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Responsiveness of City Motor & Equipment Pool Office in Disaster Reduction and Mitigation

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ABSTRACT

This study evaluated the operational responsiveness of the City Motor and Equipment Pool Office (CMEPO) in Tabuk City, Kalinga, during the rehabilitation and recovery stages of disaster management. It is grounded in the Resource-Based View (RBV) where the research examined how internal organizational assets, such as operator skills and equipment maintenance, translated to the restoration of an effective community. Using a Concurrent (Multi-Method) Research Design, the study gathered quantitative and qualitative data from 73 respondents, including CMEPO staff, multiple responding line agencies, and Barangay representatives. Data were analyzed through weighted means and One-Way ANOVA to identify variations in stakeholder perceptions. Findings revealed that the CMEPO maintained a "Responsive" level of responsiveness. While the office performed strengths in Inter-Agency Coordination and Operator Skills, it faced logistical paralysis because of hard procurement rules affecting Fuel and Supplies Readiness. The study concluded that for Tabuk City to achieve true resilience, the CMEPO must shift from a active support unit to a strategic partner. To address this, the research proposed a Calamity Fuel Ordinance and a Innovative Mapping Template to know the resource procurement and synchronize the city's logistical backbone with disaster mitigation goals.

Keywords: *CMEPO, Disaster mitigation, Logistical paralysis, Municipal responsiveness, Resource-based view, Tabuk City*

INTRODUCTION

The Philippines remains one of the most disaster-prone countries in the world, with sporadic disasters that threaten community stability and destroy essential infrastructure according to UNDRR (2019) and the World Bank (2023. Local Government Units (LGUs) are the primary front line in Disaster Risk Reduction and Management (DRRM), as mandated by the Local Government Code of 1991 and Republic Act 10121. These legal frameworks state that transparent resource sharing and the growth of institutional resilience are necessary for modern government (Abaya & Valenzuela, 2021; Bautista, 2023). LGUs must achieve technical independence as a result of decentralization in Philippine public administration, particularly with regard to operational execution and administrative autonomy (Cuaresma, 2021; United Cities and Local Governments, 2022). The "logistical backbone"—specifically, fleet services and heavy equipment maintenance—often receives less attention despite its crucial role, while DRRM initiatives often place an emphasis on immediate responders and medical preparedness (Charles & Lauras, 2021). The efficiency of any response operation is heavily influenced by the availability and state of transportation

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assets (Kovács & Spens, 2022). From the standpoint of humanitarian logistics, supply chain "Agility" and the capacity to reallocate resources in times of crisis are critical to a sustained recovery (Cachero, 2025). The City Motor and Equipment Pool Office (CMEPO) in Tabuk City is essential to this system because mobility facilitates infrastructure restoration, relief distribution, evacuation, and debris removal. Success in the Cordillera region depends on the quick deployment of heavy equipment appropriate for rocky and steep terrain (Bhandari, 2020; CRDRRMC, 2024).

The ability of the CMEPO to deploy, maintain, and synchronize these assets is what gives it its essential value. However, knowledge on preparedness levels prior to and during disasters is severely lacking. The speed of community recovery is directly impacted by fleet preparedness, which includes operator availability, preventive maintenance, and strategic fuel placement (Vorster, 2021; Zayed & Mahmoud, 2024). Restoration efforts are frequently delayed by poor maintenance and opaque inventory systems (DILG, 2022; NEDA, 2023), and systemic failures during periods of high demand might result from a lack of "Equipment Redundancy" (Sheffi, 2023). Additionally, in order to prevent the "logistical paralysis" brought on by antiquated manual systems, modern disaster management must go beyond the initial 48-hour response into long-term rehabilitation, requiring high-technology integration for real-time resource tracking (Grover & Lyytinen, 2023; Tatham et al., 2020).

To close these gaps, our study combined qualitative stakeholder insights with quantitative data on equipment efficiency using a concurrent (multi-method) research design (Creswell & Creswell, 2023; Creswell & Plano Clark, 2023). The study looked at activities throughout the "before, during, and after" stages of disaster management by collecting viewpoints from 73 stakeholders from nine organizations and impacted barangays. According to the findings, even though the CMEPO has technical expertise, it must develop into a strategic partner through a unified policy framework, such as a Strategic Resource-Mapping Template and a Calamity Fuel Ordinance, in order to match administrative tasks with the community's pressing needs (PIDS, 2022; NEDA, 2023; Sheffi, 2023).

Research Questions

This study aimed to evaluate the responsiveness of the City Motors and Equipment Pool Office (CMEPO) in disaster reduction and mitigation in Tabuk City. Specifically, it sought to answer the following questions:

1. What is the level responsiveness of the City Motors and Equipment Pool Office along rehabilitation?
2. Is there a significant difference in the level responsiveness of the City Motors & Equipment Pool Office as perceived by the different responding agencies?
3. What are the issues and challenges encountered by the CMEPO in disaster reduction and mitigation?
4. What policy review or intervention could be proposed to improve the services and responsiveness of the city motors and equipment pool office?

Literature Review

The Legal and Administrative Mandates of Local Responsiveness

In the Philippine administrative system, the City Motor and Equipment Pool Office (CMEPO) is required by law to be responsive. Republic Act No. 10121, the main governing law, changed the country's strategy from reactive disaster management to proactive risk reduction. Local Government Units (LGUs) are recognized as the key responders under this regulatory framework, a role that requires a high degree of operational autonomy (Cuaresma, 2021). Following the complete implementation of the Mandanas-Garcia Ruling, which drastically changed how local units finance their infrastructure restoration and disaster response, this obligation has become even more pressing (Manasan, 2021; Diokno, 2022). The actual

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acquisition of emergency supplies continues to be a major administrative difficulty, notwithstanding fiscal decentralization's goal of enhancing service delivery (Department of Budget and Management, 2023).

There is frequently a "functional gap" between the technical realities of motor pool operations and the legislative aim of DRRM regulations (Abaya & Valenzuela, 2021; NEDA, 2023). In the public sector, where the requirement for operational speed often clashes with the demand for budgetary openness, this tension is especially severe. Terville, Smith, and Rogers' (2022) examination of performance measures for technical departments supports Heaslip and Barber's (2024) description of this friction in public sector supply chains as the main reason for response delays. The acquisition of gasoline is where this administrative friction is most evident; according to Bautista (2023), strict Commission on Audit (COA) regulations may unintentionally result in "logistical paralysis" during the crucial restoration phase (PIDS, 2022; COA Circulars, 2021-2024).

Additionally, Grover and Lyytinen (2023) contend that modern auditing and digital quality management can greatly reduce "administrative red tape" and improve overall organizational effectiveness. While the Local Government Code provide the general foundation for technical operations in the Philippine setting, modern academics contend that strict auditing regulations might nevertheless "handcuff" technical response (Cuaresma & Reyes, 2022; Brillantes et al., 2021). In order to prevent conventional paperwork from impeding technical fleet operations during a crisis, Cachero (2025) proposes that local bureaucratic activity must be modernized (Boin & Hart, 2022; Heaslip & Barber, 2024; World Bank, 2023).

The Resource-Based View and Technical Fleet Assets

The Resource-Based View (RBV), which contends that an organization's operational success depends on resources that are valued, uncommon, and challenging to replicate, was applied in this study (Hitt et al., 2024; Gupta & Starr, 2023). According to Ivanov (2022) and Adem et al. (2020), heavy equipment operators' abilities constitute high-value human capital and are the primary factor contributing to operational success in crisis situations. However, internal resources must be precisely aligned with external performance requirements for a local government unit to attain a "sustained advantage" in disaster mitigation (Adem et al., 2020; Boin & Hart, 2022).

Additionally, Vorster (2021) contends that the effectiveness of physical assets depends on the speed of their supply chains and maintenance schedules. The supply chain must retain redundancy in parts and agility in deployment to overcome unexpected logistical interruptions in order for these assets to be really impactful, according to contemporary paradigms in humanitarian logistics (Gupta & Starr, 2023; Kovács & Spens, 2022; Tatham et al., 2020). According to recent research, local governments must make significant investments in their internal crisis management capacities rather than depending exclusively on outside assistance in order to guarantee long-term community resilience (Sarkis, 2021; Pathak & Kumar, 2024).

The maintenance-response contradiction is successfully highlighted by the RBV framework. If fuel supply or spare part networks are compromised, even highly advanced heavy gear, such bulldozers or excavators, becomes a stagnant resource (Chopra & Meindl, 2021; Sheffi, 2023). Edwards and Holt (2022) assert that proactive preventive maintenance is more important for heavy equipment's operational readiness and genuine worth than emergency repairs. For municipal services to continue, this differentiation is essential (Lucko & Mitchell, 2020). In the end, this theory explains why the systemic constraints imposed by inadequate fuel availability or low logistical readiness prevent even the most skilled operators from overcoming them (Pathak & Kumar, 2024).

The operational dependability of technical assets is a vital component of public trust in disaster-prone locations, according to Fan & Fan (2023). An organization's ability to manage mountainous disasters depends on the full coordination of its internal resources, including fuel logistics, human knowledge, and meticulous equipment maintenance (Ivanov, 2022; Fan and Fan, 2023; Hitt et al., 2024). Without this crucial synergy, the technical responsiveness required for high-stakes mitigation is still unachievable.

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Logistical Complexity in Mountainous and Landlocked Terrains

The geographical nature of Tabuk City poses significant environmental concerns for logistical management. In highland logistics, where steep inclines are common, rough terrain is a major contributor to mechanical failures and project setbacks (Guieb, 2023; Bhandari, 2020; Metternicht & Hurni, 2023). In example, Bhandari (2020) highlights that because heavy machinery is always operating on unstable terrain and steep vertical gradients, it depreciates more quickly in the Cordillera region than in lowland situations. Under these circumstances, municipal fleets' operational lifespan is greatly reduced, necessitating costly and demanding maintenance schedules to maintain functional readiness (Pagalilauan, 2022; Fan & Fan, 2023; World Bank, 2023). The region's steep slopes enhance the potential of vehicle rollovers in addition to mechanical strain, necessitating stricter safety regulations and highly accurate operator skills (Mertens, 2022; International Labour Organization, 2021).

Furthermore, the landlocked and hilly position of Tabuk causes significant delays in the acquisition of fuel and other mechanical parts (Chopra & Meindl, 2021; Kovács & Spens, 2022). Modern catastrophe frameworks observe that overlapping threats in high-altitude zones necessitate the permanent standby of specialist equipment because the survival of isolated barangays depends entirely on sustaining road connectivity (Zayed & Mahmoud, 2024).

Community vulnerability is increased by the logistical challenges common to landlocked, disaster-prone places. Charles and Lauras (2021) assert that quick road repair is an essential socioeconomic protection for rural communities. Additionally, when landslides cut off major transportation routes, the CMEPO's mobilization speed becomes crucial for both regional safety and financial continuity (Sheffi, 2023; PIDS, 2022; NEDA, 2023). According to Hajibabaei and Peña-Mora (2019), the most difficult part of disaster recovery is still managing heavy-duty assets during debris clearance, which calls for a shift to adaptive logistical models that put speed and resource agility first (Charles & Lauras, 2021; Cachero, 2025).

Historical Response Patterns and the Effects of Major Typhoons in Tabuk

Typhoons Egay and Carina in particular have put the CMEPO's operational endurance to the test numerous times. Widespread soil failures and geological instability throughout the terrain are directly caused by the extreme ground moisture levels brought on by these powerful storms (CRDRRMC, 2024; World Bank, 2023).

According to research, provincial LGUs often give other social sectors priority over the motor pool during the "Preparedness" stage. As a result, once the "Response" phase begins, equipment unreadiness and mechanical attrition become significant bottlenecks that impede recovery (NEDA, 2023; Tatham et al., 2020). According to Hajibabaei and Peña-Mora (2019), the most logistically challenging part of post-disaster rehabilitation is still managing heavy-duty assets for debris removal. The lack of a "Calamity Fuel Ordinance" has often left machinery stationary while awaiting official bureaucratic permission, according to historical documents in Tabuk. This systemic lag is a prime illustration of administrative friction in catastrophe logistics, notwithstanding the high level of commitment from technical staff (Cachero, 2025; Zayed & Mahmoud, 2024).

Collaborative Governance and Digital Resource Management Interagency trust

Within the larger Response Cluster framework in which the CMEPO operates, interagency cooperation is the main factor influencing operational performance (Ansell & Gash, 2022). However, topographical "dead zones" in steep and mountainous areas, where geographical barriers prevent traditional signal transmission, can make bad coordination worse (Bhandari, 2020; CRDRRMC, 2024).

Recent studies have shown that the technology fleet can successfully close these communication gaps by using GPS-based tracking, which continues to supply location intelligence even in the event that conventional radio frequencies fail (Cachero, 2025; Grover & Lyytinen, 2023). Furthermore, Zayed and Mahmoud (2024) suggest that analytical fleet modeling can greatly minimize operating pauses by

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anticipating mechanical attrition before it results in complete system failure, guaranteeing that heavy equipment remains mission-ready during the disaster mitigation phase

The Economic Impact of Temporal Responsiveness

Contemporary literature highlights Temporal Responsiveness the critical window in which municipal intervention must occur to forestall secondary economic shocks (Sheffi, 2023). Delays in restoring road connectivity trigger a sharp rise in the cost of essential commodities and a total paralysis of agricultural output (PIDS, 2022). Reducing the recovery-time goal is essential since prolonged infrastructure failures increase the population' structural vulnerability, turning a brief natural disaster into a long-lasting social crisis (Wisner et al., 2021). Agile relief logistics are essential to protect local supply chains, according to Kovács and Spens (2022). The pace of debris removal serves as an essential economic buffer for isolated people, as noted by Tomasini & Van Wassenhove (2019). The need for a Strategic Resource-Mapping Template is highlighted by the fact that institutional performance is measured not only by project completion but also by the promptness of mobilization.

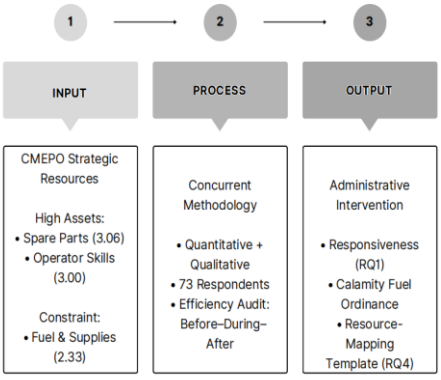
Operational Reliability and Predictive Maintenance

The CMEPO needs to embrace a Predictive Maintenance concept in order to continue being a key strategic asset. According to Fan & Fan (2023), hardware reliability is the foundation of community trust in high-risk areas. According to Lucko and Mitchell (2020), a shift from reactive repairs to proactive maintenance is necessary for equipment management to be financially sustainable. This is consistent with the need for carefully timed interventions; even if components are stocked, their deployment must be logistically timed to avoid operational paralysis.

Synthesis and the Role of Gender in Technical Operations

According to the corpus of evidence now available, CMEPO's efficacy is a convergence of supply chain speed, technical expertise, and regulatory compliance. According to recent Gender and Development (GAD) studies, technical departments improve their responsiveness by putting the overall safety and professional development of the workforce first. The CMEPO strengthens its human capital reserves by funding mechanics' and welders' technical upskilling and enforcing strict safety regulations (Mertens, 2022). In the end, Tabuk City's motor pool needs to change from a transforming the secondary support office into an active operational partner. The city ensures its logistical future by incorporating digital technologies and resolving bureaucratic bottlenecks.

Paradigm of the Study



The Resource-Based View (RBV), a foundation for this study, framework stating that the City Motor and Equipment Pool Office's (CMEPO) internal strengths are the primary source of its operational excellence. The model connects the procedural dynamics of inter-agency collaboration with crucial inputs

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like mechanical maintenance standards and technical operator proficiency. The effectiveness of the office during high-stakes disaster recovery can be precisely assessed thanks to this linkage. By examining these factors, the framework shows how community stabilization is directly impacted by resource readiness, eventually establishing whether the CMEPO serves as a crucial strategic partner or a reactive auxiliary unit in municipal safety.

METHODS

Research Design

The study made use of a Concurrent Multi-Method Research Design, a strong mixed-methods strategy that makes it easier to collect and analyze quantitative and qualitative data at the same time (Creswell & Plano Clark, 2023). Deconstructing the intricate operational systems and organizational challenges present in the CMEPO was a particularly successful use of this methodology (Creswell & Creswell, 2023). This contemporaneous method allowed the study to combine qualitative accounts from technical specialists and important stakeholders with statistical survey data (Zayed & Mahmoud, 2024). This process made sure that quantitative trends were firmly rooted in the actual work experiences of responding line agencies and community leaders. By benchmarking the shift from the preparedness stage to the active response and rehabilitation phases, the analytical framework employed an evaluative lens to gauge responsiveness. In order to strictly focus on technical performance features, the study gave operational measurements precedence over participant demographic profile. The equipment pool's logistical agility during the crucial rehabilitation window was precisely assessed thanks to this strategic approach (Jiang & Yuan, 2019; Terville et al.,2022).

Participants of the Study

In order to involve a particular group of stakeholders with substantial field experience in municipal logistics and emergency operations, the study used purposive sampling (Oliver, 2006). Selection was strictly based on professional expertise and technical functions within the nine (9) identified response clusters: the City Disaster Risk Reduction and Management Office (CDRRMO), Bureau of Fire Protection (BFP), Philippine National Police (PNP), City Social Welfare and Development (CSWD), Public Order and Safety Office (POSO), 1405th RCDG (Army), City Health Office (CHO), and the City Environment and Natural Resources Office (CENRO), in conjunction with the City Motor and Equipment Pool Office (CMEPO).

Barangay authorities' involvement was essential to gathering thorough data on responsiveness throughout the stages of recovery and restoration.

These participants offered the crucial "end-user" viewpoint regarding the effectiveness of infrastructure restoration and road clearance initiatives. The study collected high-validity data by focusing on seasoned professionals and technical specialists who had front-line or supervisory roles during recent disaster operations. about the response of the CMEPO. To guarantee that the results represented the functional realities of the city's logistical backbone, the study excluded individual demographic profiling in favor of professional outcomes and technical characteristics, in keeping with the research's operational focus.

Table 1. *Distribution of Respondents*

Participants	Description	Total Population	Sample Size	Percentage
CMEPO Staff	Operators, mechanics, and admin personnel	31	25	34.25%
Response Clusters	Key personnel from 9 agencies (CDRRMO, BFP, etc.)	15	12	16.44%

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Participants	Description	Total Population	Sample Size	Percentage
Barangay Officials	Representatives utilizing CMEPO for rehabilitation	43	36	49.31%
Total		89	73	100%

Research Instrument

The Operational Responsiveness Scale was the main instrument utilized to gather data. This tool was created by researchers to assess the office's functional role in disaster mitigation and technological performance using three operational pillars:

1. Logistical and Fleet Readiness: This assessed the physical assets' preparedness, including heavy machinery, fuel, and maintenance plans.
2. Inter-Agency Coordination: This assessed collaboration and communication between the CMEPO and affiliated organizations such as the CDRRMO, PNP, and BFP
3. Rehabilitation Effectiveness: This assessed the actual results of operations, including road-clearing speed and how well the machines held up during work.

Ethical Consideration

The research closely followed accepted ethical guidelines and the Republic Act No. 10173 (Data Privacy Act of 2012) provisions to protect data integrity and participant rights. After being notified of their right to voluntary participation and withdrawal, participating agency experts and technical staff gave written informed permission. Data gathering was solely focused on professional insights in order to promote unbiased evaluations of the CMEPO's operating systems; all information was submitted anonymously and securely preserved. Additionally, all records were used only for academic purposes and will be securely disposed of after the research is successfully defended.

Data Gathering Procedure

To guarantee that all data was gathered truthfully and morally, the study used a methodical, three-step procedure. The chiefs of the CDRRMO and CMEPO granted the researcher official authority to carry out the study. To ensure that all participating government entities supported the initiative and to explain the research goals, coordination meetings were held. Following approval, 73 participantsi ncluding CMEPO employees, response cluster members, and barangay representatives were given CORS questionnaires in the second phase.Concurrently, the investigator interviewed technical specialists to obtain in-depth input regarding the office's effectiveness amid emergencies. In the last stage, the interview replies were typed out for analysis and the survey results were arranged. By comparing the participants' responses with official equipment logs and maintenance records, the researcher conducted a site-level verification to ensure the results were entirely accurate. This last stage made sure that the assessment of the office's response was based on actual, recorded data from the City of Tabuk.

Data Analysis

The analysis of data was conducted using a mixed-methods approach to provide a complete evaluation of the CMEPO's responsiveness. For the quantitative part, data from the CORS questionnaires were analyzed using both descriptive and inferential statistics. Weighted means and percentages were employed to determine the level of responsiveness across equipment readiness, inter-agency teamwork, and repair effectiveness. This allowed the researcher to identify specific technical strengths, such as spare parts availability, and critical gaps, such as fuel and supplies readiness.

Additionally, a One-Way ANOVA was utilized to determine if significant differences existed between the perceptions of the CMEPO staff, the response clusters, and the Barangay representatives. The

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results confirmed a significant difference in how these groups viewed the office, which provided the scientific proof needed to suggest new office policies.

For the qualitative part, information from interviews was processed through Thematic Analysis, where the researcher looked for recurring patterns in the participants' feedback regarding office delays and successes. By analyzing both the numbers and the interviews together, the researcher used the participants' verbal insights to explain the trends found in the statistical results. This combined treatment served as the foundation for the development of the proposed Calamity Fuel Ordinance and the Resource-Mapping plan for Tabuk City.

Respondents evaluated these areas using a 4-point Likert Scale.

Table 2. *Scaling and Interpretation of Operational Responsiveness Data*

Scale	Range	Qualitative Interpretation	Symbol
4	3.26 – 4.00	Highly Responsive	HR
3	2.51 – 3.25	Moderately Responsive	R
2	1.76 – 2.50	Responsive	LR
1	1.00 – 1.75	Not Responsive	NR

RESULTS AND DISCUSSION

The gathered data and statistical results were presented alongside a comprehensive discussion of the findings. By following a concurrent triangulation design, quantitative outcomes were balanced with qualitative expert insights to provide a validated evaluation of the City Motor and Equipment Pool Office (CMEPO).

Responsiveness of the CMEPO Along Rehabilitation (RQ 1)

Table 1. *Logistical and Fleet Readiness (Input)*

I. Logistical & Fleet Readiness (Input)	Mean	Description
Heavy equipment is always ready for use.	3.00	MR
Fuel and supplies are ready before a storm.	2.33	R
Equipment is maintained regularly.	2.94	MR
Operators have the skills to handle big machines.	3.00	MR
Spare parts are available for quick repairs.	3.06	MR
Average Mean	2.87	MR

The office's overall logistical and fleet readiness score was 2.87 (Moderately Responsive). This suggests that although the CMEPO has a functional basis, it is now operating more in a state of basic functional preparedness than ideal strategic responsiveness. The Resource-Based View (RBV), which holds that the input phase of disaster management is only as resilient as its most limited resource, is consistent with this conclusion (Ivanov, 2022; Gupta & Starr, 2023).

In particular, the availability of spare parts received the highest mean of 3.06, indicating an institutional grasp of Equipment Life-Cycle Costing and a proactive maintenance culture (Vorster, 2021; Edwards & Holt, 2022). Fuel and supply readiness, on the other hand, had the lowest mean (2.33), indicating a substantial administrative logistical gap. This discrepancy is similar to the maintenance-response dilemma (Sarkis, 2021; Pathak & Kumar, 2024), in which supply chain problems effectively nullify high-level technological preparation. This is known as a type of Last-Mile Problem in humanitarian logistics, when

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resources are available within the organization but cannot be mobilized to the disaster site because of strict procurement processes and administrative obstacles (Charles & Lauras, 2021; Kovács & Spens, 2022).

Table 2. Inter-agency coordination (Process)

Ii. Inter-Agency Coordination (Process)	Mean	Description
Deployment orders are clear and fast.	3.06	MR
Radio/Phone contact with CDRRMO is reliable.	3.03	MR
Equipment arrives at the site on time.	3.03	MR
CMEPO works well with other agencies (PNP/BFP).	3.72	HR
Average Mean	3.18	MR

The CMEPO functions as a dependable and integrated partner within Tabuk City's disaster management system, as evidenced by the average mean of 3.18 (Moderately Responsive) for the overall responsiveness of inter-agency coordination. According to Ansell and Gash (2022) and McEntire (2021), strategic coordination is the crucial "glue" of an efficient disaster response, and this score represents a functional balance between cooperative efforts and standard operating procedures. This illustrates the office's organizational capital within the Resource-Based View (RBV), demonstrating that its capacity to coordinate with other agencies is a unique capability (Ivanov, 2022; Hitt et al., 2024).

The indicator "CMEPO works well with other agencies (PNP/BFP)" has the highest mean of 3.72 (Highly Responsive) within this framework. This rating highlights a high degree of mutual trust and organizational synergy, guaranteeing that heavy assets are smoothly incorporated into the frontline responders' command structure. Recent research on Network Governance, which contends that institutional trust is the most important predictor of success in municipal response, supports this conclusion (Boin & Hart, 2022; Kapucu & Hu, 2020). Additionally, it is consistent with O'Leary and Bingham's (2024) assertion that high-performing units are distinguished by cross-jurisdictional collaborations that surpass official bureaucratic borders, enabling resource-sharing flexibility during periods of high-stress recuperation.

On the other hand, "Equipment arrives at the site on time" and "Radio/Phone contact with CDRRMO is reliable" tied for the lowest mean of 3.03 (Moderately Responsive). This identification score confirms the presence of minor points of friction or communication fragility in the logistical process, which are probably made worse by signal "dead spots" or delays caused by the topography of Tabuk City (Guieb, 2023; CRDRRMC, 2024). This result mirrors the observations of Bhandari (2020), who noted that technical communication challenges often persist in mountainous regions even when the institutional willingness to cooperate is high. Furthermore, the results are consistent with those of Rodrigue (2020) and Kovács and Spens (2022), who noted that because of uncertain road conditions and the temporal degradation of information during a crisis, the physical arrival time of assets continues to be the most challenging measure to stabilize in disaster logistics. Adopting satellite-based tracking or a Crisis Communication Protocol is crucial to closing this 3.03 gap and ensuring coordination in the event that standard cellular networks collapse (Denhardt, 2023; Cachero, 2025).

Table 3. *Rehabilitation Responsiveness (Output)*

Iii. Rehabilitation Responsiveness	Mean	Description
Road clearing in barangays starts immediately.	3.47	HR
CMEPO equipment speeds up road restoration.	2.94	MR
Machines stay functional during the whole work.	2.78	MR
Equipment is available until recovery is finished.	3.08	MR
Assessment is done after every operation.	3.72	HR
Average Mean	3.20	MR

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The office was effective in fulfilling its core goal of restoring road access to the barangays of Tabuk City, as evidenced by the average mean of 3.20 (Moderately Responsive) for overall rehabilitation responsiveness. This result supports the claims made by McEntire (2021) and Abaya and Valenzuela (2021) that the speed and efficacy of community restoration are the best indicators of disaster responsiveness. This average mean demonstrates that the CMEPO's operational outputs contribute significantly and consistently to the city's overall disaster resilience within the Resource-Based View (RBV) paradigm (Ivanov, 2022; Bautista, 2023).

The indicator "Assessment is done after every operation" in particular had the highest mean of 3.72 (Highly Responsive). This rating highlights the post-disaster workflow's institutionalized culture of accountability and technological audits. This implies a dedication to ongoing development, making sure that technological achievements are repeated and operational failures are recorded. Terville et al. (2022) and Sarkis (2021), who observe that post-operation audits are the main method by which municipal offices find technical deficiencies and defend future procurement, corroborate this conclusion. Additionally, it is consistent with DILG (2022) and Grover and Lyytinen (2023), who stress the need of performance monitoring in the shift from temporary alleviation to long-term, sustainable rehabilitation. The CMEPO can improve its strategic resource mapping and transform unprocessed data into useful policy by utilizing these audits.

On the other hand, at 2.78 (Moderately Responsive), the indicator "Machines stay functional during the whole work" had the lowest mean. This score confirms a serious worry about the fleet's mechanical exhaustion during prolonged deployment in difficult terrain, where high-load activities frequently result in mid-operation failures. This outcome is consistent with the findings of Kovács and Spens (2022) and Pathak and Kumar (2024), who note that mechanical endurance is frequently a bottleneck in regional catastrophe recovery. The data also supports the findings of Sheffi (2023) and Wang et al. (2025), who note that unpredictable site conditions and the physical age of the assets often make it difficult to sustain equipment uptime over the full recovery lifetime. The CMEPO must switch from reactive repairs to predictive maintenance in order to alleviate this 2.78 bottleneck and guarantee that heavy assets are operational until the last stage of community restoration is finished (Zayed & Mahmoud, 2024).

Responsiveness of City Motor and Equipment Pool Office along Rehabilitation

Table 4. *Summary of Responsiveness of CMEPO along Rehabilitation*

Operational Domains	Average Mean	Interpretation
I. Logistical & Fleet Readiness	2.87	Moderately Responsive
Ii. Inter-Agency Coordination	3.18	Moderately Responsive
Iii. Rehabilitation Effectiveness	3.20	Moderately Responsive
Total Average Weighted Mean	3.08	Moderately Responsive

A total average weighted mean of 3.08 (Moderately Responsive) was found for the CMEPO's cumulative responsiveness across the catastrophe recovery spectrum. This shows that the office is generally reliable and functional in carrying out its mandates. All three of the examined domains—Logistical Inputs (2.87), Inter-agency Processes (3.18), and Operational Outputs (3.20)—show consistency, indicating a stable organizational structure with comparatively well-aligned resources and teamwork. A cumulative mean of 3.08, however, suggests that although the office consistently performs its duties in road clearance and interagency support, it has not yet attained the "Highly Responsive" criteria because of particular, recurrent challenges in the early phases of its operational cycle.

The fundamental significance of these findings is that, although having excellent "soft assets," including highly qualified operators and substantial inter-agency confidence, the CMEPO is nevertheless hampered by "hard" logistical constraints, particularly the fuel and supply problems found during the Input

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phase. It's interesting to note that when the office progresses from the Input stage (2.87) to the Process stage (3.18) and ultimately to the Output stage (3.20), the data clearly shows an increased trend in performance. This implies that the absence of early-stage resources is adequately compensated for by the commitment of the staff and the caliber of inter-organizational collaboration.

The conclusions of Sarkis (2021) and McEntire (2021), who note that institutional synergy and human resourcefulness frequently serve as the main bridge across logistical deficits in the public sector, are supported by this tendency. This total outcome demonstrates that the CMEPO is an important institutional asset for Tabuk City under the Resource-Based View (RBV) framework. However, in order to ensure that procurement delays or administrative friction never block mechanical capabilities, policy-level interventions will be necessary to transition to an ideal state of readiness (Cachero, 2025; Pathak & Kumar, 2024).

II. Significant Difference in Perceived Responsiveness (RQ 2)

Table 5. *ANOVA: Differences in Perception Among Participants (Between Groups)*

		City Motor & Equipment Pool Office	Response Clusters (Inter Egencies)	Barangay Representatives
City Motor & Equipment Pool Office	Mean Difference	—	0.341***	0.556***
	P-Value	—	<.001	<.001
Response Clusters (Inter Agencies)	Mean Difference		—	0.215**

Note. * p < .05, ** p < .01, *** p < .001

The ANOVA results highlight a significant gap in how different groups see the CMEPO's effectiveness. The biggest difference is between the CMEPO and Barangay Representatives (0.556), followed by the Inter-Agency Response Clusters (0.341). These results (p < .001) show that the office staff view their own performance much more positively than the outside partners they serve. Additionally, the 0.215 difference between agencies and barangays suggests that people at the local level are the most critical of the services provided. Ultimately, this "perception gap" proves that while the office might be meeting its internal goals, it is not meeting the actual needs of the community during disaster recovery.

III. Issues and Challenges Encountered by the CMEPO (RQ 3)

Theme 1: Frequent Breakdowns and Aging Equipment

The aging state of the municipal heavy equipment fleet creates a Resource Capability Gap, where the hard work and skills of CMEPO staff are limited by the unreliability of their machines. While the personnel are capable of performing disaster response tasks, the frequent breakdown of dump trucks and backhoes creates a bottleneck that can stop road clearing operations. This constant mechanical failure matches the lower scores found in the earlier data; for the community, seeing broken equipment is the most obvious sign of a delay in government service. Ultimately, these findings show that without newer machines, even the best response plans are difficult to carry out.

R1: *"The machines are over 15 years old and the parts are worn out. We have the skill to do the job, but the equipment breaks down after only an hour of heavy work."* (CMEPO Heavy Equipment Operator)
R2: *"We are spending too much on temporary repairs for old units. Our maintenance costs are now higher than our actual budget for operations."* (CMEPO Administrative Officer)

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R3**:** *"We were told the clearing teams were delayed because the backhoe engine overheated. When equipment is broken, it slows down our access to help and creates a safety risk."* (Barangay Stakeholder)

Theme 2: Administrative and Supply Delays

The strict rules for getting fuel and spare parts show a mismatch between standard office policies and the urgent needs of a disaster. These Rigid Office Rules or red tape show a need for faster systems, as current processes for releasing fuel follow a slow, step-by-step structure. Because the CMEPO must follow regular office rules even during emergencies, good equipment sometimes sits idle while waiting for paperwork to be signed. This represents an opportunity for a fast-track law to give the CMEPO more freedom to move quickly during a calamity.

R4: *"Having a pre-approved fuel system would allow our functional backhoes to deploy immediately rather than waiting for manual signatures during a crisis."* (CMEPO Dispatcher)
R5: *"While auditing rules are essential for accountability, a specialized 'emergency track' would better align these rules with the need to save lives quickly."* (CMEPO Administrative Staff)
R6: *"A more streamlined process for getting supplies would ensure that clearing teams arrive exactly when the community*
needs them most, strengthening public trust." (Barangay Official)

Theme 3: Communication and Information Gaps

The breakdown in the flow of information between the CMEPO and the Barangays creates a Perception Gap that affects how people view the office's work. Without a real-time tracking system to show where equipment is located, local leaders often feel disconnected from the office's actual efforts. In disaster management, keeping the public informed is just as important as the actual repair work. This gap shows the need for a digital monitoring system to keep everyone updated on the status of the equipment.

R7: *"We need more reliable technology because cellular calls often fail in upland areas during severe weather, leaving us with no way to coordinate."* (CMEPO Administrative Supervisor)
R8: *"A real-time update on equipment location would allow local leaders to better manage the expectations of our constituents during a storm."* (Barangay Representative)
R9: *"Clear communication regarding the estimated time of arrival for clearing teams would provide much-needed reassurance to the citizens."* (Community Stakeholder)

Theme 4: Personnel Safety and Occupational Hazards

The study identified a need for better safety equipment and protective gear for the field personnel who operate in high-risk environments. This Safety-Capability Gap exists because the staff must often work during heavy rains, landslides, and floods without complete personal protective equipment (PPE) or specialized foul weather gear. While the operators are dedicated to their tasks, the lack of modern safety tools creates an unnecessary risk to their physical well-being. Improving this area would not only protect the staff but also boost their morale and efficiency during long disaster operations. Providing better gear ensures that the human resource of the CMEPO remains healthy and ready for the next emergency002E

R10: *"We often have to clear landslides in the middle of a storm without proper rain gear or safety boots that can handle the mud and sharp debris."* (CMEPO Heavy Equipment Operator)
R11: *"Our budget is mostly used for machine repairs, leaving very little for the safety gear and medical kits that our field teams need when they are deployed."* (CMEPO Administrative Officer)
R12: *"Knowing that our workers have the right safety gear gives the community peace of mind that the clearing operations are being done professionally and safely."* (Community Stakeholder)

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CONCLUSION

The study's conclusions highlight the City Motor and Equipment Pool Office's (CMEPO) strong institutional commitment to its goals. The "perception gap" between internal performance and external expectations, however, is crucial. Barangay stakeholders constantly point up the need for quicker service delivery, despite the CMEPO staff's perception that their operations are responsive. This discrepancy demonstrates that technical expertise alone is insufficient; in order to achieve true municipal responsiveness, office operations must be coordinated with the community's urgent requirements (Grover & Lyytinen, 2023; PIDS, 2022).

Additionally, the study finds that systemic rather than individual factors are the main obstacles to peak performance. The study's "logistical paralysis" is directly caused by outdated equipment fleets and strict administrative regulations that control the acquisition of fuel and replacement parts. Technical staff are often neglected by bureaucratic delays because these legacy regulations were created for everyday operations rather than the unpredictable demands of disaster restoration (Ivanov, 2022; Tatham et al., 2020). This study uses the Resource-Based View to show that the "weakest link" in the supply chain must be repaired before the CMEPO's internal strengths may result in community resilience. The IDLIS digital dashboard and the planned Calamity Fuel Ordinance are important phases toward an agile governing paradigm that puts openness and speed first. As a result, these measures will protect the city's logistical resources, guaranteeing that Tabuk City is not only ready for the next calamity but also able to recover quickly and sustainably. In the end, the analysis confirms that the city has to update its administrative procedures in order for the CMEPO to reach its maximum potential. The city can turn its logistical backbone into a strategic force that can handle the demanding requirements of disaster recovery by including digital resource tracking and agile procurement (Gupta & Starr, 2023; NEDA,2023).

Recommendations

1. The City Council should enact a "Green Lane" ordinance to eliminate administrative red tape, allowing the CMEPO to bypass lengthy paperwork for immediate fuel and spare parts procurement.
2. The city should fund a modernization plan to replace aging units, ensuring the fleet remains capable of high-intensity response without mechanical failure.
3. The office should implement a digital tracking system to perform proactive maintenance, ensuring the fleet remains mission-ready for immediate deployment during emergencies.
4. The CMEPO should pre-position heavy equipment in high-risk areas before typhoons to ensure road-clearing operations begin immediately without access delays.
5. The office should implement a digital map for live equipment tracking to foster community trust through transparent arrival estimates.
6. Staff should undergo dual training in modern hydraulic repairs and crisis communication to ensure both technical proficiency and professional public service.
7. Regular inter-agency simulation exercises should be conducted to ensure the CMEPO, Engineering Office, and CDRRMO remain synchronized during actual disaster events.
8. Future research should conduct a cost-benefit analysis between in-house repair facilities and private outsourcing to help the City Budget Office optimize long-term operational costs.

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