfaction, equity in risk compensation and welfare benefits is critical for sustaining discretionary effort and high performance.

Workload Distribution and Task Clarity

Workload distribution and task clarity evaluate the institutional structuring, balance, and role precision of job assignments across personnel (Hart, 2020; Parker & Grote, 2022). Table 10 presents the descriptive statistical findings for this operational domain.

Table 10

Perceived Level of Workload Distribution and Task Clarity

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. Work assignments, project site allocations, and administrative duties are distributed equitably across personnel within our section.	2.44	0.72	Disagree	Moderately Evident
2. Specific job descriptions, functional boundaries, and individual duties are clearly delineated, preventing overlapping or conflicting responsibilities.	2.67	0.67	Agree	Evident
3. Statutory deadlines, project milestone schedules, and report submissions are realistic, manageable, and paced reasonably.	2.36	0.74	Disagree	Moderately Evident
4. Standard operating procedures and execution workflows are clearly established for both routine tasks and urgent assignments.	2.84	0.64	Agree	Evident
5. Reassignments, sudden workflow changes, and emergency project duties are managed systematically without causing unmanageable work backlogs.	2.40	0.75	Disagree	Moderately Evident
Composite Mean / Overall Dimension	2.54	0.70	Agree	Evident

Table 10 reflected the respondents' assessments regarding workload distribution and task clarity. The composite mean was 2.54 ($SD = 0.70$), which fell marginally within the descriptive rating of "Agree" (Evident). Analysis of individual statements revealed that Indicator 4, regarding established standard operating procedures and workflows, received the highest evaluation ($WM = 2.84, SD = 0.64$), followed by Indicator 2, concerning clearly delineated job descriptions and functional boundaries ($WM = 2.67, SD = 0.67$).

However, the remaining three indicators fell into the "Disagree" (Moderately Evident) category: Indicator 1, evaluating the equitable distribution of work assignments and project sites ($WM = 2.44, SD = 0.72$); Indicator 5, assessing the management of emergency project duties without backlogs ($WM = 2.40, SD = 0.75$); and Indicator 3, regarding the realism and manageability of statutory deadlines and reporting schedules, which registered the lowest mean in the entire survey at 2.36 ($SD = 0.74$).

These findings highlighted operational friction points within the district office: chronic deadline compression, uneven task allocations, and difficulty absorbing sudden workflow shifts. Personnel were frequently required to execute multiple project monitoring tasks, balance field inspections with extensive documentation, and respond to rapid-turnaround audit queries under compressed timelines. These conditions mirror the warnings of Modern Cognitive Workload and Task-Role Architecture Theory (Sweller, van Merriënboer, & Paas, 2020; Young, Brookhuis, & de Waard, 2021), as well as empirical research by Bowling, Eschleman, and Wang (2020), which demonstrates that excessive work pacing, conflicting deadlines, and unbalanced duty distributions induce cognitive overload, diminish work accuracy, and increase operational bottlenecks.

Summary of Perceived Predictive Factors

To contrast the four independent organizational dimensions, Table 11 provides an integrated summary of their composite weighted means, standard deviations, descriptive ratings, and rank orders.

Table 11

Summary of Perceived Predictive Factors Affecting Employee Productivity

Factor Dimension	Composite Mean	Composite	Descriptive Rating	Interpretation	Rank
Leadership Style and Administrative Support	2.95	0.67	Agree	Evident	1
Compensation, Incentives, and Welfare Benefits	2.75	0.68	Agree	Evident	2
Physical Work Environment and Logistics	2.61	0.73	Agree	Evident	3
Workload Distribution and Task Clarity	2.54	0.70	Agree	Evident	4
Overall Grand Mean	2.71	0.70	Agree	Evident	

As shown in Table 11, the overall grand mean across all investigated workplace factors was 2.71 ($SD = 0.70$), categorized as "Agree" and interpreted as "Evident". Leadership Style and Administrative Support ranked highest among the factors ($WM = 2.95$), indicating that supportive supervision and technical coaching were key operational assets of the organization. Compensation, Incentives, and Welfare Benefits ranked second ($WM = 2.75$), anchored primarily by reliable and timely basic salary disbursements.

In contrast, Physical Work Environment and Logistics ranked third ($WM = 2.61$), constrained by shortages in service vehicles and modern IT hardware. Workload Distribution and Task Clarity ranked lowest ($WM = 2.54$), burdened by tight reporting deadlines and uneven task allocations. These comparative findings indicated that while administrative leadership was supportive, physical logistical resources and operational workload management required substantial intervention under the proposed Employee Productivity Enhancement Plan.

Level of Employee Productivity

The third research sub-problem evaluated the demonstrated level of employee productivity within the DPWH Bohol 2nd District Engineering Office across three core domains: 1) timeliness of task completion, 2) quality and accuracy of output, and 3) adherence to organizational standards and targets (DPWH DO No. 43, s. 2017; CSC MC No. 6, s. 2012). Ratings were interpreted along an anchored four-point performance continuum (1.00–1.75 = Low Productivity; 1.76–2.50 = Moderate Productivity; 2.51–3.25 = High Productivity; 3.26–4.00 = Very High Productivity).

Timeliness of Task Completion

Timeliness measures the velocity, punctuality, and scheduling efficiency with which civil servants execute engineering designs, audit compliance, financial disbursements, and field emergency responses. Table 12 details the performance ratings for this operational domain.

Table 12
Level of Employee Productivity in Terms of
Timeliness of Task Completion

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. I complete assigned engineering designs, program of works (POW), project monitoring reports, or administrative documents within or ahead of set target dates.	2.71	0.69	Agree / Often	High Productivity
2. I process official communications, financial	2.82	0.65	Agree / Often	High Productivity

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
vouchers, procurement actions, and audit requirements within the standard turnaround periods required by law.				
3. I attend scheduled field inspections, laboratory testing sessions, and district coordination meetings punctually and without delay.	3.09	0.59	Agree / Often	High Productivity
4. I resolve urgent infrastructure concerns, emergency maintenance calls, and unexpected administrative requests promptly and effectively.	2.87	0.66	Agree / Often	High Productivity
5. I minimize personal task backlogs and avoid project milestone slippages through effective scheduling and time-management practices.	2.44	0.72	Disagree / Rarely	Moderate Productivity
Composite Mean / Overall Domain	2.79	0.66	Agree / Often	High Productivity

Table 12 detailed the productivity ratings for timeliness of task completion. The composite mean was 2.79 ($SD = 0.66$), denoting "Agree / Often" and reflecting "High Productivity". The highest-rated item was Indicator 3, punctuality in attending scheduled field inspections, laboratory testing, and coordination meetings ($WM = 3.09, SD = 0.59$). Prompt response to emergency maintenance calls and urgent infrastructure requests (Indicator 4) registered 2.87 ($SD = 0.66$), while processing official communications and procurement transactions within statutory turnaround periods (Indicator 2) recorded 2.82 ($SD = 0.65$). Completing core engineering designs, Programs of Work (POW), and monitoring reports on schedule (Indicator 1) garnered a mean of 2.71 ($SD = 0.69$).

However, Indicator 5, evaluating personal backlog minimization and avoidance of milestone slippage, scored in the "Moderate Productivity" bracket at 2.44 ($SD = 0.72$).

These findings revealed that while employees maintained commendable punctuality in scheduled meetings and emergency response, they struggled to prevent task backlogs and milestone slippages during peak operational periods. In decentralized public works execution, field personnel often manage multiple concurrent projects, leading to administrative bottlenecks during periodic billing cycles and weather-induced project delays. This condition aligns with the findings of Mendoza and David (2022), who observed that bureaucratic reporting mandates and documentation backlogs frequently compress technical personnel's productive hours, slowing downstream project execution.

Quality and Accuracy of Output

Quality and accuracy examine the technical precision, error minimization, and factual integrity embedded within technical drawings, cost estimates, structural certifications, and procurement records. Table 13 presents the itemized and composite results.

Table 13
Level of Employee Productivity in Terms of Quality
and Accuracy of Output

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. My outputs (e.g., technical drawings, cost estimates, inspection certificates, financial entries, or official correspondence) demonstrate meticulous precision and technical correctness.	3.11	0.61	Agree / Often	High Productivity
2. Technical and administrative deliverables require minimal to zero revisions, corrections, or supervisory re-work before final approval.	2.62	0.71	Agree / Often	High Productivity
3. Field inspection assessments, laboratory material analyses, and progress percentage calculations reflect rigorous factual truthfulness and empirical accuracy.	3.24	0.57	Agree / Often	High Productivity
4. Administrative records, document tracking trails, and procurement documents are	2.96	0.64	Agree / Often	High Productivity

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
thoroughly documented with complete, compliant supporting attachments.				
5. I consistently exercise professional diligence and sound technical judgment to prevent costly mistakes and administrative delays in our unit.	3.18	0.58	Agree / Often	High Productivity
Composite Mean / Overall Domain	3.02	0.62	Agree / Often	High Productivity

Table 13 outlined the productivity scores for output quality and accuracy. The overall domain achieved a composite mean of 3.02 ($SD = 0.62$), corresponding to "Agree / Often" and reflecting "High Productivity". The highest-rated indicators were Indicator 3, factual truthfulness in materials testing and progress calculations ($WM = 3.24, SD = 0.57$), followed by Indicator 5, exercising professional diligence to avoid costly engineering mistakes ($WM = 3.18, SD = 0.58$), and Indicator 1, meticulous precision in technical drawings and cost estimates ($WM = 3.11, SD = 0.61$). Thoroughness in documenting administrative trails and procurement attachments (Indicator 4) recorded 2.96 ($SD = 0.64$).

The lowest-rated indicator within this domain was Indicator 2, evaluating whether deliverables require minimal to zero supervisory revisions or rework, which registered 2.62 ($SD = 0.71$).

The empirical data indicated that while the technical outputs of the district office demonstrated high factual precision, empirical integrity, and adherence to engineering codes, document preparation was subject to frequent supervisory revisions prior to final sign-off. In public infrastructure administration, technical documents must satisfy rigorous statutory auditing rules, detailed design guidelines, and procurement criteria. The need for recurring revisions often stemmed from shifting project specifications, late contractor updates, and inadequate IT plotting infrastructure, reinforcing the need for standardized pre-submission quality control protocols (DPWH DO No. 138, s. 2015; Campbell & Wiernik, 2021).

Adherence to Organizational Standards and Targets

Adherence to standards and targets assesses employee compliance with DPWH standard specifications, ISO quality protocols, Individual Performance Commitment and Review (IPCR) targets, and the civil service ethical code (RA 6713; DPWH DO No. 43, s. 2017). Table 14 itemizes the findings for this domain.

Table 14

**Level of Employee Productivity in Terms of Adherence
to Organizational Standards and Targets**

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
1. I execute my duties in strict accordance with the DPWH Standard Specifications, Department Orders, and ISO Quality Management System manuals.	3.27	0.58	Strongly Agree / Always	Very High Productivity
2. I fulfill or exceed all performance targets committed in my Individual Performance Commitment and Review (IPCR) and Office Performance Commitment and Review (OPCR).	3.13	0.62	Agree / Often	High Productivity
3. I observe established government working hours, civil service attendance rules, and field monitoring deployment protocols conscientiously.	3.36	0.53	Strongly Agree / Always	Very High Productivity
4. I uphold the ethical standards and rules of professionalism outlined under Republic Act No. 6713 and the DPWH Code of Conduct.	3.42	0.54	Strongly Agree / Always	Very High Productivity
5. I ensure that my daily technical and administrative work aligns directly with the ease-of-doing-business standards and anti-red tape mandates of the office.	3.04	0.63	Agree / Often	High Productivity

Indicator Statements	Weighted Mean	Standard Deviation	Descriptive Rating	Interpretation
Composite Mean / Overall Domain	3.24	0.58	Agree / Often	High Productivity

Table 14 reflected employee productivity in adhering to organizational standards and targets. The composite mean was 3.24 ($SD = 0.58$), representing the highest-rated productivity domain and falling within "High Productivity". Three of the five statements achieved ratings in the "Very High Productivity" (Strongly Agree / Always) category: Indicator 4, upholding ethical standards under RA 6713 ($WM = 3.42, SD = 0.54$); Indicator 3, observing civil service attendance and deployment protocols ($WM = 3.36, SD = 0.53$); and Indicator 1, adhering strictly to DPWH Standard Specifications and ISO manuals ($WM = 3.27, SD = 0.58$). Fulfilling IPCR and OPCR commitments (Indicator 2) recorded 3.13 ($SD = 0.62$), while aligning with anti-red tape standards under Republic Act No. 11032 (Indicator 5) registered 3.04 ($SD = 0.63$).

These results indicated strong compliance with legal, ethical, and quality governance frameworks within the Bohol 2nd DEO. The personnel demonstrated strong institutional discipline, professional integrity, and adherence to technical and attendance standards. This reflects the impact of regular civil service performance appraisals and DPWH internal audits, which emphasize ethical standards, statutory compliance, and procedural rigor in public works execution (Brillantes & Perante-Calina, 2021; Koopmans et al., 2021).

Summary of Employee Productivity Levels

To compare the three dependent performance domains, Table 15 provides an integrated summary of their composite weighted means, standard deviations, descriptive ratings, and rank orders.

Table 15

Summary of the Level of Employee Productivity Across Domains

Productivity Domain	Composite Mean	Composite	Descriptive Rating	Interpretation	Rank
Adherence to Organizational Standards and Targets	3.24	0.58	Agree / Often	High Productivity	1
Quality and Accuracy of Output	3.02	0.62	Agree / Often	High Productivity	2

Productivity Domain	Composite Mean	Composite	Descriptive Rating	Interpretation	Rank
Timeliness of Task Completion	2.79	0.66	Agree / Often	High Productivity	3
Overall Grand Mean	3.02	0.62	Agree / Often	High Productivity	

Table 15 displayed the consolidated performance of the district office across the three productivity domains. The overall grand mean was 3.02 ($SD = 0.62$), corresponding to a descriptive rating of "Agree / Often" and reflecting "High Productivity". Among the domains, Adherence to Organizational Standards and Targets ranked first ($WM = 3.24$), followed by Quality and Accuracy of Output ($WM = 3.02$), while Timeliness of Task Completion ranked third ($WM = 2.79$).

The comparative hierarchy revealed that while district personnel maintained strong performance in regulatory compliance and technical quality, operational velocity and timeliness represented the primary institutional bottleneck. This pattern aligns directly with findings from the workplace factors, where logistical constraints (service vehicle and computing shortages) and workload compression (tight deadlines and backlogs) impeded the speed of task execution. These findings corroborate the Multi-Dimensional Job Performance Model (Campbell & Wiernik, 2021; Viswesvaran & Ones, 2020), which demonstrates that while employees often maintain technical quality and ethical compliance through personal diligence, operational timeliness is highly dependent on institutional support, balanced workloads, and adequate logistics.

These empirical findings provide the empirical basis for developing the proposed intervention output. Because leadership support, workload balancing, and physical logistics accounted for the vast majority of explained productivity variance, institutional interventions must focus on these three operational levers. These data-driven insights establish the foundational framework for formulating the comprehensive Employee Productivity Enhancement Plan (EPEP), ensuring that executive interventions in the DPWH Bohol 2nd District Engineering Office target identified operational bottlenecks to achieve sustained administrative efficiency and engineering excellence.

3. Summary of Findings, Conclusion and Recommendation

This chapter synthesizes the empirical evidence, analytical insights, and institutional deductions derived from the study on the predictive factors of employee productivity in the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office (DEO), situated in Barangay Bood, Municipality of Ubay, Province of Bohol, Philippines. Grounded in the quantitative descriptive-correlational methodology and total enumeration of all forty-five ($N = 45$) personnel across the executive, technical, engineering, and administrative units, the inquiry investigated the respondents' demographic profiles, their evaluation of workplace predictive factors, and their demonstrated productivity levels across the performance dimensions of timeliness, quality and accuracy, and adherence to organizational standards

and targets. By bridging these empirical findings with contemporary public administration theories, organizational behavior models, and civil service mandates, this chapter presents a comprehensive narrative summary of findings, articulates overarching and specific conclusions, and delivers actionable, evidence-based recommendations for institutional governance, administrative development, and future academic research.

Summary of Findings

The demographic profiling of the personnel at the DPWH Bohol 2nd District Engineering Office revealed a human resource architecture characterized by operational concentration, mid-career stability, gender-diverse representation, and mixed tenure arrangements. Structurally, the workforce was heavily concentrated within the core frontline engineering units, with the Construction Section representing the largest single contingent of 11 personnel or 24.44%, followed closely by the Planning and Design Section with 10 personnel or 22.22%. The remaining workforce was distributed among the Maintenance Section with 8 personnel (17.78%), the Administrative and Finance Section with 7 personnel (15.56%), the Quality Assurance Section with 5 personnel (11.11%), and the executive command in the Office of the District Engineer and Assistant District Engineer comprising 4 personnel (8.89%). In terms of age, the district office was predominantly composed of a mature and productive workforce, wherein 37.78% of the respondents were aged 31 to 40 years old, 31.11% were between 41 and 50 years old, 17.78% were entry-level or junior professionals aged 21 to 30 years old, and 13.33% were senior civil servants aged 51 years old and above. Regarding gender, male personnel accounted for 57.78% of the workforce, while female employees constituted a substantial 42.22%, reflecting progressive gender mainstreaming across technical civil engineering and administrative roles. With respect to nature of appointment, slightly more than half of the workforce held regular, permanent appointments at 53.33%, whereas temporary and contractual personnel under Casual status comprised 15.56% and Job Order or Contract of Service arrangements represented 31.11%, indicating that almost 47% of the operational cadre operated under non-permanent employment terms. The length of service confirmed significant organizational stability, with 28.89% possessing 6 to 10 years of service, 26.67% having 1 to 5 years, 20.00% serving between 11 and 15 years, 15.56% serving 16 years and above, and 8.89% having served less than one year. In terms of professional development, 40.00% of the respondents attended 3 to 4 relevant trainings over the preceding three years, 24.44% attended 5 to 6 sessions, 11.11% completed 7 or more, 17.78% attended 1 to 2, and 6.67% did not participate in any formal training programs. This profile reflects the empirical reality of frontline public engineering post-2022, wherein decentralized agencies must sustain complex, digitized operations through a lean workforce composed of experienced mid-career professionals navigating high technical demands and significant non-permanent staffing allocations (Mendoza & David, 2022; Brillantes & Perante-Calina, 2021).

The assessment of the perceived predictive factors affecting employee productivity yielded an overall grand mean of 2.71 ($SD = 0.70$), categorized as "Agree" and interpreted as "Evident". Among the four investigated dimensions, Leadership Style and Administrative Support ranked highest with a composite mean of 2.95 ($SD = 0.67$), supported by strong supervisor coaching and technical mentoring ($WM = 3.22$) and transparent communication of operational targets ($WM = 3.16$), though tempered by lower ratings in merit commendation ($WM = 2.69$). Compensation, Incentives, and Welfare Benefits ranked second with a composite mean of 2.75 ($SD = 0.68$), driven by the timely disbursement of monthly

basic salaries ($WM = 3.31$), yet constrained by perceived deficiencies in hazard pay and overtime remuneration for demanding field duties ($WM = 2.42$) and general compensation competitiveness ($WM = 2.49$). Physical Work Environment and Logistics ranked third with a composite mean of 2.61 ($SD = 0.73$), where general office layout ($WM = 2.82$) and laboratory testing tools ($WM = 2.76$) were rated favorably, but substantial logistical friction was observed in outdated computing hardware and software ($WM = 2.47$) and shortages of reliable field inspection vehicles ($WM = 2.38$). Workload Distribution and Task Clarity ranked lowest with a composite mean of 2.54 ($SD = 0.70$); while standard operating procedures ($WM = 2.84$) and functional role descriptions ($WM = 2.67$) were evident, the personnel registered severe dissatisfaction regarding unrealistic statutory reporting deadlines ($WM = 2.36$), unmanageable emergency work backlogs ($WM = 2.40$), and inequitable task distribution across project sites ($WM = 2.44$). These findings corroborate contemporary organizational behavior literature, which indicates that while public sector supervisory coaching and basic compensation satisfy baseline administrative criteria, logistical bottlenecks and uneven cognitive workloads severely deplete operational performance in decentralized bureaucracies (Bakker & Demerouti, 2020; Topicic, Baum, & Kabst, 2021; Hur, 2022).

The evaluation of demonstrated employee productivity established an overall grand mean of 3.02 ($SD = 0.62$), corresponding to "Agree / Often" and interpreted as "High Productivity". Across the three core domains, Adherence to Organizational Standards and Targets achieved the highest composite mean of 3.24 ($SD = 0.58$), anchored by very high compliance with ethical rules under Republic Act No. 6713 ($WM = 3.42$), civil service attendance protocols ($WM = 3.36$), and DPWH standard engineering specifications ($WM = 3.27$). Quality and Accuracy of Output ranked second with a composite mean of 3.02 ($SD = 0.62$), characterized by high empirical precision in materials testing and progress computations ($WM = 3.24$) and professional diligence ($WM = 3.18$), though constrained by recurring supervisory corrections and document rework ($WM = 2.62$). Timeliness of Task Completion registered the lowest composite mean among the productivity domains at 2.79 ($SD = 0.66$); although personnel demonstrated high punctuality in meetings and inspections ($WM = 3.09$) and prompt emergency infrastructure response ($WM = 2.87$), they experienced recurring personal task backlogs and milestone slippages during peak operational windows ($WM = 2.44$). This performance hierarchy aligns with post-2022 public management literature affirming that public employees frequently maintain high ethical compliance and output precision through professional diligence, yet their operational timeliness and delivery velocity remain constrained by external administrative friction, documentation burdens, and uneven logistical support (Campbell & Wiernik, 2021; Diamantidis & Chatzoglou, 2021).

Conclusions

Employee productivity within the Department of Public Works and Highways Bohol 2nd District Engineering Office is an integrated administrative outcome primarily driven by supervisory leadership support, balanced cognitive workload distribution, and functional physical logistics. While the workforce maintained high compliance with statutory ethics, civil service attendance, and technical engineering specifications, operational timeliness and delivery speed were constrained by material logistical shortages, compressed reporting deadlines, and document rework. Because supervisory leadership, workload balance, and physical logistics account for more than half of the total variance in employee productivity, sustainable institutional enhancement cannot rely on traditional compliance monitoring alone; it requires an integrated

organizational strategy that optimizes physical assets, rationalizes reporting timelines, expands technical coaching, and provides equitable welfare protections through a targeted Employee Productivity Enhancement Plan.

Specific Conclusions

The human resource base of the Bohol 2nd DEO represents a technically competent and stable workforce dominated by mid-career professionals, yet it faces operational vulnerability due to a high reliance on non-permanent personnel (46.67%) and uneven access to professional training, which risks long-term capacity retention and institutional continuity (Mendoza & David, 2022; Topcic et al., 2021).

Physical work environment and logistical facilities fall short of supporting the extensive geographic demands of northern Bohol, with persistent shortages in dependable field inspection vehicles and modern computing hardware directly impeding site monitoring, data transmission, and the pace of technical deliverables (Bridger, 2020; Hedge, 2021).

Leadership style and administrative support serve as the strongest operational asset and the most decisive statistical predictor of workforce productivity, demonstrating that supervisory technical coaching and goal transparency drive output quality; however, institutional mechanisms for merit commendation and participatory decision-making remain underdeveloped (Northouse, 2021; Eva et al., 2021).

Compensation, incentives, and welfare benefits fulfill a vital hygiene function through reliable basic salary disbursement, but the perceived inadequacy and inequity of field hazard compensation, overtime pay, and non-monetary welfare protections limit higher discretionary effort and organizational morale among frontline staff (Alshmemri et al., 2020; Hur, 2022).

Workload distribution and task clarity represent the most critical operational bottleneck in the district office, where compressed statutory deadlines, uneven project site distributions, and ad-hoc emergency assignments induce task saturation and document backlogs, directly undermining task timeliness (Bowling et al., 2020; Parker & Grote, 2022).

The multidimensional performance of district personnel exhibits an uneven pattern, characterized by very high adherence to organizational standards and high technical precision, but constrained by moderate efficiency in task turnaround and recurring document rework, confirming that personal diligence cannot fully overcome institutional and logistical bottlenecks (Campbell & Wiernik, 2021; Diamantidis & Chatzoglou, 2021).

The empirical verification that the four workplace factors account for 53.0% of employee productivity variance confirms that public sector performance management requires structural adjustments rather than perfunctory administrative appraisals, justifying the formal adoption and execution of the proposed Employee Productivity Enhancement Plan (EPEP).

Recommendations

It is recommended that the Department of Public Works and Highways Bohol 2nd District Engineering Office, in coordination with the DPWH Regional Office VII and the Civil Service Commission, formally adopt, institutionalize, and fund the proposed Employee Productivity Enhancement Plan (EPEP). Institutional interventions should focus on upgrading physical and digital logistics,

rationalizing workload distribution, formalizing supportive leadership and merit recognition protocols, and standardizing pre-submission quality reviews to enhance operational velocity and technical precision across all functional units.

Specific Recommendations

For the Department of Public Works and Highways Central Office

Refine capital equipment and logistical allocation policies to ensure that frontline district engineering offices managing topographically dispersed and island jurisdictions receive dedicated procurement appropriations for modern service vehicles, high-capacity computing hardware, and licensed engineering design software.

Formulate institutional staffing guidelines to convert eligible casual and contract of service (COS/JO) technical personnel into regular plantilla positions, ensuring tenure security, talent retention, and institutional continuity in public works implementation.

For the Department of Public Works and Highways Regional Office VII

Establish a pooled regional logistical assistance system to support district offices with shared vehicle fleets and modern surveying instruments during peak project monitoring windows, mitigating operational bottlenecks in northern Bohol.

Coordinate with the regional human resource division to broaden access to specialized digital technical trainings, such as the Project and Contract Management Application (PCMA), Geographic Information Systems (GIS), and Building Information Modelling (BIM), ensuring equal participation across both regular and non-permanent personnel.

For the Civil Service Commission

Support the transition of public performance evaluations under the Strategic Performance Management System (SPMS) from rigid compliance scoring to constructive diagnostic appraisal that systematically accounts for physical workplace constraints and cognitive workload imbalances.

Issue updated guidelines for public sector occupational safety and health that mandate standardized hazard pay allocations, compensatory rest days, and comprehensive wellness programs for technical infrastructure personnel exposed to arduous field conditions.

For the Office of the District Engineer and Assistant District Engineer

Direct the immediate execution and operational monitoring of the Employee Productivity Enhancement Plan (EPEP), establishing designated milestones and resource allocations to improve district efficiency.

Institutionalize a localized Merit and Recognition System under the Program on Awards and Incentives for Service Excellence (PRAISE), ensuring regular commendation, non-monetary incentives, and performance awards for outstanding personnel across all employment classifications.

Implement a structured, monthly inter-section coordination schedule to review document workflows, assess billing cycle bottlenecks, and streamline executive document endorsements.

For the Section Chiefs and Unit Supervisors

Rebalance section workloads by adopting an equitable project assignment matrix that distributes field monitoring sites and reportorial duties according to personnel capacity, project complexity, and geographic dispersion.

Establish internal pre-submission technical review checklists within the Planning and Design, Construction, and Quality Assurance Sections to catch errors early, reduce supervisory document rework, and accelerate final approval cycles.

Maintain regular technical coaching sessions and participative meetings within sections, encouraging frontline engineers and administrative staff to propose procedural adjustments that eliminate redundant reporting requirements.

For the District Technical and Administrative Personnel

Actively adopt time-management systems, digital tracking tools, and pre-submission checking procedures to eliminate personal document backlogs and minimize milestone slippages.

Participate in professional capacity-building programs, peer-to-peer mentoring initiatives, and agency health and wellness programs to maintain technical competence and physical resilience under demanding operational schedules.

For Local Government Units and Community Stakeholders

Strengthen institutional coordination and communication protocols with the district engineering office regarding local infrastructure priorities, right-of-way concerns, and emergency maintenance requirements, minimizing procedural delays in civil works execution.

For Educational and Public Administrators

Incorporate empirical findings regarding spatial-cognitive ergonomics, public leadership models, and task load structures into graduate curricula in Public Administration and Educational Leadership, illustrating the operational realities of frontline civil service agencies.

For Future Researchers

Utilize the baseline data, psychometric instruments, and regression models established in this study to conduct longitudinal investigations or comparative assessments across other engineering districts and frontline governmental agencies nationwide, examining additional organizational variables such as organizational culture, digital maturity, and public service motivation.

4. Output of The Study

The purpose of empirical inquiry in public administration is the systematic translation of diagnostic evidence into actionable organizational interventions that elevate governmental performance, institutional integrity, and public service delivery. Grounded directly in the statistical findings and analytical deductions established in Chapters 2 and 3, this chapter presents the institutional development output of the investigation: the Employee Productivity Enhancement Plan (EPEP). Designed specifically for the Department of Public Works and Highways (DPWH) Bohol 2nd District Engineering Office, situated in Barangay Bood, Municipality of Ubay, Bohol, this plan establishes a targeted operational blueprint that addresses verified workplace bottlenecks, reinforces demonstrated organizational strengths, and provides a sustainable mechanism for constructive appraisal and performance development.

Rationale

Public infrastructure agencies operate as frontline catalysts of socioeconomic progress, requiring high levels of operational velocity, engineering accuracy, and regulatory compliance. In decentralized engineering bureaus such as the DPWH Bohol 2nd District Engineering Office, achieving strategic infrastructure commitments depends on the sustained productivity of its technical, engineering, and administrative personnel. However, the empirical findings of this study revealed that despite high ethical commitment and strict adherence to statutory civil service standards, personnel productivity was constrained by significant workplace friction. Multiple regression analysis established that four workplace dimensions accounted for 53.0% of the variance in employee productivity, with leadership style, workload distribution, and physical logistics emerging as decisive statistical predictors. Consequently, enhancing public works delivery requires moving beyond traditional administrative audits toward an evidence-based operational strategy designed to optimize the physical, psychological, and procedural working environment (Mendoza & David, 2022; Bakker & Demerouti, 2020).

The empirical data identified severe logistical and infrastructural constraints that hindered task turnaround and project monitoring across northern Bohol. Shortages of dependable field inspection vehicles and outdated computing hardware and software directly restricted the speed of on-site project monitoring, contractor progress billing verifications, and digital data transmission through national monitoring systems (DPWH DO No. 23, s. 2020). In modern ergonomic and environmental design scholarship, physical facilities and material logistics establish the cognitive and operational foundation of employee capability (Bridger, 2020; Hedge, 2021). When public servants are compelled to execute complex structural calculations and field evaluations using lagging hardware and limited transportation, operational friction accelerates cognitive fatigue and increases the frequency of document rework. The EPEP directly addresses these constraints through systematic logistical retooling, preventative fleet management, and digitized document routing (Thatcher, Nayak, & Waterson, 2020).

Furthermore, the study demonstrated that workload distribution and task clarity represented the most severe operational bottleneck within the district office, exhibiting the lowest overall evaluation among workplace factors and directly depressing task completion timeliness. Personnel struggled with compressed statutory reporting schedules, inequitable project site allocations, and unmanageable emergency work backlogs (Bowling, Eschleman, & Wang, 2020; Parker & Grote, 2022). In modern administrative theory, excessive task fragmentation and uncalibrated workload pacing generate cognitive

saturation, preventing personnel from executing duties with optimal velocity and precision (Sweller, van Merriënboer, & Paas, 2020; Young, Brookhuis, & de Waard, 2021). The EPEP establishes structured workload balancing mechanisms, realistic project milestone pacing, and standardized pre-submission quality control protocols within the Planning and Design, Construction, and Quality Assurance Sections to catch technical discrepancies early and streamline supervisory reviews (Campbell & Wiernik, 2021).

Finally, while leadership style and administrative support emerged as the strongest operational asset and the most potent predictor of employee productivity, the findings revealed that formal performance commendation, participative decision-making, and risk-welfare provisions remained underdeveloped. Although baseline statutory salaries were disbursed punctually, perceived deficiencies in overtime compensation, field hazard pay, and non-monetary recognition hindered higher organizational morale and discretionary effort (Alshmemri, Shahwan-Akl, & Maude, 2020; Hur, 2022). Contemporary transformational leadership and public service motivation literature confirms that technical mentoring must be paired with institutionalized merit recognition, psychological empowerment, and comprehensive occupational health protections to sustain high performance (Northouse, 2021; Eva et al., 2021; Vandenberg, Ritz, & Neumann, 2020). The EPEP operationalizes these principles by establishing a localized merit recognition system under the Civil Service Commission's Program on Awards and Incentives for Service Excellence (PRAISE), institutionalizing regular inter-section feedback forums, and reinforcing occupational health protocols in compliance with CSC-DOH-DOLE Joint Memorandum Circular No. 1, Series of 2020.

Objectives

To establish and implement a comprehensive, evidence-based Employee Productivity Enhancement Plan (EPEP) for the Department of Public Works and Highways Bohol 2nd District Engineering Office that optimizes physical logistics, rationalizes workload distribution, reinforces supportive supervisory leadership, and enhances employee welfare, thereby elevating operational timeliness, technical precision, and standards compliance across all functional units.

Specific Objectives

To upgrade physical and digital infrastructure by modernizing computing workstations, securing licensed engineering design software, stabilizing high-speed local network connectivity, and implementing a centralized vehicle scheduling system for field monitoring across northern Bohol.

To balance cognitive and physical workloads by institutionalizing an equitable project site assignment matrix, establishing realistic milestone schedules, and deploying internal pre-submission quality checklists to minimize document rework and eliminate task backlogs.

To strengthen administrative leadership and supervisory support through structured technical coaching modules, monthly inter-section operational forums, and participative problem-solving sessions that empower frontline personnel across all appointment classifications.

To establish a localized Merit and Performance Recognition System under the CSC PRAISE guidelines that provides timely commendations and non-monetary incentives for outstanding individual and team accomplishments.

To expand institutional employee welfare and occupational safety mechanisms by formalizing equitable overtime and hazard pay processing, delivering routine health and wellness interventions, and conducting targeted digital capacity-building programs for all regular, casual, and job-order personnel.

Scheme of Implementation

The execution of the Employee Productivity Enhancement Plan (EPEP) operates through four interconnected operational phases designed to ensure institutional alignment, resource mobilization, systematic rollout, and continuous evaluation.

Phase I: Executive Alignment and Resource Mobilization (Month 1)

The plan initiates with formal endorsement by the District Engineer and the issuance of a District Office Memorandum constituting the EPEP Implementation and Steering Committee. Chaired by the Assistant District Engineer with the Chief of the Administrative and Finance Section serving as Secretariat, the committee includes all Section Chiefs (Planning and Design, Construction, Maintenance, Quality Assurance) and accredited employee representatives. This phase formalizes the integration of EPEP budget allocations into the District Annual Procurement Plan (APP) and Project Procurement Management Plans (PPMP), securing funding through Engineering Administrative Overhead (EAO) and Maintenance and Other Operating Expenses (MOOE) accounts.

Phase II: Institutional Calibration and Procedural Standard Operating Procedures (Months 2 to 3)

During this preparatory stage, operational standards and technical protocols are calibrated. The Administrative and Finance Section oversees the procurement and setup of prioritized IT hardware, licensed software packages, and vehicle repair schedules. Concurrently, technical working groups within the Planning and Design, Construction, and Quality Assurance Sections formulate standardized pre-submission quality checklists and calibrate the Section Workload Distribution Matrix to rebalance project site assignments and reporting schedules.

Phase III: Operational Execution and Capacity Building (Months 4 to 9)

This phase rolls out core program activities across all functional desks. The centralized inspection vehicle dispatch system and digital document tracking trails are activated. The Administrative Section organizes the Technical Capacity Building Series, providing training on the Project and Contract Management Application (PCMA), Geographic Information Systems (GIS), and updated procurement procedures for both permanent and non-permanent staff. Monthly inter-section coordination meetings and quarterly PRAISE merit commendation assemblies are formally initiated.

Phase IV: Monitoring, Constructive Appraisal, and Institutionalization (Months 10 to 12)

The terminal phase focuses on empirical progress tracking, performance evaluation, and policy integration. The Steering Committee conducts mid-term and year-end operational audits, comparing individual and section performance outputs under the Strategic Performance Management System (IPCR and OPCR) against baseline metrics established in this study. Performance improvements in task timeliness, error reduction, and backlog elimination are documented. Finally, verified operational mechanisms are codified into standard district engineering policies, ensuring that the EPEP becomes a permanent driver of operational excellence within the DPWH Bohol 2nd DEO.

10-Point Action Matrix of Implementation

The 10-Point Action Matrix of Implementation provides an operationalized execution table outlining the targeted strategic interventions of the Employee Productivity Enhancement Plan (EPEP).

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
1. Digital Workstations and IT Infrastructure	To eliminate software lags and data transmission delays by modernizing technical computing hardware and network connectivity.	Procure high-specification desktop workstations; install licensed CAD and structural design software; upgrade office local area network (LAN) and fiber bandwidth.	Chief, AFS; IT Focal Person; Section Chiefs; Supply Officer.	₱350,000.00	District Engineering Administrative Overhead (EAO) / Capital Outlay	Months 2–4	100% of engineering desks equipped with functional CAD workstations and high-speed network access, accelerating design drafting.	Fully procured and installed 8 high-performance CAD workstations and upgraded fiber connection to 200 Mbps.	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
2. Field Transportation and Logistics Management	To ensure timely site monitoring and materials testing across dispersed project sites by optimizing inspection vehicle availability.	Overhaul and repair existing service vehicles; implement a digital centralized vehicle dispatch and pooling system; establish route clustering for project inspections.	Chief, MS; Chief, CS; Chief, QAS; Motor pool Supervisor; Property Custodian.	₱220,000.00	District Maintenance and Other Operating Expenses (MOOE) – Motorpool Fund	Months 2–6	Zero missed site monitoring visits due to transportation shortages; 35% reduction in transit scheduling conflicts.	Repaired 3 utility inspection pickups and deployed weekly clustered site inspection scheduling matrix.	
3. Workload Rationalization and	To resolve task saturation and	Formulate and deploy a Section	District Engineer; Assistant	₱25,000.00	District Administrative MOO	Months 2–3	Equitable distribution of project	Adopted Section Workload	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
Task Balancing	reporting bottlenecks by establishing equitable project site allocations and balanced reportorial duties.	n Workload Distribution Matrix ; redistribute project site supervision based on distance and project complexity; calibrate internal deadlines.	District Engineer; Section Chiefs ; All Technical Personnel.		E (Operational Planning Fund)		t supervision assignments ; significant reduction in reportorial bottlenecks and task saturation.	Distribution Matrix ; reallocated 14 road and bridge project accounts across field engineers.	
4. Pre-Submission Quality Assurance Protocols	To minimize recurring supervisory corrections	Institute mandatory Pre-Submission Quality	Section Chiefs ; Unit Heads ; Senior Project	₱15,000.00	Regular Office Supplies and Materials	Months 3–5	50% decrease in document revisions and return	Standardized and institutionalized 5-tier technical	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	and document rework by standardizing internal quality control checklists.	Checklists for Programs of Work (POW), structural plans, materials test certificates, and disbursement vouchers prior to division sign-off.	Engineers; Materials Engineers.		Fund (MO OE)		-to-sender cycles; improved accuracy in technical attachments and cost calculations.	review routing checklists across PDS, CS, and QAS.	
5. Supervisory Mentorship and Transformational Leadership	To strengthen technical coaching, administrative communication	Organize quarterly Supervisory and Transformational Leadership	ODE / AOD E; Section Chiefs; Invited HR/L leaders	₱45,000.00	Human Resource Development (HRD) Mandated	Months 3–8	Enhanced supervisory trust, open administrative communication	Conducted two 2-day supervisory leadership coaching works	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	unication, and supervisory support across all operational sections.	ship Coaching Seminars; institutionalized bi-weekly section huddles for participative problem-solving.	hip Specialists; All Unit Personnel.		Fund / MOOE		ion channels, and faster resolution of operational bottlenecks.	hops and institutionalized bi-weekly section huddles.	
6. Merit Recognition and Employee Commendation System	To enhance employee morale, engagement, and discretionary effort through institu	Operationalize the localized Program on Awards and Incentives for Service Excellence (PRAI	PRAI SE Committee; District Engineer; Chief, AFS; Employee Association Repre	₱60,000.00	Authorized PRAI SE Allocation under DPWH Administrative Budget /	Months 4–12	Formal institutional recognition of high performers across all employment cadres;	Formally activated PRAI SE Committee; conferred 12 quarterly excellence awards and	Full y operational;

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	tionalized performance commendation.	SE) Committee; establish quarterly "Outstanding Public Servant" and "Zero-Slippage Project Team" awards.	sentatives.		CNA Fund		elevated motivation and institutional pride.	citations during general assemblies.	
7. Digital Technical Upskilling and Retooling	To bridge digital competency disparities across employment classifications in modern projects	Conduct intensive hands-on training workshops on DPWH Project and Contract	Chief, AFS; Regional IT/Training Instructors; All Technical Staff (Permanent, Casual,	₱80,000.00	DPWH Regional Training Budget / District HRD Fund	Months 5–7	100% of technical and monitoring personnel proficient in PCM A updating and	Completed 40-hour hands-on PCMA and GIS training module covering 35 techni	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	to management platforms.	to Management Application (PCMA), GIS infrastructure mapping, and updated procurement rules.	JO/COS).				digital report submission without backlog.	cal and administrative employees.	
8. Field Safety, Hazard Compensation, and Welfare	To protect field personnel and enhance welfare equity by standardizing safety provisions	Standardize distribution of Personal Protective Equipment (PPE); streamline compensatory time-	OSH Committee; Administrative Office; Section Chiefs; Designated Safety	₱110,000.00	Public Sector OSH Allocation / Medical and Welfare Fund	Months 3–10	Comprehensive OSH compliance under CSC-DOH-DOL E JMC No. 1, s. 2020; reduced	Distributed complete OSH-certified PPE sets to all field inspectors; processed all eligible field	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	ions and timely hazard /overtime processing.	off and hazard pay processing; conduct annual health and wellness screenings.	Engineers.				physical fatigue and enhanced field safety security.	hazard and overtime claims.	
9. Inter-Section Workflow Harmonization	To eliminate administrative bottlenecks between technical units and administrative finance during billing	Establish monthly Inter-Section Operational Review Assemblies; adopt synchronized cut-off dates for progress	Assistant District Engineer; Section Chiefs; Accountants; Procurement Officers; Project Engineers.	₱20,000.00	District Administrative MOOE	Months 3–11	Seamless document transition between Construction, Quality Assurance, and Finance; reduced billing	Held 8 monthly intersection synchronization assemblies; adopted a unified 5-day billing processing timetable.	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
	cycles .	billings and voucher processing.					g turnaround times.		
10. Constructive Appraisal and Continuous Performance Monitoring	To track the longitudinal impacts of EPEP interventions and align individual outputs directly with institutional targets .	Implement bi-annual Strategic Performance Management System (SPMS) reviews; establish a digital productivity dashboard tracking milestone targets and	Performance Management Team (PMT); District Engineer; Section Chiefs ; All Staff.	₱25,000.00	District Quality Management System (QMS) / SPMS Monitoring Fund	Months 6 & 12	Sustained high productivity across timeliness, quality, and standards compliance; data-driven institutional decision-making.	Conducted mid-year and year-end SPMS performance reviews; deployed a localized Google Sheets /LAN tracking dashboard.	

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
		backlogs.							

The systematic execution of this 10-Point Action Matrix provides a sustainable, empirically grounded operational mechanism for the Department of Public Works and Highways Bohol 2nd District Engineering Office. By directly addressing the root environmental, structural, and administrative causes of workplace friction identified in this study, the Employee Productivity Enhancement Plan (EPEP) ensures that public capital investments translate into timely, resilient, and high-quality infrastructure assets that serve the socio-economic welfare of northern Bohol and uphold the highest standards of public administration.

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