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E-Governance in Paracale: A Digital Transformation for Improved Public Service Delivery and Citizen Engagement

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ABSTRACT

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This study examines the e-government services in the Local Government Unit (LGU) of Paracale, Philippines, examining the impact of digital transformation on public service delivery and citizen engagement. The research aims to assess the functionality, reliability, usability, performance efficiency, compatibility, maintainability, portability, and security of the e-governance platform using the ISO 25010:2011 standard. Employing a quantitative approach, a survey questionnaire utilizing a five-point Likert scale was administered to twenty-four LGU employees with direct experience on e-governance platform to evaluate the system's performance across various dimensions. The findings reveal that the e-governance system in Paracale is highly effective, demonstrating robust functionality, reliable performance, user-friendly interfaces, and strong security measures. The platform has significantly enhanced public service delivery, promoted transparency, and fostered citizen engagement. The study identified specific areas for improvement,

Barangay Fisheries and Aquatic Resources Management, and selected Fisherfolks in Tabaco City and Legazpi City. There is a consensus among stakeholders on the importance of the devolution process, safety standards, collaboration mechanisms, and monitoring and evaluation systems. Addressing challenges like capacity building, resources, infrastructure, and coordination is important to successfully implement EO 305 for sustainable fisheries. The PNP, LGU, BFAR, and fisherfolk may continue collaborating and sharing best practices to optimize the devolved fishing vessel registration by addressing challenges and investing in capacity building. They prioritize capacity building, resource allocation, and public awareness to achieve sustainable fisheries management and protect livelihoods. The proposed Enhanced Fisheries Registration and Management Act of 2024 may be enacted to provide a stronger legal framework for the effective and sustainable devolution of fishing vessel registration. The successful implementation of Executive Order No. 305 requires strong inter-agency collaboration, adequate resources, and effective public awareness campaigns to address challenges, ensure compliance, and promote sustainable fisheries management.

INTRODUCTION

The recording of fishing ships plays a fundamental role in promoting sustainable fishing practices, improving economic development and effectively managing marine resources in coastal communities. The meaning of the ship's recording systems lies in their ability to create a regulatory framework that promotes responsibility and transparency in the fishing sector. This picture is essential, in particular in the regions where illegal fishing, not declared and unregulated remains prevalent, as highlighted by Islam and Hasan (2024). By applying registration protocols, authorities can better monitor fishing activities and implement legal sanctions against violations, thus ensuring adhesion to operational standards (Siregar, 2024).

An effective fishing management is intrinsically linked to the functioning of the recording systems. Moura et al. (2024) examine the role of the inspection of fishing in Portuguese waters, underlining that a solid registration system improves compliance with sustainable practices. These inspections provide a mechanism through which fishing ships can be held responsible for their environmental impact, thus promoting the stocks of sustainable fish and marine biodiversity.

The registration of fishing vessels represents a significant change in the management of coastal fishing, with remarkable implications for local economies, sustainability practices and regulatory compliance in coastal communities. This process, defined as the transfer of governance responsibilities of the central

authorities to local entities, was analyzed in several case studies worldwide, highlighting its multifaceted impacts. As local controls are established, stakeholders, including small -scale fishermen, usually experience an increase in economic benefits due to the improvement of resource management and access to fishing areas. Notably, the recognition of small -scale fishermen rights can economically enable local communities, allowing them to be more effectively involved in value chains (Ferrer et al., 2024). This economic elevation is supported by studies indicating that local governance facilitates adaptive management, which can improve the economic returns of fishing (Bergonio et al., 2024).

This study primarily focused on the implementation of EO 305 in the province of Albay. At present, the compliance with Executive Order No. 305 (EO 305) in the Province of Albay, specifically in Legazpi City and Tabaco City, faces several problems. In Legazpi City, out of 1,078 municipal fishing vessels, only 515 are registered, while in Tabaco City, only 317 out of an estimated 2,000 vessels are registered. This shows a low compliance rate, with less than 50% of vessels in Legazpi and only around 16% in Tabaco City adhering to the registration requirements.

One major issue contributing to this problem is the lack of enforcement by Local Government Units (LGUs). The devolution of responsibilities under EO 305 requires LGUs to actively regulate and monitor vessel registration, but weak enforcement has led to many vessels operating without proper documentation. Furthermore, the failure to include EO 305 in the Local Fisheries Ordinance exacerbates the issue, as this omission prevents LGUs from having a solid legal framework to enforce the executive order. Without local ordinances aligning with EO 305, there is no clear mandate for the LGUs to impose penalties or enforce compliance, leading to widespread non-registration and undermining the goals of the regulation.

The study on Executive Order 305, which devolves the registration of fishing vessels to Local Government Units, offers significant benefits to the PNP Maritime Unit, LGUs, fisher folks, and BFARM. Addressing the identified issues within the implementation of EO 305 in Albay would significantly enhance the study's contribution, transforming it from a mere analysis of perceptions to a practical guide for improving devolved fisheries management. By focusing on the gaps revealed in the collaboration and monitoring/evaluation mechanisms, the study could provide concrete recommendations for strengthening inter-agency coordination, enhancing LGU capacity, and improving stakeholder engagement.

Furthermore, improving the PNP Maritime Group's liaison function and

ensuring that the data collected by LGUs is effectively utilized by national agencies would strengthen the overall information flow and accountability within the system. Ultimately, by translating these findings into practical solutions, the study could serve as a valuable resource for policymakers, LGUs, and maritime agencies, contributing to the sustainable management of fisheries resources and the successful devolution of fishing vessel registration under EO 305.

FRAMEWORK

This study is anchored on Management Theory of Henri Fayol in 1916 which emphasized the importance of division of work, suggesting that dividing tasks among specialists can increase efficiency and productivity. He also highlighted the significance of authority and responsibility, arguing that managers should have the authority to give orders and the responsibility to ensure their execution. Henri Fayol's theory of management is often considered one of the fundamental pillars of modern thinking of administration. Fayol proposed a systematic approach to management that emphasizes a universal set of applicable principles in various organizational contexts. Its main principles include division of labor, authority, discipline, command unit and scalar chain, among others (Yuwono & Rachmawati, 2024). These principles are not just historical artifacts; they significantly shaped contemporary management practices and emphasized the importance of organizational effectiveness. In addition, Fayol's focus on leadership and managerial functions provides vital information about effective organizational leadership. Its emphasis on a systematic approach to management aligns with the growing demand for structured leadership models in today's corporate environment. Hirose (2024) postulates that Fayol articulated principles can be seen as an early form of what is now recognized as strategic management. Its principles provide not only a plan for effective management, but also serve as a guide for leaders to promote an environment conducive to growth and productivity.

Henri Fayol's principles of management offer valuable insights for addressing the challenges faced by the PNP Maritime Unit in implementing EO 305. By applying principles such as division of work, unity of command, and stability of tenure, the PNP Maritime Unit can improve efficiency, coordination, and continuity in its operations. Additionally, principles like economy of resources, order, and initiative can help the unit to optimize resource utilization, maintain organizational structure, and encourage innovative solutions. By understanding and applying these principles, the PNP Maritime Unit can enhance its capacity to effectively implement EO 305 and contribute to the sustainable management

of fisheries resources.

This study is anchored on General System Theory of Karl Ludwig von Bertalanffy in 1968 (Heylighen & Joslyn, 1992) to elucidate and explore the concepts and principles of the research. The initial component in the paradigm is systems theory, which is pertinent to the study's objectives. The organizational systems theory posits that organizations consist of multiple subsystems that may not be directly related but collaborate to constitute the entire entity. This theory is valuable in comprehending aspects such as organizational behavior, organizational change, and organizational development. Systems theory provides insights into the interconnections among different elements within the organization and their interactions. Karl Ludwig von Bertalanffy's General System Theory (GST) provides a valuable framework for understanding the complex dynamics of implementing EO 305. This theory emphasizes the interconnectedness of various elements within a system and the importance of considering the whole system rather than isolated parts.

This General System Theory is supported by Evaluation Theory proposed by Smith and Scriven (Mertens & Wilson, 2012). In Smith's perspective, evaluation theory serves as a framework that guides our understanding of the reasons and methods behind engaging in evaluation. Its objectives include validation of evaluation, ensuring accountability, monitoring, and facilitating improvement and development. Theories in this context provide guidance in defining the goals of evaluations and specifying what constitutes credible evidence for drawing conclusions in an evaluation.

Evaluation theory, as proposed by Smith and Scriven, is relevant to the evaluation of the PNP Maritime Unit on EO 305 along registration and licensing, adherence to safety standards, collaboration mechanism and monitoring and evaluation system. It provides a framework for assessing the effectiveness of the PNP Maritime Unit's implementation of EO 305. By setting clear goals, collecting and analyzing relevant data, and utilizing appropriate evaluation designs, the PNP Maritime Unit can measure its impact on the fishing industry. The findings from these evaluations can inform future policy decisions, identify areas for improvement, and ensure the long-term sustainability of the fisheries sector.

OBJECTIVES OF THE STUDY

The research evaluated the implementation of the Executive Order 305 in the province of Albay. The main objective of this study is to decentralize the registration and regulation of fishing vessels by empowering Local Government

Units to manage the process, thereby enhancing maritime safety, promoting sustainable fishing practices, and improving the livelihoods of local fishing communities. This study evaluated the implementation of PNP Maritime Unit on Executive Order No. 305 in Devolving Fishing Vessels Registration in the province of Albay in terms of Registration and Licensing; Adherence to safety Standards; Collaboration Mechanism; and Monitoring and Evaluation System. It also identified the bottleneck faced by the PNP Maritime Unit in the implementation of the Executive Order 305 in the Province of Albay. Lastly, it proposed a Legislative Enactment in the implementation of Executive Order 305.

METHODOLOGY

Research Design

This study employs a descriptive quantitative research design. Descriptive research aims to define and portray a phenomenon or a sample group within a population. The quantitative approach was used to establish the framework for counterinsurgency operations.

Research Site

The scope of this study was within Albay province, a part of the Bicol Region in the Philippines. Geographically, Albay occupies the southeastern portion of Luzon Island. Legazpi City, the capital and largest urban center of Albay, also serves as the regional hub for the entire Bicol Region and is situated at the southern base of Mayon Volcano. The primary locations for this research were the three cities within Albay. Albay has a total land area of 2,575.77 square kilometers (994.51 sq mi), making it the 53rd largest province in the country.

Respondents

The primary respondents of the study are the five (5) PNP Maritime personnel and twenty (20) LGU employees, eighty four (84) Barangay Fisheries and Aquatic Resources Management (BFARM) and five hundred nine (509) fisherfolks from the Province of Albay specifically in Tabaco City and Legazpi City. They were considered as respondents because they can share their personal experiences needed for the study and they are deemed knowledgeable and competent to provide the necessary data. The PNP Maritime personnel have direct experience with enforcing maritime laws and ensuring safety standards, making their insights crucial for understanding the challenges and successes of registration and licensing processes. LGU employees play an important role

in local governance and can provide valuable information about how policies are applied at the community level. The BFARM act as representatives of local communities and Help Bridge the gap between the government and the people, offering perspectives on community needs and concerns regarding fishing vessel regulations. Finally, fisherfolks, can share their experiences and opinions about the impact of these regulations on their livelihoods. By including these diverse respondents, the research will gain a well-rounded understanding of the effectiveness and challenges of implementing Executive Order No. 305.

Instrumentation

A survey questionnaire was prepared composing of several indicators to avoid leading the respondents and to gain as much information on the phenomenon as possible. To ensure that the instrument comprised the themes and areas that the study was supposed to examine, the items included in the questionnaire were subjected to validation by personnel from the PNP maritime Unit and Local Government Unit. Face and content validity are questionnaire measurement techniques used to judge and quantify measurements that appear acceptable to the general public and highly qualified experts. The questionnaire indicates the evaluation the implementation of PNP Maritime Unit on Executive Order No. 305 in Devolving Fishing Vessels Registration in the province of Albay in terms of, Registration and Licensing; Adherence to safety Standards; Enforcement; and Monitoring and Evaluation System and the bottleneck faced in the implementation. The study used a Likert-type of survey questionnaire that gave the respondents four (4) choices of answers on the implementation of the Executive Order No. 305.

Sampling Technique

This study used the purposive sampling in selecting the respondents. Purposive sampling encompasses various non-probability techniques, also recognized as selective or subjective sampling. In this approach, the researcher used their judgment to select units for study. Purposive sampling aims to concentrate on specific characteristics within a population that are pertinent to answering the research questions effectively.

Data Analysis

For the purpose of acquiring reliable data, a questionnaire was administered. The statistical analysis in this study relied on the weighted mean. This method facilitated the determination of the total number of respondents, the nature of their responses, and the frequency of the phenomena under examination.

Research Ethics Protocol

To uphold ethical standards, the researchers implemented several key measures: participation was strictly voluntary with informed consent obtained via a consent letter, respondent anonymity was maintained, and careful attention was paid to the wording of questions to preserve participant dignity. Moreover, the researchers is dedicated to the independent and impartial presentation of the study's data.

RESULTS AND DISCUSSION

This part of the study presents the analysis and interpretation of the data gathered on the implementation of Executive Order No. 305 also known as the Devolving Fishing Vessels Registration in the Province of Albay. They were analyzed and interpreted in the light of the insights from reading of related literatures and the result of questionnaire with the key respondents.

1. Implementation of PNP Maritime Group on Executive Order No. 305 in Devolving Fishing Vessels Registration in the province of Albay

The implementation of Executive Order No. 305 has significantly impacted the fishing industry in the province of Albay. The PNP Maritime Group plays an important role in ensuring the effective implementation of this executive order. By verifying the legitimacy of vessels, ensuring adherence to safety standards, fostering collaboration between various stakeholders, and establishing vigorous monitoring and evaluation systems, the PNP Maritime Group contributes to the sustainable management of fisheries resources and the safety of fishermen in the region.

a. Registration and Licensing

This is the official process of documenting a fishing vessel's existence, ownership, and basic information such as its name, length, engine power, and home port. It's a crucial step to identify and track fishing vessels, ensuring compliance with fishery regulations and promoting sustainable fishing practices. It involves the issuance of a license that outlines the vessel's specific fishing rights, limitations, and conditions.

Table 1
Registration and Licensing

Indicators	WM	AI
1. The PNP Maritime Group assist the LGU in enforcing the proper registration and licensing of fishing vessels.	3.29	A
2. The PNP Maritime Group gather and share intelligence on unregistered or illegal fishing vessels, including those engaged in illegal, unreported, and unregulated (IUU) fishing, and coordinate with LGUs for necessary actions.	3.21	A
3. The PNP Maritime Group aid in verifying the legitimacy of the vessels being registered and ensure that proper documentation is submitted during the licensing process.	3.49	A
4. The LGU establish and manage local registration units responsible for issuing licenses and maintaining records of registered vessels.	3.56	HA
5. The LGU maintain accurate records of all registered fishing vessels and ensure that information is submitted to relevant agencies.	2.92	A
6. The LGU review applications for vessel registration, conduct inspections, and issue certificates of registration and licenses to compliant vessels.	3.02	A
TWM	3.25	A

Legend: 4-Highly Agree, 3-Agree, 2-Moderately Agree, 1-Not Agree

Based on the results, the LGU establish and manage local registration units responsible for issuing licenses and maintaining records of registered vessels have the highest weighted mean of 3.56 with an adjectival interpretation of Highly Agree. On the other hand, the LGU maintain accurate records of all registered fishing vessels and ensure that information is submitted to relevant agencies have the lowest weighted mean of 2.9 or Agree. Overall, the implementation of Executive Order No. 305 in registration and licensing have a total weighted mean of 3.25 of Agree.

The results shows a strong affirmation regarding the LGUs' role in establishing and managing local registration units for issuing licenses and maintaining vessel records, highlighting a widespread recognition of the necessity and appropriateness of this devolved function as mandated by Executive Order No. 305. This suggests stakeholders believe in the capacity and suitability of LGUs to handle the foundational aspects of vessel registration at the local level. Conversely, the lower weighted mean for the statement concerning LGUs maintaining accurate records and ensuring information submission to relevant

agencies points to a potential area of concern or perceived challenge in the implementation process. While there is agreement on the importance of this function, the lower score compared to the establishment of units suggests that stakeholders may have reservations about the LGUs' current capacity, resources, or established mechanisms to consistently and effectively fulfill these crucial data management and reporting responsibilities, which are vital for broader fisheries management and governance beyond the local level.

The overall results shows a generally positive evaluation regarding the ongoing implementation of Executive Order No. 305 concerning the devolution of fishing vessel registration and licensing. This indicates that, stakeholders believe the process is progressing in a favorable direction and that the established mechanisms are generally adequate. However, it's important to recognize that this aggregate score may mask nuances within the specific aspects of implementation. There's strong agreement on the establishment of local registration units, there's slightly less certainty or confidence in areas like consistent record-keeping and data submission by the LGUs. Therefore, while the overall outlook is agreeable, continued attention and targeted efforts are necessary to address potential weaknesses and ensure the long-term effectiveness and success of the devolved registration system in achieving its intended goals.

The implications of these results are multifaceted for the implementation of Executive Order No. 305. The affirmation of LGUs establishing local registration units signals a foundational acceptance of the devolved system's core structure and the belief in LGUs' capacity for initial registration tasks. This positive reception at the local level could foster greater compliance and engagement from fishing communities. However, the lower confidence in LGUs' ability to consistently maintain accurate records and submit data to higher authorities presents a significant challenge. This potential weakness could undermine the overall effectiveness of the devolution by creating gaps in essential fisheries data, hindering national-level monitoring, policy formulation, and enforcement efforts against illegal, unreported, and unregulated fishing. The generally positive overall evaluation suggests that while the devolution is seen as a step in the right direction, the identified concerns regarding data management must be addressed proactively through targeted capacity building, resource allocation, and the establishment of clear, efficient reporting mechanisms to ensure the long-term success and integrity of the devolved fishing vessel registration system.

Several scholars have examined the critical role of registration and licensing in fisheries management. Hersoug (2022) analyzed the Norwegian aquaculture industry's evolution from a single licensing regime in the 1970s to a complex system, highlighting both the benefits of special-purpose licenses and the potential

for loopholes, as well as the challenges of reform due to the system's complexity and political influence. Falconer et al. (2023) emphasized the potential of marine aquaculture for sustainable food production but stressed the necessity of effective planning, licensing, and regulation, identifying common global challenges and using the UK as a case study.

In another work, Falconer et al. (2023) further argued that robust registration mechanisms are fundamental for monitoring fishing activities, improving transparency, and enabling the implementation of sustainable practices. Rabe (2024) focused on Fiji's preparation for an open ship registration system, noting its potential for efficiency and improved compliance but also cautioning against the risks of becoming a "flag of convenience" and the need for strict licensing requirements. Orofino et al. (2023) explored the opportunities and challenges of using technology to enhance transparency in vessel monitoring systems for better supervision and compliance, emphasizing the need for stakeholder understanding and support. Moreover, Wong and Yong (2020) reviewed fishing regulations in the Malaca Strait, underscoring the importance of entry controls within registration and licensing systems, such as limiting the number, size, and power of vessels and fishing gear, while also stressing the need for effective enforcement.

b. Adherence to Safety Standards

Executive Order No. 305 emphasizes the importance of safety standards for fishing vessels. This includes ensuring the structural integrity of vessels, the functionality of essential equipment like engines and navigation systems, and the availability of emergency equipment. Additionally, the safety of crew members is prioritized, with requirements for training, proper working conditions, and adherence to health and safety protocols. By enforcing these safety standards, EO 305 aims to reduce accidents, protect lives, and promote sustainable fishing practices.

Table 2
Adherence to safety Standards

	Indicators	WM	AI
1.	The PNP Maritime Group enforce safety standards by conducting evaluation and assessment on the seaworthiness of the fishing vessel in collaboration with the LGUs and other maritime agencies.	2.95	A
2.	The PNP Maritime Group ensure that all registered vessels adhere to maritime safety laws, particularly during operations.	3.17	A
3.	The PNP Maritime Group monitor and oversee the safe operation of registered fishing vessels within their jurisdictions, providing security during emergencies or safety compliance checks.	2.81	A
4.	The LGU facilitate safety training programs for fisherfolk and vessel operators to promote awareness and compliance with safety standards.	2.46	MA
5.	The LGU certify that fishing vessels meet the required safety standards and/or withhold registration for non-compliant until standards are met.	2.95	A
	TWM	2.87	A

Legend: 4-Highly Agree, 3-Agree, 2-Moderately Agree, 1-Not Agree

Based on the results, the PNP Maritime Group ensure that all registered vessels adhere to maritime safety laws, particularly during operations have the highest weighted mean of 3.17 or Agree, while the LGU facilitate safety training programs for fisherfolk and vessel operators to promote awareness and compliance with safety standards have the lowest weighted mean of 2.46 or Moderately Agree. Overall, the implementation of Executive Order No. 305 in Adherence to safety Standards has a total weighted mean of 2.87 or Agree.

The analysis of adherence to safety standards in the implementation of Executive Order No. 305 reveals a notable disparity in the perceived effectiveness of different actors. The highest weighted mean for the PNP Maritime Group ensuring adherence to maritime safety laws during operations shows a recognition of their important role in direct enforcement and oversight. This implies that stakeholders generally believe the PNP Maritime Group is actively engaged in monitoring and ensuring compliance with safety regulations at sea, which is vital for the well-being of fisherfolk and the prevention of maritime accidents.

Conversely, the lowest weighted mean for LGUs facilitating safety training programs indicates a weaker perception of their current involvement or effectiveness in this preventative aspect of safety. While there's some level of agreement on the importance of LGUs in promoting safety awareness and

compliance through training, the results shows potential shortcomings in the extent, accessibility, or impact of such programs. This could stem from various factors, including limited resources at the local level, lack of specialized expertise in maritime safety training, or challenges in effectively reaching and engaging fisherfolk and vessel operators.

The implication of this difference is that while on-the-water enforcement by the PNP Maritime Group is seen as a key element in ensuring safety, the foundational work of building a safety-conscious culture through LGU-led training initiatives may be lagging. This imbalance could lead to a reactive approach to safety rather than a proactive one. For the devolved registration system under EO 305 to truly enhance maritime safety, greater emphasis and resources may need to be directed towards empowering LGUs to effectively facilitate safety training programs. This would complement the enforcement efforts of the PNP Maritime Group by fostering a better understanding of safety standards and promoting a culture of compliance from the ground up, ultimately leading to a more holistic and effective approach to maritime safety within the local fishing sector.

In the overall results, indicates a generally positive, yet not overwhelmingly strong, assessment of the implementation of Executive Order No. 305 in relation to adherence to safety standards. This shows that stakeholders generally believe that the devolved registration system is contributing to maritime safety, but there's likely room for improvement and potential areas of concern. The overall rating highlights the importance of continued attention and targeted interventions to strengthen both the enforcement of safety regulations and the proactive promotion of a safety culture at the local level to fully realize the safety-related objectives of EO 305.

Related to this findings is Alvina et al. (2022) which conducted a study on the fishing methods and safety practices of fishers in a coastal municipality in Central Luzon. The research revealed a diverse range of techniques and equipment, often tailored to individual preferences and local conditions. Lorenzon (2020) emphasizes that inadequate application of safety standards during vessel registration compromises maritime safety, Núñez-Sánchez et al. (2020) argue that safety regulations should balance operating costs with long-term marine resource impacts, aiming for both reduced fatalities and environmental sustainability.

Choiron et al. (2024) propose integrating accident analysis into the registration structure in Indonesia to learn from past incidents and enhance future vessel and crew safety. Gill et al. (2023) note that excessive fishing and habitat destruction have severely impacted fish populations and biodiversity, emphasizing the necessity of responsible fishing practices like catch limits and

habitat protection, while Chen, Hsu, and Chuang (2020) show in Taiwan how community-based aquaculture can preserve resources and improve coastal communities' development. Evans et al. (2023) advocate for centering coastal communities in a sustainable blue economy through local participation in decision-making, and Owusu and Andriesse (2020) illustrate in Ghana how transitioning from open access to closed fishing seasons can improve fish stocks, though requiring careful planning and support for affected fishermen.

c. Collaboration Mechanism

Executive Order No. 305 promotes a collaborative approach among various government agencies and stakeholders to ensure the effective implementation of the devolved fishing vessel registration process. This collaboration involves regular inter-agency meetings, joint capacity-building initiatives, resource sharing, and collaborative monitoring and enforcement efforts.

Table 3

Collaboration Mechanism

	Indicators	WM	AI
1.	The PNP Maritime Group act as a liaison between LGUs, BFAR, and other maritime agencies to ensure coordinated efforts in the registration and licensing of fishing vessels.	2.91	A
2.	The PNP Maritime Group work closely with LGUs in providing security for activities related to the fishing vessel registration process, including registration drives, inspections, and monitoring operations.	3.69	HA
3.	The PNP Maritime Group participate in joint task forces focused on implementing EO 305 and resolving issues related to fishing vessel registration and regulation.	3.64	HA
4.	The LGU serve as the lead agency in coordinating with the PNP, BFAR, Coast Guard, and other stakeholders to ensure smooth implementation of fishing vessel registration.	2.76	A
5.	The LGU establish local inter-agency task forces or working groups to facilitate communication and decision-making regarding registration, licensing, and enforcement of fishing regulations.	2.57	A
6.	The LGU organize consultations with fisherfolk, vessel owners, and other stakeholders to gather input, promote collaboration, and ensure that policies are understood and supported by the community.	2.52	MA
	TWM	3.02	A

Legend: 4-Highly Agree, 3-Agree, 2-Moderately Agree, 1-Not Agree

Based on the results, the PNP Maritime Group work closely with LGUs in providing security for activities related to the fishing vessel registration process, including registration drives, inspections, and monitoring operations has the highest weighted mean of 3.69 or Highly Agree. On the other hand, the LGU organize consultations with fisherfolk, vessel owners, and other stakeholders to gather input, promote collaboration, and ensure that policies are understood and supported by the community have the lowest weighted mean of 2.52 or Agree. Overall, the implementation of EO 305 in Collaboration Mechanism has a total weighted mean of 3.02 or Agree.

Analyzing the collaboration mechanisms within the implementation of Executive Order No. 305 reveals a significant disparity in perceived effectiveness. The highest weighted mean of for the PNP Maritime Group working closely with LGUs in providing security for registration-related activities strongly indicates a recognized and appreciated collaborative effort in ensuring the safety and orderliness of these processes. This shows that the logistical and security aspects of implementing the devolved registration are being well-coordinated between the national law enforcement and local government units.

In addition, the lowest weighted mean for LGUs organizing consultations with fisherfolk, vessel owners, and other stakeholders' points to a weaker perception of community engagement in the policy's implementation. Thus, there is an agreement on the importance of such consultations, the lower rating shows that these engagements might be insufficient, inconsistent, or not as impactful as desired in fostering collaboration, ensuring understanding, and garnering support from the local fishing community. This could lead to a disconnect between the policies being implemented and the needs and perspectives of those directly affected.

This implies that the top-down security collaboration between the PNP and LGUs is perceived as strong, the bottom-up collaborative efforts involving the fishing community appear to be less robust. This imbalance could hinder the long-term sustainability and acceptance of the devolved registration system. Effective implementation requires not only secure processes but also the active participation and buy-in of the stakeholders. Therefore, greater emphasis and resources may need to be directed towards empowering and encouraging LGUs to conduct meaningful and inclusive consultations to ensure that the policies are well-understood, supported, and ultimately more effective in achieving the objectives of EO 305 in the local context.

In the overall results, it shows a generally positive perception regarding the collaborative mechanisms established for the implementation of Executive Order No. 305. This shows that stakeholders, believe that there is adequate cooperation

and coordination among the various entities involved in the devolved fishing vessel registration process. The overall collaborative framework is deemed satisfactory, efforts should focus on enhancing engagement and partnership with the local fishing community to ensure a more inclusive and ultimately more successful implementation of EO 305.

Several studies highlight the importance of collaboration mechanisms in fisheries management and regulatory frameworks. Sun et al. (2024) emphasized that collaboration between fishermen and government authorities is crucial for ecological restoration, particularly during fishing prohibitions, as it improves regulatory compliance. Castillo et al. (2024) noted that joint management approaches significantly enhance small-scale fishing by fostering shared responsibility between fishermen and government agencies, leading to better adherence and sustainability outcomes.

Moreover, Yuliantiningsih and Barkhuizen (2021) advocated for a holistic governance approach that integrates legal enforcement with international cooperation and social equity to combat IUU fishing and labor issues, stressing that collaboration should ensure ethical work practices alongside vessel registration. Shih (2024) analyzed the role of marine science research and technology in improving the application of maritime law in Taiwan, suggesting that the synergy of technology and collaboration can lead to more effective vessel management for sustainable fishing. Finally, Fujii et al. (2021) highlighted the significance of regional collaborations in Asia and the Pacific for enhanced monitoring, control, and surveillance to combat IUU fishing, emphasizing that strong inter-agency partnerships improve regulatory compliance and the integrity of vessel registration for a more sustainable fishing environment.

d. Monitoring and Evaluation System

Executive Order No. 305 emphasizes the importance of a robust monitoring and evaluation system to track the implementation of the devolved fishing vessel registration process. This system involves data collection, the establishment of key performance indicators, regular monitoring activities, periodic evaluations, and feedback mechanisms.

Table 4
Monitoring and Evaluation System

	Indicators	WM	AI
1.	The PNP Maritime Group conduct patrols and monitor the activities of registered fishing vessels to ensure compliance with registration, licensing, and safety standards.	3.18	A
2.	The PNP Maritime Group identify and report non-compliant vessels, illegal fishing activities, and potential violations to the LGUs for corrective actions.	3.45	A
3.	The PNP Maritime Group assist LGU in conducting periodic audits of the registration and licensing process, particularly in verifying the accuracy of registration records.	3.50	HA
4.	The LGU design and implement a monitoring and evaluation framework to track the effectiveness of fishing vessel registration and ensure compliance with EO 305.	2.57	A
5.	The LGU collect data on registration, licensing, and safety compliance and report findings to national agencies like BFAR for integration into the national monitoring system.	2.82	A
6.	The LGU perform random spot checks on fishing vessels to verify ongoing compliance with registration and safety standards and adjust policies or procedures based on evaluation results.	2.34	MA
	TWM	3.06	A

Legend: 4-Highly Agree, 3-Agree, 2-Moderately Agree, 1-Not Agree

Based on the results, the PNP Maritime Group assist LGU in conducting periodic audits of the registration and licensing process, particularly in verifying the accuracy of registration records has the highest weighted mean of 3.50 or Highly Agree, while the LGU perform random spot checks on fishing vessels to verify ongoing compliance with registration and safety standards and adjust policies or procedures based on evaluation results has the lowest weighted mean of 2.34 or Moderately Agree. Overall, the implementation of EO 305 has the total weighted mean of 3.06 or Agree.

The monitoring and evaluation system within the implementation of Executive Order No. 305 reveals a significant divergence in the perceived effectiveness of different actors' roles. The highest weighted mean for the PNP Maritime Group assisting LGUs in periodic audits, particularly in verifying the accuracy of registration records, shows a strong belief in the value and effectiveness of this oversight function. This signifies that stakeholders see the PNP Maritime Group's involvement in ensuring the integrity of the registration data as a crucial

and well-executed aspect of the monitoring process.

On the other hand, the lowest weighted mean for LGUs performing random spot checks on fishing vessels to verify ongoing compliance and adjusting policies based on evaluation results points to a perceived weakness in the LGUs' direct monitoring and adaptive management capabilities. The importance of LGUs conducting these checks and using the findings to refine their approaches shows potential limitations in their capacity, resources, or the consistency with which these activities are carried out. This could result in a less dynamic and responsive system that may not effectively address emerging issues or ensure continuous compliance at the operational level.

The implies that the audit function, with the support of the PNP Maritime Group, is seen as vital in ensuring the accuracy of records, the on-the-ground monitoring and feedback loop for policy adjustment at the LGU level appear to be less strong. For the devolved registration system to be truly effective and adaptive, greater emphasis and support may be needed to enhance the LGUs' capacity to conduct regular vessel inspections and to utilize the data gathered to inform and improve their policies and procedures. Strengthening this aspect of the monitoring and evaluation system would contribute to a more proactive and responsive approach to ensuring compliance and achieving the long-term goals of EO 305.

In the overall results, it provides a general indication that stakeholders in the implementation of Executive Order No. 305 concerning the devolution of fishing vessel registration as progressing positively. The implementation of Executive Order No. 305 in terms of monitoring and evaluation systems reflects a shared understanding of its importance in ensuring the effectiveness and sustainability of the devolved fishing vessel registration process. This consensus underscores the need for a robust system to track performance, identify areas for improvement, and ensure compliance with regulations. However, while there is a general agreement, there are areas where further development is necessary. Enhancing the capacity of LGUs to conduct regular audits and implement comprehensive monitoring frameworks is crucial. By investing in capacity building, providing adequate resources, and strengthening collaboration between different agencies, the monitoring and evaluation system can be optimized to achieve its full potential.

Birchenough (2021) found that Vessel Monitoring Systems (VMS) effectively quantified fishing effort of small-scale vessels in the Poole Harbour MPA (UK), providing data for informed management. Oceana (2019) advocated for immediate VMS implementation for all Philippine commercial fishing vessels following a Recto Bank incident, emphasizing its importance for tracking,

deterring illegal fishing, and preventing human rights abuses, while calling for transparency and science-based management in newly designated Fisheries Management Areas.

Ewell et al. (2020) highlighted that robust observer programs within Regional Fisheries Management Organizations (RFMOs) significantly contribute to sea compliance and reduce illegal, unreported, and unregulated (IUU) fishing, emphasizing the value of systematic reviews of compliance monitoring data. Orofino et al. (2023) emphasized that increased transparency in vessel tracking, facilitated by technologies like Automatic Identification Systems (AIS), presents both opportunities and challenges for fisheries management, promoting responsibility but also raising concerns about data accessibility and misuse.

2. Bottleneck faced by the PNP Maritime Unit in the implementation of the Executive Order 305 in the Province of Albay

The implementation of Executive Order No. 305 in Albay faces several bottlenecks which hinder the efficient and effective implementation of the registration process and may affect the overall success of the initiative. Addressing these bottlenecks is essential to ensure the effective implementation of EO 305 and the sustainable management of fisheries resources in Albay.

Table 5
Bottleneck faced by the PNP Maritime Unit

Bottleneck Encountered	TWM	AI
1. Lack of necessary technical knowledge and experience by the concerned persons to effectively manage the fishing vessel registration process.	3.20	A
2. Limited budget in the implementation.	4.00	SA
3. Poor facilities and lack of technology that hinder efficient data management and registration processes.	3.00	A
4. Lack of a unified or standardized system between concerned agencies that lead to discrepancies in data management and reporting.	4.00	SA
5. Fishermen's reluctance to register due to fears of increased taxation, stricter regulation, or unfamiliarity with the process.	3.80	SA
6. Inconsistent record-keeping by the concerned agencies that struggled with keeping accurate and up-to-date records.	4.00	SA

7. Low public awareness that fishermen and local communities may not be fully aware of the registration requirements and procedures.	3.60	SA
8. Ineffective outreach programs to educate the fishing community about the benefits of registration.	3.20	A
9. Inconsistent priorities and a lack of continuity in implementing EO 305 due to frequent changes in local administration or political leadership.	3.40	A
10. Political resistance that affect the level of commitment to enforcing the registration system.	3.20	A

Based on the results, the limited budget in the implementation, lack of a unified or standardized system between concerned agencies that lead to discrepancies in data management and reporting and the inconsistent record-keeping by the concerned agencies that struggled with keeping accurate and up-to-date records has the highest weighted mean of 4.00 or Strongly Agree.

The results strongly affirm that significant bottlenecks hindering the effective implementation of Executive Order No. 305, stem from a limited budget, a lack of a unified or standardized system between concerned agencies leading to data discrepancies, and inconsistent record-keeping by the agencies themselves. This overwhelmingly high level of agreement across these interconnected issues underscores the fundamental systemic obstacles that are likely impeding the smooth and efficient devolution of fishing vessel registration. The limited budget likely constrains the resources available for LGUs to establish and maintain effective registration units, conduct necessary training and monitoring, and ensure proper staffing.

Moreover, the absence of a unified system across different agencies inevitably leads to fragmented data management, inconsistencies in reporting standards, and difficulties in creating a comprehensive and reliable overview of registered vessels. Furthermore, the struggle of concerned agencies with accurate and up-to-date record-keeping exacerbates these problems, undermining the very foundation of an effective registration and licensing system. This strong consensus on these challenges highlights the urgent need for addressing these foundational issues through increased budgetary allocation, the development and implementation of a standardized inter-agency data management system, and the establishment of robust protocols and training to ensure consistent and accurate record-keeping practices across all involved entities.

Collectively, these implications emphasizes a need for a multi-pronged approach. Increased budgetary support specifically earmarked for the devolved

functions is essential. The development and mandatory adoption of a standardized, interoperable data management system across all relevant agencies from the local LGUs to national bodies like BFAR and the PNP Maritime Group is important for ensuring data accuracy and facilitating seamless information sharing.

Several scholars have highlighted the significance and challenges of Monitoring and Evaluation (M&E) systems for fishing vessel registration and compliance. Orofino et al. (2023) emphasized that increased transparency in vessel tracking offers opportunities for promoting responsibility and ensuring regulatory compliance but also presents challenges related to data accessibility and potential misuse. They noted the role of technologies like AIS in enhancing supervision. Soemarmi et al. (2020) underscored the importance of Vessel Monitoring Systems (VMS) in Indonesia as a regulatory obligation that improves data collection and compliance, but stressed the government's capacity to process and act on the data is crucial.

Moreover, Cremers et al. (2020) extended the discussion to international waters, highlighting the need for strengthened Monitoring, Control, and Surveillance (MCS) capabilities to combat IUU fishing, advocating for international collaboration and legal frameworks. Additionally, the literature suggests that the effectiveness of M&E systems is often hampered by data collection limitations and insufficient information sharing and collaboration among governments, NGOs, and local fishing communities, necessitating a more integrated and inclusive approach.

3. Proposed Legislative Enactment in the implementation of Executive Order 305

This study proposes a legislative enactment to strengthen the implementation of Executive Order No. 305. The basis of the proposed legislation is from the key challenges in the current implementation, including limited resources, weak enforcement, and lack of coordination among agencies. Recognizing the significant hurdles, the proposed legislative enactment is fundamentally premised on the urgent need to rectify these critical shortcomings. By addressing these core challenges through a more forceful legal framework, the intended legislation seeks to provide the necessary mandate and mechanisms for improved resource allocation, enhanced enforcement capabilities, and the establishment of clear lines of communication and standardized procedures across all relevant government bodies. Ultimately, the goal of this legislative initiative is to create a more effective, efficient, and sustainable system for fishing vessel registration that can truly achieve the objectives of Executive Order No. 305 in Daraga, Bicol, and potentially serve as a model for other regions in the Philippines.

The proposed Enhanced Fisheries Registration and Management Act of 2024 focused on efficient registration and licensing for vessels, improved record-keeping and data management via a centralized system and standardized formats, bolstering the PNP Maritime Group's capacity through increased budget and training, streamlining the registration process with simplified procedures and an online system, enhancing safety standards with mandatory inspections and crew training, strengthening monitoring and evaluation through data sharing and performance indicators, and establishing clear penalties for violations, all in pursuit of promoting sustainable fisheries and protecting marine resources.

By providing additional resources, improving regulatory frameworks, and strengthening inter-agency collaboration, the proposed legislation seeks to enhance the effectiveness of EO 305 and contribute to the sustainable management of fisheries resources in the Philippines. Proposing a legislative enactment to support the implementation of Executive Order 305 serves a critical purpose in solidifying and enhancing the effectiveness of maritime governance. While EO 305 provides an executive directive, a legislative enactment would translate its provisions into statutory law, giving them greater permanence and enforceability. This legislative backing would address potential ambiguities or gaps in the existing legal framework, ensuring clearer guidelines and stronger legal authority for local governments and law enforcement agencies tasked with implementation. Furthermore, a legislative enactment can allocate specific funding and resources, establish clear penalties for non-compliance, and create a robust framework for monitoring and evaluation. By formalizing the principles of EO 305 into law, the legislative enactment aims to create a more stable, consistent, and effective system for regulating fishing activities, protecting marine resources, and promoting sustainable maritime practices within the jurisdiction.

CONCLUSIONS

This study concluded that the stakeholders generally agree on the importance of devolution, safety standards, collaboration, and monitoring/evaluation systems. While improvements are needed in communication and capacity building, the overall consensus indicates a positive direction for the devolved fishing vessel registration process, which can be maximized through continuous monitoring and evaluation. Addressing identified challenges is crucial for EO 305's success. Investing in capacity building, resources, infrastructure, and inter-agency coordination are necessary. Effective public awareness campaigns are vital for encouraging fisher folk registration and compliance, ultimately leading to sustainable fisheries, marine ecosystem protection, and secure

livelihoods. Moreover, a proposed legislative enactment aims to strengthen EO 305 implementation by addressing key challenges and improving the regulatory framework for fishing vessel registration and management. This includes specific law amendments, increased budget, streamlined procedures, enhanced safety standards, and stronger monitoring/evaluation systems to ensure sustainable fisheries management and the well-being of fishing communities in Tabaco City, Bicol, Philippines.

TRANSLATIONAL RESEARCH

The findings of this study could be translated a legislative enactment aims to strengthen the implementation of Executive Order No. 305 by addressing key challenges and improving the overall regulatory framework for fishing vessel registration and management. It proposes specific amendments to existing laws, increased budgetary allocations for the PNP Maritime Group, streamlined registration procedures, enhanced safety standards, and strengthened monitoring and evaluation systems. Additionally, the proposed legislation outlines stricter penalties for violations of fisheries regulations and empowers local government units to effectively implement the policy.

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