

Implementation of RA 10969 “Free Irrigation Service Act” in selected national irrigation systems in the 4th District of Laguna: An in-depth analysis

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Abstract

This study examines the effectiveness and impact of the Free Irrigation Service Act on small-scale farmers in rural communities. A total of 100 respondents, comprising rice farmers from various municipalities in the 4th District of Laguna, participated in a survey aimed at assessing their awareness, utilization, and satisfaction with the free irrigation services provided under the Act. The findings indicate a high level of awareness among farmers regarding the policy; however, challenges persist concerning the accessibility and maintenance of irrigation infrastructure. Although the majority of respondents reported enhancements in crop yields and a reduction in irrigation costs, which contributed to an increase in their income, they also identified issues such as inconsistent water supply and delays in service provision. This study underscores the necessity for improved coordination between Local Government Units (LGUs) and the National Irrigation Administration (NIA) to ensure the program's long-term sustainability. Policy recommendations are presented to address operational challenges and to further optimize the benefits of the Free Irrigation Service Act for farmers.

Keywords: Republic Act 10969 “Free Irrigation Service Act (FISA)”; National Irrigation Administration (NIA); Irrigator’s Association (IA); Operation and Maintenance (O&M); national irrigation systems; policy effectiveness; sustainable irrigation system

1. Introduction

The agricultural sector in the Philippines faces numerous complex challenges, including widespread poverty, food insecurity, and the increasingly severe impacts of climate change. Reliable irrigation infrastructure and services are essential for improving crop yields, reducing vulnerability to climate risks, and ensuring the sustainability of farmers' livelihoods. However, many farmers struggle with the financial burden of accessing these irrigation services, negatively impacting their agricultural production and income levels. (NIA - CALABARZON Regional Irrigation Master Plan 2023 – 2030)

High irrigation fees represent a substantial financial obstacle for farmers in the Philippines. These costs limit their ability to adopt practices that could maximize crop yields, ultimately impacting their economic stability and overall livelihoods (Faderogao et.al, 2020). The burden of these fees often forces farmers to choose between satisfying immediate financial needs and investing in resources that could lead to long-term improvements in their agricultural practices.

In addition to the challenge posed by high fees, Inocencio and Inocencio (2020), inadequate access to irrigation infrastructure further exacerbates the plight of farmers, particularly in rural areas. Many smallholder

farmers lack sufficient irrigation facilities, which leads to an inconsistent water supply for their crops.

This scarcity not only heightens the risks of crop failure but also makes it difficult for these farmers to invest in advanced agricultural techniques or technologies. As a result, they struggle to increase their productivity. They may find themselves trapped in a cycle of poverty and food insecurity, unable to progress toward a more sustainable farming future.

The Republic Act No. 10969, popularly known as the "Free Irrigation Service Act," was enacted to address the ongoing challenges farmers face effectively. This significant legislation is designed to empower farmers by granting them complimentary access to irrigation services provided by systems managed by the National Irrigation Administration (NIA). According to Delos Reyes (2020), this law aims to significantly reduce the financial strain on farmers, particularly those residing in rural areas, by eliminating the various costs associated with obtaining irrigation services. The Free Irrigation Service Act aspires to enhance agricultural productivity and improve farmers' livelihoods nationwide by removing these financial barriers.

The Free Irrigation Service Act (FISA) is transformative legislation designed to empower farmers, enhance food production, and support sustainable agricultural practices. It aims to improve farmers' financial stability by allowing them to redirect funds previously spent on irrigation fees toward enhancing their farming techniques and expanding their production capacity. A study by Aheeyar et al. (2016) indicates that such interventions can significantly boost agricultural productivity, particularly in areas with limited or unaffordable access to irrigation.

This law is considered a significant step toward promoting sustainable farming practices by encouraging the efficient and responsible use of water resources. The government's commitment to sustainable agriculture, as highlighted by Hebinck and Horst (2017), is essential for tackling climate challenges, ensuring long-term food security, and improving farmers' livelihoods. By alleviating financial barriers to irrigation, the Free Irrigation Service Act enables farmers to adopt more efficient farming techniques, contributing to the overall sustainability of the agricultural sector.

In summary, FISA represents a critical initiative to address the ongoing challenges faced by the Philippine agricultural sector, particularly for smallholder farmers. By providing free access to irrigation, this law enhances food security, promotes sustainable agricultural practices, and reduces the financial burdens that have long limited farmers' productivity. The successful implementation of this law will be vital for the overall development and resilience of the agricultural sector, which remains a cornerstone of the nation's economy.

1.1. Background of the Study

Region IV-A, also known as Calabarzon, is an administrative region in the Philippines that comprises the following five adjacent provinces: Cavite, Laguna, Batangas, Rizal, and Quezon. The regional average yield of *palay* is approximately 3.75 metric tons per hectare, according to the Philippine Rice Research Institute (Philrice) in 2022, which is below the national average amounting to 4.11 metric tons per hectare. Based on the Philippine Statistics Authority, *Palay* Production Survey (PSA-PPS, 2022), *palay* production in the region in 2022 is 395,898.70 metric tons compared to CY 2018 production of 420,233.47 metric tons, which registered the highest in the last 5 years of the survey. Other major crops cultivated include corn, pineapple, coconut, and coffee. In comparison with other crops, coconut had the largest output (1,494,505.78 metric tons) in 2022; nevertheless, productivity significantly fell in the year 2020, followed by Banana (96,136.72 metric tons) and Pineapple (71,380.28 metric tons).

On the other hand, the pineapple has the highest average yield (17.68 metric tons per hectare) in 2022, followed by Cassava (5.69 metric tons per hectare), and Banana (3.6 metric tons per hectare). Most crops, such as coffee, pineapple, coconut, banana, yellow corn, and *palay*, have a decreasing trend in average yield. It is of utmost importance to enhance productivity through irrigation systems and improved farming techniques to increase crop yields and ensure food security for the region. (Philippine Statistics Authority, Crops Production Survey for *Palay*, Philippine Statistics Authority (PSA)-OpenStat for other crops)

PalayStat provides data about the estimated monthly *per capita* income derived from rice farming exclusively for the provinces of Laguna and Quezon. This information is presented in the table.

Table 1. Estimated Monthly per Capita Income on Rice Farming (On Farm) in Years 2012, 2016, and 2017 in Peso.

PROVINCE	2012		2016		2017	
	Irrigated	Non-Irrigated	Irrigated	Non-Irrigated	Irrigated	Non-Irrigated
Laguna	1,212.64	1,218.08	2,712.58	989.64	6,093.48	1,457.07
Quezon	903.54	1,003.45	2,26.38	1,033.79	4,276.65	2,503.71
Average	1,058.09		2,027.17		4,384.56	

Source: PalayStat, 2024

According to *PalayStat*, the average monthly per capita income from rice farming was Php 4,384.56 in 2017. There was a notable increase in the estimated monthly per capita income for irrigated farms from 2012 to 2017, while a linear trend was observed for non-irrigated farms.

The region previously implemented a cost recovery policy for its irrigation facilities' Operations and Maintenance (O&M). In National Irrigation Systems (NIS) managed by the National Irrigation Administration (NIA), farmers were charged an Irrigation Service Fee (ISF) for using these irrigation services.

In 2015, the National Irrigation Administration (NIA) reported revenue amounting to approximately PHP 1.8 billion derived from the Irrigation Service Fee (ISF), demonstrating significant effectiveness in recovering costs associated with irrigation maintenance. The decision to waive the ISF effectively transferred financial benefits to farmers, corresponding to the amount of the fees owed, inclusive of any resulting interest and penalties for overdue payments (Briones et al., 2019)

Even with the transfer of financial responsibility, it is important to recognize that irrigation system maintenance incurs significant costs that must be addressed. The Free Irrigation Service Act (FISA) established a shift in responsibility for irrigation operations and maintenance (O&M), moving this burden away from farmers and onto the public treasury, which taxpayers fund. As a result, this change has created a system of in-kind transfers, where financial resources from the public sector are directed to support essential agricultural services.

National Irrigation Systems (NIS) are irrigation systems managed by the National Irrigation Administration (NIA) with an irrigated area that exceeds 1,000 hectares (ha). In Region IV-A CALABARZON, NIS has a total firm-up service area (FUSA) of about 17,000 ha, numbering about 38. Most National Irrigation Systems are run-of-the-river type. Larger NIS are typically reservoir systems that account for the three largest systems in the country, with service areas ranging from about 30,000 to 110,000 ha.

In February 2018, President Rodrigo Duterte enacted the Free Irrigation Service Act (FISA), which abrogated the previously established cost-recovery policy. This legislation exempts the majority of members of Irrigation Associations (IAs) within National Irrigation Systems (NIS) from the obligation to pay Irrigation Service Fees (ISFs). Farmers who cultivate more than 8 hectares (ha) continue to be required to remit ISFs.

However, those cultivating 8 hectares or fewer will have all outstanding ISFs and any associated penalties to the National Irrigation Administration (NIA) waived. Furthermore, all loans, overdue accounts, and any accrued interest and penalties IAs owe to the NIA will be forgiven.

The average production cost per hectare of palay in the Philippines in 2023, according to the Philippine Statistics Authority (PSA), was recorded at Php 55,814. Notably, there are regional differences in production costs, with the CALABARZON region reflecting a higher average of Php 60,353 per hectare. Should the Irrigation Service Fee (ISF) continue to be enforced by the National Irrigation Administration (NIA), the calculation for this fee will be determined by multiplying the area (in hectares) by Php 250 and the Government Support Price (GSP). For an area of one hectare of rice land, the ISF would amount to Php 5,750, calculated as $1 \times 250 \times 23$, which should be incorporated into the annual expenditures faced by farmers.

The Free Irrigation Service Act serves as an aid to farmers. This act aims to alleviate the financial burden on farmers by providing them with free irrigation services, which can increase agricultural productivity and income. This can also improve food security by supporting farmers with free irrigation services and ensuring a more stable and abundant supply of crops. However, there are also sustainability concerns in that providing free irrigation services might lead to sustainability issues if there are inadequate funds for the maintenance and repair of irrigation facilities, affecting the program's long-term viability.

Equity issues arise as free irrigation services may not be distributed equally, potentially favoring certain groups of farmers. Securing permits under the Free Irrigation Service Act is vital for Filipino farmers, granting them access to essential irrigation without a financial burden. Obtaining these permits promptly before the planting season or when irrigation is needed ensures compliance and facilitates equitable resource distribution. By adhering to the Act's requirements, farmers enhance agricultural productivity and support food security goals.

1.2. Theoretical Framework

The economic theory of public goods, formally known as the Pure Theory of Public Expenditure, was advanced by the influential economist Paul Samuelson during the 1950s. This pivotal theory categorizes certain goods as "public" based on two defining characteristics: non-rivalrous and non-excludable.

To elaborate, a non-rivalrous good is one that one individual can consume without diminishing the availability or quality of that good for others. For instance, consider national defense: when the military protects the country, that protection is available to all citizens simultaneously; one person's safety does not come at the expense of another's. Similarly, a public park can accommodate numerous visitors simultaneously, allowing everyone to enjoy the natural beauty without detracting from each other's experience.

On the other hand, non-excludable goods are those for which individuals cannot be easily prevented from accessing or utilizing them, regardless of whether they have contributed to their provision. Clean air is a classic example; it is impossible to restrict who can breathe it. Street lighting presents another case; it illuminates public spaces and benefits everyone nearby, regardless of whether they pay taxes or fees to support its installation and maintenance.

The theory of public goods plays a crucial role in economic discussions surrounding the public sector by illuminating unique challenges related to resource provision. One significant challenge is the issue of free riders. Free riders derive benefits from a public good without contributing to its costs, often relying on others to bear the financial burden. This tendency can lead to public goods being under-funded and under-maintained, as private individuals or companies may lack the incentive to invest in resources that they cannot sell exclusively to paying users.

The economic theory of public goods is a fundamental concept that significantly shapes various dimensions of agriculture, particularly in relation to productivity, farmers' income levels, food security, sustainable farming practices, and equitable access to essential resources and opportunities. Public goods refer

to resources and services accessible to all individuals without exclusion, meaning that one person's use of these goods does not diminish their availability to others.

In the context of agriculture, public goods encompass a variety of vital components. For example, agricultural research initiatives focus on developing new crop varieties resistant to diseases and improving farming techniques and practices to boost yields. These research outputs are disseminated widely, allowing farmers from all backgrounds to implement effective strategies leading to higher productivity.

Irrigation systems represent another critical public good that significantly enhances agricultural output. Well-designed irrigation infrastructure ensures farmers have reliable access to water, particularly in regions prone to drought or where rainfall is insufficient. This access to water resources is crucial for crop growth and resilience, allowing farmers to produce consistent yields even in challenging climatic conditions.

Rural infrastructure, including transportation networks and storage facilities, is equally important. Improved roads facilitate easier and faster movement of agricultural products to markets, reducing transportation costs and time for farmers. Additionally, adequate storage facilities help minimize post-harvest losses, allowing farmers to maintain the quality of their produce until it can be sold.

Moreover, public goods such as agricultural research and development (R&D), pest control programs, and resources aimed at climate adaptation are essential for maintaining and increasing food production. Research and Development (R&D) initiatives provide farmers with innovations that address specific challenges, such as emerging pests or changing weather patterns. Pest control programs help manage agricultural threats effectively and sustainably, thereby safeguarding crops and ensuring a consistent food supply.

Sustainable farming practices also align closely with the characteristics of public goods. Initiatives such as soil conservation programs help maintain healthy soil, which is fundamental to sustainable agriculture. Water management systems promote the efficient use of water resources, minimizing waste and ensuring that both current and future generations of farmers can thrive. Efforts to protect biodiversity, such as establishing habitats for beneficial insects and preserving native species, contribute to a more balanced ecosystem that supports resilient agricultural systems.

By offering universal access to these crucial resources and services, public goods play a transformative role in leveling the playing field for all farmers. They empower smallholder farmers and larger agricultural enterprises alike to compete more equitably, ultimately fostering a more just and sustainable agricultural landscape where everyone has the opportunity to succeed and contribute to food security.

1.3. Conceptual Framework

This study evaluates the Free Irrigation Service Act, focusing on its efficiency and effectiveness in achieving its objectives. It analyzed the implementation mechanisms, assessed the outcomes, and compared them to the Act's goals to determine its overall impact and success.

In this regard, the researcher developed the conceptual framework illustrated in Figure 2 to assess the economic benefits of the Free Irrigation Service Act.

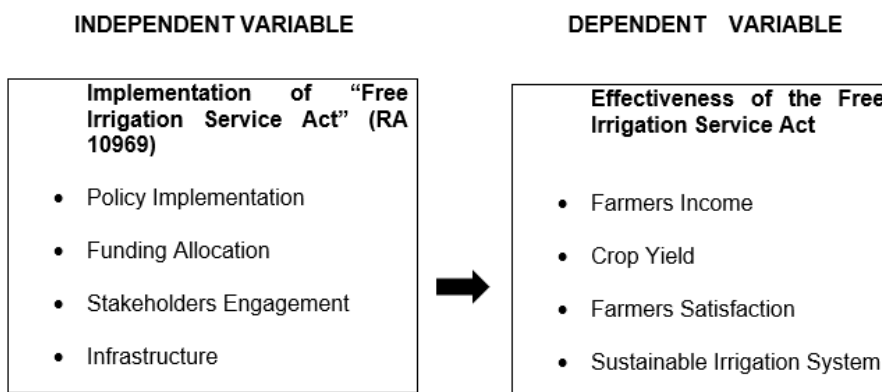


Figure 1. The Research Paradigm of the Study

As shown in Figure 1, the independent variables of the study are the policy implementation, funding allocation, stakeholder engagement, infrastructure and program support. In contrast, the dependent variable refers to the effectiveness of law implementation such as farmers' income, crop yield, farmer's satisfaction, sustainable irrigation system and cropping intensity.

1.4. Statement of the Problem

This study sought to evaluate the implementation of the Free Irrigation Service Act by assessing its effectiveness. It investigated the mechanisms employed throughout the implementation process and assessed the extent to which the outcomes aligned with the objectives established by the Act.

Specifically, it answered the following questions:

1. What is the demographic profile of the respondents in terms of:
 - 1.1 Age
 - 1.2 Gender
 - 1.3 Years in farming
 - 1.4 Source of income
2. What is the level of implementation of the Free Irrigation Service Act as to:
 - 2.1 Policy implementation;
 - 2.2 Funding allocation;
 - 2.3 Stakeholders' engagement; and
 - 2.4 Infrastructure?
3. What is the level of effectiveness of the implementation of the Free Irrigation Service Act as to:
 - 3.1 Farmer's income;
 - 3.2 Crop yield;
 - 3.3 Farmer's satisfaction; and
 - 3.4 Sustainable irrigation system?
4. Is there a significant correlation between policy implementation, funding allocation, stakeholder engagement, infrastructure, and farmers' income, crop yield, farmer satisfaction, and sustainable irrigation systems in the implementation of the Free Irrigation Service Act in the 4th District of Laguna?

1.5. Hypothesis of the Study

There is no significant correlation between the implementation of the Free Irrigation Service Act and its effectiveness in the 4th district of Laguna.

1.6. Scope and Limitations of the Study

The focus of this study is to evaluate the implementation of RA 10969 across various National Irrigation Systems in the 4th District of Laguna (Pila, Sta Cruz, Pagsanjan, Magdalena, Kalayaan, Famy, Siniloan & Mabitac). This act primarily benefits farmers, especially smallholder and marginalized farmers, by providing free access to irrigation services, alleviating the financial burden that often hinders agricultural growth. The law includes provisions for maintaining and improving existing irrigation facilities, ensuring they are operational and efficient for farmers. Additionally, RA 10969 is supported by relevant policies designed to improve water resource management and promote agricultural sustainability.

The limited resources and capacity of the National Irrigation Administration (NIA) can result in inefficiencies in service delivery and management. Low awareness and understanding of the legislation among farmers can hinder their access to benefits, leading to the underutilization of available irrigation services. Inadequate or poorly maintained irrigation infrastructure may reduce the effectiveness of free irrigation services, affecting both water delivery and reliability.

Despite free irrigation, farmers may still face economic challenges such as high input costs and issues with market access, which can impact their overall productivity. Additionally, changes in climate and water availability can affect the effectiveness of irrigation, posing challenges to sustainable agricultural practices. The lack of effective monitoring and evaluation mechanisms makes it difficult to assess the legislation's impact and identify areas for improvement.

1.7. Significance of the Study

The study of the implementation of the Free Irrigation Service Act holds significant importance, as it can assess the outcomes of this policy and inform future agricultural strategies. This investigation has the potential to address rural poverty, promote sustainable water usage, and foster equitable growth in the agricultural sector. By offering comprehensive data and insights regarding the impacts of the policy, the research can guide initiatives aimed at enhancing agricultural productivity, supporting smallholder farmers, and developing sustainable agricultural practices that yield long-term benefits for both communities and the environment.

This study benefits the following individuals and agencies:

Irrigator's Association (IA). Farmers who rely on irrigation to grow their crops will benefit directly from insights into how policies affect their access to water. The study can demonstrate how free irrigation services have improved crop yields, reduced costs, and increased income for these farmers.

National Irrigation Administration (NIA). Organizations that work with farmers can utilize the study's findings to better customize their services. For instance, if the study indicates a need for improved water conservation practices or advanced irrigation technologies, these groups can concentrate their efforts on offering training and resources to farmers. NIA can use the study to develop targeted educational programs that promote the efficient use of irrigation services and help farmers adapt to changing conditions or challenges in water management.

National and Local Government Units. Both national and local governments will benefit from evidence-based insights regarding the effectiveness of the Free Irrigation Service Act in achieving its goals. If the policy is successful, it may lead to further expansion or enhancements in irrigation services. Conversely, if

challenges are identified, policymakers will have the opportunity to adjust or improve the policy. The government can utilize the study to evaluate the Free Irrigation Service Act's financial viability and long-term sustainability. This information is essential for budget allocation and prioritizing future agricultural programs.

State Universities and Colleges (SUC). The study provides empirical data that can contribute to academic research on irrigation systems, agricultural economics, rural development, and public policy. It allows researchers to analyze the effectiveness of government policies and their impact on smallholder farming. Academics and researchers can use the findings to develop new models of agricultural policy or water management, exploring the broader implications of public interventions in irrigation.

Private Sector (Agribusinesses). Agribusinesses, especially those dealing with agricultural inputs (seeds, fertilizers, irrigation equipment), could benefit by gaining insights into how the availability of free irrigation services influences crop yields, production cycles, and the demand for various agricultural products. If the study shows that free irrigation services increase farmers' ability to invest in technology or adopt better farming practices, private-sector companies in the agricultural technology space could see new market opportunities.

1.8. Definition of Terms

The following terms are defined for a clearer understanding of this study:

Agricultural Productivity. It refers to the measurement of the efficiency with which agricultural inputs (such as land, labor, capital, and technology) are converted into outputs (like crops, livestock, or other agricultural products). It reflects how effectively resources are utilized to produce food and other goods in the agricultural sector.

Climate Change. It refers to long-term shifts and alterations in temperature, weather patterns, and other atmospheric conditions. It encompasses the planet's overall warming and the associated changes in weather patterns caused by human actions.

Cost Recovery Policy. It refers to a strategy used by the National Irrigation Administration (NIA) to recover the expenses associated with providing services or projects. The policy outlines how costs, such as production, operational, or service delivery costs, are recouped through pricing, fees, or other financial mechanisms.

Crop Yields. These refers to the amount of agricultural produce (crops) harvested per unit of land area, typically measured in weight (e.g., kilograms or tons) per hectare or acre. It is a key indicator of agricultural productivity and efficiency.

Economic benefits. These refer to the financial or material advantages individuals, businesses, or governments gain from an activity, decision, or policy. These benefits can include increases in income, savings, profits, or overall economic value.

Efficiency. It means optimizing resources and processes to achieve higher productivity, reduce waste, and minimize costs, all while maintaining sustainability.

Equitable access to opportunities. These refers to the fair and just provision of resources, support, and chances for individuals or groups to achieve their potential and succeed, regardless of their background, socioeconomic status, gender, ethnicity, or other distinguishing factors. It emphasizes removing systemic barriers and ensuring everyone has a level playing field to pursue education, employment, healthcare, or other critical areas of development.

Farmers' income. It refers to the total earnings or financial returns that farmers receive from their agricultural and related activities.

Farmer satisfaction. It indicates how content farmers feel about receiving free irrigation services under this act.

Financial constraints. These refer to limitations or restrictions on the availability or access to money or financial resources. These constraints can affect individuals, businesses, or organizations' ability to

spend, invest, or expand.

Firmed-Up Service Area. It refers to a defined, reliable, and secure region or zone where agricultural services, such as irrigation, are guaranteed or have been confirmed for consistent delivery in a certain area with access to resources or infrastructure and have been fully established and are guaranteed for use.

Food security. It pertains to the capability of agricultural systems to consistently produce adequate quantities of safe, nutritious, and affordable food to satisfy the population's demands. It underscores the necessity of maintaining a reliable food supply contingent upon sustainable agricultural practices, efficient food production methods, and equitable distribution mechanisms.

Funding allocation. It is the distribution of financial resources to specific projects, programs, departments, or activities. This includes deciding how available funds will be divided and assigned based on priorities, needs, and goals.

Infrastructure. It refers to the physical systems and structures that supply water to agricultural lands to support crop production, especially in areas with insufficient or irregular rainfall. It includes all the facilities and equipment necessary for storing, distributing, and managing water for irrigation purposes.

Irrigation. It is the process of applying water to soil or land to support crop growth, especially in regions where rainfall is insufficient or irregular.

Irrigation Service Fee (ISF). It is a charge imposed on farmers or water users who benefit from an irrigation system. The fee helps cover the costs associated with the operation, maintenance, and improvement of irrigation infrastructure. It is typically collected by the National Irrigation Administration, which manages irrigation systems to ensure they remain functional and sustainable.

Irrigation Systems. These are networks or methods to supply water to crops and agricultural lands using canals and ditches to ensure proper growth and development. These systems are designed to distribute water efficiently and effectively to meet the needs of crops throughout their growth cycle.

Irrigators Association (IA). It is an organized group of farmers formed by the National Irrigation Administration, registered with the Securities and Exchange Commission, who collectively manage and maintain irrigation systems. These associations typically represent agricultural communities that rely on irrigation to support their farming activities. Their main purpose is to ensure the efficient use of water resources, improve crop yields, and support sustainable farming practices.

Legislation. It refers to the process of making or enacting laws, as well as the body of laws passed by a governing authority, such as a parliament, congress, or other legislative bodies. It involves creating, amending, or repealing laws regulating various aspects of society, including politics, economy, and social behavior.

The National Irrigation Administration (NIA). It is a government agency in the Philippines responsible for developing, managing, and maintaining irrigation systems to support agricultural productivity. NIA's primary role is to ensure the availability of water for irrigation, which increases crop yields and improves farmers' livelihoods.

Official Development Assistance (ODA). It refers to financial aid provided by government agencies or official entities of one country to support developing countries' economic, social, and environmental development.

Operation and Maintenance (O&M). It refers to the activities required to keep agricultural systems, particularly irrigation systems, functioning effectively. These activities ensure that the infrastructure and equipment used in farming or irrigation operate optimally and remain in good condition over time.

Policy Implementation. It entails executing a plan, law, or policy. It involves translating the intentions, objectives, and decisions articulated within a policy into specific actions and measurable outcomes.

Stakeholder Engagement. It is the active involvement and communication with individuals, groups, or organizations vested in, or affected by, a specific decision, policy, project, or initiative.

Sustainable. It refers to farming practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable agriculture focuses on environmentally sound, economically viable, and socially responsible practices.

Sustainable Irrigation System. It is an infrastructure that efficiently manages water resources while ensuring environmental, economic, and social sustainability.

Typology. It refers to classifying or categorizing things based on shared characteristics or types. It organizes and analyzes objects, concepts, or phenomena into groups or categories with common features or patterns.

The World Bank. It is an international financial institution that provides loans and grants to the governments of developing countries to pursue capital projects. It also provides financial assistance, expertise, and policy advice to enhance agricultural productivity, address challenges like climate change, and reduce poverty in rural areas.

1.9. Review of Related Studies and Literature

This chapter reviews relevant literature and studies conducted by foreign and local authors about the current research. The literature, articles, and studies focus on free irrigation's history and legal foundations and its benefits for stakeholders. The insights gained from this review have provided the researcher with a deeper understanding of the study.

1.9.1. Review of Related Literature

According to Florentin and Reginalde (2024), the Free Irrigation Service Act (FISA) has been beneficial for farmers, especially because it provides free irrigation services. However, the study also identified areas that require improvement, particularly in the Operation and Maintenance (O&M) and the Institutional Development Unit (IDU) of the National Irrigation Administration (NIA). While farmers expressed satisfaction with the free service, they recommended improvements in specific aspects of the program to enhance efficiency and sustainability.

Briones et. al (2019) state that the Free Irrigation Service Act (FISA) has brought significant benefits by lowering costs for farmers. However, there are concerns about fairness because many people who could benefit from it are not poor. The study suggests that reforms should continue. These reforms include providing performance-based funding for operation and maintenance (O&M), improving water efficiency, and changing the National Irrigation Administration (NIA) into a group that offers technical support. The study also recommends reviewing FISA alongside other social support programs to ensure fairness.

A study found that the Free Irrigation Service Fee (ISF) program reduced production costs for farmers. It also helped the Federation of Irrigators Associations (FIAs) understand their role in maintaining irrigation systems. Although the National Irrigation Administration (NIA) continues to provide support, the FIAs must collect seasonal dues to pay their operating costs. This change has increased their participation in keeping the irrigation system running through teamwork with the NIA. (Florencondia et. al, 2018)

The policy on Irrigation Service Fees (ISF) in the Philippines has undergone several changes. Yet, challenges remain in collecting enough to cover the operational costs of the National Irrigation System (NIS). Despite fluctuations in ISF rates, collection rates are still low, with less than 40% of fees being paid. This has led to liens on unpaid fees, which could be enforced more strictly to reduce dependency on government subsidies, if NIA effectively addresses maintenance and performance issues (Decena 2020).

Kumari et. al study (2021) highlights critical issues in India's irrigation water pricing system, including inadequate revenue collection due to outdated tax rates, the lack of regular updates, and inefficiencies in the collection process. The authors propose adopting a volumetric pricing system in well-irrigated areas and establishing a statutory water regulatory authority to ensure fair pricing.

This proposal relates to Republic Act 10969 in the Philippines, which aims to improve irrigation access and efficiency by offering free irrigation services to farmers, rather than focusing on revenue generation.

Farmer participation, especially through labor contributions, is crucial for enhancing irrigation systems' performance. While monetary contributions are also significant, they are less effective than hands-on labor involvement. This indicates that, although external support, such as that provided under the Free Irrigation Service Act, can help reduce certain burdens, the successful management of irrigation systems depends on ongoing farmer engagement, which is essential for ensuring these systems operate sustainably over the long term. (Alegado et. al, 2019)

The research conducted by Alma'arif and Maksum (2017), Indonesia's irrigation system encounters significant challenges related to a lack of functional decentralization, primarily driven by political, constitutional, and institutional factors. These barriers impede the effective integration of local governance with farmer autonomy in managing irrigation resources. The authors advocate for a gradual implementation of decentralization that fosters collaboration between local and state authorities. This approach underscores the necessity of aligning governance structures to facilitate sustainable outcomes in managing vital services such as irrigation.

The study highlights that irrigation services in agricultural systems must consider public and private functions, which can complicate the efficiency and fairness of service delivery. The researchers suggest focusing on core irrigation services and ensuring the benefits align with the associated costs. This approach is essential for effective resource allocation and ensuring that the irrigation systems meet the needs of individual farmers and the wider community. This perspective is relevant to ongoing efforts to improve irrigation services' sustainability (Kiri, Nakaya, and Tanji 2014).

The introduction of the Irrigation Service Fee (ISF) by the Government of Indonesia demonstrated a high % acceptance rate of 95% among farmers, especially when they were actively involved in defining system needs and managing funds. This approach underscored the importance of farmer participation and collaboration with local officials to ensure the sustainability of irrigation systems.

According to Faderogao et. al, (2020), this study examines the governance and operational challenges of irrigation systems in the Philippines, focusing particularly on National Irrigation Systems (NIS) and Communal Irrigation Systems (CIS). It emphasizes the critical role of local governance in managing irrigation services, enhancing water distribution, and addressing technical and financial issues impacting system performance.

The findings highlighted the necessity of collaboration among government agencies, water users, and local authorities to ensure the sustainability of irrigation systems. This is closely related to the goals of RA 10969, the Free Irrigation Service Act, which aims to relieve farmers' financial burdens by providing free irrigation services. The study underscores that the successful implementation of free irrigation services, as envisioned by RA 10969, requires strong governance, effective coordination, and the involvement of local stakeholders to manage resources and improve system performance.

According to Hebinck and Horst (2017), socio-political factors and governance structures significantly influence irrigation systems and water management practices. They argue that the success of these systems depends not just on technical infrastructure but also on the active involvement of local communities and the alignment of policies with their needs and practices.

In South Africa, for instance, formal governance structures exist to manage water. Still, informal practices, such as "irrigation by night," show how rural communities adapt their water use to meet agricultural demands. These informal practices often circumvent official systems due to their inefficiencies and the lack of access to formal irrigation services. This highlights the broader challenges of managing water in rural areas, where official policies may not adequately address local realities.

Similarly, in the Philippines, the implementation of the Free Irrigation Service Act (RA 10969) seeks

to eliminate financial barriers to irrigation by providing farmers with free access to water. This underscores the necessity for policies to adapt to local needs and improve water access, akin to the proposed move toward a more flexible and locally responsive water management system in South Africa. Both examples demonstrate the importance of tailoring water governance to ensure equitable and efficient water use in agriculture.

The study emphasizes the importance of balancing various objectives in irrigation pricing, such as economic efficiency, equity, water conservation, and financial sustainability. This approach aligns with the goals outlined in the Philippines' Republic Act 10969, the Free Irrigation Service Act, which aims to reduce the financial burden on farmers by providing free irrigation services. Both systems recognize the necessity for a sustainable and efficient irrigation framework that ensures equitable access to water while addressing financial and environmental concerns.

Elazegui and Luyun (2019) examined the state of irrigation in the Philippines, focusing on the sustainability of irrigation systems and the role of Irrigators' Associations (IAs) in managing communal irrigation systems (CIS). They identified several challenges, including inadequate maintenance, the financial burden on farmer members, and the need for institutional reforms to enhance irrigation service delivery. The study stressed the importance of empowering IAs by granting them greater authority and responsibilities in managing these irrigation systems. It also ensured that government policies and funding mechanisms support their operations.

The authors highlighted the need for clear governance structures and financial backing from the government to facilitate the smooth operation of irrigation systems. This is consistent with the goals of RA 10969, which aims to provide free irrigation services to farmers, thereby alleviating financial pressures and ensuring that local irrigation systems can function effectively without over-relying on farmer contributions. The law's focus on government support for the operation and maintenance of irrigation systems aligns with Elazegui and Luyun's findings, which advocate for more sustainable and farmer-friendly irrigation policies.

The study conducted by Aheeyar et. al, (2016) investigated the governance of small-scale irrigation systems in Sri Lanka. It emphasizes a shift from community-based management to more centralized control, leading to inefficiencies in system sustainability. The authors argue that while community-driven management initially fostered sustainability, the centralization of authority created a disconnect from local needs, which hindered effectiveness. This finding aligns with the goals of RA 10969, which aims to promote local-level involvement in irrigation management by eliminating irrigation service fees. Both the study and the law underscore the importance of empowering farmers and local communities to actively participate in managing and maintaining irrigation systems actively, thereby ensuring their long-term sustainability and efficiency.

Delos Reyes (2020) explores the challenges Irrigators' Associations (IAs) faced in the Philippines, such as limited capacity, lack of resources, and weak organizational structures. These challenges hinder their ability to manage irrigation systems effectively. The study emphasizes the importance of empowering these associations through improved training, increased resources, and greater decision-making authority to enhance the efficiency of irrigation systems and boost agricultural productivity. This aligns with the objectives of RA 10969, which eliminates irrigation service fees to provide farmers with free irrigation services. The law focuses on empowering local farmers and organizations to manage irrigation systems. This concept is further supported by Delos Reyes' study, which advocates for strengthening institutional capacity and promoting farmer participation for sustainable water management.

Inocencio and Inocencio (2020) examine the governance and institutional challenges faced by irrigation systems in the Philippines, specifically focusing on both national irrigation systems (NIS) and communal irrigation systems (CIS). Their study identifies several obstacles to effective irrigation management, including inadequate coordination, unclear roles among stakeholders, and limited participation from farmers. They emphasize the need to strengthen the governance mechanisms overseeing these irrigation systems, advocating for more decentralized decision-making to empower local farmers and improve system performance. This perspective aligns with RA 10969, which aims to enhance accessibility to irrigation

services, increase farmers' participation, and ensure more effective management through well-defined governance frameworks. By prioritizing local participation and accountability, the study and the law seek to create more sustainable and efficient irrigation systems nationwide.

Postwar agricultural development in numerous developing countries involved substantial investments to enhance agricultural productivity and sustainability. These investments were frequently funded through Official Development Assistance (ODA), which underscores the commitment of international organizations and donor countries to support agricultural progress in these regions. However, this developmental approach often prioritized political motivations over economic efficiency, and many of these initiatives featured low-cost recovery options, sometimes resulting in negligible or no financial returns. In the 1970s, a significant shift occurred when the World Bank and various development agencies began to advocate for the implementation of cost-recovery schemes in irrigation. These schemes' primary goals were to generate public savings, enabling governments to reallocate resources to further agricultural development initiatives.

One such approach is charging an irrigation service fee based on the area served. This method often incorporates adjustments depending on various factors like the type of crop being cultivated, the planting season, and the farmland's geographical location. Countries that have successfully implemented this scheme include Nigeria, Kazakhstan, Indonesia, Pakistan, the Philippines, Vietnam, and Japan. Another common pricing structure involves charging an irrigation service fee based on the volume of water delivered to users. This method is prevalent in several Middle Eastern and North African countries, as well as in Southern European nations, Australia, and the United States. In these scenarios, users might also encounter pricing structures that include a fixed rate for water consumption up to a specified quota, after which a different price structure may apply. This approach often blends quotas with a fixed charge and volumetric prices for water use exceeding the established quota.

In contrast to the aforementioned pricing schemes, market-based pricing models allow prices to be dictated by supply and demand. In these systems, access to water can be allocated through competitive mechanisms, such as auctions, where water rights are sold to the highest bidder. This market-driven approach to water allocation promotes efficiency. It encourages more sustainable usage, although it may raise concerns about equitable access for all agricultural users, especially those in vulnerable or underprivileged positions.

Vietnam is a significant case study illustrating a major shift in governmental policy regarding irrigation water management, transitioning from a water pricing system to a free water model (Cook et al., 2013). In 2008, the Vietnamese government implemented Decree 115, which eliminated water charges for irrigation purposes. This policy was primarily designed to provide much-needed relief to farmers grappling with high production costs, aiming to improve agricultural productivity across the country. One of the critical aspects of this policy change was the expectation that farmers would assume greater responsibility for managing tertiary canals and farm ditches. This involved a shift towards promoting self-reliance among farmers in maintaining their local irrigation infrastructure, which could empower them and foster a sense of ownership over these resources.

The policy's implementation led to several positive outcomes. Notably, farm net incomes experienced an increase, averaging approximately 20 USD per household per year. This rise in income was largely attributed to the reduction in financial burdens associated with irrigation operation and maintenance fees. Additionally, the amount of land being irrigated increased by 3 to 5 percent in various regions. This expansion can be largely credited to the government's financial stability provided to irrigation and drainage management companies, which enabled these organizations to address chronic issues related to the under-collection of Irrigation Service Fees (ISF).

However, despite these positive impacts, some challenges persisted. The Vietnamese government has been slow to update the cost norms applicable to irrigation and drainage management companies, leading to these organizations facing chronic underfunding. This lack of adequate financial resources ultimately undermines their ability to maintain and improve operations and maintenance effectively. Furthermore, by

making irrigation water freely available, the government has inadvertently severed the connection between water user organizations and irrigation and drainage management companies, creating potential risks for the sustainability and efficacy of irrigation management in the long term. Emphasizing the need for a balance between providing access to water and ensuring the financial viability of irrigation management entities is essential for the future of Vietnam's agricultural sector.

In the Philippines, Fullon et al. (2018) thoroughly evaluated the Free Irrigation Service Act (FISA) and assessed its impacts highly favorably. The National Irrigation Administration (NIA) has assumed a substantial role in managing operation and maintenance activities for irrigation systems, enabling Irrigation Associations to allocate their resources for maintenance tasks. This development challenges the widely held perception that introducing free irrigation would diminish effective Operation and Maintenance incentives.

Moreover, the subsidy provided under FISA is contingent upon the performance and effectiveness of the IAs. This creates a system where IAs are motivated to actively engage in maintenance and repairs actively, fostering a sense of ownership and encouraging shared investment in the upkeep of irrigation infrastructure. The initiative incentivizes greater responsibility and accountability among local irrigation managers by linking support to IA performance.

In a position paper released by the NIA in 2016, the organization outlined several significant advantages of implementing free irrigation. Firstly, the long-term funding for operation and maintenance activities is more reliably ensured, which is critical for the sustainability of irrigation services. Secondly, partnerships between the NIA and IAs are strengthened, fostering collaboration and mutual support in managing irrigation systems. Thirdly, the self-reliance of IAs is enhanced, empowering them to take charge of their maintenance efforts and reducing dependency on external support.

Additionally, irrigation system management is further incentivized, as IAs are encouraged to prioritize effective oversight and resource allocation. One notable benefit of removing the Irrigation Service Fee is the potential reduction in production costs for farmers, which is estimated to decline by 3.4 to 6.1 percent. This financial relief is expected to improve the overall economic viability of farming operations.

By eliminating the Irrigation Service Fee, the National Irrigation Administration can redirect its efforts toward more critical areas such as the planning, design, construction, restoration, rehabilitation, and overall management of the National Irrigation System (NIS). This shift in focus enables the National Irrigation Administration to concentrate on strengthening the capacities of the Irrigators Association, providing them with the necessary training and resources to enhance their operational effectiveness. As a result, the initiative promotes more efficient irrigation practices and supports the long-term sustainability of agricultural productivity in the Philippines.

1.9.2. Synthesis

The primary advantage of the Free Irrigation Service Act (FISA) for farmers is the exemption from Irrigation Service Fees (ISF), which helps reduce production costs. However, the actual savings from this exemption are modest, as ISFs accounted for only about 2% of total farming expenses before the implementation of FISA. While the policy is designed to benefit farmers with landholdings of 8 hectares or less, many of these farmers do not fall under the poverty classification, raising concerns about the equity of the policy.

The shift to free irrigation has put a strain on the financial sustainability of irrigation systems. National Irrigation Systems (NIS) are experiencing declining operation and maintenance (O&M) subsidies, while Communal Irrigation Systems (CIS) face low subsidy levels and challenges in collecting contributions from Irrigators' Associations (IAs). This situation has resulted in issues such as canal siltation and a decrease in maintenance activities.

Studies indicate that IAs that collected ISFs performed better in terms of maintenance and water delivery. Since the collection of ISFs ceased under FISA, some IAs have sought alternative funding methods, such as collecting seasonal dues from their members. Despite these efforts, the overall performance of IAs remains mixed, with many displaying low to moderate levels of effectiveness.

With the end of ISF collection, the National Irrigation Administration (NIA) has shifted its role from a fee-collecting agency to one focused on providing technical assistance, designing contracts, and monitoring performance. This transition requires a reevaluation of NIA's functions and staffing to align with its new responsibilities.

While FISA aims to reduce the financial burden on small farmers, its benefits are not distributed equitably. Studies suggest that targeted cash transfers may be a more effective way to address poverty among farmers. Recommendations for improvement include implementing performance-based O&M subsidies, promoting water-saving practices, and transforming the NIA into a more service-oriented agency.

2. Methodology

This chapter presented the research design, study subject, population, sampling techniques, data-gathering procedures, research instruments, and statistical treatment.

2.1. Research Design

This research concentrated on collecting quantitative data to evaluate the effectiveness of the Free Irrigation Service Act. A descriptive-quantitative research methodology was employed to gather essential information from respondents through structured survey questionnaires. A complete enumeration of the respondents was conducted utilizing a pre-tested interview schedule. The findings were presented in frequency distribution tables, and the overall conditions of each variable were analyzed using Pearson's correlation coefficient and descriptive statistics.

Cohen (1980) defines quantitative research as social research that uses empirical methods and makes empirical statements, which describe what "is" in the real world rather than what "ought" to be. These statements are typically expressed numerically. Additionally, empirical evaluations assess how well a specific program or policy meets a certain standard or norm.

The effectiveness of the FISA fits within Cohen's (1980) quantitative research framework, as it aims to provide an empirical, data-driven evaluation of the Act's impact, measured in numerical terms, and focuses on how well the program meets its intended goals and standards.

2.2. Respondents of the Study

The research study involved the participation of 100 farmers affiliated with the Irrigators' Association in selected National Irrigation Systems located in the 4th District of Laguna (Pila, Sta Cruz, Lumban, Magdalena, Pagsanjan, Kalayaan, and Mabitac, Laguna). These respondents included officials and the association's active members directly engaged in irrigation activities. They had also seen the tangible benefits of the Free Irrigation Service Act, which provided cost-free irrigation services to improve agricultural productivity. The study aimed to collect insights on how these efforts had influenced their farming practices and livelihoods.

2.3. Sampling Technique

Hansen and Hurwitz (1943) developed the basic theory of stratified two-stage cluster sampling with one cluster (or primary sampling unit) within each stratum drawn with probability proportional to size (PPS). Then they subsampled at a rate to ensure a self-weighting sample (equal overall selection probabilities). Unequal probability selection of clusters can reduce significant variance by controlling the variability arising from unequal cluster sizes.

Criterion sampling was a qualitative research method that selected participants based on specific criteria relevant to the research question. These predetermined criteria helped ensure the sample was closely aligned with the study's objectives.

The cluster sampling technique was a method often used to study large populations, particularly those that were widely geographically dispersed. Researchers usually used pre-existing units such as schools or cities as their clusters.

2.4. Research Procedure

After obtaining the approval of the faculty of Laguna State Polytechnic University Sta Cruz Main Campus regarding his chosen research topic, the researcher embarked on an extensive review of literature and previous studies about the Free Irrigation Service Act. This comprehensive review aimed to broaden his understanding of the topic and gather pertinent data to support his thesis.

In addition to academic literature, the researcher utilized various online platforms to search for relevant and current information, ensuring that his research was grounded in the most recent developments in the field. This multifaceted approach was essential for obtaining a well-rounded perspective on the implications and effectiveness of the Republic Act.

With the valuable guidance of his research adviser and the insights provided by several panelists, the researcher successfully compiled an extensive array of information, literature, and empirical studies. These resources became the foundation for constructing a well-structured, self-designed questionnaire. The primary objective of the questionnaire is to evaluate the effectiveness and efficiency of the Republic Act in serving its intended purpose.

Before administering the questionnaire, the researcher sought feedback from his research adviser, a qualified statistician, and a subject matter expert. This collaborative review process allowed for necessary comments, corrections, or adjustments to ensure the questionnaire's clarity and relevance. Moreover, a language expert scrutinized the questionnaire to refine its grammar and sentence structure, enhancing its overall readability.

Once the questionnaire's content had been finalized, the researcher consulted with experts to validate the instrument, ensuring it effectively measured its intended assessment.

To collect data, the researcher drafted a formal letter requesting permission to administer the questionnaire to a targeted group of respondents. This group comprised officials and members of the Irrigators Association, all affiliated with the National Irrigation Systems in Region IV-A. The researcher personally delivered the questionnaire and oversaw the response process, ensuring that he could address the respondents' questions or concerns while completing it.

The study's data underwent a meticulous process of tallying, tabulating, and analyzing. The researcher employed appropriate statistical methods to derive reliable findings and valid conclusions from the data, ultimately contributing valuable insights into the effectiveness of the Republic Act and its impact on agricultural irrigation services in the region.

2.5. Research Instrument

The researcher utilized a self-constructed questionnaire as the primary tool for data collection in this study. This questionnaire was meticulously designed and incorporated items derived from a variety of sources, including extensive readings in the relevant literature, the researcher's personal experiences, direct observations, and informal interviews conducted in the field.

A thorough content validation was performed to ensure the questionnaire's validity and reliability. This involved consultations with experts specialized in the field of study, who provided valuable feedback, suggestions, and necessary revisions to enhance the quality of the questionnaire. Furthermore, a language expert was enlisted to review the questionnaire, focusing on grammar, clarity, and sentence composition, ensuring respondents clearly articulated and easily understood the questions. This comprehensive approach aimed to create a robust tool for gathering accurate and insightful data for the study.

SCALE	VERBAL DESCRIPTION	SCALE	VERBAL INTERPRETATION
4	Very High	3.25-4.00	VH
3	High	2.50-3.24	H
2	Low	1.75-2.49	L
1	Very Low	1.00-1.74	VL

2.6. Statistical Treatment of Data

Pearson Correlation Coefficient

Guilford developed the Pearson Correlation Coefficient "R" test in 1956 to quantify and analyze the linear relationship between two variables. It is used to determine whether a linear relationship exists and how strong it is (as indicated by the p-value and coefficient r , respectively). This test is only used when the underlying assumptions are true.

The Rule of Thumb, as presented by Guildford (1973), was adopted to interpret the strength of the relationship. Table 2 summarizes Guildford's (1973) Rule of Thumb for the interpretation of the correlation coefficient (r)

Table 2. Guildford's (1973) Rule of Thumb for Interpretation of Correlation Coefficient

r	Interpretation
< .20	Slight, almost negligible relationship
.20 - .40	Low correlation, definite but small relationship
.40 - .70	Moderate correlation, substantial relationship
.70 - .90	High correlation, marked relationship
> .90	Very high correlation, very dependable relationship

3. Results and Discussion

This chapter consisted of presenting, analyzing, and interpreting data. The findings were tallied, tabulated and analyzed. The following data were interpreted using tables and figures to shed light on and better understand the study's results.

3.1. Demographic Profile of the Respondents

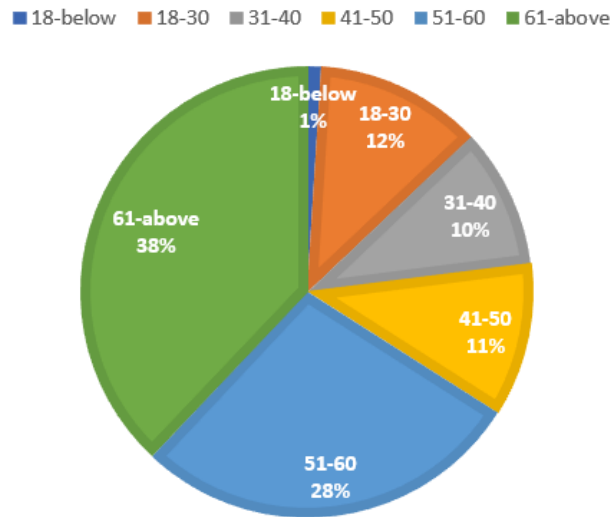


Figure 2. Profile of Respondents in Terms of Age (%)

Figure 2 illustrates the age distribution of the respondents. The predominant age group comprises individuals aged 61 years and older, accounting for 38% (38 respondents) of the total sample. This statistic indicates that a substantial portion of the respondents belong to the older age demographic. The age groups of 51-60 and 41-50 each represent 28% (28 respondents) and 11% (11 respondents), respectively. Furthermore, the 31-40 age group constitutes 10% (10 respondents), while the 18-30 age group encompasses 12% (12 respondents). In contrast, the age group of 12 years and below has the fewest respondents, at 1% (1 respondent). Collectively, the data reveal that the majority of respondents (77%) are aged 41 years and above, suggesting that the studied population is predominantly experienced and likely to be composed of senior individuals.

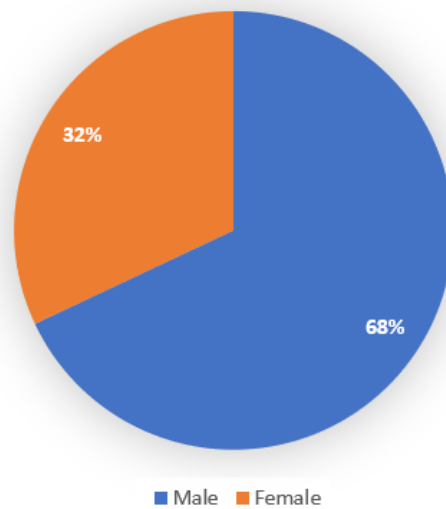
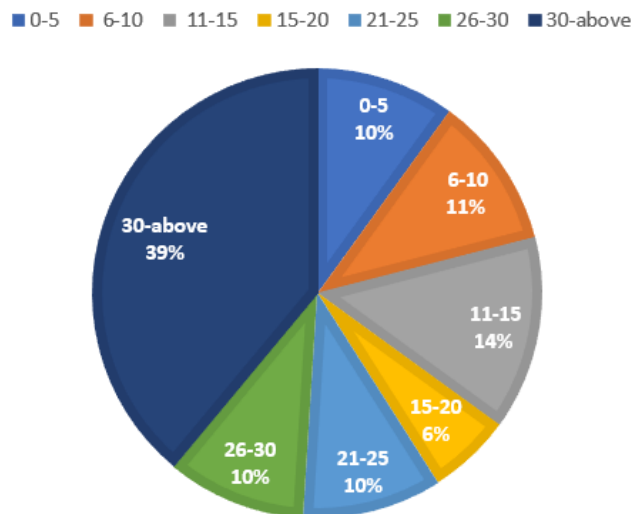


Figure 3. Profile of Respondents in Terms of Gender (%)

Figure 3 presents an overview of the gender distribution among the respondents in this study. Of 100 surveyed individuals, 32 are female, constituting 32%, while 68 are male, representing 68%. This distribution indicates a notable gender disparity within the sample, with more male respondents. Specifically, males comprise nearly two-thirds of the participants, underscoring their significant representation in the respondent group. This imbalance may warrant attention in future investigations to ensure comprehensive gender



inclusivity.

Figure 4. Profile of Respondents in Terms of Years in Farming (%)

Figure 4 shows that most respondents (39%) have been involved in farming for 30 years or more, indicating a community with considerable experience. The next largest groups consist of those with 11-15 years (14%) and 6-10 years (11%) of farming experience, suggesting that a significant portion of the population has moderate experience. Fewer respondents are in the 0-5 years (10%) and 15-20 years (6%) ranges, indicating a limited presence of newcomers or farmers with less experience. The groups with 21-25 years, 26-30 years, and 6-10 years of experience each account for 10% of the total, showing a balanced distribution in the middle range of farming experience. The data suggests that farming is a career characterized by longevity and experience, with relatively few newcomers entering the field.

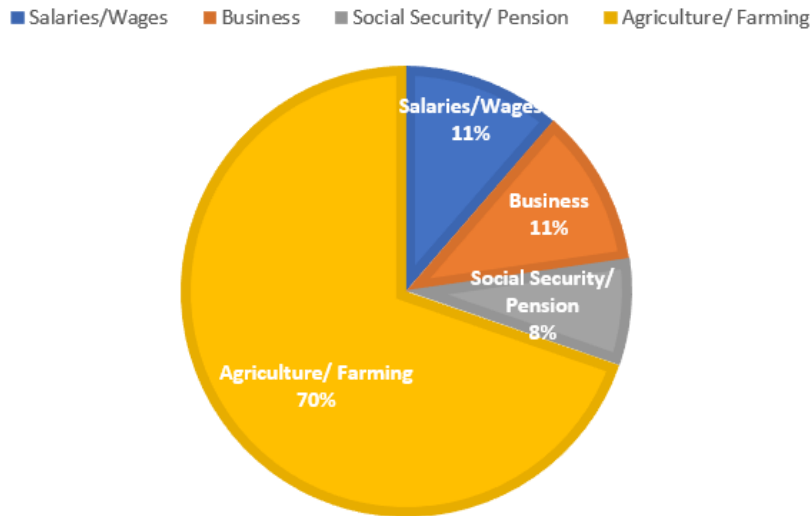


Figure 5. Profile of Respondents in Terms of Source of Income (%)

Figure 5 provides an overview of the respondents' sources of income. The data reveals a strong dependence on agriculture or farming, which serves as the primary source of income for 70% of individuals surveyed. In contrast, salaries and wages, as well as business ventures, each account for only 11% of the income, indicating that fewer individuals rely on employment or entrepreneurship. Additionally, social security or pension contributions represent the least significant source of income, comprising only 8% of the overall income distribution. In summary, agriculture or farming is the dominant income source, while other income streams contribute minimally.

3.2. IMPLEMENTATION OF RA 10969 "FREE IRRIGATION SERVICE ACT"

Table 3. Implementation of the Free Irrigation Service Act in Terms of Policy Implementation

Indicator	M	SD	V.I.
1. The "Free Irrigation Service Act" offers access to irrigation services at no cost.	3.69	0.56	VH
2. During implementation, it minimizes delays in water distribution throughout the irrigation cycles.	3.45	0.59	VH
3. The officials from the NIA held orientation sessions for stakeholders to discuss the implementation of policies.	3.53	0.58	VH
4. The farmers have been consulted and involved in the drafting of the law.	3.38	0.65	VH
5. The National Irrigation Administration has successfully implemented the FISA.	3.66	0.52	VH
Overall for Policy Implementation	3.54	0.42	VH

Note. N=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 3 evaluates the "Free Irrigation Service Act" (FISA) based on various implementation aspects, showing mean ratings and standard deviations. The highest-rated item is "The 'Free Irrigation Service Act' offers access to irrigation services at no cost," with a mean score of 3.69 and a standard deviation of 0.56, indicating positive perceptions of free access.

The second highest rating, 3.66 (SD = 0.52), is for "The National Irrigation Administration (NIA) has successfully implemented the FISA," reflecting strong confidence in its success. Ratings for "Officials from the NIA held orientation sessions for stakeholders" (3.53) and "Minimizing delays in water distribution" (3.45) are also favorable, showing some effectiveness.

In contrast, "Farmers have been consulted and involved in the drafting of the law" has the lowest rating of 3.38 and the highest standard deviation of 0.65, indicating mixed perceptions of farmer involvement. Overall, the average score for the implementation of FISA in terms of policy implementation is 3.54, suggesting generally positive feedback with some variation.

The research conducted by Florentin and Reginalde (2024) elucidates a critical distinction between access to irrigation and the quality of irrigation service delivery. Although the FISA effectively alleviates the financial burden on farmers by providing complementary irrigation services, resulting in general satisfaction among beneficiaries, the study identifies persistent systemic challenges, particularly in the Operation and Maintenance (O&M) and the Institutional Development Unit (IDU) of the National Irrigation Administration (NIA).

This indicates that while the Free Irrigation Service Act (FISA) has enhanced accessibility to irrigation, its long-term efficacy and impact are contingent upon the strengthening of the institutional and operational capacities of implementing agencies such as the NIA. The recommendations for improvement emphasize that the provision of free services alone does not ensure operational efficiency or sustainability. Rather, focused improvements in management practices, maintenance protocols, and institutional support structures are vital to maximize the program's benefits. Consequently, FISA should not be regarded as an isolated solution but rather as a component of a more comprehensive framework that includes capacity

building, institutional reforms, and active engagement of farmers to ensure the sustainability of irrigation systems.

Table 4. Implementation of the Free Irrigation Service Act in Terms of Funding Allocation

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The government has allocated enough funding for its implementation.	3.49	0.58	VH
2. The FISA has improved the availability and accessibility of irrigation services.	3.55	0.58	VH
3. Fund allocation is being used efficiently to benefit smallholder farmers.	3.48	0.59	VH
4. The government had enough resources to support farmers and the irrigation system.	3.37	0.61	VH
5. The government allocated sufficient funds for the maintenance and development of irrigation infrastructure.	3.44	0.59	VH
Overall for Funding Allocation	3.47	0.47	VH

Note. *N*=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 4 summarizes the evaluation of the funding allocation for the "Free Irrigation Service Act" (FISA). The highest-rated item is "The FISA has improved the availability and accessibility of irrigation services," with a mean score of 3.55 and a standard deviation of 0.58, indicating a positive perception of its impact.

The item "The government has allocated enough funding for its implementation" has a mean score of 3.49, suggesting that most respondents believe sufficient funding has been provided. The item "Funds allocation is being used efficiently to benefit smallholder farmers" received a slightly lower score of 3.48, indicating that while the efficiency is acknowledged, there is room for improvement.

The lowest-rated item, "The government had enough resources to support farmers and the irrigation system," scored 3.37 with the highest standard deviation of 0.61, reflecting uncertainty about resource adequacy. Overall, the average score for the implementation of FISA in terms of funding allocation is 3.47, indicating a generally positive view with some variability in opinions.

The study conducted by Elazegui and Luyun (2019) highlights the necessity of addressing not only financial assistance but also the underlying structural and institutional challenges within the irrigation sector. While the Irrigation Service Fee Act (FISA) initiative alleviates financial pressures by waiving irrigation service fees for farmers—one of the significant difficulties identified in the study—it does not inherently rectify issues related to inadequate maintenance or the limited capacity of Irrigators' Associations (IAs) to effectively manage communal irrigation systems (CIS).

The research underscores the urgency of empowering IAs through enhanced authority, clearly defined responsibilities, and robust institutional support. This requirement aligns with the overarching objectives of FISA; however, it also reveals a critical deficiency: the provision of free irrigation services must be complemented by investments in governance, capacity building, and accountability. Absent these essential components, the advantages of FISA may prove to be transient, as substandard maintenance and fragile institutional structures could compromise the efficacy of service delivery.

Consequently, for FISA to realize a sustainable and enduring impact, it must be accompanied by policy reforms and funding mechanisms designed to fortify IAs, promote community-based management, and ensure that irrigation infrastructure remains not only accessible but also well-maintained and effectively governed.

Table 5. Implementation of the Free Irrigation Service Act in Terms of Stakeholders' Engagement

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The stakeholders and various government agencies raised awareness about the Free Irrigation Service Act.	3.48	0.56	VH
2. The planning and implementation process has taken into account the concerns and needs of farmers.	3.45	0.59	VH
3. The government assisted farmers in participating in various capacity-building and training programs related to the policy's implementation.	3.51	0.69	VH
4. The FISA established partnerships between government agencies, farmers, and the private sector for its successful implementation.	3.42	0.59	VH
5. The collaboration between NIA and IA had a positive effect on the implementation of the law.	3.52	0.61	VH
Overall for Stakeholders' Engagement	3.48	0.46	VH

Note. $N=100$. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 5 presents an evaluation of stakeholder engagement in implementing the Free Irrigation Service Act (FISA). The implementation of the "Free Irrigation Service Act" (FISA) has generally received positive feedback from stakeholders. The strong support for capacity-building and training programs, scoring 3.51, shows that farmers appreciate the government's efforts to enhance their skills and knowledge. Such initiatives are essential for equipping farmers to utilize irrigation services effectively.

The collaboration between the National Irrigation Administration (NIA) and Irrigators' Associations (IA) scored 3.52, highlighting the importance of partnerships between government agencies and farmer organizations. This collaboration has led to more effective outcomes, and strengthening these relationships could further improve service delivery.

Awareness-raising efforts scored 3.48, indicating success in informing stakeholders about FISA. Future campaigns should continue to utilize existing channels while exploring new ones to reach a broader audience.

However, areas requiring attention include considering farmers' needs during planning, which scored 3.45, suggesting gaps in aligning implementation with farmers' realities. More input from farmers is necessary to address their unique challenges.

The lowest-rated item, scoring 3.42, concerns establishing partnerships for implementation. This indicates that existing collaborations could be more robust. Strengthening these partnerships, especially with local governments and the private sector, could enhance the law's success and sustainability.

Overall, the average score for the implementation of FISA in terms of stakeholder engagement is 3.48, indicating a generally positive view.

According to Alegado et. al (2019), farmer participation, especially through labor contributions, is crucial for enhancing irrigation systems' performance. While monetary contributions are also significant, they are less effective than hands-on labor involvement. This indicates that, although external support, such as that provided under the Free Irrigation Service Act, can help reduce certain burdens, the successful management of irrigation systems depends on ongoing farmer engagement, which is essential for ensuring these systems operate sustainably over the long term.

Table 6. Implementation of the Free Irrigation Service Act in Terms of Infrastructure

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The funds designated for the Free Irrigation Service Act have been adequate to enhance irrigation infrastructure.	3.39	0.63	VH
2. Funds for irrigation infrastructure are being allocated efficiently and transparently.	3.42	0.62	VH
3. The FISA improves the technical aspects of the irrigation system, including water management, automation, etc.	3.48	0.63	VH
4. The improvements to irrigation infrastructure under the Free Irrigation Service Act are sustainable in the long term.	3.39	0.58	VH
5. Alternative funding sources have been introduced to ensure the financial sustainability of irrigation systems.	3.38	0.69	VH
Overall for Infrastructure	3.41	0.52	VH

Note. *N*=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 6 evaluates the effectiveness of the "Free Irrigation Service Act" (FISA) in enhancing irrigation infrastructure. The highest-rated statement is, "The FISA improves the technical aspects of the irrigation system, including water management and automation," with a mean score of 3.48 and a standard deviation of 0.63, indicating a positive perception of technical improvements.

The next highest rating, "Funds for irrigation infrastructure are being allocated efficiently and transparently," received a mean score of 3.42 and a standard deviation of 0.62, suggesting that fund allocation is considered generally efficient, though opinions vary.

Both the statements "The funds designated for the Free Irrigation Service Act have been adequate to enhance irrigation infrastructure" and "The improvements to irrigation infrastructure under the Free Irrigation Service Act are sustainable in the long term" earned mean scores of 3.39, reflecting some uncertainty about funding adequacy and sustainability.

The statement "Alternative funding sources have been introduced to ensure the financial sustainability of irrigation systems" received the lowest rating with a mean score of 3.38 and a higher standard deviation of 0.69, indicating concerns about the effectiveness of these funding sources.

Overall, the mean score for implementing FISA in terms of infrastructure is 3.41, with a standard deviation of 0.52. This demonstrates a positive perception of FISA's impact on irrigation infrastructure, albeit

with some response variability.

Fullon et al. (2018) conducted a comprehensive evaluation of the Free Irrigation Service Act (FISA) and reported its impacts in a highly favorable manner. The National Irrigation Administration (NIA) has taken on a significant role in overseeing the operation and maintenance of irrigation systems, which allows Irrigation Associations (IAs) to focus their resources on maintenance activities. This development challenges the prevalent belief that the implementation of free irrigation would discourage effective operational and maintenance incentives.

Furthermore, the subsidy established under FISA is contingent upon the performance and efficiency of the IAs. This creates a framework wherein IAs are encouraged to engage proactively in maintenance and repair activities, thereby fostering a sense of ownership and promoting collective investment in the maintenance of irrigation infrastructure. By linking support to the performance of IAs, this initiative incentivizes a heightened sense of responsibility and accountability among local irrigation managers.

3.3. EFFECTIVENESS OF THE "FREE IRRIGATION SERVICE ACT"

Table 7. Effectiveness of the Free Irrigation Service Act in Terms of Farmers' Income

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The reduction in irrigation fees had a positive effect on farming operations.	3.61	0.60	VH
2. The implementation of the FISA led to an increase in farmers' incomes.	3.48	0.61	VH
3. The financial support from the government is adequate to enhance farmers' income.	3.25	0.66	VH
4. The government has effectively addressed the income concerns of farmers.	3.28	0.62	VH
5. The improvements under the FISA will lead to sustained higher income in the long term.	3.54	0.58	VH
Overall for Farmer's Income	3.43	0.46	VH

Note. *N*=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 7 evaluates the impact of the "Free Irrigation Service Act" (FISA) on farmers' income. The highest-rated item is "The reduction in irrigation fees had a positive effect on farming operations," with a mean score of 3.61 and a standard deviation of 0.60, indicating that farmers generally feel the fee reduction has benefited them.

The second-highest score, 3.54 (*SD* = 0.58), is for "The improvements under the FISA will lead to sustained higher income in the long term," reflecting optimism about lasting financial benefits.

The statement "The implementation of the FISA led to an increase in farmers' incomes" received a mean of 3.48, showing that some farmers believe their incomes have risen due to the policy. In contrast, "The government has effectively addressed the income concerns of farmers" and "The financial support from the government is adequate" received lower scores of 3.28 and 3.25, indicating mixed opinions on government support.

Overall, the mean score for FISA's effectiveness in terms of farmers' income is 3.43 (*SD* = 0.46),

reflecting a generally positive perception of its impact, though responses vary.

Vietnam's experience—detailed by Cook et al. (2013)—offers a valuable comparative perspective that reinforces the potential benefits and challenges of shifting to a free irrigation model.

Similar to FISA, Vietnam's Decree 115 (2008) eliminated irrigation service fees to alleviate financial pressure on farmers and boost agricultural productivity. The outcomes observed in Vietnam—such as increased farm incomes, expanded irrigated land, and improved financial capacity of irrigation service providers—mirror the intended goals of FISA. This supports the idea that removing irrigation fees, when paired with effective institutional support, can result in tangible economic and productivity gains for smallholder farmers.

Crucially, Vietnam's model also emphasized greater farmer responsibility in managing tertiary canals and farm ditches, promoting self-reliance and ownership—a theme echoed in the Philippine context, where Irrigators' Associations (IAs) are encouraged to take an active role in Operation and Maintenance (O&M) under FISA. Both policies reflect a shared governance model in which the government assumes major infrastructure costs, while local associations and farmers handle localized upkeep.

The Vietnamese case highlights that free irrigation policies can be sustainable and beneficial if strong institutional reforms, financial backing for service providers, and community-level engagement accompany them. This reinforces the need for FISA to not only focus on fee removal but also invest in capacity building, accountability mechanisms, and shared responsibility frameworks, ensuring that the infrastructure is maintained and service delivery remains effective over the long term.

Table 8. Effectiveness of the Free Irrigation Service Act in Terms of Crop Yield

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The crop yield increased due to enhanced irrigation services.	3.50	0.56	VH
2. The government provides assistance to help you produce what your farm needs while also meeting the market demands of farmers.	3.49	0.59	VH
3. The NIA offered assistance in introducing farming techniques, which have led to increased agricultural productivity.	3.59	0.55	VH
4. NIA assisted farmers in adopting new farming techniques, which resulted in increased productivity.	3.55	0.56	VH
5. The NIA helped the farmers participate in training programs related to agricultural productivity improvements.	3.62	0.53	VH
Overall for Crop Yield	3.55	0.47	VH

Note. *N*=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 8 evaluates the impact of the "Free Irrigation Service Act" (FISA) on crop yield and agricultural productivity. The highest-rated item, "The NIA assisted farmers in participating in training programs related to agricultural productivity," received a mean score of 3.62, indicating that farmers generally find these programs beneficial.

The next highest scores were for the statements: "The NIA provided assistance in the introduction of farming techniques" (mean score of 3.59) and "NIA supported farmers in adopting new techniques" (3.55), suggesting that both the introduction and adoption of new practices effectively enhanced productivity.

Additionally, the statements "The crop yield increased due to improved irrigation services" (3.50) and "The government provides support to meet both farm needs and market demands" (3.49) indicate that improvements in irrigation and governmental assistance positively influenced crop yields.

Overall, the mean score for the effectiveness of the FISA in terms of crop yield was 3.55, with a standard deviation of 0.47. This reflects a generally favorable perception of FISA's impact on agricultural productivity and low variability in responses among farmers.

In the context of economic theory related to public goods, FISA embodies the characteristics of a public good—non-excludable and non-rivalrous. Irrigation services, which are funded and managed by the government, are available to all farmers and do not diminish in availability as more farmers use them. By improving access to irrigation and supporting productivity-enhancing techniques, FISA has enhanced agricultural output across the sector, making it a beneficial public service that improves overall societal welfare.

Table 9. Effectiveness of the Free Irrigation Service Act in Terms of Farmers' Satisfaction

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The farmers are satisfied with the quality of the irrigation water provided.	3.40	0.57	VH
2. Farmers are satisfied with the timeliness of irrigation water delivery.	3.33	0.59	VH
3. The farmers are pleased with the financial benefits of the Free Irrigation Service Act, especially the elimination of irrigation fees.	3.46	0.58	VH
4. Farmers are satisfied with the level of engagement with each other regarding the implementation of the FISA.	3.48	0.58	VH
5. The farmers received sufficient support, such as training and assistance, from the government and related agencies in utilizing the free irrigation services.	3.56	0.56	VH
Overall for Farmer's Satisfaction	3.45	0.46	VH

Note. *N*=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 9 presents an evaluation of farmers' satisfaction with various components of the "Free Irrigation Service Act" (FISA). The item receiving the highest rating is "Farmers received sufficient support, including training and assistance, from the government and associated agencies in utilizing the free irrigation services," which garnered a mean score of 3.56 and a standard deviation of 0.56. This suggests that farmers generally perceive adequate support in leveraging these irrigation services.

The second-highest score, 3.46, corresponds to the statement "Farmers are pleased with the financial benefits of the Free Irrigation Service Act, particularly the elimination of irrigation fees." This finding indicates that farmers value the financial relief afforded by the policy.

Furthermore, the statement "Farmers are satisfied with the level of engagement with one another

regarding the implementation of FISA" received a favorable rating of 3.48, reflecting positive feedback regarding stakeholder engagement.

Regarding water quality, the statement "Farmers are satisfied with the quality of the irrigation water provided" achieved a mean score of 3.40. In contrast, "Farmers are satisfied with the timeliness of irrigation water delivery" received a score of 3.33. These scores suggest that, although farmers express general satisfaction with the quality and timeliness of water delivery, there remains room for enhancement.

Overall, the mean score for the effectiveness of the FISA in terms of farmer satisfaction is 3.45, with a standard deviation of 0.46. This indicates that farmers are largely satisfied with the implementation of FISA, although some variability in satisfaction levels is evident.

The study highlights that irrigation services in agricultural systems must consider public and private functions, which can complicate the efficiency and fairness of service delivery. The researchers suggest focusing on core irrigation services and ensuring the benefits align with the associated costs. This approach is essential for effective resource allocation and ensuring that the irrigation systems meet the needs of individual farmers and the wider community. This perspective is relevant to ongoing efforts to improve irrigation services' sustainability (Kiri et. al, 2014).

Table 10. Level of Effectiveness of the Free Irrigation Service Act in Terms of Sustainable Irrigation System

Indicator	<i>M</i>	<i>SD</i>	<i>V.I.</i>
1. The irrigation infrastructure under the FISA area is properly maintained.	3.42	0.57	VH
2. Access to improved irrigation services helped adopt more sustainable farming practices (e.g., efficient water use, soil conservation).	3.52	0.56	VH
3. The NIA implemented water-saving techniques (drip irrigation, awd, rainwater harvesting) in farming.)	3.52	0.58	VH
4. Sustainable farming practices reduced the negative environmental impact of farming activities (e.g., pesticide reduction, organic farming)	3.55	0.56	VH
5. The long-term implementation of FISA enhances the sustainability of farming practices.	3.53	0.56	VH
Overall for Sustainable Irrigation System	3.51	0.46	VH

Note. N=100. The mean is interpreted as follows: 3.25–4.00 = Very High (VH), 2.50–3.24 = High (H), 1.75–2.49 = Low (L), 1.00–1.74 = Very Low (VL).

Table 10 provides an assessment of the sustainability of the irrigation system implemented under the "Free Irrigation Service Act" (FISA). The highest-rated item is "Sustainable farming practices reduced the negative environmental impact of farming activities (e.g., pesticide reduction, organic farming)," which attained a mean score of 3.55 with a standard deviation of 0.56. This indicates that farmers perceive the policy as positively mitigating the environmental footprint associated with agricultural practices.

The second-highest score pertains to the statement "The long-term implementation of FISA enhances the sustainability of farming practices," which received a mean score of 3.53. This is followed closely by

"Access to improved irrigation services helped adopt more sustainable farming practices (e.g., efficient water use, soil conservation)," with a score of 3.52. These findings suggest that enhancements in irrigation services are recognized as beneficial in promoting sustainable agricultural techniques.

Furthermore, the item "The NIA implemented water-saving techniques (drip irrigation, AWD, rainwater harvesting) in farming" garnered a favorable rating of 3.52, demonstrating the effective adoption of these water conservation measures. Conversely, the statement "The irrigation infrastructure under the FISA area is properly maintained" achieved a mean score of 3.42, suggesting that while there is a general perception of positive infrastructure maintenance, some concerns regarding consistency and quality may persist.

Overall, the average score for the FISA's effectiveness in sustainable irrigation systems is 3.51, with a standard deviation of 0.46. This data indicates that farmers predominantly view the policy as a promoter of sustainability, exhibiting relatively low variation in their responses.

A study by Felazegui and Luyun (2019) sheds light on the critical state of irrigation in the Philippines, emphasizing the sustainability of irrigation systems and the pivotal role of Irrigators' Associations (IAs) in managing irrigation systems. The researchers identified significant challenges, such as insufficient maintenance and the financial strain on farmer members, alongside the urgent need for institutional reforms to enhance irrigation service delivery. This study powerfully advocates for empowering IAs by granting them increased authority and responsibility in managing these vital irrigation systems. Moreover, it stresses that effective government policies and adequate funding mechanisms are essential to support and strengthen their operations, ensuring a more sustainable future for agriculture in the Philippines.

Table 11. Correlations Between the Level of Implementation and Effectiveness of the Free Irrigation Service Act

Level of Awareness	Effectiveness of the Free Service Act			
	Farmer's Income	Crop Yield	Farmer's Satisfaction	Sustainable Irrigation System
Policy Implementation	.46*** moderate corr. <.001	.53*** moderate corr. <.001	.60*** moderate corr. <.001	.61*** moderate corr. <.001
Funding Allocation	.56*** moderate corr. <.001	.50*** moderate corr. <.001	.59*** moderate corr. <.001	.56*** moderate corr. <.001
Stakeholders' Engagement	.59*** moderate corr. <.001	.54*** moderate corr. <.001	.58*** moderate corr. <.001	.59*** moderate corr. <.001
Infrastructure	.67*** moderate corr. <.001	.63*** moderate corr. <.001	.71*** high corr. <.001	.70*** high corr. <.001

Note. Cell contains Spearman's rank correlation coefficient, interpretation of its strength, and its corresponding *p* value. Degree of freedom is 98.

p*<.05. *p*<.01. ****p*<.001.

Table 11 shows relationships between key factors associated with the Free Irrigation Service Act and various agricultural outcomes, such as farmers' income, crop yield, satisfaction, and sustainable irrigation

systems.

A moderate positive correlation was found between policy implementation and the farmer's income ($r = 0.46$, $p < 0.001$), crop yield ($r = 0.53$, $p < 0.001$), farmer's satisfaction ($r = 0.60$, $p < 0.001$), and sustainable irrigation systems ($r = 0.61$, $p < 0.001$). These correlations indicate that effective policy implementation is positively associated with improvements in all these areas.

Funding allocation demonstrated a moderate positive correlation with farmer's income ($r = 0.56$, $p < 0.001$), crop yield ($r = 0.50$, $p < 0.001$), farmer's satisfaction ($r = 0.59$, $p < 0.001$), and sustainable irrigation systems ($r = 0.56$, $p < 0.001$). This suggests adequate funding is essential for achieving positive outcomes across various metrics.

Stakeholders' engagement showed a moderate positive correlation with the farmer's income ($r = 0.59$, $p < 0.001$), crop yield ($r = 0.54$, $p < 0.001$), farmer's satisfaction ($r = 0.58$, $p < 0.001$), and sustainable irrigation systems ($r = 0.59$, $p < 0.001$). These results underscore the importance of active involvement from various stakeholders in the success of the Free Irrigation Service Act.

Infrastructure had the strongest correlations among all factors. The correlation between farmer satisfaction ($r = 0.71$, $p < 0.001$) and sustainable irrigation systems ($r = 0.70$, $p < 0.001$) was particularly high, indicating that the quality and availability of irrigation infrastructure are crucial for improving outcomes in these areas. Additionally, moderate positive correlations were observed between infrastructure and the farmer's income ($r = 0.67$, $p < 0.001$) and crop yield ($r = 0.63$, $p < 0.001$).

The research conducted by Florentin and Reginalde (2024) presents essential insights that significantly enhance our understanding of the current irrigation landscape. Their findings highlight several critical areas that require urgent attention, specifically the Operations and Maintenance (O&M). While farmers expressed a strong level of satisfaction with the free services provided, they also contributed numerous constructive recommendations to improve key aspects of the program. Actively addressing these recommendations is viewed as a vital step toward boosting the efficiency of irrigation practices and ensuring their long-term sustainability within the communities.

Therefore, the findings emphasize the need for a balanced approach. While infrastructure emerges as the most influential factor, a comprehensive strategy that strengthens funding, policy implementation, and stakeholder collaboration will be essential for fully maximizing the potential of the Free Irrigation Service Act and achieving its long-term goals of enhancing agricultural productivity, sustainability, and farmer welfare.

4. Summary of Findings, Conclusion, and Recommendations

This chapter provides an overview of the conclusions drawn after presenting, evaluating, and interpreting the study's data, as well as the suggestions made for additional research.

4.1. SUMMARY OF FINDINGS

This study aims to evaluate the implementation of the Free Irrigation Service Act within the National Irrigation Systems of the 4th District of Laguna, which includes the municipalities of Pila, Sta. Cruz, Pagsanjan, Magdalena, Kalayaan, Famy, Siniloan, and Mabitac. The researcher employed a survey questionnaire distributed to 100 respondents to collect pertinent data. This methodological approach was designed to yield reliable findings and valid conclusions, ultimately providing significant insights into the effectiveness of the Republic Act and its influence on agricultural irrigation services in the region.

The salient findings of the study are the following:

The predominant age group is 51, accounting for 66% of respondents. This suggests that the Free Irrigation Service Act (FISA) is primarily relevant to older farmers and landowners, likely its main beneficiaries. With 77% of respondents aged 41 and older, it's evident that those with more agricultural

experience are sharing feedback on FISA's effectiveness. Their insights may reflect the views of individuals familiar with traditional irrigation methods and the shift to free services.

Conversely, the low representation (12%) of respondents aged 18-30 implies that younger farmers may be less engaged in farming or irrigation services. Older farmers may have distinct needs and concerns regarding irrigation, possibly stemming from their reliance on traditional methods. Thus, FISA appears to address the requirements of a senior demographic, which is crucial for evaluating the policy's effectiveness across different age groups in agriculture.

The survey shows a significant gender imbalance, with 68% male and only 32% female. This suggests that male farmers and landowners are more engaged in agriculture, likely due to their roles as primary beneficiaries and decision-makers.

Given the significant number of experienced farmers, the long-term sustainability of FISA is likely a major concern for respondents. These farmers may be focused on how the Free Irrigation Service Act will impact future generations of farmers, long-term water usage, and the sustainability of their farming operations.

The low percentage of respondents with 0-5 years (10%) and 15-20 years (6%) of experience indicates that newcomers to farming are underrepresented in the survey. This may mean that younger or less experienced farmers have not fully embraced or benefited from FISA, resulting in different experiences compared to more seasoned farmers.

A significant 92% of respondents depend on agriculture or farming as their primary source of income, highlighting the essential role that farming plays in the livelihoods of the surveyed population. This underscores that policies such as FISA, which support agricultural practices, directly affect most respondents and are vital for their financial well-being.

The mixed perceptions regarding resource adequacy and the efficiency of fund allocation highlight the need for more effective management and transparent use of public resources to maximize the benefits of this public good.

According to Samuelson's theory, for a public good to be most effective, it must be adequately funded and efficiently allocated. The variability in opinions about funding allocation indicates that while irrigation services are generally viewed as beneficial, there is room for improvement in funding management and resource allocation to enhance their overall effectiveness and sustainability.

The Free Irrigation Service Act (FISA) is generally regarded as a positive development due to its technical advancements and efficient resource allocation. However, notable uncertainties remain regarding its implementation. In particular, the long-term sustainability of the program raises concerns about the adequacy of funding and the efficacy of alternative financial strategies.

The mixed responses regarding the adequacy of government support suggest that while FISA has had a positive effect, it may not fully address all the needs or concerns of farmers, particularly in ensuring sustainable and equitable benefits for all. To fully align with the principles of public goods theory, continued government engagement is necessary to guarantee that the benefits of FISA are broad, equitable, and sustainable, ensuring that the program maximizes its positive impact on all farmers.

The evaluation of FISA's impact on crop yield and agricultural productivity reveals that the initiative has made significant strides in enhancing farming practices and productivity. The high ratings for training programs, the introduction of new farming techniques, and support for adopting these techniques indicate that farmers have benefited from the increased knowledge and resources provided by the National Irrigation Administration (NIA). These efforts have directly contributed to the positive impact on crop yield, as shown by the favorable perception of improved irrigation services.

In economic theory, which is related to public goods, FISA embodies the characteristics of a public good: non-excludable and non-rivalrous. Irrigation services, which are funded and managed by the government, are available to all farmers and do not diminish in availability as more farmers use them. By improving access to irrigation and supporting productivity-enhancing techniques, FISA has enhanced

agricultural output across the sector, making it a beneficial public service that improves overall societal welfare.

The evaluation of farmers' satisfaction with the "Free Irrigation Service Act" (FISA) reveals that the program has generally met farmers' expectations, especially regarding support, financial relief, and stakeholder engagement. The high ratings for the support provided by the government, the elimination of irrigation fees, and the overall satisfaction with engagement between farmers suggest that FISA has positively impacted farmers' ability to utilize the service effectively.

However, satisfaction with certain operational aspects, such as water quality and delivery timeliness, indicates areas for improvement. While farmers are generally satisfied, the slightly lower scores suggest that these aspects of FISA's implementation may still present challenges that need to be addressed.

Farmers perceive that FISA has contributed to reducing agriculture's environmental impact, such as through pesticide reduction and the adoption of organic farming. Additionally, improvements in irrigation services are helping farmers adopt more sustainable practices, like efficient water use and soil conservation, which are crucial for long-term agricultural productivity.

4.2. CONCLUSIONS

The majority of farmers involved in the FISA program are older, with 66% aged 51 and above, suggesting that the program mainly serves those with extensive agricultural experience. These farmers can provide valuable feedback on how FISA affects their irrigation practices, highlighting both advantages and concerns related to long-term sustainability.

Younger farmers are underrepresented, which limits understanding of their unique challenges, such as resource access and technological adoption. Engaging younger farmers is crucial for improving the program's effectiveness.

A key concern among experienced farmers is FISA's long-term sustainability regarding water usage and farming methods. Policymakers should focus on adapting the program to ensure it remains beneficial amid changing environmental and economic conditions. With 92% of respondents relying on agriculture as their primary income source, FISA plays a significant role in their financial well-being; thus, evaluating its impact on productivity and sustainability is essential.

Applying Paul Samuelson's theory of public goods, FISA offers free irrigation access, benefiting all farmers. However, mixed opinions on farmer consultation indicate a need for better stakeholder involvement to enhance inclusivity and maximize the program's benefits.

Effective policy implementation, adequate funding, stakeholder engagement, and quality infrastructure all significantly affect farmers' income, crop yield, satisfaction, and sustainable irrigation systems. The relationships among these factors are critical, leading to the rejection of the null hypothesis regarding their impact on the farming community.

4.3. RECOMMENDATIONS

Based on the analysis of the Free Irrigation Service Act and the significant correlations with the key factors, here are several recommendations to optimize the outcomes and enhance the overall effectiveness of the program:

1. Effective policy implementation of the Free Irrigation Service Act by the National Irrigation Administration is essential for ensuring that the objectives of are met. Policies should be clear, adaptable, and well-coordinated across different levels of government and agencies involved.

2. Sustainable funding from the government is critical to the Free Irrigation Service Act's ongoing success. Ensuring sufficient infrastructure development, maintenance, and program administration resources will help avoid disruptions and inefficiencies.

3. Infrastructure exhibits a significant correlation with farmer satisfaction and the development of sustainable irrigation systems. Therefore, it is essential to prioritize the upgrading and maintenance of irrigation infrastructure by NIA. This includes modernizing canals, water distribution systems, and storage facilities to effectively meet farmers' needs.

4. Active participation from all stakeholders—farmers, local communities, government agencies, and private sector actors—is crucial for the success of the Free Irrigation Service Act. Stakeholders should be involved in decision-making, program planning, and evaluation processes.

5. Regular monitoring and evaluation of the program's effectiveness by the National Irrigation Administration will help identify areas of improvement and ensure that the goals of the Free Irrigation Service Act are being met.

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