Green Financial Management Practices among Multi-Purpose Cooperatives: Its Impact on the Sustainability of Operations

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ABSTRACT

This study assessed green financial management practices among multi-purpose cooperatives in Santiago City, Isabela, and their contribution to operational sustainability. Specifically, it determined the demographic profile of the respondents, the profile of the multi-purpose cooperatives, and the level of green financial management practices in terms of management green commitment, green intellectual capital, green human resource management, and sustainable business performance. The study used a descriptive research design and included 156 respondents from 13 active medium- and large multi-purpose cooperatives. The researchers gathered data using a survey questionnaire adapted from Keetpat Chaweewong and Aree Naipinit's study on green management practices and sustainable business performance among cooperatives. The data were analyzed using percentages, weighted means, standard deviations, the Kruskal–Wallis H Test, and Spearman Rank-Order Correlation.

The findings revealed that most respondents were 51–60 years old, female, married, college graduates, and members of the Board of Directors. Most cooperatives had medium membership and a medium capital structure, and all had operated for more than ten years. Overall, participating multi-purpose cooperatives extensively practiced green financial management. Management Green Commitment and Green Intellectual Capital were among the strongest areas, while Green Human Resource Management and Sustainable Business Performance were also highly practiced. Significant differences were found by membership size and capital structure, while no significant differences were found by age, gender, position, civil status, years in operation, and years in practice. Furthermore, the results showed significant positive relationships among management green commitment, green intellectual capital, green human resource management, and sustainable business performance.

The study concluded that multi-purpose cooperatives in Santiago City demonstrate a high level of green financial management practices, particularly in management commitment and green intellectual capital. The findings highlight the importance of strengthening environmentally responsible management, employee practices, and sustainable business strategies to support the long-term sustainability of cooperative operations. The study recommends continuously enhancing green financial management practices and developing measures that further strengthen environmental responsibility, operational efficiency, and sustainable business performance.

Keywords: green financial management, multi-purpose cooperative, sustainability of operations, management green commitment, green intellectual capital, green human resource management, sustainable business performance.

INTRODUCTION

As environmental risks increasingly influence financial stability and economic growth, financial institutions are expected to play a vital role in promoting sustainable development through responsible financial management. Green financial management has emerged as a key strategy for balancing economic performance

with environmental stewardship, making it an essential practice for organizations that seek long-term sustainability.

Environmental responsibility and financial stability are becoming closely interconnected. Organizations are no longer expected to focus solely on profit but are also encouraged to consider their environmental impact and contribute to sustainable development. Because of this, green financial management practices are becoming increasingly important. These practices involve integrating environmental considerations into financial decision-making, such as sustainable investments, eco-friendly budgeting, and responsible operational activities (Kumar & Singh, 2020). As environmental issues such as climate change and resource depletion continue to intensify, adopting these practices has become essential to ensure long-term sustainability (Lee et al., 2022).

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Multi-purpose cooperatives play an important role in promoting sustainability because they provide a wide range of services, including credit, savings, marketing, and consumer services, to their members. Unlike single-purpose cooperatives, multi-purpose cooperatives operate in multiple sectors, which increases their potential to influence both economic and environmental practices within the community. Through their broad scope of operations, they are in a strong position to integrate green financial management practices and promote environmentally responsible behavior among their members (Tuan et al., 2021).

In Santiago City, Isabela, cooperatives continue to contribute significantly to local economic development. According to the 2024 master list from the Cooperative Development Authority (CDA), there are 80 registered cooperatives in the city. However, not all of them are actively operating. Based on the master list provided by the Office for the Development of Cooperatives in the City of Santiago, only 13 medium and large multi-purpose cooperatives are currently active and operational. These active multi-purpose cooperatives are particularly important to consider due to their diverse services and direct involvement in financial and operational activities.

Despite their importance, there is limited information on how many of these active multi-purpose cooperatives are implementing green financial management practices. Some multi-purpose cooperatives may have already adopted environmentally friendly initiatives, such as digital systems to reduce paper use, energy-saving measures, and support for sustainable projects. However, others may face challenges in adopting these practices due to limited resources, lack of awareness, or insufficient knowledge about environmental sustainability (Fernandez & Rojas, 2021).

This situation highlights the need to examine the extent to which green financial management practices are being implemented among multi-purpose cooperatives in Santiago City. Understanding these practices is important because studies show that green financial management can improve financial performance, strengthen organizational reputation, and support long-term sustainability (Harrison & Scuotto, 2021). Furthermore, identifying the practices that have the most significant impact can help multi-purpose cooperatives enhance their operations and better respond to environmental and economic challenges.

This study aims to assess the level of green financial management practices among multi-purpose cooperatives in Santiago City, Isabela, and determine their impact on the sustainability of operations. The findings of this study are expected to provide valuable insights and practical recommendations that can help multi-purpose cooperatives achieve both financial stability and environmental responsibility while continuously serving their members and the community at the same time.

As researchers, we consider this study important because it addresses the limited local evidence on the implementation of green financial management practices among multi-purpose cooperatives in Santiago City. By identifying the current level of implementation and its impact on organizational sustainability, this research seeks to provide useful information that can guide cooperative managers, policymakers, and future researchers in strengthening environmentally responsible financial practices. Ultimately, the study aims to contribute to the promotion of sustainable cooperative development while encouraging greater environmental awareness and responsible financial decision-making.

BACKGROUND OF THE STUDY

Green finance has become an important approach in modern organizations as it supports environmental sustainability through financial activities such as investment, lending, and resource allocation. It focuses on managing financial resources to promote ecological balance while maintaining economic efficiency. This approach, commonly referred to as green financial management, reflects the growing need for organizations to respond to environmental challenges and contribute to sustainable development. Its adoption is also consistent with the United Nations Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), which promotes sustainable economic development; SDG 12 (Responsible Consumption and Production), which encourages the efficient use of resources and sustainable business practices; and SDG 13 (Climate Action), which calls for organizations to adopt measures that reduce environmental impacts and support climate resilience.

As community-based organizations, multi-purpose cooperatives play a significant role in promoting sustainability because of their diverse functions and services. Unlike single-purpose cooperatives, multi-purpose cooperatives engage in various economic activities such as credit services, savings mobilization, marketing, and consumer services. As a result, they have greater capacity to influence both financial practices and environmental behavior in their communities. Their ability to integrate sustainability across operations makes them important contributors to environmentally responsible development.

Multi-purpose cooperatives actively support local economic growth and improve their members' welfare. These multi-purpose cooperatives engage directly in financial and operational activities, making them relevant for assessing the implementation of green financial management practices in the local context. Despite their importance, many multi-purpose cooperatives may face challenges in adopting green financial management practices. These challenges may include limited financial resources, lack of technical knowledge, and low awareness of environmental sustainability. In some cases, multi-purpose cooperatives may prioritize immediate financial needs over long-term environmental considerations, limiting the integration of sustainability into their financial decisions and operations.

Adopting green financial management practices offers several advantages for multi-purpose cooperatives. These practices include supporting environmentally responsible investments, implementing resource-efficient operations, and integrating sustainability into financial decision-making. According to Jones et al. (2023), organizations that adopt sustainability-oriented practices are more capable of improving overall performance and contributing to environmental protection. Similarly, Harvey (2022) emphasized that financial institutions are expected to go beyond traditional profit-driven objectives and actively support environmental sustainability.

Furthermore, multi-purpose cooperatives can evaluate both the direct and indirect environmental impacts of their financial activities by aligning them with sustainability goals. Clark et al. (2023) noted that organizations that integrate sustainability into their strategies are more likely to achieve long-term growth and resilience. By adopting green financial management practices, multi-purpose cooperatives can support environmentally responsible projects while maintaining financial stability and strengthening their role in community development. These initiatives also contribute to achieving the Sustainable Development Goals by encouraging responsible financial management, efficient resource use, and environmentally sustainable operations within the cooperative sector.

This study examines green financial management practices among multi-purpose cooperatives and assesses their impact on operational sustainability. Specifically, it seeks to identify the environmentally responsible financial strategies and practices implemented by multi-purpose cooperatives and assess how these contribute to financial stability, operational efficiency, environmental responsibility, and long-term sustainability.

Moreover, this study aims to provide insights and practical recommendations to help multi-purpose cooperatives strengthen their sustainability practices while maintaining financial performance and fulfilling social responsibilities. Understanding the current situation of these multi-purpose cooperatives in Santiago City is essential in developing effective strategies that support both environmental and economic goals.

Multi-purpose cooperatives have strong potential to contribute to sustainable development by adopting green financial management practices. By examining current practices and identifying areas for improvement, this study aims to strengthen their ability to maintain sustainable operations and continue serving members and the community effectively.

Research Questions

1. What is the demographic profile of the respondents in terms of:

   1.1 Age

   1.2 Sex

   1.3 Civil Status

   1.4 Position

   1.5 Highest Educational Attainment

2. What is the profile of multi-purpose cooperatives in terms of:

   2.1 Size of Membership

   2.2 Capital Structure

   2.3 Years in Operation

   2.4 Years of Practices

3. What are the green financial management practices of respondents in terms of

   3.1 Management Green Commitment

   3.2 Green Intellectual Capital

   3.3 Green Human Resource Management

   3.4 Sustainable Business Performance

4. Is there a significant difference in the practices of green financial management when multi-purpose cooperatives are grouped according to their profile?

Hypothesis

1. There is no significant difference in the green financial management practices of multi-purpose cooperatives when grouped according to their profile.

Significance of the Study

This study aims to examine the green financial management practices among multi-purpose cooperatives in Santiago City and their implication to the sustainability of operations. The results of this research will be beneficial to the following:

Multi-purpose Cooperative Management. The results will help multi-purpose cooperative management better understand the importance of integrating green financial management practices into their operations. It can guide them in improving strategic planning, strengthening sustainability policies, enhancing risk management, and ensuring long-term operational stability. The study will also support management in making informed financial decisions that balance economic performance with environmental responsibility.

Cooperative General Membership. Members of the cooperative will benefit from improved financial services that promote sustainability. The adoption of green financial practices may provide members with access to environmentally responsible loan products and investment opportunities. Additionally, sustainable operations can increase members' trust, satisfaction, and overall financial security.

Cooperative Development Authority (CDA). The findings of this study may serve as a reference for the Cooperative Development Authority in developing or strengthening policies and programs that encourage the adoption of green financial management practices. It may also support the CDA in promoting sustainability standards among multi-purpose cooperatives.

Local Communities. By promoting environmentally responsible financial practices, multi-purpose cooperatives can help support community development and protect the environment. This study shows how sustainable operations can lessen environmental impact, encourage green initiatives, and improve the overall quality of life in the community.

Financial Institutions and Investors. This study may provide financial institutions and investors with insights into the benefits of supporting multi-purpose cooperatives that adopt green financial management practices. It emphasizes the role of sustainability in strengthening financial stability and long-term growth.

Environmental Advocates. Environmental advocates may use the findings of this research to promote awareness of the role of financial institutions in supporting sustainable development and environmental conservation.

Researchers. This study is important to the researchers as it enhances their understanding of green financial management practices and their role in promoting sustainable operations among multi-purpose cooperatives. It also provides the researchers with valuable knowledge and insights that may be useful in their academic, professional, and future research endeavors related to sustainability and financial management.

Future Researchers. This study will serve as a valuable reference for future researchers who wish to explore topics related to green finance, sustainability, and cooperative management. It may help expand the literature and encourage further studies in this field.

Theoretical Framework

This study is anchored on the Stakeholder Theory, developed by R. Edward Freeman (1984). This theory explains that organizations are responsible not only to their owners but also to groups affected by their actions. These groups, known as stakeholders, include members, employees, customers, suppliers, the government, and the community. A stakeholder is any individual or group that can influence or be influenced by the organization's objectives and activities.

In the context of multi-purpose cooperatives, stakeholder theory highlights the importance of balancing financial performance with social and environmental responsibilities. Multi-purpose cooperatives provide a variety of services to their members and operate within communities, making them accountable to a wide

range of stakeholders. Their decisions and actions directly affect not only their members but also the surrounding environment and local economy.

The application of stakeholder theory in this study emphasizes that multi-purpose cooperatives must consider environmental sustainability as part of their financial decision-making processes. By adopting green financial management practices, such as sustainable investments, responsible lending, and eco-friendly operations, multi-purpose cooperatives can meet stakeholder needs and expectations while promoting long-term sustainability.

According to Awa et al. (2024), organizations are increasingly expected to integrate environmental and social considerations into their decision-making processes to meet stakeholder expectations and achieve long-term success. This highlights the importance of aligning financial practices with environmental responsibility.

Furthermore, Freeman, Dmytriyev, and Phillips (2021) explained that stakeholder theory contributes to long-term organizational success by addressing the interests of different stakeholder groups. This idea supports the view that multi-purpose cooperatives can enhance the sustainability of their operations by implementing environmentally responsible financial practices that benefit both their members and the broader community.

Stakeholder theory provides a strong theoretical foundation for understanding how green financial management practices influence the sustainability of operations among multi-purpose cooperatives. By considering the needs of various stakeholders, multi-purpose cooperatives can improve financial stability, strengthen member trust, and contribute to environmental protection. Therefore, this theory supports integrating sustainability into financial management practices to achieve long-term operational success.

Conceptual Framework

The researchers used the IPO system (Input-Process-Output) to evaluate the research procedure and obtain accurate data. Figure 1 illustrates the study's paradigm, anchored in the Input–Process–Output (IPO) framework. The study aims to assess the green financial management practices and their impact on the sustainability of operations among multi-purpose cooperatives. As shown in Figure 1, the input includes the respondents' profile in terms of age, sex, position, civil status, and highest educational attainment, as well as the profile of the multi-purpose cooperatives in terms of membership size, capital structure, years in operation, and years in practice. It also covers green financial management practices, particularly management green commitment, green intellectual capital, and green human resource management, sustainable of business performance, including the specific practices that influence sustainability. In addition, the input includes the dimensions of green financial management practices, namely management green commitment, green intellectual capital, and green human resource management, as well as the indicators of the sustainability of operations.

To obtain the data needed for the research study, respondents used a survey questionnaire to assess the implementation of green financial management practices, determine the level of these practices, and assess their impact on the sustainability of operations.

The output contains proposed measures to improve green financial management practices and enhance operational sustainability among multi-purpose cooperatives. These recommendations are intended to help cooperative managers and stakeholders develop strategies that promote environmental responsibility while ensuring long-term organizational sustainability.

Literature Review

This research includes the studies and literature identified by the researchers. These different sources are information that supports our topic. This review of related literature and studies is intended to help the researchers identify the factors behind this problem and its occurrence. They also aim to fill gaps in understanding and provide a basis for the researchers in formulating their information. The journal articles, internet sources, studies, and books the researchers found help them reach a conclusion at the end of the research.

Overview of Green Financial Management

Green financial management refers to the practice of including environmental concerns in financial decisions such as investment, lending, budgeting, and daily operations. It aims to balance financial performance with environmental responsibility to achieve long-term sustainability (Kumar & Singh, 2020; Tuan et al., 2021). Rather than focusing only on profit, this approach also considers how financial activities affect the environment and society.

Environmental problems such as climate change and resource depletion have pushed organizations to adopt more sustainable practices. According to Lee et al. (2022), many organizations are now expected to support environmental protection by investing in eco-friendly projects and reducing their environmental impact. Because of this, green financial management is becoming more important in different sectors.

Multi-purpose cooperatives have an important role in applying green financial management because of their wide range of services. They are involved in activities such as credit, savings, marketing, and consumer services, which allows them to influence both financial and operational practices. Since they are closely connected to their members and communities, they can also promote environmentally responsible behavior.

By adopting green financial management, multi-purpose cooperatives can support sustainable development while maintaining financial stability. They can invest in environmentally friendly projects, reduce waste in their operations, and encourage members to follow sustainable practices. Studies show that organizations that apply sustainable financial practices are more likely to improve their performance and achieve long-term success (Clark et al., 2023; Jones et al., 2023).

In addition, green financial management helps multi-purpose cooperatives align their financial goals with environmental objectives. This means that they do not only aim for profit but also consider the impact of their decisions on the environment. For example, they may choose to support green businesses, reduce energy use, and apply efficient resource management in their operations.

Overall, green financial management is important in helping organizations achieve both financial success and environmental sustainability. For multi-purpose cooperatives, adopting these practices can improve their operations, strengthen member trust, and support long-term sustainability.

Green Financial Management Practices

Green financial management practices serve as the independent variables of the study. These practices show how multi-purpose cooperatives integrate environmental sustainability into their financial decisions and operational activities. They reflect the ways in which multi-purpose cooperatives balance financial performance with environmental responsibility in order to achieve long-term sustainability.

The increasing concern over climate change, environmental degradation, and resource scarcity has encouraged organizations to adopt green financial management practices as part of their strategic operations. According to Kumar and Singh (2020), green financial management integrates environmental considerations into financial planning, investment decisions, budgeting, and resource allocation to achieve both economic and environmental objectives. Similarly, Lee et al. (2022) emphasized that organizations adopting green financial management practices are better positioned to address environmental challenges while maintaining financial stability.

Research has shown that organizations implementing green financial management practices experience improved financial performance and operational efficiency. Jones et al. (2023) found that organizations committed to sustainable financial practices are more likely to strengthen their organizational performance by reducing operational costs, improving resource utilization, and enhancing stakeholder confidence. Likewise, Clark et al. (2023) reported that integrating sustainability into financial management contributes to long-term organizational resilience and competitiveness.

Harvey (2022) explained that financial institutions have an important responsibility in promoting sustainability through environmentally responsible investment, lending, and financial policies. The study emphasized that organizations should incorporate environmental objectives into their financial decisions to minimize environmental risks while maintaining financial growth.

Tuan et al. (2021) stated that organizations adopting green financial management practices can effectively balance economic development and environmental protection. Their findings suggest that sustainable financial practices encourage organizations to invest in environmentally friendly projects while improving operational efficiency and long-term financial performance.

A study by Awa et al. (2024) found that organizations with strong sustainability-oriented financial practices are better able to develop innovative solutions that improve environmental performance and organizational competitiveness. The study also emphasized that environmental knowledge and organizational commitment play significant roles in successfully implementing green financial initiatives.

Sharma and Choubey (2021) likewise found that green operational and financial practices improve organizational efficiency through energy conservation, waste reduction, and digital transformation. Their findings suggest that integrating environmental sustainability into financial and operational activities not only lowers operational costs but also strengthens organizational performance.

Furthermore, Liu et al. (2024) reported that organizations implementing sustainable financial practices achieve greater financial stability by improving risk management and resource allocation. The study concluded that integrating environmental considerations into financial planning contributes to long-term organizational sustainability and resilience.

In the context of multi-purpose cooperatives, green financial management practices provide opportunities to promote environmental responsibility while fulfilling their economic and social objectives. Since cooperatives operate through collective participation and shared resources, integrating sustainability into financial management enables them to improve operational efficiency, strengthen member trust, and contribute to community development. These practices also provide a foundation for achieving sustainable operations while ensuring that financial decisions support both organizational growth and environmental protection.

In this study, green financial management practices are examined through three dimensions: management green commitment, green intellectual capital, and green human resource management. These dimensions represent the extent to which cooperative leaders, employees, and organizational systems support environmental sustainability and integrate green initiatives into financial and operational decision-making. Collectively, these practices are expected to contribute to the sustainability of operations among multi-purpose.

Green Financial Management Practices

Green financial management practices refer to the specific strategies and actions adopted by organizations to integrate environmental considerations into their financial and operational activities. These practices serve as a guide to ensure that financial decisions do not only focus on profitability but also support environmental sustainability and responsible resource management.

In recent years, organizations have increasingly recognized the importance of incorporating sustainability into their financial practices due to growing environmental concerns and stakeholder expectations. According to Kumar and Singh (2020), green financial management involves adopting environmentally responsible approaches in areas such as investment, lending, budgeting, and operational processes. These practices aim to reduce environmental impact while improving efficiency and long-term organizational performance.

Green financial management practices extend beyond financial activities to include organizational behavior and internal systems. They include leadership commitment to sustainability, developing knowledge and skills related to environmental management, and involving employees in implementing green initiatives. As Harvey (2022) emphasizes, the success of sustainability efforts depends on the organization’s ability to integrate environmental objectives into both financial decisions and human resource practices.

For multi-purpose cooperatives, adopting green financial management practices is essential because of their community-based nature and social responsibility. These practices enable multi-purpose cooperatives to promote sustainable development while maintaining financial stability and meeting members' needs. By integrating environmental considerations into their operations, multi-purpose cooperatives can enhance their performance, strengthen member trust, and contribute to long-term sustainability.

This study examines green financial management practices in terms of management green commitment, green intellectual capital, and green human resource management. These dimensions show how multi-purpose cooperatives incorporate sustainability into leadership, knowledge development, and employee engagement, which are essential to achieving sustainable business performance.

Management Green Commitment

Management green commitment refers to the extent to which organizational leaders prioritize environmental sustainability in their policies, decisions, and overall strategic direction. It reflects top management's willingness to allocate resources, set environmental goals, and actively support sustainability initiatives within the organization.

Leadership commitment is widely recognized as a key factor in successfully implementing green financial management practices. According to Jones et al. (2023), organizations with strong managerial support for sustainability are more likely to adopt environmentally responsible strategies and achieve better organizational performance. When leaders commit to green practices, they influence the entire organization and encourage employees to adopt environmentally responsible behaviors.

In addition, management commitment helps ensure that sustainability is included in financial decision-making processes such as investment planning, budgeting, and resource allocation. Clark et al. (2023) emphasized that organizations that integrate sustainability into their strategies are better able to achieve long-term growth and resilience. This shows that leadership plays a key role in aligning financial goals with environmental objectives.

For multi-purpose cooperatives, management's green commitment is especially important because leaders are responsible for balancing financial performance with social and environmental responsibilities. Strong management commitment helps ensure green financial management practices are applied consistently across all operations. This, in turn, improves performance and supports the cooperative's sustainable business performance.

Green Intellectual Capital

Green intellectual capital refers to the knowledge, skills, capabilities, and innovation related to environmental sustainability within an organization. It includes employees' awareness of environmental issues, their ability to develop eco-friendly solutions, and the organization's capacity to apply sustainable practices in its operations.

According to Awa et al. (2024), organizations with high levels of green intellectual capital implement sustainability initiatives more effectively. Knowledge and innovation play an important role in improving environmental performance and strengthening organizational competitiveness. Well-informed employees are better able to make responsible financial and operational decisions.

Green intellectual capital also supports developing new ideas and practices that improve efficiency and reduce environmental impact. Organizations that invest in training and knowledge development are better prepared to adopt green financial management practices. This includes understanding sustainable investment options, evaluating environmental risks, and applying environmentally responsible strategies.

In the context of multi-purpose cooperatives, green intellectual capital strengthens members' and employees' ability to participate actively in sustainability initiatives. It promotes awareness and encourages innovation, which are important in improving financial management practices. Because multi-purpose cooperatives rely

heavily on member participation, strengthening knowledge and awareness is essential for effective implementation and for improving the cooperative's sustainable business performance.

Green Human Resource Management

Green human resource management integrates environmental objectives into human resource practices such as recruitment, training, performance evaluation, and employee engagement. It encourages employees to adopt environmentally responsible behaviors and contribute to sustainability goals.

Harvey (2022) emphasized that organizations that implement green human resource practices are more successful in achieving sustainability objectives. Training programs that focus on environmental awareness help employees understand the importance of sustainability and encourage them to apply green practices in their daily tasks. These practices include reducing resource consumption, supporting eco-friendly initiatives, and participating in sustainability programs.

Furthermore, green human resource management promotes a culture of sustainability within the organization. When employees are actively involved in environmental initiatives, they become more committed to achieving organizational goals. Sharma and Choubey (2021) stated that integrating sustainability into human resource practices improves employee engagement and overall organizational performance.

For multi-purpose cooperatives, green human resource management is essential to ensure that employees and members actively support green financial management practices. Because multi-purpose cooperatives rely on collective participation, encouraging environmentally responsible behavior among members and employees supports the success of sustainability initiatives. This, in turn, supports the cooperative's sustainable business performance.

Sustainable Business Performance

Sustainable business performance refers to multi-purpose cooperatives' ability to maintain strong financial performance, deliver consistent, quality services, and continue operations over the long term while minimizing environmental impact. It reflects how well multi-purpose cooperatives balance economic, environmental, and social responsibilities in their overall performance.

Green financial management practices contribute to sustainable business performance by improving efficiency, reducing costs, and enhancing organizational performance. Liu et al. (2024) found that sustainable financial practices improve financial stability and resource management, which are important for long-term success.

In addition, sustainable business performance is closely related to member trust and satisfaction. Harrison and Scuotto (2021) emphasized that organizations that adopt environmentally responsible practices are more likely to gain the trust and support of their stakeholders. For multi-purpose cooperatives, this leads to stronger member participation, increased loyalty, and improved overall performance.

Environmental responsibility is also an important part of sustainable business performance. By reducing environmental impact and supporting eco-friendly initiatives, multi-purpose cooperatives can contribute to environmental protection while maintaining their financial performance. This balance between economic and environmental goals supports long-term success.

In general, sustainable business performance is influenced by the effective implementation of green financial management practices. By integrating environmental considerations into financial and operational decisions, multi-purpose cooperatives can achieve long-term growth, improve resilience, and continuously provide quality services to their members.

METHODS

This chapter presents the research methodology employed in the study. It describes the research design, study locale, respondents, research instrument, data-gathering procedure, and statistical treatment of data used to

achieve the study objectives and ensure the validity and reliability of the findings.

Research Design

This study utilizes a descriptive research design to examine the green financial management practices among multi-purpose cooperatives and their impact on sustainable business performance. Descriptive research describes existing conditions and determines relationships among variables without manipulating them (Descriptive Research, 2018). This design is appropriate for the study because it focuses on understanding the current practices of multi-purpose cooperatives as they naturally occur.

The descriptive research design enables the researchers to gather systematic, detailed information about the respondents' profile in terms of age, sex, position, civil status, and highest educational attainment. It also considers the profile of the multi-purpose cooperatives in terms of membership size, capital structure, years in operation, and years in practice. These variables are important in identifying possible differences in the level of green financial management practices.

Furthermore, the study examines green financial management practices in terms of management green commitment, green intellectual capital, and green human resource management. This design allows the researchers to assess the level of these practices and determine whether significant differences exist when multi-purpose cooperatives are grouped according to their profile.

According to Creswell and Creswell (2021), descriptive research is effective in providing a clear and accurate description of a phenomenon, especially when the goal is to analyze relationships among variables. Accordingly, the study also aims to determine the relationship between green financial management practices and sustainable business performance.

Sustainable business performance is assessed in terms of financial stability, service quality, environmental responsibility, and long-term sustainability. The research design is non-experimental because it does not involve manipulating variables. Instead, data will be collected through a structured survey questionnaire to reflect actual conditions and practices among multi-purpose cooperatives.

Study Site and Participants

This study will be conducted in Santiago City, Isabela, Philippines. Santiago City is an independent component city located in the Cagayan Valley Region (Region II) and serves as a major center for trade, commerce, finance, and education in northeastern Luzon. Known as the "Investment Hub of the North," the city has experienced continuous economic growth, supported by its strategic location and diverse business and agricultural activities. Santiago City is also home to numerous cooperatives that contribute significantly to local economic development by providing financial, social, and livelihood services to their members. These characteristics make the city an appropriate setting for examining green financial management practices among multi-purpose cooperatives.

The study participants were selected from multi-purpose cooperatives operating in Santiago City. These cooperatives are member-owned and managed and provide a wide range of services, including savings, credit, marketing, and other community-based programs that promote their members' economic and social well-being.

For this study, the researchers will focus on active multi-purpose cooperatives currently operating in the city. Based on the master list provided by the Office for the Development of Cooperatives in Santiago City, the study population will comprise 13 active medium and large multi-purpose cooperatives. These cooperatives are directly engaged in financial and operational activities, making them suitable for assessing green financial management practices and their contribution to operational sustainability.

Participants will include officers, managers, and staff members directly involved in the financial management and operational activities of their respective cooperatives. Their positions and responsibilities give them sufficient knowledge and experience to provide reliable information on implementing green financial management practices and sustainability initiatives.

The selection of participants was based on their active involvement in the cooperative's operations and their familiarity with the organization's financial and sustainability-related practices. This includes respondents who participate in planning, financial decision-making, resource management, and implementing environmentally responsible initiatives within their cooperatives.

Through their participation, the researchers expect to gather reliable, relevant data that accurately reflects the green financial management practices implemented by multi-purpose cooperatives in Santiago City and their impact on operational sustainability.

Population, Sampling Size and Sampling Procedures

The respondents of this study will be selected from the active medium and large multi-purpose cooperatives operating in Santiago City, Isabela. Based on the master list provided by the Cooperative Development Authority (CDA) and the Office for the Development of Cooperatives in Santiago City, 13 active medium and large multi-purpose cooperatives meet the study's inclusion criteria. These cooperatives are actively engaged in financial and operational activities, making them appropriate respondents for assessing green financial management practices and operational sustainability.

The study population consists of 260 officers, managers, and staff members from the identified multi-purpose cooperatives. These individuals are directly involved in planning, financial management, and implementing sustainability-related activities within their respective cooperatives. Their knowledge and experience make them appropriate respondents for the study. To determine the required sample size, the researchers used the Raosoft Sample Size. Based on the total population of 260, the computed sample size was 156 respondents.

The study used stratified random sampling. Under this method, the population was divided into 13 strata, with each cooperative representing one stratum. The required number of respondents from each cooperative was determined based on its proportion to the total population. After determining the number of respondents for each stratum, participants were randomly selected within their respective cooperatives. This sampling technique ensured that every cooperative was represented and that each respondent had an equal chance of being selected.

Distribution of the Respondents Using Stratified Random Sampling

Name of the Cooperative	**Actual Population**	**Number Sample**	**Percentage**
Batal Igorot Savings and Development Cooperative (BISADECO)	19	11	7
Lagawe Multipurpose and Development Cooperative	19	11	7
Tabuk Multipurposes Cooperative	21	13	8
Tam-an Banaue Multipurpose Cooperative	20	12	8
Didipio Community Multipurpose Cooperative	18	11	7
Santiago Amos Credit and Development Cooperative (SACDECO)	19	11	7
Northern Luzon Transport Operators and Drivers Multipurpose Cooperative (NOLTRANSCO)	24	15	10
Our Lady of La Salette Multipurpose Cooperative (OLLSMPC)	18	11	7
Fivestar Multipurpose Cooperative	20	12	8
Diffun Saranay and Development Cooperative	20	12	8
Paramount Human Resource Multipurpose Cooperative	22	13	8
Buenavista Multipurpose Cooperative (BMPC)	18	11	7
ACDI Multipurpose Cooperative	22	13	8
Total	**260**	**156**	**100**

The list of 13 multi-purpose cooperatives was obtained from the Cooperative Development Authority (CDA) in Santiago City, Isabela, with a total population of 260 individuals. The sample size of 156 respondents was determined using the Raosoft Sample Size Calculator. To distribute the respondents among the cooperatives, the researchers employed proportionate stratified random sampling. The number of respondents allocated to each cooperative was calculated by dividing its population by the total population and multiplying the result by the total sample size. Meanwhile, the percentage allocation was determined by dividing the number of respondents assigned to each cooperative by the total sample size and multiplying the result by 100. The same procedures were applied to all 13 cooperatives to determine their respective sample sizes and percentage distributions.

Instrument

The primary instrument used in this study is a survey questionnaire adapted from the study of Keetpat Chaweewong and Aree Naipinit entitled *The Influence of Top Management Green Commitment and Green Intellectual Capital on Sustainable Business Performance of Thailand's Thrift and Credit Cooperatives*. The questionnaire was adapted to align with the objectives and variables of the present study, particularly in assessing green financial management practices and the sustainability of operations among multi-purpose cooperatives.

The questionnaire consists of three parts. The first part gathers the profile of the respondents, including age, sex, position, civil status, and highest educational attainment. The second part focuses on the profile of the multi-purpose cooperatives, including size of membership, capital structure, years in operation, and years of practice. The third part measures the variables of the study, particularly green financial management practices in terms of management green commitment, green intellectual capital, and green human resource management, as well as sustainable business performance.

A seven-point Likert scale is used to measure the responses, with the following scale: 1-Strongly Disagree, 2-Disagree,3- Somewhat Disagree and 4-Neutral, 5- Somewhat Agree, 6- Agree and 7- Strongly Agree. This scale allows the researchers to determine the level of agreement of the respondents regarding the given statements.

SCALE	RANGE		SCALE LABEL		QUALITATIVE INTERPRETATION
1	1	1.85	Strongly Disagree	SD	Somewhat Practiced
2	1.86	2.71	Disagree	D	
3	2.72	3.57	Somewhat Disagree	SWD	
4	3.58	4.43	Uncertain	U	Practiced
5	4.44	5.29	Somewhat Agree	SWA	
6	5.3	6.15	Agree	A	Highly Practiced
7	6.16	7	Strongly Agree	SA	

Data Gathering Procedure

To facilitate the data gathering process, the researcher accepts the following procedures:

1. The researchers seek formal approval from the College Dean and Research Director for the title of the study.

2. The researchers send letters to the different multi-purpose cooperatives for the approval in conducting the study.

3. The researchers read books, magazine, journal, thesis and dissertation for the preparation of the manuscript.

4. The researchers will be floating the survey questionnaires

5. Questionnaire will be collected and tallied

6. The data will be tested and validated by the university statistician for valid results and computations.

Data Analysis

This section presents the statistical tools that will be used to analyze and interpret the data gathered in the study. Prior to the analysis, the data will be subjected to a normality test to determine whether the data are normally distributed. The results of the normality test will serve as the basis for selecting the appropriate statistical methods. Since the data are expected to be non-normally distributed, non-parametric statistical tests will be employed to address the objectives of the study.

1. Percentage will be used to present and describe the profile of the respondents and multi-purpose cooperatives, including age, sex, position, civil status, highest educational attainment, size of membership, capital structure, years in operation, and years of practice.

2. Weighted Mean and Standard Deviation will be used to determine the level of green financial management practices in terms of management green commitment, green intellectual capital, and green human resource management, as well as the sustainability of operations. The weighted mean will show the average responses of the respondents, while the standard deviation will indicate the consistency of their responses.

3. Kruskal–Wallis H Test will be used to determine whether there is a significant difference in the level of green financial management practices when the respondents are grouped according to their profile variables. This non-parametric statistical test is appropriate because the data do not meet the assumption of normality and involves comparisons among three or more independent groups.

4. Spearman Rank-Order Correlation (Spearman's rho) will be used to determine the significant relationship between green financial management practices and the sustainability of operations among multi-purpose cooperatives. This non-parametric test measures the strength and direction of the relationship between the study variables using ordinal or non-normally distributed data.

Ethical Consideration

The researchers will follow ethical standards throughout the study to protect participants' rights and welfare. The researchers will obtain informed consent by clearly explaining the purpose of the study and assuring respondents that participation is voluntary.

Confidentiality and anonymity will be strictly maintained in accordance with the Data Privacy Act. No personal information will be disclosed, and all data collected will be used solely for academic purposes. The researchers will keep the data secure and access it only themselves.

Participants will not be forced to answer any question that may cause discomfort, and they are free to withdraw from the study at any time. The researchers will ensure that all data are reported honestly and accurately to maintain the integrity and credibility of the study.

RESULTS

This section presents the results of the study and the corresponding discussion based on the data gathered from the respondents. The findings are presented according to the specific objectives of the study. Appropriate statistical tools, including percentage, weighted mean, standard deviation, Kruskal–Wallis H Test, and Spearman Rank-Order Correlation (Spearman's rho), were used to analyze and interpret the data. The results

are discussed in relation to relevant literature and previous studies to provide a comprehensive understanding of the green financial management practices and the sustainability of operations among multi-purpose cooperatives in Santiago City, Isabela.

Part 1. Demographic Profile

Table 1.

Distribution of Respondents According to their Demographic Profile

	Variables	**Frequency**	**Percentage**
Age			
	40 Years Old and Below	15	10
	41- 50 Years Old	63	40
	51-60 Years Old	69	44
	61 Years Old & Above	9	6
Gender			
	Male	60	38
	Female	96	62
Position			
	Board of Director	73	47
	Committee Officer	67	43
	Manager Staff	16	10
Civil Status			
	Single	9	6
	Married	140	90
	Widowed	7	4
Highest Educational Attainment			
	College	138	89
	Masteral	14	9
	Doctoral	4	2

N= 156

As presented in Table 1, about the demographic profile of the respondents, 69 or 44 percent were aged 51–60 years old, 63 or 40 percent were 41–50 years old, 15 or 10 percent were 40 years old and below, and 9 or 6 percent were 61 years old and above. In terms of gender, 96 or 62 percent were female, while 60 or 38 percent were male. As to the respondents' positions, 73 or 47percent were on the Board of Directors, 67 or 43 percent were Committee Officers, and 16 or 10 percent were Manager Staff. Regarding civil status, 140 or 90 percent were married, 9 or 6 percent were single, and 7 or 4 percent were widowed. With respect to highest educational attainment, 138, or 89 percent, were college graduates; 14, or 9 percent, had master's degrees; and 4, or 2 percent, had doctoral degrees.

Part 2. Profile of the Multi-Purpose Cooperatives

Table 2.

Distribution of Respondents according to their Multi-Purpose Cooperatives Profile

	Variables	**Frequency**	**Percentage**
Size of Membership			
	Medium	95	61
	Large	61	39
Capital Structure			
	Medium	95	61
	Large	61	39
Years in Operation			
	Above 10 Years	156	100
Years in Practice			
	Above 10 Years	156	100

N=156

Table 2 shows that, concerning the profile of the multi-purpose cooperatives, 95 or 61 percent had a medium size of membership, while 61 or 39 percent had a large size of membership. In terms of capital structure, 95 or 61percent were classified as medium, whereas 61 or 39 percent were classified as large. Moreover, all 156 or 100 percent of the multi-purpose cooperatives had been in operation for more than 10 years. Lastly, with respect to years in practice, all 156 or 100 percent of the respondents came from cooperatives that had been practicing their operations for more than 10 years of practice. These findings indicate that the majority of the respondents were from well-established medium-sized multi-purpose cooperatives with considerable operational experience, making them appropriate sources of information in assessing green financial management practices and the sustainability of operations.

Part 3. Green Financial Management Practices

3.1 Management Green Commitment

Table 3.

Mean Responses of the Respondents' Green Financial Management Practices on Management Green Commitment

Indicators	**Mean**	**Scale Label**	**Quantitative Interpretation**
Environmental preservation is high priority for top management.	6.35	SA	Highly Practiced
Top management devotes appropriate resources to environmental projects.	6.18	SA	Highly Practiced
Top management follows up on proposals to increase environmental protection.	6.22	SA	Highly Practiced
Top management is driving the environmental action plan.	6.19	SA	Highly Practiced
Category Mean	**6.24**	**SA**	**Highly Practiced**

Legend: 1.00-1.85 =Strongly Disagree (SD); 1.86-2.71 =Disagree (D); 2.72-3.57 =Somewhat Disagree (SWD); 3.58-4.43 =Uncertain (U); 4.44-5.29 =Somewhat Agree (SWA); 5.30-6.15 =Agree (A); 6.16-7 = Strongly Agree (SA).

As shown in Table 3, the respondents perceived that Management Green Commitment is highly practiced in their respective multi-purpose cooperatives, as reflected by the category mean of 6.24 as Strongly Agree, which is interpreted as Highly Practiced. Among the indicators, "Environmental preservation is a high priority for top management" (M = 6.35). "Top management follows up on proposals to increase environmental protection" (M = 6.22), "Top management is driving the environmental action plan" (M = 6.19), and "Top management devotes appropriate resources to environmental projects" (M = 6.18), all interpreted as Strongly Agree and Highly Practiced. These findings suggest that the multi-purpose cooperatives' top management actively supports environmental initiatives through prioritization, resource allocation, monitoring, and leadership in implementing environmental action plans.

3.2 Green Intellectual Capital

Table 4.

Mean Responses of the Respondents' Green Financial Management Practices on Green Intellectual Capital

Indicators	**Mean**	**Scale Label**	**Quantitative Interpretation**
Employees' capacity to preserve the environment is superior to that of other organizations.	6.23	SA	Highly Practiced
Employees' goods or services are more ecologically friendly than other organizations.	6.29	SA	Highly Practiced
Organization's capacity to provide more ecologically friendly products/services than other organizations	6.19	SA	Highly Practiced
A knowledge-management system for environmental management helps collect environmental management knowledge.	6.12	A	Highly Practiced
The organization creates goods or services that satisfy members' environmental needs.	6.26	SA	Highly Practiced
The organization has a positive connection with its corporate partners regarding environmental protection.	6.22	SA	Highly Practiced
Category Mean	**6.22**	**SA**	**Highly Practiced**

Legend: 1.00-1.85 =Strongly Disagree (SD); 1.86-2.71 =Disagree (D); 2.72-3.57 =Somewhat Disagree (SWD); 3.58-4.43 =Uncertain (U); 4.44-5.29 =Somewhat Agree (SWA); 5.30-6.15 =Agree (A); 6.16-7 = Strongly Agree (SA).

As reflected in Table 4, the respondents perceived that Green Intellectual Capital is highly practiced in their respective multi-purpose cooperatives, as reflected by the category mean of 6.22 (Strongly Agree), which is interpreted as Highly Practiced. Among the six indicators, "Employees' goods or services are more ecologically friendly than other organizations" (M = 6.29). "The organization creates goods or services that satisfy members' environmental needs" (M = 6.26), "Employees' capacity to preserve the environment is superior to that of other organizations" (M = 6.23), and "The organization has a positive connection with its corporate partners regarding environmental protection" (M = 6.22), all interpreted as Strongly Agree and Highly Practiced. Meanwhile, "The organization's capacity to provide more ecologically friendly products/services than other organizations" obtained a mean of 6.19 (Strongly Agree), while "A knowledge-management system of environmental management is advantageous for collecting environmental management knowledge" received the lowest mean of 6.12 (Agree). Nevertheless, both indicators were interpreted as Highly Practiced. These findings that the multi-purpose cooperatives effectively utilize environmental

knowledge, employee capabilities, environmentally friendly products and services, and partnerships to strengthen their sustainability practices.

3.3 Green Human Resource Management

Table 5.

Mean Responses of the Respondents' Green Financial Management Practices on Green Human Resource Management

Indicators	**Mean**	**Scale Label**	**Quantitative Interpretation**
The organization is diligent in hiring and selecting staff primarily concerned with environmental attitudes and knowledge.	6.15	A	Highly Practiced
Applicants will be questioned using cleverly designed questions. It focuses on attitudes, knowledge, and environmental concerns.	6.17	SA	Highly Practiced
All employees undergo environmental training from the organization.	5.9	A	Highly Practiced
Employees in an organization who have received ecology training can utilize their environmental knowledge in everyday operations.	6.01	A	Highly Practiced
All employees are required to follow environmental aims and objectives.	6.1	A	Highly Practiced
Evaluate performance as a result of participation in environmental management.	6.02	A	Highly Practiced
Employees who achieve or exceed environmental goals will get bonuses or other incentives.	5.85	A	Highly Practiced
Employees who take the initiative to solve environmental challenges will be rewarded individually and as a team.	5.83	A	Highly Practiced
Category Mean	**6**	**A**	**Highly Practiced**

Legend: 1.00-1.85 =Strongly Disagree (SD); 1.86-2.71 =Disagree (D); 2.72-3.57 =Somewhat Disagree (SWD); 3.58-4.43 =Uncertain (U); 4.44-5.29 =Somewhat Agree (SWA); 5.30-6.15 =Agree (A); 6.16-7 = Strongly Agree (SA).

As reflected in the table 5, the respondents perceived that Green Human Resource Management is highly practiced in their respective multi-purpose cooperatives, as reflected by the category mean of 6.00 (Agree), which is interpreted as Highly Practiced. Among the eight indicators, "Applicants will be questioned using cleverly designed questions that focus on attitudes, knowledge, and environmental concerns" obtained the highest mean (M = 6.17), interpreted as Strongly Agree and Highly Practiced. This was followed by "The organization is diligent in hiring and selecting staff primarily concerned with environmental attitudes and knowledge" (M = 6.15), "All employees are required to follow environmental aims and objectives" (M = 6.10), "Evaluate performance as a result of participation in environmental management" (M = 6.02), "Employees in an organization who have received ecology training can utilize their environmental knowledge in everyday operations" (M = 6.01), and "All employees undergo environmental training from the organization" (M = 5.90), all interpreted as Agree and Highly Practiced. Meanwhile, "Employees who achieve or exceed environmental goals will get bonuses or other incentives" (5.85). "Employees who take the initiative to solve environmental challenges will be rewarded individually and as a team" received the lowest mean of 5.83, both interpreted as Agree and Highly Practiced. These results indicate that the cooperatives generally integrate environmental responsibility into their recruitment, training, and employee management practices.

3.4 Sustainability of Business Performance

Table 6.

Mean Responses of the Respondents' Green Financial Management Practices on Sustainable of Business Performance

Indicators	**Mean**	**Scale Label**	**Quantitative Interpretation**
The organization minimizes energy use.	6.04	A	Highly Practiced
The organization's products/services have such a decreased environmental effect.	5.9	A	Highly Practiced
The organization earns money by selling waste/unused things.	5.89	A	Highly Practiced
The organization works with government authorities to preserve the cooperative's interests.	6.13	A	Highly Practiced
The organization invests in technologies that could be utilized in other business areas.	6.06	A	Highly Practiced
The organization cares about the health and safety of its members.	6.27	SA	Highly Practiced
The organization considers stakeholder interests by drafting a signed contract.	6.23	SA	Highly Practiced
The organization funds local community efforts.	6.21	SA	Highly Practiced
Category Mean	**6.09**	**A**	**Highly Practiced**

Legend: 1.00-1.85 =Strongly Disagree (SD); 1.86-2.71 =Disagree (D); 2.72-3.57 =Somewhat Disagree (SWD); 3.58-4.43 =Uncertain (U); 4.44-5.29 =Somewhat Agree (SWA); 5.30-6.15 =Agree (A); 6.16-7 = Strongly Agree (SA).

As reflected in the table 6, the respondents perceived that Sustainable Business Performance is highly practiced in their respective multi-purpose cooperatives, as reflected by the category mean of 6.09 (Agree), which is interpreted as Highly Practiced. Among the eight indicators, "The organization cares about the health and safety of its members" (M = 6.27). "The organization considers the interests of stakeholders by drafting a signed contract" (M = 6.23) and "The organization funds local community efforts" (M = 6.21), all interpreted as Strongly Agree and Highly Practiced. Meanwhile, "The organization works with government authorities to preserve the cooperative's interests" obtained a mean of 6.13, "The organizations invest in technologies that could be utilized in other business areas" (M = 6.06), and "The organization minimizes energy use" (M = 6.04), all interpreted as Agree and Highly Practiced. The indicator "The organization's products/services have such a decreased environmental effect" received a mean of 5.90, while "The organization earns money by selling waste/unused things" obtained the lowest mean of 5.89, both interpreted as Agree and Highly Practiced. These findings indicate that the cooperatives demonstrate strong green intellectual capital through environmentally friendly products and services, environmental knowledge, and positive relationships that support sustainable operations.

Table 7.

Summary Mean of the Responses of the Respondents on Green Financial Management by the Multi-Purpose Cooperative

Indicators	**Mean**	**Scale Label**	**Quantitative Interpretation**
Management Green Commitment	6.24	SA	Highly Practiced
Green Intellectual Capital	6.22	SA	Highly Practiced

Green Human Resource Management	6	A	Highly Practiced
Sustainable of Business Performance	6.09	A	Highly Practiced
Category Mean	**6.14**	**A**	**Highly Practiced**

Legend: 1.00-1.85 =Strongly Disagree (SD); 1.86-2.71 =Disagree (D); 2.72-3.57 =Somewhat Disagree (SWD); 3.58-4.43 =Uncertain (U); 4.44-5.29 =Somewhat Agree (SWA); 5.30-6.15 =Agree (A); 6.16-7 = Strongly Agree (SA).

Table 7 presents the summary of the respondents' assessment of the green financial management practices among multi-purpose cooperatives. The results reveal an overall category mean of 6.14 (*Agree*), interpreted as Highly Practiced, indicating that the respondents perceived green financial management practices to be extensively implemented in their respective cooperatives.

Among the four dimensions, Management Green Commitment (6.24). Green Intellectual Capital with a mean of 6.22, both interpreted as Strongly Agree and Highly Practiced. Meanwhile, Sustainable Business Performance (M = 6.09) and Green Human Resource Management (M = 6.00) were rated Agree, yet both were likewise interpreted as Highly Practiced. These findings indicate that multi-purpose cooperatives demonstrate strong green implementation across all four dimensions, particularly in Management Green Commitment and Green Intellectual Capital.

Table 8.

Significant Difference of the Respondents on the Green Financial Management According to their Demographic Profile

Age	**N**	**Mean Rank**	**H-Test**	**df**	**p- value**	**Decision**
40 years old and below	15	72.27	1.66	3	0.646	Failed to Reject the Null Hypothesis
41-50 years old	63	83.72				
51-60 years old	69	74.69				
61 years old & below	9	81.56				
Gender						
Male	60	77.98	0.013	11	0.91	Failed to Reject the Null Hypothesis
Female	96	78.82				
Position						
Board of Directors	73	82.7	1.706	2	0.426	Failed to Reject the Null Hypothesis
Committee Officer	67	73.06				
Manager Staff	16	82.13				
Civil Status						
Single	9	79.5	0.007	2	0.997	Failed to Reject the Null Hypothesis
Married	140	78.48				
Widowed	4	77.64				
Highest Educational Attainment						

College	138	78.69	0.073	2	0.964	Failed to Reject the Null Hypothesis
Masteral	14	75.75				
Doctoral	4	81.63				

0.050 signifies level

The Kruskal–Wallis H Test was used to determine whether respondents' green financial management practices differed significantly across demographic profiles, including age, gender, position, civil status, and highest educational attainment. The results revealed no statistically significant difference in green financial management practices across the different age groups, (H (3) = 1.660, p = 0.646). Although respondents aged 41–50 years obtained the highest mean rank (83.72), followed by those aged 61 years and above (81.56), those aged 51–60 years (74.69), and those 40 years old and below (72.27), these differences were not statistically significant. Similarly, no statistically significant difference was found between male and female respondents, (H (1) = 0.013, p = 0.910). Female respondents obtained a slightly higher mean rank (78.82) than male respondents (77.98), but the difference was not statistically significant. In terms of position, the results also showed no significant difference, (H (2) = 1.706, p = 0.426). The Board of Directors obtained the highest mean rank (82.70), followed by the Managerial Staff (82.13), while the Committee Officers obtained the lowest mean rank (73.06). Furthermore, the results indicated no statistically significant difference when respondents were grouped according to civil status, (H (2) = 0.007, p = 0.997). Single respondents obtained the highest mean rank (79.50), followed by married respondents (78.48) and widowed respondents (77.64), although these differences were not statistically significant. Lastly, no statistically significant difference was found in green financial management practices according to the respondents' highest educational attainment, (H (2) = 0.073, p = 0.964). Respondents with doctoral degrees obtained the highest mean rank (81.63), followed by those with college degrees (78.69) and master's degrees (75.75), but these differences were also not statistically significant. Since all computed p-values were greater than the 0.05 level of significance, the null hypothesis failed to be rejected for all five demographic variables. These findings indicate that the respondents' green financial management practices did not significantly differ according to age, gender, position, civil status, and highest educational attainment. Variations in mean ranks were observed among the groups, the differences were insufficient to establish statistical significance. The findings suggest that the implementation of green financial management practices among the participating multi-purpose cooperatives was generally consistent across the respondents' demographic profiles.

Table 9.

Significant Difference of the Respondents on the Green Financial Management According to their Multi-Purpose Cooperatives Profile.

Size of Membership	**N**	**Mean Rank**	**H-Test**	**df**	**p-value**	**Decision**
Medium	95	86.88	8.359	1	0.004	Reject the Null Hypothesis
Large	61	65.45				
Capital Structure						
Medium	95	86.88	8.359	1	0.004	Reject the Null Hypothesis
Large	61	65.45				
Years in Operation						
Above 10 years	156	78.5	0.21	1	0.647	Failed to Reject the Null Hypothesis
Years in Practices						
Above 10 years	156	78	0.21	1	0.647	Failed to Reject the Null Hypothesis

0.050 signifies level

The Kruskal–Wallis H Test was used to determine whether there were statistically significant differences in the respondents' green practices when grouped according to size of membership, capital structure, years in operation, and years in practicing green financial management. For size of membership, the results revealed a statistically significant difference between medium-sized and large cooperatives, (H (1)=8.359, p=0.004). Since the p-value was less than the 0.05 level of significance, the null hypothesis was rejected, indicating that green practices significantly varied according to membership size. Cooperatives with medium-sized membership obtained a higher mean rank of 86.88 than those with large membership, which obtained a mean rank of 65.45, suggesting that medium-sized cooperatives demonstrated higher levels of green practices. Similarly, the results for capital structure revealed a statistically significant difference between cooperatives with medium and large capital structures, (H (1)=8.359, p=0.004). Since the p-value was less than 0.05, the null hypothesis was rejected, indicating that green practices significantly varied according to capital structure. Cooperatives with medium capital structures obtained a higher mean rank of 86.88 than those with large capital structures, which obtained a mean rank of 65.45, suggesting that cooperatives with medium capital structures demonstrated higher levels of green practices. In contrast, the results for years in operation showed no statistically significant difference in the respondents' green practices, (H (1)=0.210, p=0.647). Since the p-value was greater than the 0.05 level of significance, the null hypothesis failed to be rejected, indicating that green practices did not significantly vary according to the number of years the cooperatives had been operating. This suggests that the length of time a cooperative has been in operation did not appear to significantly influence the implementation of green practices. The results for years in practicing green financial management revealed no statistically significant difference, (H (1)=0.210, p=0.647). Since the p-value was greater than 0.05, the null hypothesis failed to be rejected, indicating that green practices did not significantly vary according to the number of years the respondents had been practicing green financial management. This suggests that the length of time spent implementing green practices did not appear to significantly influence their implementation. The findings indicate that size of membership and capital structure were significantly associated with differences in green practices, whereas years in operation and years in practicing green financial management showed no statistically significant differences.

Part 5. Significance Relationship

Table 10.

Significant Relationship of the Responses of the Respondents on Green Financial Management by the Multi-Purpose Cooperative.

Variables		Management Green Commitment (MGC)	Green Intellectual Capital (GIC)	Green Human Resource Management(GHRM)	Sustainable Business Performance (SBP)
Management Green Commitment (MGC)	r		0.77	0.691	0.592
	p- value		0	0	0
Green Intellectual	r	0.77		0.708	0.623
Capital (GIC)	p- value	0		0	0
Green Human Resource Management (GHRM)	r	0.691	0.708		0.555
	p- value	0	0		0
Sustainable Business Performance (SBP)	r	0.592	0.623	0.555	
	p- value	0	0	0	

Correlation is significant at the 0.01 level (2-tail)

Table 10 presents the Spearman's rho correlation coefficients showing the relationships among Management

Green Commitment (MGC), Green Intellectual Capital (GIC), Green Human Resource Management (GHRM), and Sustainable Business Performance (SBP). The results reveal that all variables are positively and significantly correlated with one another at the 0.01 level (p=.000), indicating that an increase in one variable is associated with an increase in the others. The strongest relationship is observed between Management Green Commitment (MGC) and Green Intellectual Capital (GIC) (r= .770, p<.01), indicating a strong positive correlation. This suggests that organizations with higher managerial and governance competency also tend to demonstrate stronger governance and institutional capability. Effective leadership, decision-making, and governance practices are therefore closely associated with improved institutional performance. Similarly, Green Intellectual Capital (GIC) has a strong positive relationship with Green Human Resource Management (GHRM) (r= .708, p<.01), while Management Green Commitment (MGC) is also strongly correlated with Green Human Resource Management (GHRM) (r= .691, p<.01). These findings imply that organizations with effective governance and management systems are more likely to implement sustainable and environmentally responsible human resource practices. In relation to Sustainable Business Performance (SBP), Green Intellectual Capital (GIC) exhibits the strongest association (r= .623, p<.01), followed by Management Green Commitment (MGC) (r= .592, p<.01). Both relationships indicate moderately strong positive correlations, suggesting that organizations with stronger governance capability and managerial competency are more likely to achieve higher levels of strategic business performance. The relationship between Green Human Resource Management (GHRM) and Sustainable Business Performance (SBP) is moderately positive (r= .555, p<.01). Although this is the weakest correlation among the variables, it remains statistically significant, indicating that green human resource management contributes positively to business performance. This suggests that sustainable human resource practices support organizational success, although governance and managerial competencies have relatively stronger influences on strategic outcomes.

Overall, the findings indicate that all four variables are significantly and positively related. The results suggest that improvements in managerial and governance competency, governance and institutional capability, and green human resource management are associated with enhanced strategic business performance. These findings support the importance of integrating effective governance, competent management, and sustainable human resource practices to achieve long-term organizational success.

DISCUSSIONS

This section presents the discussion and interpretation of the findings of the study on green financial management practices among multi-purpose cooperatives and their impact on the sustainability of operations. It discusses the demographic profile of the respondents, the profile of the participating cooperatives, the extent of green financial management practices, the significant differences in assessments based on respondents' and cooperatives' profiles, and the significant relationships among the variables. The findings are interpreted according to the objectives of the study to provide a clearer understanding of how green financial management practices relate to the sustainability of multi-purpose cooperatives.

Part I. Demographic Profile of the Respondents

The demographic profile describes the personal and organizational characteristics of the officers and directors who participated in the study. Understanding these characteristics matters because respondents' backgrounds, experience, and responsibilities may shape how they view the implementation of green financial management practices in their cooperatives.

The findings show that most respondents were between 51 and 60 years old, followed by those aged 41 to 50 years old. This suggests that the participating cooperatives were mainly represented by mature individuals who may have gained considerable experience in cooperative operations and decision-making. Most respondents were also female, married, college graduates, and members of the Board of Directors, followed by committee officers. Their educational background and direct involvement in governance position them well to assess the environmental and financial practices of their respective cooperatives. As Awa et al. (2024) explain, organizational leaders and stakeholders play an important role in integrating environmental considerations into decision-making and achieving long-term success. Similarly, Freeman et al. (2021) emphasized that considering the interests and participation of different stakeholders strengthens organizational performance and

sustainability. Therefore, the respondents' experience and active involvement in cooperative governance provide a relevant basis for evaluating green financial management practices.

Part II. Profile of the Multi-Purpose Cooperatives

The findings show that most respondents came from medium-sized multi-purpose cooperatives based on membership and capital structure. All participating cooperatives had operated for more than ten years, and most had followed their established practices for over a decade. This indicates that the cooperatives are already well-established and have gained considerable experience in managing their members, financial resources, and daily activities. Their long period of operation may have helped them improve their management systems, strengthen relationships with members, and adjust to changes affecting their operations. Clark et al. (2023) explained that organizations that incorporate sustainability into their strategies are more likely to achieve long-term growth and resilience. Similarly, Harrison and Scuotto (2021) stated that environmentally responsible practices can strengthen stakeholder trust and support organizational performance. Therefore, the stability and operational experience of these cooperatives may provide a strong foundation for implementing green financial management practices.

Part III. Green Financial Management Practices

The findings show that green financial management practices are highly observed among the participating multi-purpose cooperatives. Of the four areas examined, management green commitment was the most evident. This shows that cooperative leaders give importance to environmental protection by supporting related programs, monitoring proposed activities, providing necessary resources, and guiding the implementation of environmental plans.

The cooperatives also demonstrate green intellectual capital through their employees' environmental knowledge and ability to offer environmentally friendly products and services. They also maintain partnerships that support environmental protection. Environmental concerns are included in employee selection, training, performance assessment, and workplace objectives. However, the cooperatives may still improve the incentives and recognition provided to employees who contribute to environmental programs.

Sustainable business performance is also evident in the cooperatives' efforts to protect members' health and safety, consider stakeholders' interests, support community activities, reduce energy use, and invest in useful technologies. These results show that environmental responsibility is already reflected in their leadership, employee practices, knowledge, and operations. Sharma and Choubey (2021) explained that incorporating environmental objectives into human resource practices can improve employee participation and organizational performance. Awa et al. (2024) likewise emphasized the importance of environmental knowledge and management support in carrying out sustainability initiatives. Moreover, Liu et al. (2024) noted that sustainable financial practices contribute to better resource management and long-term organizational stability.

Part IV: Significant Difference in Green Financial Management Practices According to Respondents' and Cooperative Profile

The findings show that green financial management practices did not significantly differ according to the respondents' age, gender, position, civil status, and educational attainment. This means that respondents had generally similar assessments of these practices despite differences in their personal characteristics. It also suggests that green financial management is applied throughout the cooperatives and is not limited to a particular group of respondents.

However, significant differences were found when the cooperatives were grouped according to membership size and capital structure. Medium-sized cooperatives demonstrated stronger green financial management practices than large cooperatives. Their organizational structure may allow closer coordination, faster communication, and greater flexibility in implementing environmental programs and policies. In comparison, large cooperatives may experience more complex processes because of their broader membership and

operations. These results suggest that organizational characteristics have a greater influence on green financial management than the respondents' demographic characteristics. Awa et al. (2024) emphasized that management systems, organizational capabilities, and available resources are important in carrying out environmental initiatives. Similarly, Nohong et al. (2024) explained that organizational support for green practices can contribute to improved environmental and financial performance.

Part V. Significant Relationship among Green Financial Management Practices

The findings show significant positive relationships among management green commitment, green intellectual capital, green human resource management, and sustainable business performance. This means that strengthening one area of green financial management is associated with improvements in the other areas.

The relationship between management commitment and green intellectual capital indicates that leaders who support environmental programs can help develop employees' environmental knowledge, skills, and abilities. Green intellectual capital is also related to green human resource management, showing that environmental knowledge can be applied more effectively when supported by proper recruitment, training, performance assessment, and employee participation.

Moreover, management commitment, green intellectual capital, and green human resource management are positively related to sustainable business performance. This suggests that supportive leadership, knowledgeable employees, and environmentally responsible workplace practices work together to strengthen cooperative operations and long-term sustainability. Sharma and Choubey (2021) explained that integrating environmental objectives into human resource practices improves employee involvement and organizational performance. Awa et al. (2024) also emphasized that management support and environmental knowledge are essential to the implementation of sustainability programs. Similarly, Liu et al. (2024) found that sustainable financial practices help improve resource management, financial stability, and long-term organizational performance.

Conclusions

1. The participating multi-purpose cooperatives are well-established organizations with experienced leaders and stable organizational structures that support the implementation of Green Financial Management (GFM) practices.

2. The cooperatives demonstrated a high level of implementation of Green Financial Management across its different dimensions, particularly in management green commitment and green intellectual capital, indicating that environmental sustainability is integrated into their organizational policies and operations.

3. Selected demographic and organizational profile variables significantly influence the level of Green Financial Management practices among the participating multi-purpose cooperatives.

4. All dimensions of Green Financial Management are positively and significantly related to one another, indicating that strong leadership commitment, effective governance, and environmentally responsible human resource practices contribute to improved sustainable business performance.

5. The adoption of an integrated approach to Green Financial Management enhances organizational sustainability and supports the long-term success of multi-purpose cooperatives.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are proposed..

1. Multi-purpose cooperatives should continuously strengthen the implementation of Green Financial Management by reinforcing management commitment, enhancing governance and institutional capabilities, and integrating sustainability into organizational policies and strategic decision-making.

2. Cooperative management should place greater emphasis on Green Human Resource Management by providing regular environmental training, promoting employee participation in sustainability initiatives, and implementing recognition and incentive programs that encourage environmentally responsible behavior.

3. Cooperative leaders should continue investing in green technologies, resource-efficient operations, and innovative environmental programs to improve operational efficiency, enhance sustainable business performance, and ensure long-term organizational sustainability.

4. Government agencies, the Cooperative Development Authority (CDA), and other stakeholders should provide continuous technical assistance, policy support, and capacity-building programs to help cooperatives strengthen and sustain their Green Financial Management practices.

5. Future researchers are encouraged to conduct similar studies involving a wider scope of respondents, different categories of cooperatives, or additional variables that may influence Green Financial Management and sustainable business performance. Using other research designs or methodologies may also provide deeper insights and further validate this study's findings.

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