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From farm to market: Understanding farmers' challenges towards accessibility in Gainza, Camarines Sur

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Abstract:

This study examines the challenges faced by farmers in Gainza, Camarines Sur, with a focus on the factors that affect their accessibility to resources and markets, which in turn influence their productivity. The aim of the research is to identify difficulties such as limited market access, technological barriers, and restricted capital that impact agricultural productivity, while also considering the socioeconomic profile of local farmers. A mixed-method approach was used, involving a survey of 50 farmers from eight barangays, which collected data on credit access, technological adoption, and market connectivity. The results revealed significant challenges, including limited access to credit, difficulties in adopting new agricultural technologies, and poor market access due to inadequate infrastructure and weak market connections. These barriers contribute to farmers' disenfranchisement and hinder their ability to enhance productivity. The study suggests that targeted interventions such as specialized training programs tailored to different age groups, more accessible credit systems, and improved infrastructure to enhance market access could help address these issues. To this end, the study proposes the "PANTAY Program," which aims to provide progressive financing, accessible education, cooperative networks, transparent resource distribution, adaptable farming systems, and a feedback-driven monitoring framework to strengthen farmers' resilience, improve productivity, and promote sustainable agricultural practices in the region."

Keywords:

Agricultural Accessibility, Farmers' Profile, Gainza, Challenges, Market Access, Credit, Technology.

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INTRODUCTION

A country's socioeconomic development is greatly influenced by its agricultural sector, especially in areas where it is the primary source of income for rural residents. Kiros & Meshesha (2022) found that farmers usually obtain low crop production due to a lack of capital, and credit serves as a capital alternative to enhance productivity in developing countries. Numerous factors contribute to low productivity: a low dosage of fertilizer, caused by a lack of capital, is one of the major factors in developing countries like Pakistan. Poor farmers generally borrow capital because their income and margins are low. It is also important in the agricultural sector to make use of advanced technologies to enhance farm productivity. The demand for agricultural credit arises not just among small farmers but also among medium and large farmers, due to the low margins associated with agriculture.

In the municipality of Gainza, agriculture is the primary source of living. Eighty percent of the total land area of the town consists of agricultural land. Agriculture not only provides food but also makes a substantial economic contribution. Nevertheless, even with its significance, farmers in Gainza encounter several difficulties while trying to sell their produce.

The goal of this study is to investigate and comprehend the various challenges that farmers in Gainza experience when bringing their produce from the farm to the market. The study focuses on evaluating the status of 50 farmers from 8 different barangays of Gainza, Camarines Sur, which include Barangay Dahilig, Namuat, Cagbunga, 1st District, 2nd District, Malbong, Loob, and Sampaloc. The study determines the profile of the farmers, including gender, age, socioeconomic status, landholding area, and crop market.

It identifies the level of accessibility of farmers in relation to credit, technological advancement, and market aspects and assesses the challenges faced by farmers of Gainza in personal, social, and political contexts. The study also determines which farmer profiles affect the level of accessibility and identifies which challenges faced by the farmers impact their level of accessibility. Lastly, it develops a comprehensive plan to increase the level of accessibility for farmers to farming opportunities.

Through a mixed-method approach, this research aims to provide insights for policy interventions, infrastructure improvements, and innovative strategies to support Gainza's farming community. The data collection occurred from June 11, 2024, to June 14, 2024.

Research Objective

Generally**,** This study determined the challenges faced by the farmer regarding the accessibility in Gainza, Camarines Sur. Specifically, it answered the following objective:

1. Determine the profile of the farmers along with gender, age, socioeconomic status, and land holding area.
2. Identify the level of accessibility of Farmers along with Credit, Technological Advancement, and Market aspects.
3. Assess the challenges faced by farmers of Gainza along with personal, social, and political aspects.
4. Determine what profile of the farmers affects the level of accessibility.
5. Determine what challenges of the farmers affects the level of accessibility.
6. Developed a comprehensive plan to increase the level of accessibility of farmers to farming opportunities.

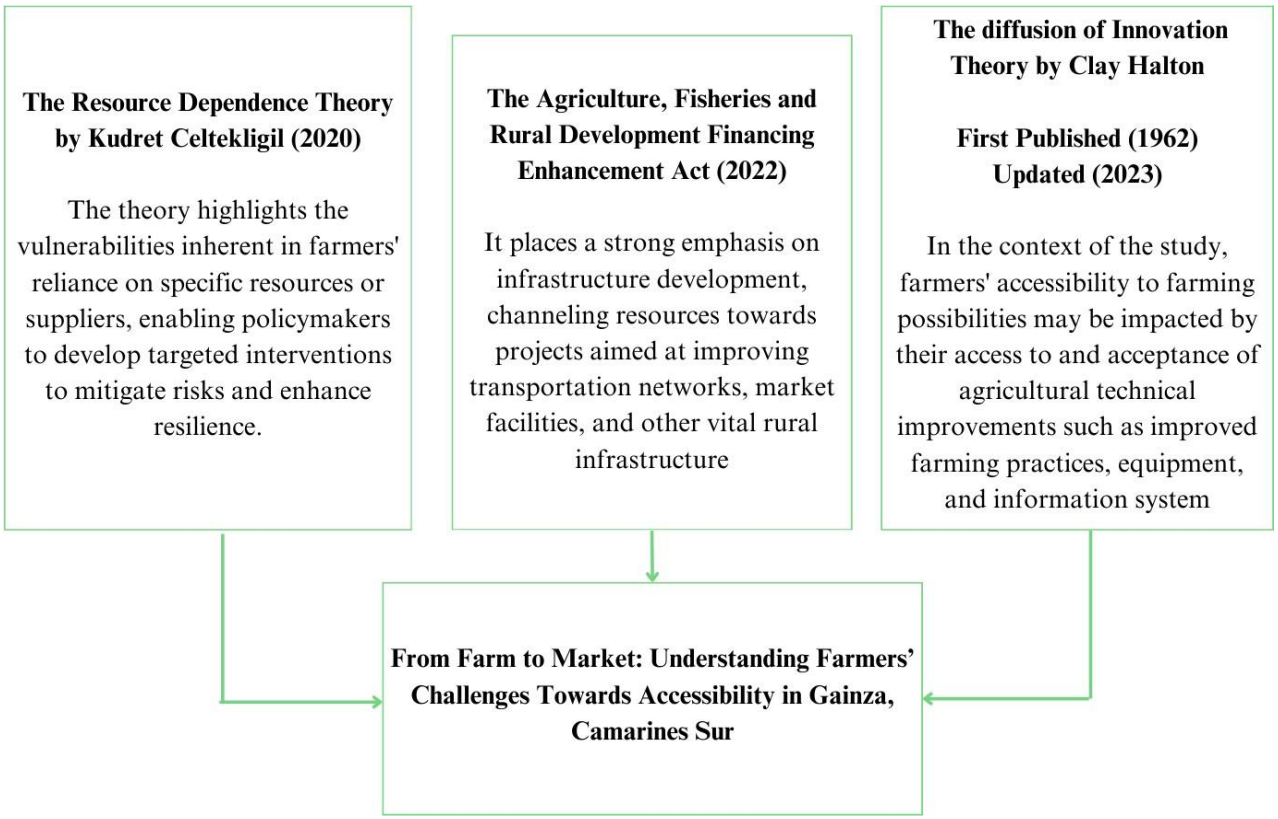

Figure 1. Theoretical Paradigm

Figure 1 presented the theories that strengthened the research concepts. The Agriculture, Fisheries and Rural Development Financing Enhancement Act (2022) by the Republic of the Philippines. This Ordinance was an act strengthening the financing system, including capacity building and organization, for agriculture, fisheries, and rural development in the Philippines, repealing for the purpose Republic Act No.1000 or The Agri-Agra Reform Credit Act of 2009. Republic Act No. 11901 ordinance supported and strengthened the study, it served as the research guide. With the relevant information under the said ordinance, the research could help the Framers in Gainza by creating a comprehensive plan based on the research findings.

Halton C., (2023) discussed the diffusion of Innovation Theory, which stated that it is a notion that explains how new technical and other developments move throughout communities and cultures, from introduction to widespread acceptance. The diffusion of innovations hypothesis aims to explain how and why new ideas and practices are accepted, as well as why the acceptance of new ideas might take place over time..The relevance of Diffusion of Innovation Theory in this study emphasizes on how Farmers in Gainza utilize novel farming practices, technology, and market tactics. Diffusion theory would aided in determining the elements that influenced the rate and scope of adoption, such as perceived advantages, compatibility with existing practices, complexity, and trialability

The Resource Dependence Theory by Kudret Celtekligil (2020), investigates how organizations rely on external resources to survive and succeed. Farmers rely on a variety of resources (such as land, water, inputs, and market access) for agricultural productivity and livelihoods. Understanding and diversifying resource dependence can help farmers increase their resilience and market access.

Figure 2. Conceptual Paradigm

Figure 2 conceptualizes the research flow and includes various factors influencing farming opportunities in Gainza, with a focus on the farmers profiles, accessibility levels, challenges faced, and the development of a comprehensive plan to increase the level of accessibility of farmers to farming opportunities.

The demographic profile of a farmer, including gender, income, age and socio economic status, served as the independent variables. The level of accessibility for farmers measured through credit availability, technological advancement and market accessibility, act as the dependent variable.

The challenges faced by farmers, spanning personal social, and political aspects, represent intervening variables. The relationship between farmers profile and accessibility level was examined to understand how demographic characteristics influence accessibility. Similarly, the connection between accessibility levels and challenges faced by farmers was analyzed to identify potential correlations.

METHODS

Research methods

This study used a mixed method approach. The mixed method referred to an approach to social science and other areas that integrated both qualitative and quantitative research techniques within a single study or research project. The objective of this approach was to furnish a more comprehensive and well-rounded understanding of a research problem by leveraging the strengths of both qualitative and quantitative methods, according to Creswell and Clark (2017). The qualitative approach addressed the exploration for a comprehensive plan to increase the level of accessibility of farmers to farming opportunities. On the other hand, the quantitative approach was applicable to knowing the challenges and level of accessibility of the farmers and their relationships.

This study adopted a descriptive correlational design. The utilization of a descriptive design was driven by its effectiveness in uncovering the challenges towards the accessibility of the farmers in Gainza. Additionally, the study utilized a correlational approach to ascertain the relationship between the farmers' profile and level of accessibility.

Sampling Procedure

The study determined the challenges faced by the farmer regarding the accessibility in Gainza, Camarines Sur. To gather information, the researcher had fifty (50) Gainza farmers' from 8 different barangays of Gainza, Camarines Sur which composed of Barangay Dahilig, Namuat, Cagbunga, 1st District, 2nd District, Malbong, Loob and Sampaloc as their respondents. The researcher used convenience and purposive sampling techniques that determined the respondents. Convenience sampling was easily accessible for the researcher to gather data. While the purposive sampling, identify a respondent based on their characteristics that had significant purpose in the study (Andrade, 2020). It was a good option that these methods were used in gathering respondents in Gainza, Camarines Sur, because it was convenient to collect information and gather data from the farmers who had experience in farming and who were available to be the respondents in the study.

The purposive sampling technique consists of farmers who are farm owners or farmers tenants that were residents in Gainza, Camarines Sur. Farmers must have at least 3 years of experience in farming in order for the researcher to collect information that is articulate and based on their knowledge and experience in farming. They should be residents of eight different barangays in Gainza, Camarines Sur, as stated above.

RESULTS AND DISCUSSIONS

Profile of the Gainza Farmers

Table 1.1 provides data on the respondents profile which is the gender, age, estimated monthly income and total land holding areas among the 50 Farmers in Gainza, Camarines Sur. Regarding gender, most farmers are male constituting 60%, indicating that 30 out of 50 farmers are male. Meanwhile, 40% of the Farmers are female, which consists of 20 females. For the age, 28% of Farmers are ranging 56 - 62 years old. In terms of age distribution, the largest group of respondents, making up 28%, falls within the 56-62 years age bracket. This is followed by 26% of respondents aged 48-55 years, 22% aged 63-79 years, and 14% aged 37-47 years. When it comes to estimated monthly income, the majority of respondents (34%) reported earning between ₱3,000-5,000 monthly. Lastly, concerning the total land holding area, an overwhelming majority of respondents (96%) hold land within the 1-10 acres range, with only 4% holding 11-20 acres of land.

Based on the data, it can be concluded that a large portion of the participants effectively manage their land and income according to their capabilities. This is supported by the fact that the majority (96%) own land in the 1-10 acre range, indicating a preference for smaller, more manageable plots that fit their farming practices and financial situation. Additionally, most respondents stated that their monthly incomes fall within the ₱3,000-5,000 and ₱6,000-10,000 ranges, emphasizing their dependence on modest, steady sources of income, most likely from agriculture or small-scale businesses. In the same way, most of the respondents' decisions about the land they hold may show a conscious effort to achieve the highest level of effectiveness and output within their financial limitations.

Table 1.1 Respondent's Profile

Profile		%	r
Gender			
Male	30	60%	1
Female	20	40%	2
Total	**50**	**100%**	
Age			
37-47 years old	7	14%	4
48-55 years old	13	26%	2
56-62 years old	19	38%	1

63-79 years old	11	22%	3
Total	**50**	**100%**	
Estimated Monthly Income Below Php 3,000	3	6%	5
Php 3,000 - 5,000	17	34%	1
Php 6,000 - 10,000	15	30%	2
Php 10,000 - 15,000	7	14%	3
Php 15,000 - 20,000	3	6%	5
Php 20,000 - 25,000	5	10%	4
Total	**50**	**100%**	
Total Land Holding Area 1-10 acres	48	96%	1
11-20 acres	2	4%	2
Total	50	100%	

According to Castillo et al. (2021), the efficiency of agricultural production among small-scale farmers is significantly influenced by their access to credit and modern technology. The study highlights that limited landholdings, similar to those observed in the findings of Agustin et al. (2019), often restrict farmers' ability to maximize output and income. Castillo et al. (2021) further emphasize that the introduction of targeted credit schemes and technology-driven agricultural practices can substantially improve productivity and sustainability for smallholder farmers. The study suggests that effective credit policies and access to modern agricultural tools are crucial for enhancing the economic resilience of farmers with limited land resources. These insights are consistent with the broader understanding of rural development challenges, particularly the need for supportive financial and technological interventions to address disparities in land use and income.

Credit Accessibility

Table 1.2 reveals varying levels of perceived credit accessibility across different parameters. The highest-ranked parameter is the “Support services for credit access”, with a mean score of 3.00, indicating “Moderately Accessible”. The lowest-ranked parameter is the “Adaptability of collateral arrangements”, with a mean score of 2.62, also interpreted as “Moderately Accessible”. Overall, the farmers demonstrate a moderate perception of credit accessibility, with an overall mean score of 2.79, falling within the "Moderately Accessible" range.

Table 1.2 Level of Accessibility of Farmers along Credit

Parameters	Mean	Rank	Interpretation
Support Services for Credit Access	3	1	MA
Competitive Interest Rates	2.84	2	MA
Inclusivity of Credit Opportunities	2.66	4	MA
Transparency in Credit Practices	2.82	3	MA
Adaptable collateral arrangements	2.62	5	MA
Overall Mean	**2.79**		**I'm MA**

Note: 1.00-1.50-Not Accessible (NA) 1.51-2.49-Somewhat Accessible (SA) 2.50-3.49-Moderately Accessible (MA) 3.50-4.49-Accessible (A) 4.50-5.00-Fully Accessible (FA)

Accordingly, the result led to the inference that farmers find the support services for credit access moderately accessible. This level of accessibility can be attributed to the fact that borrowers who are regularly seeking credit are more likely to be familiar with the available support system, such as counseling and application assistance, which help them navigate the credit process. The moderate accessibility of these support services benefits farmers by empowering them to make informed decisions about their credit options. This, in turn, enables them to effectively manage their financial obligations and utilize credit opportunities to their advantage, despite the challenges they might face in other areas, such as meeting collateral requirements.

According to Demirgüç-Kunt et al. (2018), expanding access to credit through supportive financial services and flexible lending practices is crucial for enhancing financial inclusion. Their research emphasizes that when borrowers are provided with accessible credit options, they are better equipped to invest in opportunities that improve their economic circumstances. Thus, by acknowledging the moderately accessible support services for credit access, Farmers are positioned to take advantage of these opportunities, which can help them manage their financial obligations more effectively. Improved credit accessibility not only reduces their financial burden but also enables them to make strategic investments in their personal and professional lives, contributing to long-term economic stability. The 2023 report from the Asian Development Bank (ADB) states that by using adaptable collateral arrangements, such as cross-border collateral models, borrowers can offer a wide variety of assets, such as financial securities and physical assets, to secure loans. This flexibility increases credit access in markets where traditional assets like land may not be easily accessible or enough. In the ASEAN+3 region, such arrangements are crucial for enhancing liquidity and reducing risk, which in turn encourages financial institutions to be more open to providing credit.

Technological Advancement

The highest-scoring factor is “Affordable Agricultural Technology,” with a mean score of 3.14, categorized as “Moderately Accessible.” This suggests that while some affordable technologies are available, their accessibility is hindered by factors like high costs or limited distribution. Other factors, such as “Policy and Standards Compliance” (3.06) and “Farm Laboratories” (3.10), also fall into the “Moderately Accessible” category, indicating that these resources exist but are not easily accessible to all farmers. Notably, the parameter "Training for Farmers in Adopting New Agricultural Technologies" scores the lowest at 2.92, underlining the need for more effective and widespread training programs to help farmers adopt new technologies.

Accordingly, the technological advancement reveals moderate inaccessibility across all parameters, with affordable agricultural technology scoring the highest (3.14), that while some affordable technologies exist, they

Table 2.1 Level of Accessibility of Farmers along Technological Advancement

Parameters	Mean	Rank	Interpretation
Policy and Standards Compliance	3.06	3	MA
Farm Laboratories	3.1	2	MA
Affordable agricultural technology	3.14	1	MA
Adaptation of new farming technology	3.02	4	MA
Training for farmers in adopting new agricultural technologies	2.92	5	MA
Overall Mean	**3.05**		**MA**

Note: 1.00-1.50-Not Accessible (NA) 1.51-2.49-Somewhat Accessible (SA) 2.50-3.49-Moderately Accessible (MA) 3.50-4.49-Accessible (A) 4.50-5.00-Fully Accessible (FA)

are not widely accessible, likely due to cost or distribution challenges. Other areas, such as “Policy and standards compliance” (3.06) and “Farm laboratories” (3.10), also reflect limited access, suggesting that existing resources are not fully reaching all farmers. The lowest score for training in “Adopting new agricultural technologies’ (2.92) underscores a critical need for more comprehensive and effective training programs, as the lack of proper education and support hinders the widespread adoption of new farming technologies.

Lack of technological advancement lowers productivity of farmers. Mohammad Bilal (2024) noted that the slow pace of the adoption of the latest innovations in agricultural technology impedes sustainable farming practices and sustainable agriculture that is why, Fang Wu (2022) stated that the adoption of new technologies by farmers is more important for promoting the progress of agricultural science and technology. Therefore, it is necessary to take effective measures to overcome the obstacles to the adoption of new agricultural

technologies and pay more attention to the use of new agricultural technologies to improve agricultural production efficiency.

Market Accessibility

The study shows that farmers in Gainza, Camarines Sur find public markets highly accessible, with a top score of 4.26, crucial for direct sales. However, areas like "Training on Market Pricing," which scored 3.14, highlight gaps in knowledge. While public markets are essential, farmers still face challenges in aligning with market demand and improving pricing strategies.

Table 2.2 Level of accessibility of Farmers along market accessibility

Parameters	Mean	Rank	Interpretation
Availability of the public market in selling crops	4.26	1	A
Training on Market pricing	3.14	5	MA
Ensuring access to market demand and supply	3.5	2	A
Market Intelligence and Strategy	3.18	4	MA
Market Transparency	3.28	3	MA
Overall Mean	**3.47**		**MA**

Note: 1.00-1.50-Not Accessible (NA) 1.51-2.49-Somewhat Accessible (SA) 2.50-3.49-Moderately Accessible (MA) 3.50-4.49-Accessible (A) 4.50-5.00-Fully Accessible (FA)

Based on the data, it can be concluded that market accessibility parameters indicate that while public markets are relatively accessible for farmers, challenges remain in other areas like training on market pricing and ensuring market demand and supply. The highest ranking score (4.26), these markets are viewed as essential for economic benefits, providing a direct platform for sales and better pricing. However, the 3.14 reveals a gap in knowledge or resource availability, indicating that many farmers may struggle with effective pricing strategies.

The overall scores across parameters highlight a need for market intelligence, transparency, and focused efforts to enhance the farmers' ability to align production with market demands and enhance their participation in the market. This result is supported by the study of Scott (2021), which showed that market access is crucial for other farmers, as it directly impacts their financial sustainability. The study identifies barriers to market access, which are categorized into production barriers and market access barriers. Farmers who successfully navigated these barriers tended to have longer term aspirations for their farming operations. Similarly, this echoes the study by Alemu(2019), which showed that market access is crucial for some farmers to sell their agricultural products effectively. It allows them to reach consumers and compete in both local and international markets, some

farmers struggle with limited market access due to insufficient market strategies. This lack of knowledge hinders their ability to promote their products effectively.

Personal Aspect

The highest-scoring challenge, "availability of health care services for farmers," has a mean score of 4.70, categorized as "Extremely Challenging." This suggests that while health care services are crucial, significant barriers hinder farmers' access to them. In contrast, the parameter "appreciation and deep passion for agriculture" scores 1.46, indicating that this aspect is "Not Challenging" for the farmers. Overall, the average score for personal challenges among farmers in Gainza is 2.56, indicating that these challenges are "Moderately Difficult."

Table 2.3 Challenges faced by the farmers along personal aspects

Parameters	Mean	Rank	Interpretation
Appreciation and deep passion in agriculture	1.46	5	NAC
Enough income to support the farmers' family needs	3.2	2	MC
Strong beliefs and values in agriculture	1.86	3	SC
Enhancing knowledge about agriculture practices	1.6	4	SC
Availability of health care service for the farmers	4.7	1	EC
Overall Mean	**2.56**		**MC**

*Note:*1.00-1.50-Not at all challenging (NAC) 1.51-2.49-Slightly Challenging (SC) 2.50-3.49-Moderately Challenging (MC) 3.50-4.4-Very Challenging (VC) 4.50-5.00-Extremely Challenging (EC)

Accordingly, the result led to the inference that farmers find that the availability of health care services for farmers is a significant concern for the farmers that can affect their overall productivity and overall well-being. Since Gainza, Camarines Sur, is rural, the facilities of health care services are inadequate, as is the lack of support from the government in providing health care services to the farmers and the ineffectiveness of the policies. Additionally , income is a factor in accessing health care services that farmers cannot access due to high costs. Furthermore, farmers with a deep passion and appreciation for agriculture drives many positive contributions to agriculture. However, these same sentiments can sometimes lead to negative impacts. Farmers are more likely to experience emotional and psychological stress when they encounter challenges in farming. Their emotional attachment to traditional practices can lead to resistance to adopting new farming techniques.

Muzekenyi (2023) highlights that financial constraints and limited access to resources can lead to inadequate health care. When farmers struggle financially, they may prioritize

immediate economic needs over health care and may not seek necessary medical attention, leading to poor health outcomes that can further impact the productivity of the farmers. Also, the lack of government support in providing health care services can exacerbate the difficulties faced by farmers. On the other hand, Velza et al. (2023) emphasize that passionate farmers may have high expectations for their crops and livestock, leading to disappointment and frustration when outcomes do not meet their hopes. This can affect mental health of the farmers and overall satisfaction with the farming endeavors. Also, Appreciation for traditional methods may lead to a reluctance to change, even when modern techniques could enhance productivity and sustainability.

Social Aspect

Farmers in Gainza reveal different levels of difficulty across various parameters. The highest-scoring parameter, "active participation in agricultural programs in communities," has a mean score of 2.62, categorized as "Moderately Challenging." This suggests that while farmers engage in community agricultural programs, they face some challenges in doing so. The lowest-scoring parameter, "Sufficient access on land and resources within the community," has a mean score of 1.92, indicating that it is "Slightly Challenging." Overall, the social aspects received an average score of 2.3, signifying that these challenges are "Slightly Challenging" for farmers in Gainza.

Table. 2.4 Challenges faced by the Farmers along with social aspects

Parameters	Mean	Rank	Interpretation
Adequate social support system	2.14	4	SC
Sufficient access on land and resources within the community	1.92	5	SC
Efficiency of Communication Platform	2.42	2	SC
Social Cohesion and Resilience	2.4	3	SC
Active participation in agricultural programs in communities	2.62	1	MC
Overall Mean	**2.3**		**SC**

Note: 1.00-1.50-Not at all challenging (NAC) 1.51-2.49-Slightly Challenging (SC) 2.50-3.49-Moderately Challenging (MC) 3.50-4.4-Very Challenging (VC) 4.50-5.00-Extremely Challenging (EC)

Based on the results, farmers are inactive in participating in agricultural programs because of a lack of communication. This can lead to a concern where farmers are not aware of the agriculture programs and miss the chance to have a platform for them in order to enhance and develop their farming practices. Inefficient communication leads to inaccessibility to communication platforms, which leads to disengagement from attending the program. Additionally, there is a lack of interest in participating in the program because of the lack of incentives and essential resources that they can get from it. Furthermore, farmers still face slight challenges in accessing sufficient land and resources within the

community, indicating that this issue is due to several interconnected factors, especially problems with infrastructure and a lack of knowledge about the resources that are available.

This result is supported by the studies of Oluwaleye (2020), who found that the inactive participation of farmers in agricultural programs is due to several factors. Specifically, farmers are not aware of the available agricultural programs or their benefits, and the lack of access to essential resources, such as seeds, fertilizers, and tools, can further hinder participation. Consequently**,** this lack of information can lead to disinterest or apathy towards participation, and without the necessary inputs, community members may feel that participation in programs will not yield positive results. Inefficient communication can result in low attendance at training sessions, limiting the capacity building that is essential for enhancing agricultural practices and productivity. As a result**,** without participation in agricultural programs, farmers may miss out on modern techniques, improved seeds, and better farming practices, leading to lower crop yields and overall agricultural productivity. In addition, Korthals et al. (2023) noted that inadequate and poor infrastructure can hinder farmers' ability to access necessary resources, affecting the availability of essential services, such as irrigation and energy, which are vital for farming operations.

Further, a lack of knowledge can prevent the farmers from effectively utilizing existing support systems and resources that could aid the farming efforts.

Political Aspect

Political challenges faced by farmers in Gainza highlight varying degrees of difficulty across different parameters. The highest-scoring parameter, "efficient allocation of funds in agricultural programs," has a mean score of 2.78, categorized as "Moderately Challenging." This suggests that while funding is allocated to agricultural programs, there are challenges in ensuring its efficient distribution. The lowest-scoring parameter, "enhancement of infrastructure development in agriculture," has a mean score of 2.48, indicating that it is "Slightly Challenging." Overall, the political aspects received an average score of 2.71, signifying that these challenges are "Moderately Challenging" for farmers in Gainza.

Table 3. Challenges faced by the Farmers along with political aspects

Parameters	Mean	Rank	Interpretation
Adequate Government assistance and support infrastructure	2.78	2	MC
Implementation of the current regulations or laws governing agricultural activities	2.72	3	MC
Enhancement of infrastructure development in agriculture	2.48	4	SC
Opportunities for enhancing support and growth for micro farmers	2.72	3	MC

Efficient allocation of funds in agricultural programs	2.86	1	MC
Overall Mean	**2.71**		**MC**

Note: 1.00-1.50-Not at all challenging (NAC) 1.51-2.49-Slightly Challenging (SC) 2.50-3.49-Moderately Challenging (MC) 3.50-4.4-Very Challenging (VC) 4.50-5.00-Extremely Challenging (EC)

Based on the results, the primary challenge farmers face in the political aspect is the inefficient allocation of funds in agricultural programs, which leads to inadequate support for farmers. A lack of transparency prevents governments from properly allocating and utilizing agricultural funds. As a result, farmers often do not receive the subsidies, vouchers, and fertilizers they are entitled to due to misallocation of these funds, which prevents reaching the intended beneficiaries effectively. Additionally, some farmers are unaware of the available subsidies, fertilizers, and pesticides provided and some farmers are not registered in order to qualify to get the agricultural support by the government, leading to a lack of awareness and access. Moreover, the government does not prioritize enhancing the agricultural infrastructure, resulting from a lack of fund allocation, a lack of comprehensive planning, and neglect of the essential agricultural infrastructure. Furthermore, the effectiveness of program implementation and insufficient government support for farmers can impact the allocation of funds to agricultural programs and limit opportunities for farmers to grow and improve agricultural infrastructure.

According to Otman et al. (2022), The lack of transparency can ultimately affect the overall effectiveness of agricultural initiatives. It can reduce trust between farmers and government agencies, making farmers less likely to engage with programs designed to support the farmers. Additionally, corruption or mismanagement can further obscure the transparency of fund allocation. When funds are not properly monitored, it can lead to misuse, leaving farmers without the support they need. Moreover, limited awareness among farmers of the available government programs or how to access them leads to underutilization of resources. Government programs often require farmers to be registered to qualify for various forms of support, including financial aid and technical assistance. Without registration, farmers may find themselves excluded from these beneficial programs. On the other hand, Bomble et al. (2021) note that agricultural infrastructure often receives less funding compared to other pressing needs, resulting in inadequate investment in this critical area. A lack of strategic planning for agricultural infrastructure development further exacerbates the issue. Without a clear vision or comprehensive plan, infrastructure projects may be poorly coordinated and fail to address the actual needs of farmers.

Determining what profile of the farmers affects the level of accessibility.

Table 3.1 presents the relationship between two variables, profile of the farmers and the level of accessibility of farmers in Gainza, Camarines Sur was examined. The data shows that the relationship between technological advancement and age has a p-value of

less than 0.05, specifically 0.0472***, indicating that it has a significant relationship between these two variables.

Table 3.1Determining what profile of the farmers affects the level of accessibility.

		The Level of Accessibility of Farmers		
		Credit Accessibility	Technological Advancement	Market Accessibility
The Respondent's Profile	Gender	0.358	0.5796	0.2662
	Age	0.7146	0.0472***	0.8597
	Monthly Income	0.05649	0.6054	0.3562

Note: *** p is significant (p<0.05)

X2 (degrees of freedom, N = sample size) = chi-square statistic value, p = p value.

Note: A P-value less than 0.05 is deemed to be statistically significant and A P-Value greater than 0.05 is not considered to be statistically significant

The results of this study indicate that gender and income do not significantly impact farmers' access to credit, technology or markets in Gainza, Camarines Sur. However, age is an important demographic factor influencing farmers' engagement with the technological advancement. This indicates that younger or older farmers may have differing levels of comfort, knowledge, or resources to adopt new technologies on their farms, suggesting that differences in age may lead to different levels of access or willingness to use technological innovations in farming.

The findings are in line with Davis et al. (2020) and Martinez's (2019) research, both of which underscore the significant role of age in determining farmers' technological adoption levels. In this study, the notable correlation between age and technological progress (p = 0.0472) indicates that different age groups have varying access to agricultural technologies, likely due to differences in familiarity, willingness to embrace new methods, or exposure to training initiatives. Younger farmers may be more open to adopting technological tools due to their higher digital literacy and receptiveness to innovation, while older farmers may encounter obstacles such as resistance to changing traditional practices, limited digital skills, or a lack of access to relevant training. The lack of equal access to technology can significantly impact farm productivity and sustainability. Farmers who lack access to or knowledge of the new innovations may struggle to remain competitive. According to Davis et al. (2020), the failure to bridge this technological gap could put older farmers or those in rural areas at a significant disadvantage, limiting their involvement in the wider agricultural economy.

Determining what challenges the farmers affects the level of accessibility

The table 3.2 presents the relationship between the two variables, the challenges and the accessibility of farmers in Gainza, Camarines Sur. The result shows that "market access" and "social aspect" have the highest correlation coefficient of 0.205 interpreted as "positive weak relationship".

On the other hand, "technological advancement" and "personal aspect" had the lowest correlation coefficient of -0.0786.

Table 3.2 Challenges of the farmers affect the level of accessibility

		The Challenges faced by Farmers of Gainza		
		Personal Aspects	Social Aspect	Political aspect
The Level of Accessibility of Farmers	Credit Accessibility	0.01953 "positive very weak"	-0.0412 "negative very weak"	-0.0633 "negative very weak"
	Technological Advancement	-0 .0786 "negative very weak"	0.0965 "positive very weak"	0.00974 "positive very weak"
	Market Accessibility	0.103 "positive very weak"	0.205 "positive weak"	0.0235 "positive very weak"
Note: *** p is significant ($p < 0.05$				
r(degrees of freedom) = the r statistic, p = p value.				

Note: 1.0 – Perfect Relationship 0.80-0.99 – Very Strong Relationship 0.60-0.79 –Strong Relationship 0.40-0.59 – Moderate Relationship 0.20-0.39 –Weak Relationship 0.01-0.19 –Very Weak Relationship 0 –No Relationship

Farmers experience significant challenges in credit accessibility, technological advancement, and market accessibility, which negatively impact their participation in agricultural programs. The very weak positive correlation in credit accessibility suggests that many farmers struggle to obtain financial support, hindering their ability to invest necessary resources for improved farming practices. Furthermore, the lack of technological advancement hinders farmers' ability to implement modern techniques, which could enhance productivity. Market accessibility issues prevent farmers from effectively selling their products, limiting their income potential. These factors collectively contribute to disconnection from available agricultural programs, as farmers may feel unsupported and uncertain about how to engage with initiatives that could benefit their practices and livelihoods.

The result aligns with the findings of Johnson et al. (2021) and Reyes (2022), which indicate that the lack of access to credit and resources significantly hinders farmers' participation in agricultural programs. The challenges surrounding credit accessibility and technological advancement contribute to a pervasive sense of disenfranchisement among farmers, reducing their ability to enhance their practices and productivity. Implementing targeted support measures to improve credit access and provide technological training can have a profound impact on farmers' engagement with agricultural initiatives, ultimately fostering a more sustainable farm environment and improving their livelihoods. inputs, processes, and expected outputs, ensuring that farmers are equipped to thrive despite the challenges posed by economic fluctuations and resource constraints.

Input

A. Primary Resources- The survey focused on 50 farmers that examined their current status and accessibility to resources in farming. Where the data collection was conducted personally in eight barangays of Gainza, Camarines Sur, namely Barangay Dahilig, Namuat, Cagbunga, 1st District, 2nd District, Malbong, Loob, and Sampaloc. Through these discussions and surveys, the researcher was able to gather a wide range of qualitative and quantitative data, showing the different factors influencing the farmers' success, challenges, and potential growth.

B. Secondary Resources- The researcher conducted a comprehensive analysis of studies by other authors and articles related to farmers' access to farming opportunities to provide a broader context. Google Scholar and Typeset websites were used to find suitable articles as a basis for the research. Specifically, the articles found on these platforms served as tools and foundational sources in developing the survey questionnaire. Additionally, the online articles and literature from credible sources was conducted to support the framework development and deepen understanding about farmers challenges in accessibility, thereby establishing a strong basis for this study.

Process

The formulation of developing a comprehensive plan to increase the level of accessibility of farmers to farming opportunities in Gainza, Camarines Sur is as follows:

Step 1: To identify parameters for utilizing survey questionnaires. The researchers surveyed each respondent using a structured questionnaire that contained a Likert scale and discussion to measure the level of accessibility of farmers to farming opportunities in Gainza, Camarines Sur.

Step 2: They engaged in discussions with respondents based on their experiences and observations, leading to a comprehensive plan to increase the level of accessibility of farmers to farming opportunities.

Step 3**:** The researchers consolidated and summarized the insights gathered from the survey and question discussions to facilitate the collected data's presentation, analysis, and interpretation. Likely, the framework for developing a comprehensive plan to increase the level of accessibility of farmers to farming opportunities was formulated using the survey and discussion results.

Output

This section presented the comprehensive plan developed by the researcher in order to increase the level of accessibility of farmers to farming opportunities in Gainza, Camarines Sur, based on the result of a survey questionnaire. This proposed plan details strategies and recommendations aimed to improve access in farming opportunities.

PANTAY Program

The "PANTAY Program" initiative aims to tackle the difficulties encountered by farmers, with a specific focus on enhancing their productivity, sustainability, and economic security. The program's name, "PANTAY," originates from a Bikol word that signifies "to balance" or "to equalize: **P**rogressive Financing, **A**ccessible Education, **N**urturing Networks, **T**ransparent Distribution of Resources, **A**daptive Systems, **Y**early Feedback Driven Monitoring System ," underscoring the program's primary objective of advocating fair access to resources and assistance for all farmers.

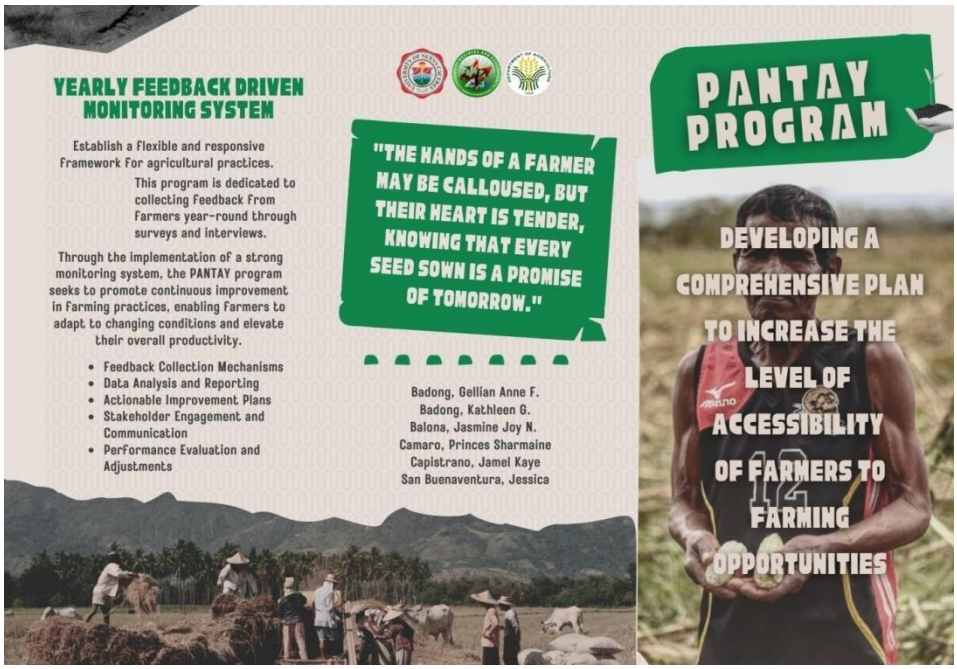

Figure 3.Comprehensive plan

The PANTAY Implementation Model addresses the challenges of farmers by having a strategic room to create a financially empowered, well-informed, equitable, and adaptive farming environment for all. These strategic actions form a strong framework for Farmers in Gainza, Camarines Sur to effectively develop a comprehensive plan to increase the level of accessibility of farmers to farming opportunities.

1. **Progressive Financing** - ensures farmers' access to affordable financial resources by partnering with key institutions to provide options such as low-interest loans, grants, and subsidies, supporting their development and sustainability
2. **Accessible Education** - Enhance farmers' knowledge of modern agricultural techniques through partnerships with educational institutions. It provides training on sustainable methods, digital tools, and practical workshops, supported by online resources and performance monitoring, fostering continuous learning and innovation to boost productivity and sustainability.
3. **Nurturing Networks** -Promotes farmer cooperatives to strengthen collective bargaining and resource sharing. It includes community outreach, training on cooperative management, regular meetings for best practice exchange, and collaboration with key organizations to ensure supportive policies, enhancing community resilience and agricultural productivity.
4. **Transparent Distribution** - Ensures equitable access to agricultural inputs and machinery by addressing shortcomings, establishing clear guidelines, providing stakeholder training, and implementing continuous monitoring. This approach aims to eliminate inequalities, enhance productivity, and support agricultural development.
5. **Adaptive Systems** - creates a feedback-driven farming environment by establishing communication channels, organizing workshops on adaptive methods, and using metrics to evaluate practices. It fosters collaboration and continuous improvement, enabling farmers to address challenges and boost productivity effectively.
6. **Yearly Monitoring** - Collects and analyzes farmer feedback through surveys and interviews to refine agricultural strategies. Regular communication ensures farmers are informed about updates, while monitoring evaluates effectiveness and adapts practices, fostering continuous improvement and enhanced productivity.

CONCLUSION

This section presents the findings derived after the data analysis and the conclusions made for the problems being solved.

Profile of the Farmers

Male dominated farming roles, resulting in gender imbalances in the Gainza farming community. This can be concluded from the potential need to explore the reason that affects the participation of women in farming. Additionally, older people dominate the farming in Gainza, Camarines Sur. It may result in challenges in the future such as resistance to new practices, potential gaps in knowledge transfer, labor shortages, and reduced focus on sustainable methods.

Furthermore, most farmers in Gainza do not earn enough for daily living, as their incomes vary based on different circumstances. This income disparity reflects the diverse economic situations within the community. Total land holding. Regarding land ownership, 96% of respondents reported holding parcels between 1-10 acres, likely due to the common practice of dividing land among family members and the limited availability of larger plots. This small landholding size can hinder production capacity and reduce income opportunities.

Level of Accessibility of Farmers

Strict collateral requirements are key reasons farmers face challenges and concern in accessing credit. These strict requirements make it difficult for farmers to meet the necessary criteria, limiting their ability to secure credit. Additionally, Training for Farmers in Adopting New Agricultural Technologies is lowest among the parameters. So, Without proper knowledge, farmers may find difficulty to adopt and access the availability of the technologies. Furthermore, Training on market pricing suggests that this parameter is less emphasized. This lack of emphasis might reflect broader issues within the agricultural sector, where market information and transparency are limited. So, the researchers concluded that addressing this gap is crucial for empowering farmers to make informed decisions and effectively engage in the market.

Challenges faced by Farmers of Gainza

Farmers in Gainza, motivated by strong dedication and a deep passion for agriculture, do not view their commitment to farming as a challenge. However, limited access to healthcare services presents a difficulty for these farmers, which may impact their productivity over time. Furthermore, time constraints prevent many farmers from participating in agricultural programs, leaving them unaware of valuable opportunities to improve their farming practices. Additionally, the limited allocation of funds in agricultural programs is moderately challenging for farmers in Gainza, Camarines Sur, as insufficient government support can hinder the productivity and development of farming practices in Gainza, Camarines Sur

Determining what profile of the farmers affects the level of accessibility.

While credit and market accessibility are uniformly available to farmers in Gainza, Camarines Sur, age emerges as a crucial factor influencing access to technological advancements. The findings suggest that younger farmers are more adept and comfortable with technology, whereas older farmers may face challenges due to a lack of knowledge and resources. This highlights the need for targeted support and training programs to bridge the technological gap among different age groups, ensuring equitable access to modern farming practices.

Determining what challenges the farmers affects the level of accessibility

Farmers face major challenges in accessing credit, technology, and markets, which hinder their participation in agricultural programs. These challenges leave farmers feeling disconnected, unsupported, and uncertain about how to engage with initiatives that could benefit their livelihoods. This highlights the need to improve credit accessibility, technology access, and market opportunities to help farmers participate effectively in agricultural programs. Addressing these issues would create an environment where farmers feel empowered and supported in accessing essential resources for their success.

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