

Agricultural Mechanization Policy: Farmers in Focus

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DOI: <https://dx.doi.org/10.47772/IJRISS.2024.8110204>

Received: 29 November 2024; Accepted: 03 December 2024; Published: 19 December 2024

ABSTRACT

During this period, the agricultural sector has constantly been adapting to modern farming activities. Several policies were implemented in international and national settings that immensely affected the farming community, including the agricultural mechanization policy in the Philippines. This is in connection with the United Nations Sustainable Development Goal 9 of the United Nations, which focuses on building resilient infrastructure, fostering industrialization, and promoting innovation. Hence, this study explores the experiences of Davao City farmers regarding the agricultural mechanization policy as implemented by the government. This qualitative study was conducted using a phenomenological method to determine the respondents' experiences, struggles, coping mechanisms, and insights. The seven participants of the study were specifically chosen farmers in Davao City using a purposive sampling method. The researchers utilized an in-depth interview method and formulated an interview guide questionnaire to gather the data. The findings revealed that farmers experienced an ease of farming labor but, at the same time, encountered relevant problems in the process of mechanization. The struggles grappled by the farmers include cost and financial issues, process-related challenges, and operation and maintenance problems. Finally, all the respondents acknowledged that availing government financial support, affiliating with an association, productivity strategizing, and establishing stronger cooperation with the government were great coping strategies. Although difficulties experienced by the members of the farming community were varied, it was recommended that there is still a need for the government, both local and national, to support Filipino farmers by improving this policy and its process, regardless of how useful agricultural mechanization is in the agricultural sector of the country.

Keywords: agricultural mechanization policy, qualitative-phenomenology, Davao City, Philippines, SDG 9, resilient infrastructure, sustainable industrialization, innovation.

INTRODUCTION

The agricultural sector plays a pivotal role in the global economy by providing food, raw materials, and livelihoods to a significant portion of the world's population. However, the agricultural landscape is rapidly changing due to population growth, changing consumption patterns, and the need to ensure food security in the face of climate change. Pimonratanakan (2022) stated that one of the primary drivers of growth in a country would be the sector of farming machinery industry operators. Although there are still unfortunate disagreements over how agricultural technology affects farmers, despite the fact that it is widely utilized in the advancement of agricultural industries, agriculture is frequently listed as one of the four or five hazardous industries (Nworgu & Amadi, 2024). Hence, this study aims to shed light on the complex interplay between policy, technology, and the socio-economic development of farming communities, highlighting the effects of agricultural mechanization policy on the lives of the farmers.

In the African region, agricultural mechanization is on the rise. A widespread replacement of manual labor changed the face of the African agricultural sector. Agricultural mechanization in this area has reduced labor shortages, improved timeliness, and enhanced African land preparation, leading to annual higher yields (Daum et al., 2020). However, despite the developments brought about by implementing agricultural mechanization in this region, it also negatively impacted other farmers and their crops. The increased pesticide usage due to agricultural mechanization can cause serious pollution, knocking out some benefits of green agriculture. Mechanization becomes increasingly important in green agriculture as modern machinery becomes more widely available. However, leaning too heavily on machines over labor may reduce efficiency and increase

pesticide overuse (Chi et al., 2021). Moreover, a recent study focused on China has found that as the country's agriculture is moving towards a high-quality development stage, it is necessary to focus on improving the quality and efficiency of agricultural production. For many years, the limited income from agriculture has greatly dampened the enthusiasm of agricultural laborers. Although agricultural subsidies, a protective minimum grain price, and other relevant policies have guaranteed the income of agricultural workers to a certain extent, they have also aggravated the problems of inverted food prices at home and abroad and weak international competitiveness of agricultural products (Peng et al., 2022).

Learning more about a country's agricultural mechanization policy is important because it directly impacts the agricultural sector, a critical economic component. Agricultural mechanization policy can significantly impact agriculture's productivity, profitability, and sustainability, impacting food security, rural livelihoods, and economic growth. By understanding a country's agricultural mechanization policy, policymakers, farmers, and other stakeholders can identify the strengths and weaknesses of the policy and implement effective measures to address the challenges faced by the agricultural sector. An agricultural mechanization policy can help reduce the drudgery of farm work, which is especially important for small farmers who often need more resources to carry out agricultural operations manually.

In the Philippines, agriculture remains a significant framework of the country's economy. In the latest study of the Agriculture Indicators System of the Philippine Statistics Authority (2022), the agricultural sector brought in P1.78 trillion, accounting for 8.9% of the total gross domestic product. This is well-grounded proof of the agricultural domain's immense contribution to this country's life. To support the development of the agricultural sector, the government implemented the Agricultural Mechanization Policy as part of Republic Act 10601 or the "Agricultural and Fisheries Mechanization Law of 2013." The primary purpose of implementing this law is to strengthen the commitment of the government to augment the employment and adoption of agricultural mechanization equipment and technologies to cope with the ever-changing global society and modernize the country's agricultural domain. Though there is an increase in the mechanization of the agricultural sector in the country, a report by the Inquirer noted that Philippine farm mechanization remains slow (Lagare, 2023). The factors that contribute to the sluggish development of mechanization encompass the low buying power of the local farmers, rural labor abundance, small-scale landholdings of the farmers, and high-cost machinery and equipment.

In Agusan Del Sur, the common issues encountered by the local farmers in the implementation of agricultural mechanization policy include the high price of fuel and oil for the usage of agricultural equipment, high maintenance cost, and insufficiency of spare parts of machines located in the locality, the high cost of machinery, outstanding credit in the bank, and small farm size of the farmers. These dilemmas hamper the need to modernize the country's agricultural sector. If the government does not address such issues, it will eventually cause a retrogression of the sector and the country as a whole.

In 2021, Davao Province showed strong economic growth, with Gross Domestic Product (GRDP) and Gross Domestic Product (GRDE) increasing by 5.9%. This growth surpassed the national average and outperformed the Philippine economy, which grew by 5.7% in the same year. This strong performance places Davao Province among nine of the 17 regions that reported growth rates higher than the national average, contributing significantly to the country's overall economic growth (Philippine Statistical Authority, 2022).

The Philippine News Agency (2024) reported that their funds for mechanization component in the region was valued at PHP198 million in 2019, PHP205 million in 2020, PHP212 million in 2021, PHP154 million in 2022, PHP236 million in 2023, and PHP146 million in 2024, according to DA-11 Director Macario Gonzaga. They believed that mechanization in agriculture would help encourage the retention of younger farmers in the profession while cutting the cost of producing rice and corn. The organization has created an agritourism program to promote and spotlight the agricultural industry and help farmers make more money. During the regional turn-over ceremony organized at the New City Hall of Tagum, Tagum City, Davao del Norte on September 8, 2020, 23 farmers' cooperatives and associations (FCAs) from the Davao Region was given an estimated P65 million worth of machinery grants under the Rice Competitiveness Enhancement Fund (RCEF) Mechanization Program (Philippine Center for Postharvest Development and Mechanization, 2020). The Davao Oriental provincial administration in 2022 has given farmers from the various Local administration

Units (LGUs) in the province a total of P17.5 million worth of farming supplies, including various equipment, fertilizer, and seedlings. The province also gave P3.5 million worth of machinery to various farmer groups in addition to its rice and corn program within the same year (Province of Davao Oriental, 2022). Just recently, the Davao City Council approved a law requiring the mandatory registration of all agriculture and fishing equipment in the city, particularly large-scale businesses, on the third and final reading (Sunstar, 2023). Such registration keeps an accurate local inventory of every agricultural, fishing, and related equipment in Davao.

As much as these are well-thought-out and well-intentioned initiatives, it is important to recognize that there are still challenges, especially in Davao City's farmers. This research recognizes farmers' current difficulties regarding their opinions on agricultural machinery. Its objectives are to examine the benefits that farmers receive from the government's agricultural mechanization strategy and to gather priceless information from the farming community. With this all-encompassing approach, the research aims to pinpoint and make important suggestions for the policy's development, thereby advancing the interests of the agricultural community.

This research study grasped the Sustainable Development Goal 9 of the United Nations, primarily focusing on advancing society through fostering industrialization, promoting innovation, and infrastructure development (Roser, 2023). With the advent of modern times, the agricultural sector has been forced to adapt to the modern farming process. Laws and policies are significant in actualizing the necessary changes for the agricultural sector's advancement. Thus, governments across the globe prioritize authorizing laws that allow the farming industry to thrive in this modernization process. In the Philippines, an agricultural mechanization policy was passed to allow farmers, big or small, to cope with the swift changes in the farming industry. This allowed farmers to utilize equipment and machinery to efficiently conduct their daily farming activities. Thus, advancing agricultural industrialization and promoting farming innovation.

Agricultural development has long been a focal point for policymakers and academics, with significant focus on agricultural machinery and infrastructure improvement programs. Numerous studies have investigated the impact of these initiatives on rural communities' general development, market access, and agricultural productivity. Nevertheless, despite these substantial studies, there is still a significant void in our understanding of the complex experiences of the farmers who form the basis of these initiatives and depend on agricultural technology for their livelihood. While quantitative research has provided insightful information, it frequently ignores the numerous possibilities and problems these crucial stakeholders regularly encounter. This qualitative research explores the viewpoints and narratives of farmers to disclose this gap. Surprisingly, instances of dissatisfied farmers grappling with issues related to their agricultural machinery are scarce in the current discourse. Therefore, to inform efficient and just agricultural machinery development strategies, this study aims to contribute to a more holistic understanding of the multifaceted impact of agricultural machinery initiatives on farmers' livelihoods.

In light of this, the study aims to determine the impact of the government's agricultural mechanization policy on the lives of local farmers. Moreover, this study will also discuss the challenges and struggles the participants face in implementing the policy. This research will also dwell on the coping mechanisms/strategies used by the local farmers to overcome the challenges they have encountered. Lastly, this study also aims to know the research participants' insights and perceptions regarding the advantages and disadvantages of the agricultural mechanization policy. Through the study's objectives, the researchers will be able to understand how the implementation of the agricultural mechanization policy impacts the local farmers. By simply understanding their challenges and struggles, the proponents of this study can provide recommendations for local and national government institutions to improve such policies.

The study findings would immensely benefit the farmers most affected by implementing the agricultural mechanization policy. It would provide the local farmers the proper avenue to voice their opinions and perceptions regarding the policy. Moreover, this study would also be used as an instrument by policymakers to facilitate better decision-making regarding the policies being implemented so as not to affect various sectors of the country gravely. Lastly, future researchers explicitly focus on policies to thoroughly and ingeniously evaluate many factors affecting policy implementation's positive and negative impact.

The researchers incorporated three (3) theories relevant to the study. The first theory, the Policy Design Theory, explicitly discusses the significance of policy and modernization in a thriving nation. The policy design theory framework was adopted to analyze and understand the intricacies of agricultural mechanization policies in Davao City. Though without a specific founder and has changed throughout the years with input from different academics and experts, it serves as a guiding research and evaluation of the conditions of democratic countries and how, in its own right, it can be further developed and used to guide critical inquiry about public policy's politics and social impacts (Schneider & Sydney, 2009). This approach sheds light on decision-making, historical contexts that mold policies, and stakeholder interactions, providing a holistic view of the policy landscape. This research strives to decipher the intricacies of agricultural mechanization laws, eventually striving to improve their alignment with the interests and well-being of local farmers. It is achieved through employing policy design theory and drawing from these related disciplines.

The second theoretical underpinning of this study is the Modernization Theory. A German sociologist, Max Weber developed this theory, emphasizing how societies develop and become modern. This theory purported that countries start as traditional societies, characterized by a significantly low economic development, a simple division of labor, and limited innovation. Then, with the adoption of rational ways of thinking and the spread of technology, they become modern (Yadav, 2023). This theory has also described that modernization starts when industrialization, a decline of traditions, and the adoption of new technology perpetuate and make their way into every corner of society. The researchers incorporated this theory as it is suitable for discussion regarding agricultural mechanization. The endeavor for mechanization of the agricultural industry results from the evolving modern world where people demand high-quality products and sophisticated and urbane production systems. Agricultural mechanization involves the dispersion of technologies that succinctly uplift the state of farmers and the entire nation. The mechanization of the agricultural domain involves the establishment of postharvest facilities, the distribution of machinery, and even the construction of infrastructures that help farmers transport farm products conveniently. When the agricultural sector adheres to the principles of modernity, it will undoubtedly uplift the nation from its dormant agricultural state.

The third theory included in this study is the Technology-Adoption Theory, which Everett Rogers mainly proposed in his book "Diffusion of Innovations." This theory seeks to explain how new concepts of technological innovations are adopted and examines the primary factors that foster their propagation (Mardiana & Kembauw, 2021). In our study, this theory will guide the researchers in identifying how the local farmers embrace the government's agricultural mechanization policy. The Technology-Adoption Theory also suggests that farmers are more likely to adopt new technologies when they perceive them as useful, easy to use, and compatible with their existing practices. The perception of usefulness plays a pivotal role in adopting new agricultural technologies. Farmers are more inclined to adopt mechanization practices when they perceive them as offering tangible benefits and addressing specific challenges they face in their farming operations. These perceived benefits may include increased productivity, cost savings, reduced physical labor, and improved crop quality. Easy to use is another crucial factor influencing adoption decisions, as farmers are more likely to embrace technologies that require minimal training and adjustments to their current farming routines. Moreover, the compatibility of the new technologies with existing practices ensures a smoother integration process and reduces the risk of resistance or reluctance among farmers. By considering these factors, policymakers and stakeholders can design strategies to promote adopting agricultural mechanization practices that resonate with farmers' needs and preferences.

METHOD

This part of the manuscript thoroughly describes and discusses the research methods and procedures. The discussion specifically deals with materials and instruments utilized in the study.

Design and Procedure

The researchers conducted the study using a qualitative approach. Qualitative research studies relate to an individual's ideas, perceptions, and experiences, which a numerical datum cannot measure. According to Bhandari (2020), qualitative research is a study that involves collecting and analyzing non-numerical data (e.g., text, video, or audio) better to understand concepts, opinions, narratives, or experiences. It can gather in-

depth insights into an issue or generate new ideas for further research developments. The study focuses on the impact of agricultural mechanization policy on farmers. Qualitative research is the most suitable method to thoroughly assess and determine the farmers' perceptions, experiences, challenges, coping mechanisms, and insights regarding agricultural mechanization policy.

Moreover, the design utilized in this research study is phenomenology. Dumlao (2022) said that a phenomenological approach in qualitative study seeks to understand the universal essence of a phenomenon experienced by a person or a certain group. With this approach, the researchers can better evaluate how the implementation of agricultural mechanization policy affected the lives of the local farmers and the country's agricultural landscape. The data collection procedure is designed to record the participants' complex narratives and perspectives. Before the study was conducted, the researchers asked permission first from the Dean of the College of Arts and Sciences Education. After the approval, the researchers distributed the questionnaires through online settings and phone calls. Before each interview, each participant was informed about the research's objectives and data collection process, and they provided consent by signing an informed consent form and other necessary documents, as well as the freedom to withdraw from the study at any time. Permission was also sought to record the interviews to ensure comprehensive coverage of the participants' responses. Once data saturation was achieved, transcripts were generated and interpreted, with the participation of the data analyst. Finally, the description of the interview communication was discussed during the research discussion.

The data analysis procedure of this research primarily employed the qualitative analysis of the participants' responses to the interview guide questions. The thematic analysis was used to analyze the transcribed interview data from the respondents. Thematic analysis is a qualitative research method that researchers employ to systematically organize and analyze complex data sets that search for themes that can capture the narratives available in the account of data sets (Dawadi, 2020). Its primary objective is to find patterns, categories, and themes in the farmers' responses, and then the researchers will interpret their meaning. The researchers started by reviewing the participants' responses and getting acquainted with the content of the answers provided. This data analysis provided conclusions based on the responses supplied by participants, and such findings were used to answer the research questions regarding the perceptions of the local farmers about the agricultural mechanization policy.

In this study, several procedures were taken to ensure that it would not harm the participants included in the research and society as a whole. According to Resnik (2020), ethical consideration is a necessary framework when researching as it is the main foundation of the sanctity of how human life is treated and acknowledged. In this study, the researchers included several principles of ethical considerations. First, the protection of human subjects through the application of our research study was our top priority. Social value was observed in gathering and collecting the information used in this study so that the researchers could preserve the participants' pride. No names of the respondents are included or displayed for their confidentiality. Second, the researchers asked the respondents for their consent to participate for their safety and security. It was also ensured that no coercion was done to force the desired respondents to participate. Third was integrity; the researchers used several trusted applications to verify sources and citations incorporated into the study. Ethical guidelines in research promote accountability from the researchers and the safety of the respondents, ensuring that there is no misconduct in the conduct of the study (Mazumdar, 2022). The proponents of this research study guarantee that the institution upheld the utmost consideration of ethical principles and standards during the entire research study process.

Participants

The participants of the study were chosen farmers residing in Davao City. The participants were determined through purposive sampling. With this kind of sampling, also known as judgment sampling, the researchers use their knowledge to choose a sample that will be most helpful to their research goals. It is frequently employed in qualitative research studies when the researcher prefers to learn in-depth information on a particular situation rather than drawing general conclusions from statistics or when the population is relatively small and focused (McCombes, 2019). In this study, there was a convenience sample of seven (7) farmers aged 21 years old and above of random gender of any race or ethnicity residing within the territorial jurisdiction of Davao

City who were affected by the agricultural mechanization policy of the government. Aside from this, only the farmers who have experienced using any agricultural machinery and equipment for more than a year were included. The farmers using agricultural machines for less than a year were excluded from the study.

Materials and Instrument

In this section, the researchers provided a comprehensive overview of the materials and instruments employed during our study that centers on agricultural mechanization policy and how it affects the local farmers. The researchers utilized the In-Depth Interview (IDI) method to gather information about farmers' perceptions of implementing the government's agricultural mechanization policy. According to Cresswell (2012), an in-depth interview is one of many qualitative research techniques used to gather data on participants' subjective experience. The purpose is to get detailed information that sheds light on an individual's perspective and the perceived meaning of a particular topic, issue, or process. Researchers used this method to explicitly discuss the impact of the agricultural mechanization policy on the farmers and their perceptions.

The seven (7) participants were interviewed using the interview guide questionnaire prepared beforehand by the study's proponents. The school's research experts checked and evaluated this questionnaire to determine its accuracy and relevance to the research focus. The information and experience the participants could offer with the researchers and other community members to which they belong was the first criterion the researcher used when selecting their research subject for the in-depth interviews. Second, its diversity allows for more plentiful knowledge exchange among participants and researchers and lively and equitable debate. To ensure the quality of the response, the participant's level of topic understanding was the third factor to consider. These criteria ensure that participants would bring about ingenious and authentic responses to the perceptions of the local farmers regarding the agricultural mechanization policy. According to Schaffalitzky (2022), the more authentic the respondents' responses, the more likely it is for the researchers to develop better recommendations for improving a study.

Furthermore, the participation of the participants in this study was entirely voluntary, and they had the option to withdraw from the study at any time. The researchers conducted the study using online applications like Messenger, Google Meet, and phone calls. Google Meet is an online administration software included in the free, web-based Google Editors suite offered by Google. Messenger is a free mobile messaging application used for instant messaging, sharing photos, videos, audio recordings, and group chat. At the same time, phone calling is a load-based software that allows people to connect using audio communications (John, 2020).

RESULTS AND DISCUSSION

This section includes the presentation and analysis of the data findings obtained in the eight months of study of the seven selected participants affected by the government's agricultural mechanization policy. The researchers conducted the analysis data in Davao City places where selected farmers were assigned, and the participants were interviewed via online and phone calls. During the interview, the participants willingly shared their experiences on how the agricultural mechanization policy affected the lives of the local farmers.

Profile of the Participants

The names of the participants are replaced with pseudonyms to safeguard their identity. According to Ferguson (2022), pseudonyms are anonymous names given to people who dislike exposing their identity to the general public. This anonymity allows research participants to express their unbridled opinions and views without fear and/or anxiety. In this study, the participants allowed the researchers to choose pseudonyms.

Participant 1 has been a farmer for decades, working mainly in a nursery; she is given the name "Awang."

Participant 2 is a farmer adept at using machines to cultivate fungi plants; she is given the pseudonym "Beng."

Participant 3, who is identified as "Nene," worked as a staff farmer at one of the agricultural sites in Tugbok.

Participant 4 is given the name "Kaloy." He has been in the farming industry since the early 2000s and currently manages his fellow farmers in one of the biggest farming sites in Davao City.

Participant 5, also known as "Roy," is a farmer mainly producing corn and cassava products.

Participant 6 is "Dodong," a farmer with several experiences using machines and equipment to propagate different crops.

Lastly, Participant 7 is known as "Lito," who has been in the farming industry for decades and presently manages a farming sector in Tugbok.

The in-depth interview was conducted between February 26 – March 2, 2024, in one of the barangays in Tugbok, Davao City. Following the commencement of the interview, the researchers gave an overview of the study's aim and objectives. Afterward, the study's proponents requested the participants to introduce themselves by stating their name, occupation, and present residency. The demographic composition of the participants included three females and four males: ages 35 to 73 years old. During the interview, as the researchers discussed with the participants the purpose of the In-Depth Interview (IDI) while showing the informed consent form, the researchers noticed that the respondents were quite excited about giving us their perspectives on the agricultural mechanization policy.

In exploring how the agricultural mechanization policy affected the lives of the local farmers, the research methodology is centered on encouraging the participants to share valuable insights drawn from their personal experiences. This approach was grounded in the context of the Philippine Center for Postharvest Development and Mechanization's (2022) report classifying the country with a low-mechanization level. PhilMech emphasizes the factors and reasons why mechanization is still crawling in our country, which include low buying power and the financial aspect of the farmers. Furthermore, this report recognizes the need to address the challenges and struggles faced by the farming community to materialize the goal of the agricultural sector to have a higher mechanization level in the Philippines.

The methodology incorporated in this study is deliberate in its aim to capture a nuanced understanding of the challenges and struggles grappled by the farmers in connection with the implementation of the agricultural mechanization policy. By soliciting the insights and perspectives of people directly affected by this policy, the study sought to reveal the day-to-day realities encountered by our local farmers.

By emphasizing the personal narratives and real-world obstacles the farmers face, we can provide a holistic view of the complexities of implementing the agricultural mechanization policy. The study sheds light on the farmers' intricacies and struggles, offering valuable insights for strengthening the policy, enhancing the farming community, and ultimately fortifying the country's agricultural sector. This approach recognizes the significant impact of personal experiences and narratives in shaping strategies for revitalizing the farming sector of this country, mainly through agricultural mechanization policy.

Farmers' Experiences in Agricultural Mechanization Policy

The insights of the farmers regarding how the policy affected their lives became a narrative that should be given a descriptive evaluation. Based on the findings from the data obtained, five (5) themes revolve around the experiences of the farmers, with fourteen (13) core ideas. The five themes follow: recognizing the financial aspect of mechanization, experiencing the ease of labor or operations, acknowledging support and guidance from cooperatives and government agencies, appreciating the positive things about mechanization, and encountering relevant problems in the process of mechanization.

Recognizing the Financial Aspect of Mechanization. In the age of mechanization developments, it cannot be denied that the financial aspect of the people who want to avail of such equipment still remains a pressing issue. According to Loon et al. (2020), farmers cannot afford to purchase mechanisms and financial support through subsidies in many countries. This is mainly because financial service institutions shy away from

supporting and aiding farm smallholders for fear of low investment returns. Participant 2 emphasized that the prime reason she could not avail of agricultural machinery was its high cost.

“Ang disadvantage pud niya since mahal and atoang mga machineries, so lisod siya iacquire sa mga farmers nga walay kapital.” (Its disadvantage is that, since machineries are expensive, farmers without capital find it difficult to acquire such things.) (P2, RQ 1)

Farmers find it difficult to fully utilize the efficiency of agricultural mechanization policy as equipment and machines are very expensive. This became the prime reason the acceptance level of modernization policies remains slow despite all government efforts to mechanize the country's farming industry. Savoy (2022) argued that, despite all the endeavors and actions to fully mechanize the agricultural sector, smallholder farmers cannot secure the financing they need for higher inputs, leading to a lower mechanization policy acceptance rate. The statement of Participant 2 affirmed this argument by saying that in the locality where she is located, the acceptance rate of agricultural mechanization policy remains lower than expected.

“Base sa atoang aktwal nga senaryo diri sa atong locality, medyo hina kaayo ang acceptance or ang uses nato sa mechanization. Siguro tungod na siya sa financial aspects sa atong farmers.” (Based on the actual scenario here in our locality, the acceptance or the usage of mechanization is quite slow. I think it is because of the financial aspects of our farmers.) (P2, RQ 1.1.1)

Since mechanization is too expensive, resulting in the lower acceptance rate of this policy in the locality, Participant 4 said that smallholder farmers are making their initiatives to still avail machinery, such as looking for free services to avoid paying for the equipment. However, free services are not often given to those seeking them to avoid compromising the operations of other farming sectors.

“Later, narealize nako ug nakita ang problema. Halimbawa, ikaw farmer A tapos naa pay isa na corn grower gihapon, og ikaw entertainon tika niya siya dili, unsa may bation ato niya? So, kumbaga negative no? Ang gobyerno diay pinili. Mao to naabot ang point nga wala nako naga extend ug assistance sa gawas kay, in the first place, naa may ginapanghatag na tractor sa gawas lalo na sa cooperatives.” (I later realized that it is considered a problem. For example, if you are farmer A then there is another corn grower (farmer B), and I entertained you while the other did not, what will the other one feel? So, it is considered negative. He will say, “the government only chooses (who will they assist)”. That is why I reached the point that I no longer extend assistance offsite since in the first place, there are tractors given to the cooperatives.) (P4, RQ 1.1)

Although farmers can borrow agricultural equipment and machines from the Department of Agriculture's farming sites, there is no definite certainty that they can avail of it immediately. This is just one of the many problems grappled by the farmers concerning the procurement of machines to be used in their farmlands. According to Agussabti et al. (2022), farmers' incapacity to adapt to modern technologies, attributed to poor assistance from agricultural institutions, is worsened by insufficient government budget allocation, reducing their productivity and profitability. When our smallholder laborers cannot avail themselves of the machines needed for growing crops and other activities, it can adversely impact not just one farmer but the whole agricultural sector.

Experiencing Ease of Labor or Operations. Modern technologies are created to make the lives of people much easier. In the agricultural sector, many strategies have been established to ease the intensive activities of farmers. One of these strategies is the creation of the agricultural mechanization policy. Singh and Devkota (2023) said that the benefits of agricultural mechanization include the total annual income increase of farmers, work efficiency, improvement of living standards, and reduction in the cost of production. Participant 2 stated that agricultural mechanization has positively impacted farmers as the production of farm produce is being fast-tracked.

“In general nga effect niya sa farmer is very positive kay mafast-track ang iyahang mga activities sa farm. Ug isa, ma-minimize niya ang loss through kanang delays sa mga process niya sa iyahang mga activities.” (Its general effect to the lives of the farmers is very positive since it can fast-track the farming activities. Another thing, it can minimize the loss due to processing delays of its activities.) (P2, RQ 1)

Regarding actual farming experience, Participant 2 reiterated the ever- importance of utilizing machines and equipment in her life as a farmer by giving an example. Moreover, according to Mdoda et al. (2022), agricultural mechanization is immensely significant to smallholder farmers as it can boost crop production. Participant 5 has benefited the same from this modern policy as it efficiently strengthened the production of farm products.

“Example, sa corn farming, isa sa problem sa corn farming is the post-harvest activities. So dira nga part, naga require na siya og mechanization tungod kay kung may mga delays during processing sa seeds, it would affect the whole part of the produce sa corn. So, advantage siya sa part sa farmer in terms sa iyang quality sa produce.” (Example, in corn farming, one problem in corn farming is the post-harvest activities. So in that part, it requires mechanization because if there are delays during the processing of seeds, it would affect the whole part of the corn production.) (P2, RQ 1)

“Kanang mechanization nindot pud na siya kay mas mupasas, mas mukusog ang atong production.” (This mechanization is good since it can make our production smoother and stronger.) (P5, RQ 1)

The agricultural mechanization policy has undoubtedly brought immense changes in the farming community's practices. Its positive impacts include, but are not limited to, easement of labor, increase of crop production, and efficient work activities. With proper government remedies concerning this policy's issues, our country's agricultural sector will continue to develop to its full potential.

Acknowledging Support and Guidance from Cooperatives and Government Agencies. If one country endeavors to attain a goal that can benefit all of society, government aid/support and other affiliated institutions must work hand-in-hand with the people. According to Mokgomo (2022), governmental support has continually become one of the key strategies to enhance the livelihood of the farmers. He added that the government should focus on strengthening food production and bolstering food security. Participant 4 reiterated the purpose of government institutions, such as the Department of Agriculture, to provide agricultural mechanization to the farmers.

“Ang Department of Agriculture— one of the major programs of the Department of Agriculture is to provide a mechanization program that is under the Philippine Mechanization Agency, under sa umbrella sa D.A.” (One of the major programs of the Department of Agriculture is to provide a mechanization program that is under the Philippine Mechanization Agency, which is under the umbrella of the Department of Agriculture.) (P4, RQ 1)

Furthermore, Participant 2 said that government support/aid in mechanization is presently done through forming farmer's associations or cooperatives. Renting and sharing is a prospective factor that allows farmers to borrow equipment at a reasonable cost rather than purchasing the equipment (Rakhra et al., 2022). It also permits the farmers to be more adaptive in cultivating tasks. It helps in different crop cycles, provided that agricultural cooperatives aim to promote the development of the farming sector and provide farmers with technical instruction and market information. Participant 2 clearly expressed associations' vital role in local farmers' lives.

“Isa sa kuan sa government ana is ang isa ka farmer dapat mukuan siya ug isa ka group or association nga kung asa provided sa Department of Agriculture ang mga machineries tapos didto na siya magrent sa association. So, ang mga farmers nato didto na siya mulink saiyang association para makaborrow or makarent sa machinery.” (One thing that the government could do is to encourage the farmers to join in a group or association where the Department of Agriculture will provide the machinery which the farmers could rent. The farmers will then link to their associations to borrow or rent machinery.) (P2, RQ 1)

Participant 7 also recognizes the services given by the government, mainly through the Department of Agriculture, to bolster the farming activities of smallholder laborers. This government institution will then instruct the associations to extend the support to the local farmers by letting them borrow or rent the machinery.

“When it comes to farm mechanization, naga-provide ang DA og assistance in the form of farm tractors, (land) tractors, ang kanang mga bao-bao sa mga basakan. So mao na nga daghang recipient ang DA ug mga tractor.” (When it comes to farm mechanization, the Department of Agriculture assists in the form of farm tractors and rice-plowing machines. This is why the Department of Agriculture has many recipients in tractors.) (P7, RQ 1)

Allowing the government, through its agricultural institutions such as the Department of Agriculture, to extend much-needed support to the farmers can help bolster the country's farming community. Many farmers are presently having difficulties adapting to the modernization process of agricultural activities. To address such issues, the government plays a vital role to lessen the burden the local farmers face.

Appreciating the Positive Things about Mechanization. Although there are issues surrounding the implementation of agricultural mechanization in each country, its positive impact on the lives of the farmers should also not be neglected. According to the study of Takeshima et al. (2020), adopting mechanization may also accompany a greater intensification of agricultural production, such as the overall use of fertilizers in farms. Since mechanization means embracing modern procedures, farmers are introduced to much higher production of goods and services. Participant 4 pinpointed specific positive impacts this mechanization has brought to his life, which include farmer efficiency, cost-effectiveness, and allowing the younger generation to appreciate the value of agriculture.

“The advantages, of course, is it's efficient, it's cost-effective, makatabang jud sa farmers to become productive, and especially now nga ang mga farmers karon kay tiguwang na, dili na siya mga bata. Kailangan jud nimo na to be able to inspire and to encourage them nga mag adto og agriculture because we are agricultural country, kinahanglan jud nga mechanize na ang atoang country, atoang region para mas: una, mas paspas ang development sa atoang agriculture; second, ang mga batan-on mubalik ang interest nila sa agriculture.” (The advantages, of course, is it is efficient, cost-effective, and can help the farmers to become productive, especially now that the farmers are old and not young anymore. There is a need to inspire and to encourage them to go into agriculture because we are an agricultural country. Our country and region need to mechanize to foster the development of agriculture and to reinvigorate the interests of the young ones in terms of agriculture.) (P7, RQ 1.2.1)

In addition, Participant 6 also recognized the positive impact of mechanization in his life as a farmer and acknowledged the government's role in strengthening agricultural mechanization endeavors in our country through training. This statement was supported by a study by the Food and Agriculture Organization of the United Nations (2020), which says that training helps farmers provide a skillful and appropriate mechanization system for the sustainable development of the agricultural sector.

“Number 1, mareduce ang cost sa post-harvest processing dealing sa agricultural land. Then ang government pud nagahatag og follow-up training para at least ang farmer pud makamao pud siya sa paggamit sa mga machineries.” (Number 1, it can reduce the cost of post-harvest processing dealing in agricultural land. Then, the government also gives follow-up training so farmers will know how to use the machineries.) (P6, RQ 1.1)

Government support is a very important step in making every policy successful. According to Barbosa (2024), robust government support is necessary to foster sustainable development in the agriculture industry. With this, the most important thing to consider when implementing a certain policy is to assess how it might affect the people who might get involved in its repercussions. Constant monitoring from the government should be prioritized to lessen the challenges grappled by the affected.

Encountering Relevant Problems in the Process of Mechanization. In the face of mechanized farming, many laborers faced great tribulation because of its impact on their practices and livelihood. It has been said that agricultural mechanization is a double-edged sword, with each edge having advantages and disadvantages. To discuss the problems relevant to implementing mechanization, Rozaki (2021) argued that, with mechanization, the job opportunities for farmers in agriculture can decrease. Participant 2's statement seemed to affirm this argument as many machines and equipment can now replace the manual labor of the farmers, more especially in the field. Participant 2 revealed that:

“So, isa pud sa mga problema nato sa mechanization is daghan ang mga farmers or laborers nga mawalaan siya og trabaho since nga through mechanization kaya na niya trabahoon tong mga trabaho sa mga laborers. So, mao na siyay isa ka challenge sa Department of Agriculture kay dili man pud pwede nga walaan to siya’g trabaho.” (So, one of the problems of mechanization is that many farmers or laborers will lose their jobs since through mechanization, machines can already perform the work of the laborers. So, that is one of the challenges of the Department of Agriculture since it is not possible that we allow them to lose their job.) (P2, RQ 1.1)

Another relevant problem respondents observed is the hit-and-miss obstacle. Although farmers can use the machines and services the government provides, the only problem is that they are inappropriate for their working environment. For example, the government will provide a rice-plowing machine to a certain farming community, but the demography of this community is not made for planting rice; this assistance will just go to waste. According to Paredes (2023), using suitable machines for the agricultural sector can make tiny lands manageable with unprecedented success. He implied that machines can be a great factor in the success of the farming industry if only the equipment matches the needs of the laborers. Participant 4’s response reflects the hit- and-miss obstacle of mismatching agricultural equipment. He stated:

“Hit and miss. Nganong hit and miss? Usahay man jud nga ang gusto ni farmer, dili maswak sa ginahatag ni DA. Daghan mga ing-anang mga hit and miss; nga, siguro, dili namo mameet unsa jud specific nga needs sa farmer. Mao nang bisan dagko kaayo na ug presyo, dili na magamit ni farmer. Mao na nga daghan kaayo nga mga equipment nga hinatag ni DA nga nakatambak ra sa bodega.” (Hit and miss. Why hit and miss? Sometimes, what the farmer wants does not match what the Department of Agriculture gives. There are so many instances of hit and miss that we cannot meet the expected needs of the farmers. This is why even machines are expensive, they cannot be used by the farmers. Many equipment given by the Department of Agriculture are now just being stored in a warehouse.) (P4, RQ 1.1.1)

It is necessary that the government must listen first to the needs and wants of the farmers before it gives them the assistance they need. An efficient solution starts from the ability of the institutions/agencies to listen and hear about the grassroots concerns of the farmers. When the government constantly provides a remedy to a certain problem without hearing the perception of those wounded by implementing such policy, it will only worsen their suffering. This can also be why a lot of government assistance just goes to waste; those with certain and different needs cannot utilize it.

Challenges Encountered by Farmers

In this context, the experiences of farmers regarding the policy become crucial. This part aims to explore the challenges farmers encounter in the context of agricultural mechanization policy and provide a descriptive evaluation of their experiences. Based on the findings from the data obtained, four (4) themes revolve around the challenges encountered by the farmers with (8) core ideas. The four themes are as follows: cost and other financial issues, utilization of government-provided equipment, process-related challenges, and operation and maintenance problems.

Cost and Other Financial Issues. Amidst the advancements in mechanization, it is evident that the financial concerns of those interested in acquiring such equipment persist. The primary focus is on cost and other related financial issues. Mechanization increases efficiency and productivity, but the high acquisition, maintenance, and repair cost can be a significant barrier for private sectors and individuals. The cost of labor can be reduced, but mechanical breakdowns and repairs can be costly and time-consuming. To balance cost and efficiency, businesses and individuals must assess the costs and benefits of adopting mechanized equipment based on their unique circumstances (Huo et al., 2022). The high cost of agricultural machinery was cited by Participant 1 as the primary reason for not being able to obtain them.

“Kanang dili ma-afford kasi very high prices.” (Unaffordable (the machineries) because it is expensive.) (P1, RQ 2)

Moreover, according to Balana et al. (2022), small farmers in rural areas experience low income due to low productivity. Small-scale farmers with limited financial resources may struggle to acquire and maintain mechanized equipment, leading to suboptimal use of available resources and lower yields. Participant 5 affirmed this argument by discussing the impact of a farmer's financial status on their use of agricultural mechanization.

“Pobre pud ang mga farmers uy.” (The farmers are poor.) (P5, RQ 2.2)

In conclusion, while mechanization can increase efficiency and productivity, it can also be a costly investment for private sectors and individuals. The decision to adopt mechanized equipment should be based on carefully considering the costs and benefits of the unique circumstances of the business or individual. In the case of small-scale farmers with limited financial resources, acquiring and maintaining mechanized equipment may pose a significant challenge, potentially leading to underutilization of available resources and lower yields. Overall, it is important to weigh the advantages and disadvantages of mechanization before deciding.

Utilization of Government-Provided Equipment. Forming an association is important for effectively utilizing government-provided equipment in the agricultural sector. Paraschou et al. (2024) discuss the benefits of agricultural cooperatives for small-scale farmers, including reduced costs, improved access to markets and services, and increased bargaining power. Participant 3 supported this argument by stating the importance of forming an association.

“Mao lage to dili sila basta-basta makaavail inig wala silay association or grupo. Paryas anang naay maghangyo diri nga maghulam, unya siya ra isa, dili man siya maka avail. Kailangan gyud grupo.” (Farmers could not easily avail if they do not have any association. Same if someone wants to borrow here (machines), he/she could not avail. It should be in a group.) (P3, RQ 2)

In 2019, the Philippine government passed Republic Act No. 11321, also known as the "Farmers and Fisherfolk Enterprise Development Act". Among its provisions is the mandate for farmers to form agricultural cooperatives or associations to promote collective action and increase their bargaining power in acquiring farm equipment, machinery, and other services. The law aims to improve the efficiency and productivity of small farmers and fisherfolk by providing them access to modern equipment and technologies that they may not be able to afford individually. By working together, farmers can pool their resources, share equipment, and reduce the cost of production. Participant 7 justifies this argument by explaining the importance of forming agricultural associations for equipment utilization.

“Og mag organize ta diri (og organization), ang duha ka ektarya lang, pila kabook? Singkwenta. Naay ayuda sa gobyerno, prutasan mani atoa lubi, mangayo ta ug harvester, katong lifter. Katong musaka lang sa punuan para og magharvest ka dali nalang.” (If we organize (organizations) here with two hectares, how many will it be? Fifty. There is assistance from the government, but our land is full of fruit trees like coconut. We should ask for a harvester and a lifter. The one that will climb the trees so harvesting will be much easier.) (P7, RQ 2.1.1)

In general, the mandate for farmers to form agricultural cooperatives or associations is a step towards improving the efficiency and productivity of small farmers. By pooling their resources and sharing equipment, farmers can reduce the cost of production and have access to modern equipment and technologies. However, the success of agricultural mechanization programs depends on addressing several challenges related to policy development and implementation, particularly in developing countries. It is crucial to consider the local context and involve stakeholders in the policy-making process to ensure the success of mechanization programs.

Process-Related Challenges. It is essential to have a smooth and well- implemented policy to ensure the growth and sustainability of the agricultural sector. According to Olayide et al. (2022), Nigeria's agricultural mechanization policy has been characterized by a lack of coordination, inadequate funding, and a weak institutional framework, which have hindered the adoption and diffusion of agricultural mechanization

technologies. Participant 7 supported this argument by identifying the conflict between higher-ups, lawmakers, and farmers.

“Pero ang problema, kinsa may musangat didto kay mga lawmakers puro mana sila negosyante. Nagproblema gani ta nakaapekto sa atong farmers kaning importation. Why import? Unsaon man nato pagtabang sa atong farmers og mag-import? Makakwarta man sila sa importation. Muingon nga mas barato man ang import kay sa mupalit sa atoa. Ang pangutana, kinsa manang mali? Alang-alang no nga mahal man tanan, ang fertilizers ug mga input.” (The problem is who will address (the problems of the farmers) there when our lawmakers are businessmen. We are facing a huge problem right now which is importation? Why do we need to import? How can we help our farmers if we import? It is because they can earn from importation. The question is whose fault is that? Our products are expensive like the fertilizers and all inputs.) (P7, RQ 2.1.2)

Moreover, the study discusses the challenges related to developing and implementing agricultural mechanization policies, particularly in developing countries. It also highlights the importance of considering the local context and involving stakeholders in the policy-making process to ensure the success of mechanization programs. Participant 4 also recognized the conflict that has been going on within the barangay and the disappointment of farmers in the government.

“Of course, og ani nga mga difficulties usahay ang farmers naay disappointment sa government. Usahay man gud, lisod jud nga kalabanon ang politika. Usually gyud part gyud na sa among guidelines nga muagi kay mayor. So, kung ikaw kay implementor ka, dapat pag-abot nimo sa field, kabalo ka sa situation even the political environment, ug kabalo ka mudula as implementor. Naa jud farmer nga magreklamo nga dili siya matagaan. Mao nang daghan farmer magreklamo nganong siya nahatagan, ako wala.” (Farmers have disappointments with the government. Sometimes, it is difficult to go against politics. It is part of our guideline that (everything) must pass first to the mayor. So, if you are an implementer, once you are in the field, you need to know the situation and the political environment. There are farmers that complain why he did not receive assistance while the others are able to.) (P4, RQ 2.1.2)

Generally, the lack of coordination, inadequate funding, and weak institutional framework have hurt the county's agricultural mechanization policy. The study emphasizes the challenges faced in developing and implementing such policies, especially in developing countries. Therefore, considering the local context and involving stakeholders in the policy-making process can help ensure the success of mechanization programs. Policymakers must work towards addressing these challenges and implementing effective policies to promote the adoption and diffusion of agricultural mechanization technologies. This will improve agricultural productivity and contribute to the country's overall economic growth.

Operation and Maintenance Problems. Agricultural equipment is essential for modern farming practices. However, the operation and maintenance of these machines can pose significant challenges to farmers. Some common problems farmers face includes equipment breakdowns, poor maintenance practices, and operator error. According to Keshavarz et al. (2020), agricultural and biological engineering highlights the importance of precision agriculture technologies in improving the efficiency and productivity of agricultural equipment. The study suggests that precision agriculture technologies can help farmers minimize the risks associated with equipment breakdowns and optimize their overall farm operations. Participant 6 supported this argument by claiming that the equipment acquired by the farmers was misused.

“Naa man pud uban nga beneficiaries nga naka acquire og machineries nga dili man sila kabalo mugamit. So, ang tendency is mastuck lang ang machinery, dili nila magamit. Si government pud pag makakita og ingana nga oppurtunity kuhaon na nila or e pull-out na nila og ihatag na nila sa mga beneficiaries nga kaya maggamit sa machinery.” (There are some beneficiaries that can acquire these machineries but do not know how to utilize or operate them. So, the tendency is that the machinery will be stuck and will be unusable. The government, if they see this opportunity, will pull-out such machineries and give it to the beneficiaries who can really utilize it.) (P6, RQ 2)

The durability of machines in agricultural mechanization can be a significant challenge regarding operation and maintenance. Regular wear and tear, exposure to harsh weather conditions, and improper usage can all

contribute to equipment breakdown, leading to increased repair costs and downtime for farmers. According to Singh et al. (2021), the impact of maintenance practices is vital to the performance and durability of agricultural machinery, focusing on lubrication, cleaning, and inspection protocols. Participant 4 analyzes the durability of the equipment.

“Another challenge is the after sales service. Pag magdeliver (og machine), after one month, naguba na siya.” (Another challenge is the after-sales service. When they deliver the machine, after one month, it's already broken.) (P4, RQ 2)

In conclusion, precision agriculture technologies can play a crucial role in enhancing the efficiency and productivity of agricultural equipment while minimizing the risks associated with equipment breakdowns. However, it is equally important to implement proper maintenance practices, including proper lubrication, cleaning, and inspection protocols, to ensure the long-term performance and durability of the machinery. By adopting these measures, farmers can optimize their overall farm operations and maximize their yields, contributing to the sustainable growth of the agricultural industry.

Farmers' Strategies for Addressing the Challenges

In the ever-evolving landscape of agriculture, farmers continually navigate myriad challenges, adapting their strategies to ensure resilience and sustainability in their livelihoods. The coping mechanisms shared by the local farmers necessary to overcome the challenges they experienced revolved primarily around five (5) existing themes and thirteen (13) core ideas. The main themes include seeking financial support, availing other forms of government support from the farmers, extending support from the government, affiliating with an association, strategizing for agricultural productivity, and establishing stronger cooperation and collaboration with the government.

Seeking Financial Support. In agriculture, financial stability is the cornerstone upon which the success and resilience of farmers depend, especially for small farmers who have gained increasing recognition for their sustainable farming practices and for enhancing the livelihoods of rural communities. However, even using the best-practice farming methods, such small farms are often not financially viable (Stringer et al., 2020). Participant 2 identified the need for financial support, highlighting that even with government assistance offering access to agricultural machinery or similar resources, small farms continue to face financial hurdles but shared their ways of coping with them.

“Ang akong mga specific nga strategies para macope up nako tong mga kuan sa challenges sa mechanization is isa na dira ang loan nga ginaprovide so para naa kay kapital ug makapalit ka saimong desired nga machines para makatabang sa imohang farms.” (My specific strategy to cope with the challenges of mechanization is through a loan (to banks) that provides capital for the farmers so they can buy the desired machines.) (P2, RQ 3.1.1)

Moreover, according to Sorgho et al. (2020), farmers rely on their support systems when they face farming difficulties. Their social networks, friendships, kinships, and social groups constitute a primary source of support, ranging from channels of knowledge sharing to sources of financial support. Farmers also rely on government services, the most utilized of which is the agricultural extension service. Participant 1 also concurred with Participant 2's response.

“Effective ang pagloan nako as a farmer. Nakatabang man to nga isip, mao manay kuan jud na interesado jud ka mag-farm, nangutang ka kay para mao imong i-invest para maong imong igasto saimong farm. So, very effective.” (Yes, through loans, I find it effective as a farmer. It helped me to be more interested in farming. You will borrow/loan to invest in your farm. So, it is very effective.) (P1, RQ 3.1.2)

Using loan services has proven to be an efficient tool for enhancing the farmers' experience, enabling them to foster a deeper relationship and interest in agriculture. By borrowing and investing in their farms, farmers can achieve substantial improvements and can greatly motivate their productivity. Thus, using loans to invest in farming initiatives is viable and effective.

Availing Other Forms of Government Support by the Farmers and Extending Support by the Government. The symbiotic relationship between farmers and government plays an important role in shaping the progress and sustainability of the country. As key contributors to food production, farmers confront many challenges, from financial constraints to market fluctuations. In response, governments worldwide have implemented various forms of support to bolster agricultural resilience and livelihoods. After all, agricultural development support has continued to be one of the key strategies of governments in developing countries to enhance the livelihood of farmers, primarily small-scale farmers (Mokgomo et al., 2022). The availing of alternative governmental assistance by farmers and governmental provision of additional support was cited by Participant 1.

“Isip ang agrikultura nga Department of Agriculture muhatag og giya ngadto sa farmers labi na kung unsa ang ilang kulang ug gusto. Halimbawa, sa nursery, pagtanom sa mga prutas, unsaon pagbuhat. Then pagsumpay sa klase-klase nga tanom unsaon pag sumpay. And so on.” (The agriculture sector, through the Department of Agriculture, will guide the farmers, especially in terms of the farmer’s inadequacy and wants. For example, in nursery, (the sector) will teach the farmers in planting fruits and how to do it. Also, it will teach them how to cultivate different kinds of plants. And so on.) (P1, RQ 3.1.4)

Participant 3 also endorsed Participant 1's response while providing alternative ways to avail of other forms of government support.

“Kahit dili sila maka avail og mga gamit gikan diri, daghan pa man sad og lain nga maavail nila diri parehas anang mangayo sila og semilya sa seeds, semilya sa mga prutas, para ma tanom sa ilang yuta, para sunod naa na silay mapopo.” (For those who cannot avail, farmers will get back to using traditional ways like through carabao (to plow the fields). If they cannot avail things here, they can still avail many things here like seedlings/seeds of fruits so they will plant in their lands. So, next time, farmers have something to harvest.) (P3, RQ 3)

However, Participant 3 expressed a slightly contrasting viewpoint. Emphasizing how certain farmers tend to accept resources without exerting significant effort and pointing out deficiencies of the implementation in that regard.

“Para sa akong kay implementation ang kulang, kasagaran man gud sa farmers, nagsalig lang siya sa dawlimps lang ba or dawat-limpyo, mao na kasagaran sa akong naobserbahan. Ang gusto nila hatagan lang sila permanent, wala silay kusang-loob lang ba. Dapat e-encourage sa gobyerno ang mga farmers na dapat dili sa tanang higayon mag sige sila og kuan. Dili lang raba sila ang gina assist, dapat mag initiative pud sila. Mao na akong nakita.” (For me, the implementation is lacking. It is usually the farmers, they just rely on what seems to be limp or clean, that's what I usually observe. What they want is to be given to them permanently, are they not willing? The government should encourage the farmers that they shouldn't always go to work. They are not the only ones who are being assisted, they should also take the initiative. That is what I saw.) (P3, RQ 3.1.4)

The observed lack of effective implementation in farming initiatives stresses a serious barrier to agricultural growth. Many farmers count on subsidies rather than actively improving their farming operations. Despite receiving additional support like training and seeds to farm, some farmers fail to use these resources efficiently, resulting in lost chances and resources. While there are dedicated farmers who have put all those supports to good use, there is still room for more encouragement and efforts from both the government and the farmers to achieve more and promote sustainable farming practices. Encouraging farmers to take control of their development and invest in their farms is very important to long-term agricultural success.

Affiliating with an Association. Embracing collective action, many farmers find strength in affiliating with an association. According to Jack et al. (2020), as farmers operate in increasingly competitive global markets, farm-level profitability depends on their recognition of the need to adopt new management practices and advanced technologies to underpin sustainable farming systems. Government plays a crucial role in enhancing the innovative capacity of farms by facilitating extension services, motivating farmers to enhance their skills, adopt new technologies, and embrace best practices. This is proven to be a fact by Participant 5's response.

“Ang sa akoo lang jud ana ang pag-apil og asosasyon. Pag sa asosasyon, dali nalang pud pagdool sa gobyerno. Dali nalang pud paghatag ang ayuda, ang tabang. Kailangan nga muapil jud ka. Dili jud ka magsolo-solo ra kay at least daghan ang mutabang ninyo pag grupo man mo—ang lokal, ang nasyonal, pati mga foreign. Labi no mga NGO’s.” (My strategy is to join associations because through this, we can easily approach the government and aid will be given to us swiftly. You really need to join (to association). You should not go separately/individually because if you are in groups, many will help you—the local, national, also foreign, and especially the Non-Governmental Organizations.) (P5, RQ 3)

The assertion made by Participant 5 is substantiated by evidence from the findings according to Vu, Ho, and Le (2020), that farmers' associations play an important role in helping members increase their access to support information, capital, and technology, bringing benefits to members; and partly promoting production, enhancing productivity, and increasing income. Following this, Participant 4's perspective aligns with and further supports this assertion.

“Number one is naga association na ang farmers. Active na karon ang mga farmers pag tawagon nimo sila, naa dayon sila. Second is dili lang sila nagaorganize, nagaregister na jud sila as association sa DOLE. They really make their association legit. Also, farmers na mismo ang muadto sa D.A. ug e voice out na ang mga kinahanglan. Next is better communication between farmers and D.A. and vice versa.” (Number one is farmers are now forming associations. Farmers now are very active. Once you call them, they will respond immediately. Second, farmers are not just organizing, but they also register their association to the Department of Labor and Employment. They really make their association legitimate. Also, farmers can now voice out their needs to the Department of Agriculture.) (P4, RQ 3.1.1)

Farmers display a significant increase in participation by actively forming and registering their groups with governmental bodies such as the Department of Labor and Employment. This increased level of organization enables farmers to express their problems and needs directly to government agencies like the Department of Agriculture. As farmers' associations gain popularity and legitimacy, they reflect a positive trend that illustrates a healthy and evolving relationship between farmers and government agencies. This relationship holds the prospect of developing more specialized policies and procedures that will support and are more suited to address unique and complicated issues of people working in the agricultural sectors.

Strategizing for Agricultural Productivity. In pursuit of enhancing agricultural productivity, farmers employ various strategies tailored to their unique contexts and objectives. In food security, a fundamentally new strategic task has been formulated to achieve the physical and economic accessibility of food products that meet rational consumption standards. For this reason, strategic planning is currently focused on ensuring food security and the development of the agri-food sector as a complex issue (Samygin et al., 2023). Participant 6 highlighted this idea of how farmers strategized for their agricultural productivity.

“Number 1, know jud og unsa ang imohang pinaka problema and from that diha ka maka draw og mga strategy para makasolve og problem. Kung imohang problema is how to sustain ang imong machineries or mga program nga gihatag sa imoha. Number 2 katong mga strategy doable ba to nga mga strategy para magamit nimo para macorrect tung problem and within sa surrounding kinsa man imohang madoulan para at least man lang makahatag sa imoha og tabang para masolusyonan ang mga problem.” (First, you need to know what your problem really is and from that you can draw strategies to solve your problem. Then, is your strategy doable to correct your problem? And within your surroundings, who you can go to to at least lend you some help to solve your problem.) (P6, RQ 3.1.1)

While farmers are dedicated to improving their agricultural productivity, improved agricultural technologies promoted by governments and other actors are not necessarily adopted by farmers, particularly in developing countries. This might be explained by a lack of information and understanding of farmers' preferences and priorities and how the improved technologies fit their realities (Kilwinger et al., 2020). However, they are relentlessly adapting to these challenges through methods outlined by Participant 2 in their perspective.

“Ug isa pud is, as a farmer, since kung di nimo kaya iachieve ang machines pero kaya nimo i improve ang imohang mga activities or ways sa farming, pwede nimo siya gamitan as strategy. So, pwede nimo iadjust ang

imohang ways of farming iadapt nimo para ready naka pagmechanize pag naa na kay kapital.” (Another thing, as a farmer, if you cannot improve your activities, you can adjust your ways of farming so you can adapt once you already have a capital to mechanize.) (P2, RQ 3.1.1)

Sharing a similar viewpoint, Participant 4 offers additional insights into the specific challenges faced in integrating these technologies and fully comprehending and maximizing the benefits of agricultural assistance.

“Ang uban nagashift into other commodities which dili siya pwede nga kato nga machineries ang gamiton. And ang uban nagaconsult sa katong mga expert para mafully utilize tong machineries nga gihatag saila” (There are those that shift into other commodities in which they do not need to use the machineries. There are also others that consult experts to fully utilize the machineries that is given to them. With regards also to the establishment of projects where farmers can loan.) (P4, RQ 3)

While other farmers seek experts' opinions and advice on making the best use of the provided machinery, some opt to transition to different commodities that need less reliance on gear. There is also an emphasis on building projects that make loans more accessible to farmers. This diversified approach underscores the significance of exchanging knowledge and adaptability in the agricultural sector. It also highlights the importance of measures that assist farmers in overcoming problems and accessing resources to help the resiliency and sustainability of agricultural practices.

Establishing Stronger Cooperation and Collaboration with the Government. According to Sgyekumhene et al. (2020), smallholder farmers in developing countries generally lack access to advanced agricultural supplies, timely market information, and a full range of financial services. Stimulating partnerships that include mutual benefits for smallholder groups and value chain actors is increasingly seen as improving smallholder access to these services. That is why enhancing agricultural progress by cultivating robust cooperation and collaboration between farmers and governmental bodies is underscored as crucial by Participant 6, who highlights the importance of fostering cooperation and innovation, resource allocation, and policy development within the agricultural sector.

“Yes, in what way? Una naa tay mga personnel nga pwede makatabang sa mga farmers nga nakaencounter og problem, una diha katong mga naghatag mismo og machineries sila mismo ang direct nga makahatag og advises ug possible solution para ma address tong mga problem. And aside from that, naa pud tay mga agencies nga pwede makahatag og solution sa mga problem na naencounter sa mga farmer.” (Yes, in what way? First, we have personnel that can help the farmers who encounter problems like those who directly give machineries. They can directly give us support through advice to address the problems. Aside from that, we also have agencies that can give solutions to the problems encountered by farmers.) (P6, RQ 3.1.3)

Participant 2 also endorsed Participant 6's response and added more information on alternative ways the government can help the farmers.

“Yes, importante kaayo ang mga cooperation with the government kay ang government man gud is pwede na siya muprovide og mga ways nga kung asa mas easier sa farmer. Example ana—nagaprovide siya og mga loan sa farmer nga in a low interest. Ug advantage permi sa farmer ang ilahang mga protocols or kuan kanang parang makabayan siya ba, makamasa.” (Yes, the cooperation with the government is very essential since the government can provide ways (for mechanization) that are much easier for the farmers. Example, it can provide loans to the farmers at a low interest. The government can also make policies which are advantageous for the farmers—policies that are for the masses.) (P2, RQ 3.1.3)

A good collaboration between the government and the farmers is critical for agricultural mechanization's advancement. As the government plays an important role in alleviating and giving farmers more access to resources, such as low-interest loans, it can greatly reduce farmers' financial burdens. Furthermore, it also underscores the importance of policies prioritizing the farmers' interests while boosting mechanization for the greater agricultural community. As farmers and the government worked harmoniously, both benefited from the agriculture industry and the economy.

Farmers' Insights on the Policy

The perspectives shared by the farmers affected by the implementation of the agricultural mechanization policy regarding the insights or suggestions comprised primarily of three (3) existing themes and nine (9) core ideas. The three themes identified in this section include the need for the government to support Filipino farmers, the usefulness of the mechanization policy, and the importance of improving the policy and its process.

Need for the Government to Support Filipino Farmers. The agricultural sector is one of the most vital foundations of a strong country. When investing in this sector, the farmers should not be left alone to make the improvements independently. The government has to offer its full support to minimize the farming community's obstacles. According to a report made by the National Economic and Development Authority (2022), to boost domestic supply, the government should continue to support and assist the agricultural sector by lowering the cost of inputs, farming innovation, extending financial assistance to the farmers, and strengthening the agricultural value chain. Participant 7 recognized the intention of the agricultural mechanization policy for the farmers but added that there is a lack of assistance and insufficient ability to implement arms from the government.

"The intention is there; it is very good. Assistance lang jud. Parehas anang kinsa may angayan, unsaon nato na. Bisan karon mga ayuda sa gobyerno, naay wala kadawat, ang kadawat mga paryenti ni kapitan. So, naa dira ang problema along the way. Parehas gud before mga previous station naay gwapo nga balaod, ang problema is the implementing arm. Sa implementation man magkatalo." (The intention is there; it is very good. But only its assistance. Like whom should be given (these machines), how can we do this? Even now, there is assistance from the government, but most people who have received this are the relatives of the barangay captain. So, the problem is there along the way. Same before in our previous station, there were good policies, but the problem lies in the implementing arm. The issue is in its implementation.) (P7, RQ 4)

In the context of the lack of assistance from the government, Participant 1 said that the requests made by the farmers to avail agricultural equipment, and machines take too long to be procured. Lengthy procedures are often the main reason why farmers struggle with this policy. She stated:

"Ang pinaka the best nga akong iingon sa government kay importante man gud ang pagtabang ngadto sa farmers. Then, kay kana gud mechanism man gud na siya, kanang equipment niya dili siya dayon madali-dali labi na ug mag request. Mao gyud nay problema sa gobyerno, ang mga requests dugay kaayo maabot. Mao nang maglisod ang mga farmer kay lack kaayo ang support sa gobyerno." (The best thing I could say to the government is it is important to help the farmers. Then, since these are mechanisms and equipment, the requests from farmers are not easily heeded. This is the problem of the government, the requests from farmers take too long to arrive. This the the reason why farmers are struggling (with this policy) because of the lack of support from the government.) (P1, RQ 4.2.2)

Participant 6, however, took on a different path by focusing on the sustainability of the equipment and the programs provided by the government through individual responsibility. He then added that it would be more efficient if the people fortunate enough to avail this assistance will learn to share it with those unable to do so.

"Swerte kaayo ang mga farmer na makadawat anang mga programa sa government though dili tanan makadawat, pero at least kato sila happy-happy na tung mga nakadawat. Ang atoa lang masustain jud to nila ang mga gihatag nga policy and programs nga gihatag sa government sa ilaha, and mas nindot pud unta na mashare pud nila sa mga wala naka benefit sa mga gihatag nga mga program, eshare sad nila sa mga wala naka benefit nga mga farmers." (Farmers who are supported by this program are so lucky. Although not all farmers can receive this, but at least, those who are able to avail are happy. It is just that the government should sustain the policies that are given to the farmers and also, it would be nice if they can share it to those who were not able to benefit from this program.) (P6, RQ 4)

With all of the problems and challenges the farmers grapple with regarding the agricultural mechanization policy, some remain grateful for this modernization process, especially those who can afford it. Only human

nature dictates if those who are able to avail of the equipment will share it with those who have not availed it. But this world will become less painful if farmers share it with their fellow farmers.

The Usefulness of the Mechanization Policy. In an ever-changing global society, we need to adapt to the modern ways of conducting our daily activities. The agricultural sector is not an exemption to this modernization process. Governments across the globe have taken many steps to galvanize the agricultural industry. One of these steps is the implementation of agricultural mechanization policy. According to Zhang et al. (2023), farming mechanization can improve the efficiency rate of the farmers since it can make operations much simpler and faster while resulting in higher productivity. Participant 3 said that the life of the farmers now is much easier with the utilization of mechanisms compared to before when they would manually do the work.

"Daghan oy, dako baya og tabang ang mga mechanical, kay tungod ana mapadali ang pagkuan sa mga farm products, dali ra maka income. Samantalang tung niagi ikaw pa mag ugmad magtuwad-tuwad, maabtan pa ka og siyam-siyam. Mao nang naka nindot." (There are a lot of benefits from mechanical machinery. Because of these machineries, producing goods will be a lot easier, and also there's added income to the farmers. Compared to the past all farming works are in a traditional way which exerts more effort and consumes more time. That is what's nice about it.) (P3, RQ 4)

According to the report of the United Nations Food Systems Summit (2021), agricultural or farming mechanization reduces the losses of laborers with the help of more efficient pre-harvest, harvest, and postharvest procedures. Participant 6 affirmed this statement by saying it positively affected the farmers since production and postharvest processing costs were lessened.

"Ang akoang nasabtan, usa kana ka programa nga muhatag ug mechanization ngadto sa atuang mga farmers para mulesen ang mga cost sa post-harvest processing sa atuang mga agricultural activities sa atoang farm." (What I have understood is that this is a program that gives mechanization to the farmers to lessen the cost of post-harvest processing in our agricultural activities in terms of farming.) (P6, RQ 4.1)

Furthermore, Participant 7 supplied another usefulness of this policy to the lives of the farmers and the whole nation. Since the population is growing much faster, there is a need to double the food production. According to Jiang et al. (2020), the advent of agricultural mechanization in all parts of the world has been progressively supplanting manual labor, thereby augmenting agricultural productivity and development. However, although machines and equipment are really useful in increasing productivity, Participant 7 said such machines are still too expensive to purchase.

"Actually, pinaka the best jud na para makasabay ta sa trend karon. Unlike before nga gisaligan lang nato ang hayop unya ang growing population kay nagaincrease so we also need to double the production of food. In what way? Sa highly na nga mag mechanize ta. Ang problem is costly man gud ang mechanization, mahal jud siya." (Actually, it is best so we can cope with the trend in the present. Unlike before when we rely on animals and our growing population is increasing so we also need to double the production of food. In what way? We highly need to mechanize. The problem is it is costly, it is expensive.) (P7, RQ 4.1)

Agricultural machinery allowed the farming community to adapt to the modernization of agricultural practices. Several studies have shown that agricultural mechanization has improved the living conditions of the farmers, as well as their farming practices. But to do this, farmers need to purchase machines and equipment first to actualize the development brought by this modernization technique. This is where the problem succinctly lies, as not all farmers have the financial resources to avail of these machines. Despite how useful this farming mechanization is, only a few farmers can testify to its usefulness.

Importance of Improving the Policy and Its Process. Improving the agricultural mechanization policy means the government is true to its goal of bolstering our country's farming industry. Improvements can be made through valuable communication between the farmers and the institutions that support this policy, such as the Department of Agriculture. According to a report by the Organization for Economic Cooperation and Development (2021), improvements in farming sectors or "process innovations" often lead to stronger

production techniques, for example, higher yields of crops. This can be done if the government fully commits to serving the farmers. Participant 4, thus, suggested that there should be improvements in the mechanization policy if it wanted to create a substantial agricultural sector. Participant 4 emphasized the importance of pinpointing the farmers' needs before giving them the equipment to avoid machine mismatching.

"Napansin jud nako sa agricultural mechanization is naay mga machineries or equipment nga ginahatag na dili gyud swak. Kung ako mutan-aw bottomline, makatabang siya sa farmers pero a lot of mechanization programs sa government dili gyud muswak sa need sa farmers. Dapat didto jud ta mag strengthen kung unsa ang mga needs sa farmers and unsa ang ihatag sa ilaha na swak jud." (I have observed that the machines and equipment given under the agricultural mechanization policy do not match the needs of the farmers. If I see through it, the bottom line, it can help the farmers, but a lot of mechanization programs do not fit the urgent needs of the farmers. We need to strengthen it so we can perfectly assist the farmers with their needs.) (P4, RQ 4)

Participant 4 then proposed some strategies to improve the services of the agricultural sector, such as constant feedback mechanisms and benchmarking. The communication between the farmers and the government should always be at the center of this improvement procedure to thoroughly assess the grassroots problems of the people involved in implementing this policy. Then, the government must also conduct a comparative analysis to benchmark how we conduct our farming activities and promote agricultural policies/programs in comparison with neighboring nations. According to Chibanda et al. (2020), benchmarking allows for a close examination and comparison of farm performance to identify areas where the profits can be enhanced as efficiency improves. This helps establish the major drivers for profitable systems and comprehend their national and global competitiveness. Participant 4 stated that:

"First, ang constant nato na feedback mechanism. Second, mag benchmark ang D.A. with other countries nga same ang atoaang environment, same ang atong situation sa Asia like Vietnam and Thailand. Tan-awn nato unsa ilang practice as far as mechanization is concerned. So, benchmarking, mao na siya ang dapat buhaton sa atoa country." (First is the constant feedback mechanism. Second is benchmarking of the Department of Agriculture with other countries with the same environment and situation as we like in Asia, Vietnam and Thailand. We will evaluate their practice as far as mechanization is concerned. So, this country needs to do benchmarking.) (P4, RQ 4.2.1)

To improve the farming system in the Philippines, Participant 7 suggested that there should be a separate agency that will solely focus on implementing the agricultural mechanization policy in the country. Through this, no issue concerning the modernization process of the farming community can be neglected. This agency will provide mechanisms and training for the farmers on properly using such machines. In the research article by Hasan et al. (2021), farmers require adequate supervision, demonstration programs, and training for farm mechanization to use and implement them effectively. Different attitudes or characteristics of farmers may impact this occurrence, which may require further study to clearly depict their stance toward farm mechanization. Farmers' concerns with farm mechanization and their proposed remedies may contribute to a more thorough understanding. Participant 7 believed that a new agency should be established to do this.

"Kinahanglan naay separate nga ahensiya nga mututok ana. Ibutang nato, sa D.A. naa man tay engineering department or section. Didto na ibutang pero naa na siyay section—Farm Mechanization section. Unsa mana iyang role? Siya na ang mu extend og assistance sa land preparation assistance sa atong mga production areas—corn, vegetable, soybean." (There should be a separate agency that will focus on this matter. Like in the Department of Agriculture, we have an Engineering Department or Section. It can be put there, but it should have a section that solely focuses on farm mechanization. What is its role? It will extend assistance on land preparation in terms of production areas such as corn, vegetables, and soybean.) (P7, RQ 4.2.2)

Development will only start to propagate in this country if we only listen to the people's concerns. Communication between the government and the people is necessary, especially regarding policy implementation. Establishing a new agency that will solely focus on the concerns of the farmers regarding the agricultural mechanization policy can be a great step for this sector to improve its practices and adapt to the modernizing agricultural domain.

CONCLUSION AND IMPLICATION

This section significantly covers the researchers' implications, conclusions, and recommendations. The study primarily focuses on the experiences, challenges encountered, coping strategies/mechanisms developed, and the insights of the farmers regarding the agricultural mechanization policy, for which a qualitative approach is deemed appropriate in the context of this research study.

Conclusion

The study's primary objective is to determine the impact of the agricultural mechanization policy on the lives of the local farmers. This study demonstrates the challenges and struggles farmers grapple with in implementing this policy. The research additionally assessed the coping strategies and mechanisms utilized by the participants to overcome the problems they faced. All data gathered from the seven (7) participants were collected using phone calls and online interviews, whereas a qualitative approach was explicitly chosen. This method evaluates the farmers' perspectives and determines the coping strategies and insights concerning the agricultural mechanization policy.

Based on the results and findings of this study, the first set of comprehensive themes indicated the positive and negative impacts of the policy on the lives of the farmers. On the positive side, farmers experienced an easement of labor as machines could already do the work of the farmers. However, the negative impact also comes from this idea, as machines might replace the workers in no time, which can cause job loss for the farmers. Farmers also encounter relevant problems in the mechanization process, such as equipment mismatching, the high cost of machines, financial aspects, and the insufficiency of machinery.

Moreover, compounded challenges identified in the second set of themes revealed that participants also experienced process-related challenges, such as the harvest and postharvest processing and the problem of equipment operation and maintenance. Since most of the farmers are in the lower sector of society with a much lower income status, they find it difficult to avail maintenance services for the equipment.

The third set of themes underscores the critical role of coping strategies in overcoming farmers' challenges. Seeking financial support from the government and affiliating with an association emerged as essential tools to address the struggles concerning the agricultural mechanization policy. Farmers, through the Department of Agriculture's initiative, can loan to some government-affiliated banks as a form of assistance. This will serve as the farmer's capital to start and innovate the farming procedure. Moreover, farmers can join an existing legal farming association/cooperative to borrow or rent agricultural equipment for a much lower price. This association will also serve as a support mechanism for farmers to develop their production levels.

Lastly, in the fourth set of themes derived from the insights and realizations of the farmers, it was found that there is still a need to improve this policy to fully utilize the advantages of mechanization strategies. The government must create a better system by which they could easily assess the concerns and problems grappled by the farmers regarding such a policy. One insight from the participants on improving this policy is establishing a separate agency/department that will solely focus on implementing farming mechanization in our country. Furthermore, although the farmers admitted that this policy is immensely useful in their farming activities, support from the government is still insufficient. If the government wants to improve this country's agricultural sector, it should listen to the cries for support from the farmers involved in this modernization process.

Implication

This study determines the farmers' experiences concerning the agricultural mechanization policy implemented by the government. This section will discuss the importance of this study to the agricultural sector and how conclusions might impact various factors. Seven (7) participants who had been part of the farming industry for years were evaluated and interviewed by the researchers for this study.

The findings of this study revealed that there is a necessity for improving the mechanization policy of our farming sector. Farmers experienced various effects regarding implementing the agricultural mechanization policy, including financial, mental, physical, and emotional aspects. Aside from this, local farmers also find it difficult to cope with the ever-changing landscape of farming mechanization, as adopting technology requires a sufficient amount of money. With this, the study's outcome paves the way for the farmers to express the grievances and experiences they endured concerning the aftereffects of implementing this policy. Furthermore, the policymakers and those who are in charge of the implementation of this policy should take into account the insights provided by the study participants. One of the functions of the government is to implement programs that will augment this country's agricultural sector. The government must be wary of the program's possible effects in implementing such programs. This can be done by assessing the people involved in the program and by evaluating how the program is implemented. The researchers hope that the government will take action to address the cries of our local farmers affected by the agricultural mechanization policy. The farmers and laborers are the bedrock of the country's agricultural domain. Simply hearing and assisting them with their concerns can help to boost the overall development of the agricultural sector of the Philippines. Lastly, this study will serve as a guide for future researchers, specifically those focusing on policies, to extensively evaluate many factors affecting both the positive and negative impact of policy implementation.

Agriculture is the lifeblood of a nation. It sustains the people with enough nourishment to face another day with hope and aspiration. But most of all, it provides a living for our hard-working farmers and their families. In this regard, the researchers argue the importance of improving this policy to make the lives of our farmers a little less painful. The government must respond to this with more efficient and ingenious strategies.

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