

Implementation and Socio- Economic Contributions of The Department of Public Works and Highways (DPWH) Projects: Basis for Development Plan

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ABSTRACT

This study investigated the relationship between the implementation of Department of Public Works and Highways (DPWH) projects and their socio-economic contribution in Bago City, Negros Occidental. It determined the level of implementation of infrastructure projects in terms of roads, school buildings, flood control structures, bridges, multi-purpose buildings, and water systems, and assessed their socio-economic contribution in terms of tourism, livelihood, improved public safety, accessibility, and social welfare. A descriptive-correlational research design was employed involving 484 respondents. Data were gathered using a researcher-made questionnaire that underwent validity and reliability testing to ensure its accuracy and consistency. Findings revealed that the implementation of DPWH infrastructure projects was rated high across all project categories. Likewise, the socio-economic contribution of the projects was rated high, indicating that the implemented infrastructure projects positively contributed to tourism, livelihood opportunities, public safety, accessibility, and social welfare within the community. Furthermore, a significant positive relationship was found between the level of infrastructure project implementation and its socio-economic contribution. The study concludes that the effective implementation of DPWH infrastructure projects plays a significant role in promoting socio-economic development and improving the overall well-being of the community. The findings underscore the importance of sustaining quality infrastructure planning, implementation, and monitoring to maximize the long-term benefits of public infrastructure projects and support sustainable community development.

Keywords: Department of Public Works and Highways (DPWH), Infrastructure Projects, Project Implementation, Socio-Economic Contribution, Community Development

INTRODUCTION

The Department of Public Works and Highways (DPWH) functions as the government's principal engineering and construction agency, mandated to advance its technological capacity to guarantee the safety of infrastructure facilities and to uphold efficiency and quality in the construction of public works and highways (The Law Phil Project, 2024). The Department of Public Works and Highways (DPWH) played a vital role in the Philippines' infrastructure development, implementing projects that drove economic growth, improved quality of life, and enhanced national competitiveness.

Infrastructure development plays a pivotal role in driving the progress of both regions and nations. High-quality infrastructure not only improves connectivity and mobility but also generates significant social and economic effects within local communities. These impacts may be either beneficial or adverse, depending on how projects are planned, managed, and integrated into people's daily lives (World Bank, 2023; Global Infrastructure Hub, 2021). In recent years, efforts to improve connectivity, accessibility, and quality of life through infrastructure projects have become the main focus of the government and related institutions. The importance of DPWH projects extends beyond mere infrastructure development; they play a vital role in the socio-economic well-

being of the people. Well-planned and efficiently executed projects enhance transportation networks, improve flood control systems, and provide essential public works, directly impacting economic growth and quality of life. For instance, better roads and highways facilitate commerce, reduce transportation costs, and attract investments, while effective flood control measures protect communities and agricultural areas from disaster, thereby sustaining livelihoods. Economic and social factors influence the community development of rural regions through public construction infrastructure projects (Hussain et al., 2022).

Despite its vital role in national development, the Department continues to encounter substantial challenges that hinder the effectiveness of its infrastructure initiatives. These challenges are evident in several areas, including the procurement of civil works, consultancy services, goods and materials, the quality of infrastructure outputs, project implementation processes, and organizational structure (PIDS, 2024). However, while infrastructure has the potential to bring great benefits, its social and economic impacts on local communities are not always predictable and often complex. In the last few decades, along with rapid economic growth, infrastructure development has become one of the government's priorities in efforts to accelerate national development. Amidst expectations of the benefits this infrastructure will generate, there is a deep need to understand the possible impacts, particularly at the local level (Global Infrastructure Hub, 2021).

By addressing this gap, the study sought to provide a deeper understanding of the effectiveness of DPWH projects and offer recommendations to enhance their implementation and contribution to regional development. To achieve this, the present study investigated the implementation and socio-economic contributions of DPWH projects in Bago City, under Negros Occidental 4th District Engineering Office. The findings are intended to strengthen project implementation and ensure that infrastructure initiatives effectively support sustainable regional development.

Statement of The Problem

The purpose of this study was to investigate the implementation and socio-economic contribution of the Department of Public Works and Highways (DPWH) projects in Bago City, Negros Occidental. Specifically, the study determined the level of implementation of DPWH infrastructure projects in terms of roads, school buildings, flood control structures, bridges, multi-purpose buildings, and water systems. It also assessed the level of the socio-economic contribution of these projects in terms of tourism, livelihood, public safety, accessibility, and social welfare. Furthermore, the study examined whether a significant relationship existed between the level of implementation of DPWH projects and their socio-economic contribution.

LITERATURE REVIEW

Project Implementation

Project implementation refers to the process of translating approved plans into completed infrastructure through the coordinated execution of planning, procurement, resource allocation, construction, monitoring, and quality assurance activities. In public infrastructure, implementation extends beyond the physical construction of facilities and encompasses the managerial, financial, technical, and institutional processes necessary to ensure that projects are completed according to their intended scope, schedule, budget, and quality standards. Effective implementation is widely recognized as a critical determinant of project success because it influences not only the timely completion of projects but also their capacity to deliver long-term public benefits (Project Management Institute [PMI], 2021).

The literature identifies several factors that influence the effectiveness of project implementation. These include comprehensive planning, efficient procurement systems, adequate funding, competent project management, stakeholder coordination, continuous monitoring, and compliance with technical and regulatory standards. Together, these elements promote efficiency, reduce implementation risks, and improve project performance. Conversely, weaknesses in these areas often result in delays, cost overruns, reduced construction quality, and diminished public value. Patalunan et al. (2021) reported that adverse weather conditions, disruptions caused by the COVID-19 pandemic, incomplete prerequisite project activities, and changes in project orders were among the major causes of implementation delays in Philippine infrastructure projects. These findings suggest that

successful implementation depends not only on technical expertise but also on effective planning, coordination, and project governance.

Recent perspectives on public infrastructure emphasize that project implementation should be evaluated beyond the traditional measures of time, cost, and quality. Increasingly, implementation is viewed as a governance process that promotes transparency, accountability, and efficient utilization of public resources. In support of these objectives, the Department of Public Works and Highways (DPWH) introduced the Infrastructure Projects Portal, which provides real-time information on project status, expenditures, and implementation progress. By improving public access to project information, the portal strengthens accountability, enhances stakeholder participation, and supports evidence-based monitoring of government infrastructure projects (DPWH, 2024).

The importance of effective implementation is reflected in various DPWH infrastructure initiatives across the country. Investments in school buildings, water supply systems, flood control structures, bridges, and road improvement projects have demonstrated how well-managed implementation contributes to improved public service delivery, transportation efficiency, disaster resilience, environmental sustainability, and community development (Clapano, 2020; Lena, 2022; Ramos, 2022; PIA III, 2024; DPWH, 2025). Collectively, the literature suggests that project implementation serves as the mechanism through which infrastructure investments are transformed into tangible outcomes that benefit society.

Socio-Economic Contribution

Socio-economic contribution refers to the economic and social benefits generated by infrastructure projects that enhance the well-being of individuals, communities, and society. These contributions extend beyond the provision of physical infrastructure and include improvements in employment, income generation, accessibility, productivity, public service delivery, disaster resilience, environmental sustainability, and overall quality of life. Consequently, infrastructure is increasingly viewed as a strategic investment that supports inclusive and sustainable development rather than merely a physical asset (Asian Development Bank [ADB], 2021; Organisation for Economic Co-operation and Development [OECD], 2021; Esteves et al., 2022).

The literature consistently recognizes infrastructure as a key driver of economic development. Investments in roads, bridges, transportation networks, flood control systems, water facilities, and public buildings improve connectivity, facilitate the movement of people and goods, reduce transportation costs, expand market access, and stimulate local business activities. These improvements contribute to increased productivity, employment generation, investment opportunities, and regional competitiveness (Callanta & Moreno, 2024; Navarro & Latigar, 2022). From this perspective, infrastructure serves as an enabling factor that supports economic growth while strengthening the capacity of communities to participate in development. Beyond its economic effects, infrastructure also generates important social outcomes by improving access to education, healthcare, government services, clean water, and disaster response facilities. Improved infrastructure enhances community safety, promotes social inclusion, strengthens resilience against natural hazards, and provides better opportunities for education, employment, and public participation. These broader social benefits demonstrate that infrastructure contributes not only to economic performance but also to human development and public welfare.

In the Philippine context, the Department of Public Works and Highways (DPWH) plays a central role in generating these socio-economic contributions through the implementation of roads, bridges, flood control systems, educational facilities, and other public infrastructure. National infrastructure initiatives have improved transportation efficiency, strengthened disaster preparedness, expanded educational facilities, supported agricultural productivity, and enhanced tourism development in different regions of the country (Senate Economic Planning Office, 2022; DPWH, 2023; DPWH, 2024; Manalili, 2024). These outcomes illustrate that infrastructure development contributes to both economic competitiveness and improved quality of life.

However, the literature further argues that the socio-economic contribution of infrastructure depends not only on the existence of infrastructure projects but also on the effectiveness of their implementation. Esteves et al. (2022) emphasized that quality implementation, compliance with technical and safety standards, and stakeholder collaboration are essential for maximizing public value and promoting inclusive development. Likewise, the

Asian Development Bank (2021) reported that well-implemented investments in roads, drainage systems, sanitation, and tourism infrastructure generated substantial improvements in local economic activity, accessibility, and community welfare. Taken together, these studies indicate that the socio-economic contribution of infrastructure is largely determined by the quality of project implementation. Effective implementation enables infrastructure projects to deliver sustainable economic growth, improved public service delivery, enhanced community resilience, and higher overall quality of life, thereby providing the conceptual basis for examining the relationship between project implementation and the socio-economic contribution of DPWH projects.

METHODOLOGY

This study employed a descriptive-correlational research design to determine the level of implementation and socio-economic contribution of Department of Public Works and Highways (DPWH) projects and to examine the relationship between these variables. The respondents consisted of 484 individuals, including 100 DPWH employees, 192 parents, and 192 barangay officials from the 24 barangays of Bago City, Negros Occidental. The DPWH employees were directly involved in project implementation, while the parents and barangay officials represented the beneficiary communities. Since all identified respondents who met the inclusion criteria were included in the study, total enumeration was employed; thus, no sample size determination was required.

Data were gathered using a researcher-made questionnaire developed based on the study objectives, related literature, and DPWH programs. The instrument consisted of two parts: (1) Implementation of DPWH Projects (24 items), covering Roads, School Buildings, Flood Control Structures, Bridges, Multi-Purpose Buildings, and Water Systems; and (2) Socio-economic Contribution (35 items), covering Tourism, Livelihood, Improved Public Safety, Accessibility, and Social Welfare. Responses were rated using a five-point Likert scale: 5 = Very High, 4 = High, 3 = Moderate, 2 = Low, and 1 = Very Low. The questionnaire was validated by experts, obtaining an overall validity mean of 4.40, interpreted as Valid. A pilot test was conducted among respondents with characteristics similar to the target participants, and Cronbach's Alpha yielded a reliability coefficient of 0.795, indicating that the instrument was reliable.

Prior to data collection, the researcher secured the necessary approvals from the concerned authorities and obtained informed consent from all respondents. Participation was voluntary, and respondents were assured that their identities and responses would remain confidential and would be used solely for research purposes. The questionnaires were personally administered, retrieved, and checked for completeness before data analysis. The mean was used to determine the level of implementation of DPWH projects and their socio-economic contribution. The Gamma coefficient was employed to determine the significant relationship between the two variables because both were measured using ordinal Likert-scale data, making Gamma an appropriate measure of association.

RESULTS AND DISCUSSION

Table 1. Level of Implementation of DPWH Projects in Bago City, Negros Occidental

Infrastructure Projects	n	Mean	Interpretation
Roads	484	4.07	High
School Building		4.28	Very High
Flood Control Structures		4.17	High
Bridges		4.13	High
Multi-Purpose Building		4.17	High
Water System		4.24	Very High

The table indicates that school buildings, with a mean of 4.28, and water systems, with a mean of 4.24, have a

very high level of implementation. Roads, with a mean of 4.07, flood control structures, with a mean of 4.17, bridges, with a mean of 4.13, and multi-purpose buildings, with a mean of 4.17, all reflect a high level of implementation. This implies that infrastructure projects in Bago City, Negros Occidental, are being carried out successfully, with school buildings and water systems emerging as the most extensively implemented, while other projects consistently demonstrate strong progress.

The very high ratings for School Buildings and Water Systems suggest that respondents perceived these projects as among the most effectively implemented because they address fundamental community needs. School buildings provide learners with safer and more conducive environments for education, while water systems improve access to clean and reliable water, which is essential for households and public institutions. Since these projects deliver benefits that are readily experienced in everyday life, respondents are more likely to recognize their successful implementation. On the other hand, although Roads, Bridges, Flood Control Structures, and Multi-Purpose Buildings were likewise rated High, their slightly lower mean scores may be attributed to the nature of these projects. They often require more extensive planning, larger financial investments, longer construction periods, and regular maintenance before their full benefits are realized by the community. Nevertheless, the consistently high ratings across all infrastructure projects indicate that DPWH has effectively implemented a broad range of projects that support community development and improve the overall quality of public services.

This finding is consistent with the work of Ma et al. (2023), who emphasized that the success of infrastructure projects relies on sound planning, effective governance, stakeholder collaboration, and proper implementation. According to the authors, these factors enable infrastructure projects to deliver reliable facilities and services that address the needs of communities and generate long-term public value. Likewise, Finocchiaro Castro et al. (2023) highlighted that appropriate procurement strategies and well-managed contract arrangements contribute to smoother project execution by reducing delays, controlling unnecessary costs, and improving overall implementation efficiency. These findings help explain the results of the present study, where respondents rated school buildings and water systems as having a very high level of implementation and the remaining infrastructure projects as highly implemented. The consistently high ratings indicate that DPWH has successfully implemented infrastructure projects that improve the delivery of public services and contribute to community development.

The findings are further reflected in various DPWH infrastructure projects completed across the Philippines. The very high implementation of school buildings and water systems, together with the high implementation of roads, bridges, flood control structures, and multi-purpose buildings, is demonstrated by projects such as multi-storey school buildings in Cotabato, a solar-powered water system in Pilar, Bataan, flood control structures in Libacao, Aklan, multi-purpose buildings in Iloilo, the parallel bridge in Kabankalan City, and the widened Dancalan–Candoni–Damutan Valley Road in Ilog, Negros Occidental. These completed projects illustrate how effective infrastructure implementation improves access to education, clean water, transportation, disaster resilience, and other essential public services while strengthening regional connectivity. Taken together, these initiatives support the present findings that effective implementation of DPWH infrastructure projects enhances public service delivery and serves as a foundation for socio-economic development across communities (Clapano, 2020; Lena, 2022; Ramos, 2022; Department of Public Works and Highways, 2025; PIA III, 2024).

Table 2. Level of Socio-Economic Contribution of DPWH Projects

Socio-Economic Contribution of DPWH Projects	n	Mean	Interpretation
Tourism	484	4.16	High
Livelihood		4.22	Very High
Improved Public Safety		4.23	Very High
Accessibility		4.22	Very High

Social-Welfare		4.22	Very High
As a Whole		4.21	Very High

The table shows that DPWH projects in one of the cities in Negros Occidental have a very high level of socio-economic contribution when taken as a whole, with an overall mean of 4.21. Among the specific areas, improved public safety obtained the highest mean of 4.23, indicating that the projects strongly enhance community safety. Livelihood, accessibility, and social welfare each registered a mean of 4.22, all interpreted as very high, reflecting the projects' significant role in improving economic opportunities, mobility, and community well-being. Tourism, with a mean of 4.16, was rated high, showing a positive but comparatively lower contribution than the other dimensions. The result implies that DPWH projects in one of the cities in Negros Occidental have a very high socio-economic contribution, indicating that they significantly support multiple aspects of development. They strongly enhance livelihood opportunities, improve public safety, increase accessibility, and promote social welfare. Tourism, while rated high, still shows a positive impact, though slightly lower compared to other areas.

The highest rating for Improved Public Safety suggests that respondents recognized the important role of DPWH infrastructure projects in making their communities safer. Projects such as roads, bridges, flood control structures, and water systems help improve mobility, reduce travel and flood-related risks, and provide better access to emergency and essential public services. Likewise, the very high ratings for Livelihood, Accessibility, and Social Welfare indicate that these projects have made it easier for residents to reach workplaces, schools, healthcare facilities, markets, and government offices, thereby contributing to better living conditions. Although Tourism received the lowest mean, it was still rated High, indicating that respondents acknowledged its positive contribution. However, tourism is influenced by factors beyond infrastructure, including the presence of tourist attractions, accommodation facilities, promotional efforts, and private investments. This may explain why respondents perceived DPWH projects as having a more immediate and noticeable impact on public safety and other essential aspects of community development than on tourism.

The findings are consistent with Tariverdi et al. (2023), who explained that infrastructure creates greater public value by improving access to essential services and strengthening community resilience. The authors noted that well-developed roads and public facilities enable people to travel more easily to schools, healthcare facilities, workplaces, and emergency services, leading to safer communities, better opportunities, and an improved quality of life. Similarly, Nicoletti et al. (2023) emphasized that equitable access to infrastructure helps reduce social inequalities by providing underserved communities with better access to essential services and economic opportunities. Beyond improving physical connectivity, they highlighted that infrastructure promotes social inclusion and supports long-term socio-economic development. These perspectives help explain the findings of the present study, where DPWH projects were perceived to have a very high socio-economic contribution, particularly in improving public safety, accessibility, livelihood, and social welfare. By making essential public services more accessible and creating opportunities for economic participation, these infrastructure projects contribute to the overall well-being of communities.

The results are further supported by DPWH infrastructure initiatives implemented across the region. According to the Department of Public Works and Highways (2023), investments in roads, bridges, water systems, and public buildings have played a vital role in community recovery by generating employment opportunities and improving access to essential services. In Western Visayas, road rehabilitation projects in Leon and Pavia enhanced transportation safety and accessibility, allowing residents to travel more conveniently to schools, markets, and healthcare facilities (DPWH, 2024). Likewise, the construction of a new College of Law building at West Visayas State University reflects DPWH's continued commitment to strengthening educational infrastructure and supporting long-term community development through safe, modern, and accessible learning facilities (DPWH, 2024). Together, these initiatives demonstrate how infrastructure investments improve public service delivery, resulting in positive socio-economic outcomes that are consistent with the findings of the present study.

Table 3. Relationship Between the Level of Implementation and the Socio-Economic Contribution of DPWH Projects

Level of Implementation	Level of Socio-Economic Contribution					
	Very High	High	Moderate	Low	Very low	Total
Very high	111	88	0	0	0	199
High	120	165	0	0	0	285
Moderate	0	0	0	0	0	0
Low	0	0	0	0	0	0
Very low	0	0	0	0	0	0
Total	231	253	0	0	0	484

Computed (G) value : 0.269

P-value : 0.003

Decision : Reject Ho

Interpretation : Significant at 0.05 level of Significance

The table presents the relationship between the level of implementation and the socio-economic contribution of DPWH projects. Out of 484 respondents, 199 rated the level of implementation as very high, while 285 rated it as high. Indicating a strong consensus that DPWH projects were carried out with high levels of effectiveness and consistency. In terms of socio-economic contribution, 231 respondents rated the impact of the projects as very high, and 253 rated it as high. This reflects a generally positive perception of the projects' benefits in areas such as tourism, livelihood, public safety, accessibility, and social welfare.

Using the Gamma coefficient, the computed value obtained is 0.269, while the p-value is 0.003, which is less than the 0.05 level of significance. Thus, the null hypothesis is rejected. This implies that the effective implementation of DPWH projects contributes to greater socio-economic benefits within the community. As infrastructure projects are implemented efficiently and consistently, they are more likely to improve tourism, expand livelihood opportunities, enhance public safety, increase accessibility, and promote social welfare. These findings underscore the important role of well-executed infrastructure projects in supporting inclusive and sustainable community development by improving access to essential services and creating conditions that foster economic and social progress.

The observed relationship is consistent with the infrastructure development framework, which explains that the socio-economic benefits of infrastructure depend not only on the availability of facilities but also on how effectively they are implemented to deliver quality public services. This is supported by Iziga and Takagi (2023), who found that infrastructure promotes long-term economic development by increasing productivity and improving access to essential services. Likewise, Sharma and Kumar (2023) reported that well-developed and properly maintained infrastructure enhances living standards, creates employment opportunities, and stimulates local economic growth. These studies help explain the significant relationship found in the present study, suggesting that as the level of implementation of DPWH projects increases, their socio-economic contribution also becomes greater. Effective project implementation ensures that infrastructure is functional, accessible, and responsive to community needs, allowing people to benefit from improved public safety, accessibility, livelihood opportunities, social welfare, and tourism.

This relationship is further demonstrated by various DPWH initiatives across the country. For instance, the DPWH access road project to the Tarlac Ecotourism Park improved road safety through the installation of LED street lighting and solar pavement markers, resulting in safer travel, increased tourist arrivals, and stronger local

economic activity (Manalili, 2024). Similarly, Esteves et al. (2022) emphasized that successful project implementation, supported by compliance with safety standards and strong stakeholder collaboration, enhances public welfare, connectivity, and economic inclusion. The Asian Development Bank (2021) likewise reported that infrastructure investments in El Nido, including access roads, drainage systems, and sanitation facilities, improved tourism, expanded access to essential services, strengthened community safety, and created additional livelihood opportunities. Collectively, these initiatives illustrate how effective infrastructure implementation enhances public service delivery, which, in turn, generates meaningful socio-economic benefits. This supports the significant relationship identified in the present study between the level of implementation of DPWH projects and their socio-economic contribution.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the findings of the study, the following conclusions were created:

1. DPWH has successfully implemented infrastructure projects in one of the cities in Negros Occidental, demonstrating its effectiveness in delivering essential public infrastructure, particularly school buildings and water systems, while maintaining a high level of implementation across other infrastructure projects.
2. DPWH infrastructure projects have made a meaningful contribution to the community's socio-economic development by strengthening public safety, improving livelihood opportunities, increasing accessibility, and promoting social welfare.
3. The socio-economic benefits of infrastructure projects are influenced by the quality of their implementation. Hence, effective project implementation is fundamental to maximizing the developmental impact of public infrastructure and advancing sustainable local development.

Recommendation

With reference to the findings and conclusions of the study, the following recommendations are offered:

1. The Department of Public Works and Highways (DPWH) may sustain the effective implementation of infrastructure projects by maintaining the high standards achieved in school buildings and water systems while further enhancing the implementation of roads, bridges, flood control structures, and multi-purpose buildings through continuous monitoring, timely project completion, and regular maintenance.
2. The local government of one of the cities in Negros Occidental may strengthen its collaboration with DPWH by integrating infrastructure projects with local development initiatives, particularly those that support tourism, to maximize the socio-economic benefits of public infrastructure.
3. Community members are encouraged to participate actively in project planning, monitoring, and maintenance by providing feedback and supporting the proper use of public infrastructure, thereby helping ensure that projects remain responsive to local needs and sustainable over time.
4. Future researchers are encouraged to examine other factors that may influence the socio-economic contribution of infrastructure projects, such as governance, funding, stakeholder participation, and project sustainability, using comparative or longitudinal research designs.

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