

## BARRIERS AND PRACTICES IN MONITORING SCHOOL BUILDING CONSTRUCTION PROJECTS BY THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS IN CATANDUANES

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### ABSTRACT

This study examined the barriers and practices in monitoring school building construction projects by the Department of Public Works and Highways (DPWH) in Catanduanes, using a descriptive-correlational research design. It aimed to identify the administrative, technical, financial, and logistical barriers encountered by DPWH personnel, assess the effectiveness of monitoring practices such as project planning, quality control, stakeholder engagement, and evaluation strategies, and determine the relationship between these barriers and monitoring effectiveness. Data were collected from selected DPWH stakeholders to provide insights into operational challenges and inform the development of strategic interventions to improve school infrastructure monitoring. The findings revealed that monitoring school construction projects is generally challenging, with an overall weighted mean of 2.67. Logistical barriers were identified as the most significant (2.84), followed by administrative (2.64), financial (2.62), and technical barriers (2.56), indicating that site accessibility, coordination, funding, and adherence to technical standards hinder efficient project oversight. Despite these challenges, the DPWH employs highly effective monitoring practices, reflected by an overall weighted mean of 3.39. Quality control and compliance were ranked highest (3.44), followed by monitoring and evaluation strategies (3.40), project planning and implementation (3.36), and stakeholder engagement and coordination (3.34), demonstrating robust adherence to standards, systematic tracking, careful planning, and collaboration. Notably, the study found no significant relationship between the identified barriers and monitoring practices ( $r = 0.079 < 0.254$ ,  $p > 0.05$ ), indicating that the DPWH's oversight remains resilient and effective regardless of the challenges encountered. Based on these findings, a Strategic Intervention Plan was proposed, emphasizing digital monitoring, stakeholder engagement, technical capacity building, and disaster risk integration, with clear objectives, activities, responsible personnel, time frames, resources, and expected outcomes to ensure at least 90% effectiveness in project oversight. The study concluded that logistical, administrative, and financial challenges are the primary barriers affecting monitoring efficiency, while quality control and structured project planning are central to the DPWH's effective practices. Furthermore, the resilience of DPWH monitoring practices underscores the importance of maintaining high standards and implementing structured interventions to enhance efficiency, accountability, and technical proficiency, ensuring that school construction projects in Catanduanes are completed successfully, safely, and sustainably.

**Keywords:** School Building Construction, Monitoring Practices, DPWH, Project Implementation Barriers, Strategic Intervention

## INTRODUCTION

The primary goal of this study is to investigate the barriers and practices involved in monitoring school building construction projects by the Department of Public Works and Highways (DPWH) in Catanduanes. Specifically, it seeks to evaluate the effectiveness of existing monitoring mechanisms, identify obstacles encountered by DPWH personnel, and highlight best practices that can enhance project oversight. The study's key variables include the identified barriers affecting project monitoring and the DPWH's current monitoring practices (Navarro & Latigar, 2022; Tuason & Golpeo, 2025). By focusing on these variables, the research aims to generate empirical evidence on how monitoring impacts the quality, safety, and timeliness of school infrastructure projects, particularly in disaster-prone regions where risks to learners and communities are heightened (Pedron et al., 2025). The legal basis of this study is anchored on the DepEd–DPWH Joint Memorandum Circular No. 01, s. 2024, which institutionalizes a unified Classroom Masterplan and consolidated master list for school construction and repair projects, ensuring transparency, prioritization, and coordinated oversight. Additionally, Republic Act No. 7880, or the Fair and Equitable Access to Education Act, provides statutory guidance on the allocation of resources for school buildings and underlines the government's mandate to ensure safe, adequate, and accessible educational facilities (Amoguis, 2025; Fernando & Henry, 2023). These frameworks collectively legitimize the examination of DPWH's monitoring practices and the barriers encountered in the province of Catanduanes, particularly in the context of ensuring compliance with national quality and safety standards.

Despite these legal and institutional frameworks, research gaps remain, particularly concerning the monitoring of school building projects in geographically isolated and disaster-prone regions. Most prior studies focus on transport and road infrastructure, with findings that are not directly transferable to educational facilities, which have unique design, accessibility, and safety requirements (Navarro & Latigar, 2022). Localized challenges in Catanduanes—including frequent typhoons, limited manpower, material mobilization delays, and logistical constraints—further complicate project monitoring (Macayan, Saguban, & Macayan, 2025). Addressing these gaps is crucial for developing context-specific strategies that enhance the effectiveness of infrastructure oversight in regions with high environmental risk and logistical complexity. The significance of this study lies in its potential to strengthen the planning, monitoring, and execution of school building projects in Catanduanes. By identifying barriers and documenting effective monitoring practices, the research can inform policy refinement, capacity-building initiatives, and resource allocation for the DPWH and its partner agencies. Furthermore, the findings may enhance the resilience, safety, and functionality of educational facilities, contributing to improved learning environments and community well-being. The insights gained from this research can also serve as a reference for other disaster-prone or geographically isolated regions, supporting the development of more adaptive, transparent, and context-responsive infrastructure governance strategies nationwide.

## LITERATURE REVIEW

Monitoring school building projects requires addressing both technical and resource-related challenges, which several studies have highlighted as key barriers to effective oversight. Hirota (2018) pointed out that projects often suffer when there are not enough skilled workers or adequate funding, making it hard to supervise construction properly. In the context of Catanduanes, this finding reflects the reality that DPWH personnel face difficulties managing

school construction projects due to limited manpower and budget constraints, which can delay completion and affect quality. Another critical factor in successful monitoring is the use of systematic evaluation and collaborative governance. Herlianto et al. (2025) emphasized that continuous checks and flexible monitoring approaches help ensure that facilities meet current and future needs. Similarly, Moreno and Sulasula (2024) highlighted that involving local authorities and communities in oversight improves transparency and accountability. These ideas support the notion that the DPWH's monitoring practices benefit when structured evaluation and stakeholder participation are prioritized, leading to safer and more functional school buildings.

The role of transparency and strong institutional practices in sustaining effective monitoring has also been emphasized in the literature. Navarro and Latigar (2022) and Fernando and Henry (2023) argued that clear procedures, accountability measures, and cooperation among stakeholders can maintain high-quality project outcomes even when challenges exist. In the Philippines, studies by Amoguis (2025) and Say (2025) confirm that the DPWH's formal protocols and alignment with national safety and resilience standards help ensure that school construction projects are implemented successfully, demonstrating that strong institutional systems can overcome operational barriers.

Finally, research has shown that increasing technical complexity adds another layer of difficulty to monitoring. Krajewska and Siewczyńska (2025) explained that more advanced construction requirements and logistical challenges make oversight harder, especially in regions with remote or difficult-to-access sites. This resonates with Catanduanes, where rugged terrain and frequent typhoons complicate the DPWH's monitoring efforts, emphasizing the need for improved planning, technical training, and adaptive supervision to ensure school buildings are completed safely and efficiently.

## **METHODOLOGY**

This study used a descriptive-correlational research design to examine the barriers and monitoring practices involved in school building construction projects implemented by the Department of Public Works and Highways (DPWH). It collected information on the challenges encountered by DPWH personnel, their monitoring practices, and the outcomes of school construction projects in terms of timeliness, cost efficiency, and quality. This approach helped identify patterns in the barriers and practices and provided insights for developing recommendations to improve monitoring strategies for school infrastructure projects.

### **Respondents of the Study**

The study focused on 70 DPWH personnel, private contractors, engineers, and project managers engaged in school building construction projects in Catanduanes. Using Slovin's formula with a 0.05 margin of error, a sample of 60 respondents was selected through stratified random sampling to represent different roles, experiences, and perspectives on monitoring practices and barriers.

### **Instrumentation**

A self-made questionnaire was used to collect data on the barriers encountered by the Department of Public Works and Highways (DPWH) in monitoring school building

construction projects and the practices employed to ensure effective monitoring. It had two parts: Part 1 addressed barriers such as administrative delays, technical problems, financial constraints, and logistical challenges; Part 2 explored practices like project planning, quality control measures, stakeholder engagement, and monitoring and evaluation strategies. To ensure reliability and validity, the questionnaire was reviewed by four experts in construction management and project monitoring for clarity and relevance. A pre-test with a small sample of DPWH personnel and contractors was conducted, and analysis using the Split-Half method produced a high reliability coefficient of .897, confirming the instrument's consistency and accuracy.

## RESULTS

**Table 1**  
**Composite Table on Barriers Encountered by the DPWH in Monitoring School Building Construction Projects**

Variable	Weighted mean	Verbal Interpretation	Rank
Administrative Barriers	2.64	Agree/Challenging	2
Technical Barriers	2.56	Agree/Challenging	4
Financial Barriers	2.62	Agree/Challenging	3
Logistical Barriers	2.84	Agree/Challenging	1
Overall weighted mean	2.67	Agree/Challenging	

Findings revealed that the overall weighted mean of 2.67 indicates the barriers encountered by the DPWH in monitoring school building construction projects are generally challenging. Among the specific barriers, logistical barriers ranked highest (2.84), followed by administrative barriers (2.64), financial barriers (2.62), and technical barriers (2.56), indicating that logistical concerns pose the greatest difficulty in project monitoring.

These findings are consistent with related literature emphasizing that monitoring difficulties often stem from limited resources and increasing project complexity. Hirota (2018) highlighted that insufficient manpower and infrastructure investment constrain effective oversight, while Krajewska and Siewczyńska (2025) noted that heightened technical and logistical requirements complicate construction monitoring. Together, these studies support the results and underscore the need for improved coordination and capacity-building within DPWH.

**Table 2**  
**Composite Table on Practices Employed by the DPWH in Ensuring the Effective Monitoring of School Building Construction Projects**

Variable	Weighted Mean	Verbal Interpretation	Rank
Project Planning and Implementation	3.36	Strongly Effective Agree/Highly	3
Quality Control and Compliance	3.44	Strongly Effective Agree/Highly	1
Stakeholder Engagement and Coordination	3.34	Strongly Effective Agree/Highly	4
Monitoring and Evaluation Strategies	3.40	Strongly Effective Agree/Highly	2

Overall weighted mean	3.39	Strongly Effective	Agree/Highly
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Findings revealed that the overall weighted mean of 3.39 indicates that the practices employed by the DPWH in monitoring school building construction projects are highly effective. Among these practices, quality control and compliance ranked highest (3.44), followed by monitoring and evaluation strategies (3.40), project planning and implementation (3.36), and stakeholder engagement and coordination (3.34), reflecting strong and consistent implementation across all areas.

These findings are supported by related literature emphasizing the importance of systematic monitoring and collaborative governance. Herlianto et al. (2025) stressed that continuous evaluation and adaptive monitoring are essential to ensure facilities meet evolving educational needs, while Moreno and Sulasula (2024) highlighted the role of local governance and community participation in strengthening transparency and accountability. Together, these studies affirm that strong quality control, structured planning, and stakeholder engagement are key to effective school construction monitoring by the DPWH.

**Table 3**  
**Relationship between the Identified Barriers and the Monitoring Practices of the DPWH**

Variables	Statistic al Test	Comput ed Value	Critical Value @ .05	Decision	Interpretation
Identified Barriers vs Monitoring Practices of the DPWH	Pearson r	.079	.254	Accept Ho	No Significant Relationship

Findings revealed that the computed Pearson r value of 0.079 is lower than the critical value of 0.254 at the 0.05 level of significance, leading to the acceptance of the null hypothesis. This indicates that there is no significant relationship between the identified barriers and the monitoring practices of the DPWH.

These findings are consistent with literature emphasizing that strong systems of transparency, accountability, and stakeholder coordination can sustain effective infrastructure monitoring despite existing constraints (Navarro & Latigar, 2022; Fernando & Henry, 2023). In the Philippine context, structured oversight mechanisms and established protocols within the DPWH support effective school construction monitoring aligned with national safety and resilience goals (Amoguis, 2025; SAY, 2025), reinforcing the view that institutional practices can remain effective even amid operational barriers.

## PROPOSED STRATEGIC INTERVENTIONS

Objective s	Activities/Strategi es	Persons Involved	Time Frame	Resources Needed	Expected Outcomes
1. Strengthen real-time	- Develop and deploy an integrated digital	DPWH Monitoring Team, ICT	Year-round with	Monitoring software, mobile	90% of projects tracked in

monitoring and evaluation of school building projects	<p>monitoring system (dashboards for cost, quality, status)</p> <ul style="list-style-type: none"> <li>- Conduct bi-weekly onsite inspections using standardized checklists</li> <li>- Establish quarterly third-party audit reviews</li> </ul>	Specialists, Third-Party Auditors	quarterly reviews	devices, transportation, audit fees	real time; quarterly compliance audits completed
2. Enhance stakeholder engagement in project monitoring	<ul style="list-style-type: none"> <li>- Organize quarterly consultation meetings with school heads, LGUs, PTAs</li> <li>- Form local project monitoring committees including community representatives</li> <li>- Disseminate public project progress reports</li> </ul>	DPWH Project Engineers, DepEd Representatives, LGU Officials, PTA Leaders	Quarterly	Meeting venues, printed reports, digital communication tools	90% stakeholder participation in monitoring; regular feedback documented
3. Build technical capacity of DPWH staff	<ul style="list-style-type: none"> <li>- Conduct annual training on GIS, BIM, and disaster risk reduction standards</li> <li>- Facilitate workshops on data analysis for decision-making</li> <li>- Arrange learning exchanges with other regions or agencies</li> </ul>	DPWH Engineers and Technical Staff, External Trainers	Annually with follow-up workshops	Training materials, trainer fees, venues	90% of technical staff demonstrate improved skills and knowledge
4. Integrate disaster risk reduction and climate adaptation	<ul style="list-style-type: none"> <li>- Develop and apply resilience-focused monitoring templates</li> <li>- Conduct risk assessments before and during construction</li> <li>- Collaborate with disaster</li> </ul>	DPWH Planning & Monitoring Units, DRRM Offices	Throughout project lifecycle	Risk assessment tools, updated design guidelines, collaboration meetings	90% of new school buildings incorporate DRR measures as verified by monitoring reports

	management offices to review project designs				
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The proposed Strategic Intervention Plan aims to address the key barriers affecting the DPWH’s monitoring of school building construction projects, particularly logistical, administrative, financial, and technical challenges identified in the study. While existing monitoring practices were generally rated as highly effective, persistent issues in coordination, technical capacity, and resource utilization continue to constrain seamless project implementation. These challenges may compromise timeliness, quality assurance, compliance with standards, and disaster resilience, especially in a disaster-prone province like Catanduanes. The intervention underscores the need to go beyond routine compliance by strengthening systems that proactively address both operational and risk-related concerns. The Plan advances integrated, measurable strategies such as the use of digital monitoring tools, third-party audits, enhanced stakeholder participation, and capacity-building programs for DPWH personnel, alongside the systematic integration of disaster risk reduction and climate adaptation measures. Clear objectives, defined roles, timelines, and performance indicators ensure accountability and continuous monitoring of progress. Ultimately, the strategic interventions seek to strengthen real-time monitoring and evaluation, improve transparency and accountability through stakeholder engagement, enhance technical competencies, and ensure that school building projects are safe, high-quality, and disaster-resilient, thereby sustaining and further improving the effectiveness of DPWH monitoring practices.

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