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Article

Factors Affecting Community Participation in Environmental Corporate Social Responsibility Projects: Evidence from Mangrove Forest Management Project

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Abstract: Community participation in an environmental corporate social responsibility (CSR) project can help business enterprises effectively develop projects that respond to the actual demands of the community and effectively utilize a firm's resources. This study aims to investigate factors that affect community participation in each stage of environmental corporate social responsibility project development. The environmental corporate social responsibility project explored in this study is a sustainable mangrove forest management project in the Pakprasae sub-district of Rayong province in Thailand. This study has tested whether enterprise-related factors (such as perceived CSR credibility and organization–public relationship (OPR) quality) and participant-related factors (such as ecological knowledge, perceived ecological values, and expected benefits from participation in the project, both monetary and non-monetary related benefits) could predict community participation in an environmental corporate social responsibility project development initiated by a business enterprise. Questionnaire surveys were administered to 355 community members who were the target group of this environmental corporate social responsibility project from June to July 2022. The collected data were inspected and analyzed using an inferential statistical technique. Multiple regression analyses were performed to test significant factors that affected community members' participation in planning, implementing, and monitoring the project. The results revealed that perceived ecological values were the strongest predictor of participation in all stages of the project, including planning, implementing, and monitoring the project. Perceived CSR credibility and OPR quality also significantly affected participation in all stages, whereas ecological knowledge significantly affected participation only in the monitoring stage. These findings suggest that to promote community participation in each stage of environmental corporate social responsibility project development, it is important to enhance community members' perceived ecological values, and community members should be educated in ecology to enhance participation in the monitoring stage.

Keywords: environmental corporate social responsibility; public participation; ecological conservation; community engagement; sustainable mangrove forest management

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1. Introduction

Currently, many business firms operate corporate social responsibility (CSR) activities and initiatives to exhibit their responsibility to society and their stakeholders. This is because the business sector has been facing social and political pressures against its practices that potentially cause social and environmental impacts such as climate change, environmental degradation, resource depletion, public health problems, and social inequalities [1–3]. According to the World Business Council for Sustainable Development [4], CSR is defined as "the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their

families as well as of the local community and society at large" [5]. The practice of CSR activities offers several forms of advantages to business firms, including economic benefits [6]. For instance, Dilling [7] explained that CSR operations could enhance a firm's financial performance. By operating CSR activities, business firms will try to satisfy stakeholders' needs and care more about society. As a result, those business firms can gain reputation, customer loyalty, and customer satisfaction, which could help improve financial performance. Many firms employ resources and make investments in CSR initiatives with the goal of creating value for themselves, the environment, and society [6,8]. Brammer et al. [9] revealed that organizations that have positive images and a reputation for caring for social causes can attract more potential employees than those that lack these attributes. Many business leaders have also perceived that business firms with a good record of caring about social causes have a favorable reputation among their stakeholders, such as employees, customers, and consumers. In Thailand, CSR practices are mandatory for publicly listed companies, which must report their sustainability or CSR activities in an annual performance report to the Securities and Exchange Commission [10]. The report must include disclosure of companies' environmental, social, and corporate governance information.

In practicing CSR, business enterprises can create several types of activities, and several public issues can be addressed to attract public attention. Many business enterprises integrate their CSR initiatives into their core business activities by targeting them to benefit their internal stakeholders, such as customers, consumers, employees, investors, and stockholders. Many organizations focus on addressing social and environmental issues. According to Levy and Park [11], CSR involves an organization's efforts to improve or enhance the quality of life of its internal stakeholders, such as its employees and their families and affected communities, enhance business–community relations, and address diverse social and environmental issues (such as recruiting members of minority groups as employees, participating in charity activities, producing green products, reducing waste, and recycling).

Many CSR strategies developed by business enterprises are concerned about critical environmental issues. Smith [12] found that concern for the environment due to intensive business development began in the 18th century, as many development activities caused serious environmental degradation such as natural resource depletion, climate change, and environmental contamination. Currently, many business organizations are still integrating a critical environmental issue into their CSR strategies because critical environmental problems still exist and environmental issues could also attract public attention. As stated by Levy and Park [11] and Turker [13], the growing public awareness of climate change and the significant adverse impact of human activities on the natural environment led many business enterprises to create their CSR activities based on a critical environmental problem. In addition, many business organizations are aware that their business activities could generate some negative impacts on society and the natural environment; thus, it is important for them to develop CSR strategies that aim to protect and conserve the environment [13].

In Thailand, the Charoen Pokphand Foods Public Company Limited (CPF), one of the major publicly listed companies in Thailand, also realizes the importance of developing an environmental conservation project as a CSR activity. Since 2014, CPF, in cooperation with government agencies, academic institutions, and local communities, has initiated mangrove forest conservation and restoration projects called the Grow-Share-Protect Mangrove Forestation (GSPMF) in several areas in Thailand [14]. The project aims to restore mangrove forests and related ecological systems, and expects residents living nearby mangrove forests to sustainably utilize mangrove resources both directly and indirectly for their lives and livelihoods while taking part in mangrove protection and conservation. Ecotourism in communities near the mangrove forest is also promoted under the GSPMF. Community residents are greatly encouraged by CPF to participate in all activities of the project, including mangrove restoration and conservation as well as the community's ecotourism development. Participation in all activities involves planning, implementing, and

monitoring the project. Community residents' benefits from participation in the project are also given importance by the company.

CPF recognizes the importance of active public participation in CSR projects and has endeavored to promote active and long-term participation of community members in the GSPMF. This is because the active participation of community members can create a community's sense of ownership of the project, which, in turn, contributes to community members' efforts to complete the goals of the project by sharing their resources or capabilities. In this way, the CPF can minimize investing resources in the project while the community can take part in the development of the project based on local communities' desires and help maintain the project. As stated by Njoroge et al. [15], business enterprises should utilize their resources in a manner that would be beneficial to both the owner and society as a whole. Many scholars have also addressed the diverse benefits of active participation of community members in CSR projects [16–20]. For instance, Leach et al. [16] and Sen et al. [17] indicated that the public views and judges business organizations based on their apparent social traits and motives, and from those perceptions, it constructs opinions about the organizations' capability to contribute to communities. Community participation in CSR projects allows the community to perceive the social traits of a business enterprise, which consequently leads to a social license to operate. Owen and Kemp [21] added that community participation is an essential tool for a business firm to receive a social license to operate in the mining sector. Though CPF has been promoting the participation of community members in the GSPMF, community members still hesitate to fully participate in all project development processes. Therefore, mangrove forest restoration and conservation in some areas are not successful.

To encourage the participation of business enterprises' stakeholders in a CSR project, it is important to consider both business enterprise-related factors and participant-related factors. Enterprise-related factors include organizations–public relationships (OPR) and a business enterprise's CSR credibility [22]. OPR refers to the mutual relationship between one organization and its public, and the quality of the relationship can be assessed based on levels of trust and mutual influence between one another [23]. A high-quality relationship between a business firm and community residents can influence community residents' decisions to participate in CSR. CSR credibility refers to one's feeling of confidence and trust in an organization's ability to fulfill its claims [24]. Community residents who perceive the credibility of CSR are likely to participate in the project. The participant-related factors include participants' ability to participate in the CSR project [25], perceived values of the CSR project [26], and participants' expected economic and non-economic benefits from participation [27]. For instance, Mohr et al. [26] found that people who recognize the contribution of CSR to society are more active in purchasing the products of enterprises, which potentially positively influence society. Moral people tend to be aware of the perceived social and environmental values of CSR and to make decisions to engage in CSR projects. In the case of having a natural conservation project as a CSR, Raposo et al. [25] found that a lack of relevant knowledge and capability can have a negative impact on the willingness to participate in water conservation. Chen and Liu [28] concluded that it is difficult for citizens who have insufficient ecological knowledge to respond to ecological conservation. Thus, they are likely to hesitate to participate in CSR projects. Finally, the decision to engage in CSR might be based on how participants perceive the benefits of their participation. Different people can have different expectations, which can be both expectations of economic benefits (e.g., increased incomes and wages) and expectations of non-economic benefits (e.g., happiness, social networks, improved community environments), and these expectations could lead to motivation to participate in the CSR project.

This study focuses on community members' participation in an environmental CSR project, mangrove forest management, which included restoration and conservation. This type of project requires community members' participation in several stages, including planning, implementing, and monitoring, and each stage entails different efforts and capabilities of community members. Therefore, the potential factors that may influence

residents' participation in each stage would be different. This study aims to investigate determinants of community participation in each stage of mangrove forest management, which included a restoration and conservation project—the GSPMF Project in Rayong province—which was initiated by CPF. We examined business enterprise-related factors and participant-related factors for their power to predict community members' participation in planning, implementing, and monitoring the project. Our findings provide implications for development strategies to effectively promote community members' active participation in each stage of CSR project development.

2. Literature Review and Research Hypotheses

2.1. Corporate Social Responsibility (CSR)

According to the Commission for European Communities [29], CSR is defined as a concept whereby organizations or business companies integrate social, ethical, and environmental issues into their business operations and in their connections with their stakeholders on a voluntary basis because they increasingly realize that responsible behavior potentially contributes to sustainable business success. Similarly, the definition of CSR as defined by the World Business Council for Sustainable Development [4] is business organizations' commitment to behave ethically and to develop economic activities while being concerned about the improvement of the quality of life of their workforce and their family members and of local communities and societies at large. Labuschagne et al. [30] divided CSR strategies into two main approaches, including societal and operational strategies. For the first one, it refers to corporate social investments, which are related to external philanthropy, while the second one is related to integrating social, ethical, environmental, and human rights issues into core business activities. According to KPMG International [31], business firms' investment in people, communities, and the environment is very important for creating a good business environment. To further improve firms' CSR strategies and enhance the positive contribution of CSR practices, it is important that business firms should measure and actively manage the value they create for society and the environment, as well as for shareholders.

2.2. Environmental CSR

Business enterprises are increasingly interested in exhibiting environmental responsibility through the utilization of CSR due to the environmental crisis, which concerns the general public [32]. Andrei et al. [33] stated that business enterprises should develop CSR strategies that aim to promote environmental protection in order to create sustainability in business development. Similarly, Saran and Shokouhyar [34] insist that business enterprises are facing huge social pressure to establish a sustainable corporate image because the public has become more concerned about ecological and environmental issues than before. Business enterprises' CSR practices based on environmental issues could enhance their green corporate image and finally lead to green competitiveness [32]. Taking environmental and ecological issues into account in CSR practices can be divided into three approaches, including environmental philanthropy, environmental community involvement, and environmental customer wellbeing [35]. Environmental philanthropy is related to providing financial resources for activities that can contribute to the betterment of society. Environmental community involvement means CSR activities that aim to make a contribution to safeguarding the environment through community engagement [36,37]. Environmental customer wellbeing refers to producing and delivering good-quality products and services, providing appropriate product-related information, and creating and distributing safe and environmentally friendly products to the customers [13]. Currently, CSR practices based on environmental community involvement approach have been popular among business enterprises as this type of project directly deals with critical environmental problems that could widely attract public interest. In addition, these CSR practices can directly contribute to environmental quality improvement in a local level. Therefore, the public can apparently perceive the contributions of a business enterprise to society and the environment.

The study of Alam and Islam [32], for instance, revealed that environmental community involvement had the strongest influence on business firms' green corporate image, which finally had a positive impact green competitiveness.

In Thailand, CSR related to environmental community involvement has been widely practiced by business enterprises. The Charoen Pokphand Foods Public Company Limited (CPF), which basically operates integrated agro-industrial and food businesses and is one of the largest publicly listed companies in Thailand, has also actively developed CSR activities based on an environmental community involvement approach. Namely, CPF recognized the importance of the ecological values contributed by mangrove forests and found that several mangrove forests in Thailand have been degraded due to both human activities and coastal erosion. CPF has, therefore, operated an ecological restoration and conservation management project called the "CPF Grow-Share-Protect Mangrove Forestation Project". This project aims to restore and conserve mangrove forests to promote eco-tourism destinations and community-based products with the purpose of creating sustainable income for community members [14]. Since 2014, the project has been developed in five areas in Thailand where mangrove forests have been degraded. One area is in the Pakprasae sub-district, Rayong province, which was selected for this study due to its completion and achievement of the project's goals. Therefore, lessons learned from this case can be applied to another similar project.

2.3. Sustainable Mangrove Forest Management

Mangrove forests are a unique ecosystem where terrestrial and marine ecosystems are interconnected. Environmental conditions in a mangrove ecosystem are a high concentration of salinity, high temperatures, muddy sediments, strong tides, and anaerobic soils [38]. Diverse ecological services are provided by this type of ecosystem, and they are significant to coastal communities' likelihoods [39]. Significant ecological services provided by the mangrove ecosystem include protection against storms and tsunamis [40,41], habitat provision for various aquatic animals [42], water system regulation [43], a source of biodiversity and wood, and aesthetic scenery suitable for tourism [42]. Most importantly, mangrove ecosystems cold store and sequester more carbon than terrestrial forest ecosystems, particularly in tropical regions [44]. In sustainably managing mangrove forests, Kusmana [45] states that mangrove forests should be managed in such a way that the economic, social, and ecological benefits generated from the mangrove ecosystem must be optimized so as to respond to the needs of the current generation while the needs of the future generations can be fulfilled as well. According to the Food and Agriculture Organization and the United States Forest Service Tropical Forestry [46], the concept of sustainable mangrove management was defined as "the application of biological, managerial, technical, economic and social knowledge, and manpower resources to manage the use of mangrove resources in a way that will provide sustainable benefits to the greatest number of people without impairing the environment". Additionally, several recommendations have been proposed by the FAO for achieving the goals of sustainable mangrove management. These include developing integrated management plans and promoting the engagement of communities living near mangroves. The International Tropical Timber Organization (ITTO) defined sustainable forest management (SFM) as the management of forests based on current scientific related knowledge and local knowledge that allows multiple goals and needs to be achieved without degrading the forest resources and quality of ecosystems [47]. These definitions of sustainable mangrove forest management reflect that the role of community residents is significant to the achievement of sustainability in mangrove forest management.

2.4. Community Participation in Environmental CSR (Sustainable Mangrove Forest Management)

As discussed above, community residents' participation in mangrove forest management is significant to encourage a sustainable use of mangrove resources and to promote sustainable mangrove conservation. Tang-Lee [48] defined "public participation (PP) as mechanisms or tools that intentionally involve the lay public or its representatives in a

decision-making process rather than processes emerging from the grassroots. The International Association for Public Participation (IAP2) views PP as a process that involves the public in decision-making and uses public input (such as opinions, demands, knowledge, skill, and experiences) to generate better decisions" [49]. Arnstein [50] proposed "the ladder of participation", which can be divided into three degrees based on citizens' power to influence decisions. The top rung of the ladder is called "citizen power", in which citizens have the power to influence a decision and their opinions are taken into consideration when a decision is made. At the middle of this ladder is the "tokenistic participation" rung. Tokenistic participation allows citizens to know about the project and possibly have a voice. However, it does guarantee that their voices will be considered by the decision-maker. The last degree of participation is called "non-participation". At this level, citizens are not actively informed, and their voices are not heard by the decision maker. Many scholars distinguish the degree of PP into three main categories: information supply, consultation, and active involvement [51,52]. In "information supply", the public is encouraged to access information from competent authorities. "Consultation" requires interactive communication between the public and public authorities, and the public is actively encouraged to express their voices, notions, and concerns about the issues. In "active involvement", the public is provided with the opportunity to actively participate in the decision-making process [53].

In the context of community participation in environmental CSR, which is related to sustainable mangrove forest management, local community members should be key stakeholders that take part in this type of project due to their possession of significant resources (such as local knowledge, background information about the community environments, information about the current situations of the community and mangrove forests, and information about facing problems and demands) and abilities (such as fishing ability, planting skills, and weather prediction skills), which potentially contribute to the success of the project. Djosetro and Behagel [54] stated that the roles of local community members, together with non-governmental organizations, significantly contribute to sustainability in managing mangrove forests. Van Lavieren et al. [55] explained that the participation of local community members could produce an equitable distribution of mangrove benefits, help improve compliance with protection and conservation measures, and help develop a plan or program that supports local livelihoods. Considering types of community participation in any project development, including mangrove forest management projects, Uphoff [56] proposed four types of participation based on stages of project development: participation in the planning process (such as identifying problems, planning strategic options, and allocating resources), participation in the implementation process (such as operating and managing programs and participating in related activities), participation in benefit sharing, and participation in evaluating and monitoring programs or activities related to the project. These stages all require the participation of local community members. To determine strategies to promote community participation in natural protection and environmental management, determinants of community participation in planning, implementing, and monitoring processes should be examined [57–59]. For instance, Mbeche et al. [60] explored determinants of community participation in each stage of participatory forest management, such as participation in the planning, implementing, and monitoring stages.

In the context of sustainable mangrove forest management, which is created as an environmental CSR project by a business enterprise, the roles of local community members are significant to each state of a sustainable mangrove forest management project, as indicated below.

(1) Participation in planning the project. Local community members can collaborate with a business enterprise and other related stakeholders to take part in decision-making for creating rules or agreements on activities for mangrove forest restoration and conservation. Community members must be encouraged to participate in decision-making for the allocation of rights, responsibilities, and resources for managing mangrove forests [61–63]. Reed et al. [64] stated that the participation of stakeholders,

including diverse local community members, in planning allows their needs, priorities, concerns, and interests to be captured and taken into consideration throughout project implementation. According to Eddiwan [63], to avoid a community's anxiety, significant information (such as objectives, location, area, activities, etc.) can be shared with local community members through their participation in planning. Community participation in the planning stage can also enhance community members' capacities, which are important for mangrove forest restoration and conservation. Significant knowledge includes the efficient use of mangrove resources and mangrove rehabilitation techniques, such as growing conditions, conditions for growth, and effective ways to plant mangroves [63].

(2) Participation in implementation. Local community members are responsible for acting in response to their roles and responsibilities, as indicated in the plan or agreements. For instance, they can participate in mangrove planting activities, while encouraging other people to take part in planting mangrove trees [63]. Local community members may also educate other people, particularly tourists and outsiders, about ways to avoid harming mangrove ecosystems.

(3) Participation in monitoring. The monitoring stage involves the assessment of whether the main goals and end-points (such as the improvement of local livelihoods and forest conditions) have been achieved when implementing a plan [65]. According to Eddiwan [63], community members can conduct both regular and periodic monitoring of ongoing activities during the implementation of mangrove restoration and conservation activities. Local community members may also take part in monitoring problems occurring during activities and seeking suitable solutions. The results of monitoring can be used to adjust or change action plans.

The roles of the local community in sustainable mangrove forest management are important as they live in the areas. They have readiness and significant potential that can contribute to the effective management of mangrove forests. Most importantly, they are a group that would gain diverse forms of benefit from the restoration and conservation of mangrove forests.

2.5. Factors Affecting Community Participation in Environmental CSR (Sustainable Mangrove Forest Management)

Due to the development of a sustainable mangrove forest management project as a CSR project, determinants of community participation in sustainable mangrove forest management project must consider both business enterprises' and community members' aspects. Potential determinants of community participation in sustainable mangrove forest management can be divided into two main groups, including enterprise-related factors and participant-related factors.

2.5.1. Enterprise-Related Factors

Enterprise-related factors are related to community members' attitudes towards business enterprises and perspectives on the relationship with business enterprises. Both positive attitudes towards a business enterprise's capability to operate CSR and satisfaction with its relationship with the community can lead to community members' motivation to participate in CSR activities. Based on literature reviews, enterprise-related factors can be divided into two types as follows.

- Organization-public relationship (OPR)

OPR has been suggested by many studies related to public relations as an important enterprise-related factor. OPR refers to the mutual relationship, interaction, and influence between an organization and its public [66]. Quality aspects of OPR include the degree of mutual trust [23,67], control mutuality [23], relationship satisfaction with each other [23], relationship commitment [23,67], professional relationship [68], personal relationship [68], and community relationship with the organization [68]. However, many scholars have accepted that OPR quality is a combination of mutual trust, controlled mutuality, relationship

satisfaction with each other, and relationship commitment [69–71]. Mutual trust refers to a level of confidence that each party would complete its obligations or roles and behave as promised in the relationship [72], whereas control mutuality refers to one party's belief about how its voice can be heard by its partner (another party) in the decision-making process and how its voice would influence the final outcome [73]. Hon and Grunig [73] also defined commitment as "the extent to that each party believes and feels that the relationship with its partner is worth spending effort and energy to maintain and strengthen". Relationship satisfaction involves one party's affection and emotion, which are related to how the party feels satisfied with its partner [74]. A strong OPR between parties is very beneficial in influencing one party's behaviors in response to the expectations of another party. For instance, Ki [75] revealed that bank customers' perceived OPR can significantly predict customers' behaviors. Similarly, Du et al. [76] showed that an organization that has a strong relationship with the public can influence advocacy behaviors.

- CSR credibility

CSR credibility is developed from the theory of source credibility, which indicates that sources with more credibility can contribute greater persuasive power than sources with less credibility [77,78]. Many scholars have employed this theory to explain the credibility of organization sources, including business organizations [24,79]. Corporate credibility, or the credibility of organization sources, refers to customers' perceptions of how the business organization has the knowledge and capability to fulfill its claims, as well as the customers' degree of trust in the organization's statements [24]. Many scholars have found that corporate credibility potentially affects consumers' attitudes and intentions to purchase an organization's products [79–81]. In the context of CSR, Lee et al. [22] explained that corporate credibility reflects people's perceptions of the business organization's expertise in producing its products or services, whereas CSR credibility reflects people's perceptions of the firm's social performance and expertise in performing social responsibility projects. Lee et al. [22] also concluded that CSR credibility significantly affects CSR participation intention.

2.5.2. Participant-Related Factors

Participant-related factors are related to community members' important resources and their individual motivation to participate in CSR activities. Based on literature reviews, participant-related factors can be divided into four types, as follows.

- Ecological knowledge

Knowledge is considered a vital factor when determinants of public behavioral intention are examined, because people mostly avoid participating in circumstances or situations in which their knowledge is insufficient to support their behavioral decisions [82]. Insufficient knowledge can limit people's ability to absorb valuable information to assess appropriate options [83]. In contrast, having sufficient relevant knowledge can help people deeply process formation and make rational decisions [84]. In the context of community participation in an environmental CSR project, such as sustainable mangrove forest management, people may require professional knowledge to ensure their capability to participate in CSR activities. This ecological knowledge includes the efficient use of mangrove resources, mangrove rehabilitation techniques, growing conditions, conditions for growth, and effective ways to plant mangroves [63]. As stated by Raposo et al. [25], the lack of relevant knowledge and capability can have a negative impact on community members' willingness to participate in water conservation. Chen and Liu [28] concluded that it is difficult for citizens who have insufficient ecological knowledge to effectively respond to ecological conservation. Thus, they are likely to hesitate to participate in such CSR projects. Martin et al. [85] revealed that insufficient knowledge of marine species hinders marine users from participating in marine research projects.

- Perceived CSR value (perceived ecological values)

Singhapakdi et al. [86] defined CSR value as an individual's perception of their organization's commitment to socially responsible behaviors with an emphasis on society's welfare or reward for socially responsible decisions. Business enterprises' CSR practices can reflect their social traits and social performance, which can lead to the public's support of their CSR program. The public's perception of the contributions of CSR programs to the environment and society can enhance the public's motivation to participate in CSR programs and also support the company. For instance, Mohr et al. [26] found that people who recognize the contribution of an enterprise's CSR to society are more likely to actively purchase the products of that enterprise, which could potentially and positively influence society. Moral people tend to be aware of the perceived social and environmental values of CSR and to make decisions to engage in CSR projects. In the case of participating in a sustainable mangrove forest as a CSR, community members' perceived ecological values of mangrove ecosystems would help the public recognize the contributions of this type of environmental CSR project. Mangrove ecosystems naturally provide diverse ecological services for human well-being and welfare in society [87]. According to the Millennium Ecosystem Assessment [88], ecological services are classified into four groups: provisioning, regulating, cultural, and supporting services. Afonso et al. [87] summarized the ecological services provided by mangrove ecosystems according to these classifications. Provisioning service refers to products received from mangrove ecosystems, such as fuelwood, wild woods, genetic resources, captured fisheries, and medicinal plants. Regulating service refers to the benefits received from the regulation of ecosystem processes, such as soil protection, natural hazard projection, and erosion regulation. Cultural services are related to nonmaterial benefits, such as spiritual enrichment, recreation, ecotourism, cultural heritage, and ecological education. Supporting services are those that are necessary for the production of all other ecosystem services, including nursery area, habitat heterogenetic, nutrient flow, etc. McFarlane [89] stated that understanding how local people perceive the value of forests is important to the development and implementation of sustainable forest management strategies. This study assumed that community members who have a high degree of perceived ecological values will recognize the importance of the CSR project to future generations' well-being, environment, and society; thus, they can be motivated to participate in the project.

- Expected benefits of participation

Community members' expected benefits from participation can play a crucial role in motivating participation in ecological management projects. As stated by Adhikari et al. [90], incentives are a vital determinant of community participation in community forest management in Nepal. Similarly, Araral [91] and Coulibaly-Lingani et al. [92] revealed that community members' participation in dry forest resource conservation activities is greatly influenced by the expected direct and indirect benefits from participation. In the field of business development, Hsu and Lin [93] found that consumers' perceived benefits can directly or indirectly constitute their attitudes, and then influence their purchasing intentions, which eventually affect their purchasing behaviors. Adhikari et al. [90] revealed that community members may expect several types of benefits. For instance, community members whose livelihoods depend on forest products are more likely to engage in forest conservation management. Further, community members who decide to participate in community resource management may expect strengthened community relations [90,94]. Community members can perceive the benefits of the CSR project and assess the value of participating in it. If community members' perceived benefits are related to their own expectations, they are likely to participate in the project. This current study classified potential expected benefits into two groups (monetary-related benefits and nonmonetary-related benefits) based on the characteristics of the environmental CSR program, the CPF GSPMF project. Monetary-related benefits generated from participation include increased income, obtained stable jobs, and enhanced working skills, whereas nonmonetary-related

benefits include strengthened community relations, enhanced environmental quality of the community, individual emotions, and opportunities to have more friends.

3. Theoretical Framework and Hypotheses

This study aims to examine how business enterprise-related factors and participant-related factors could predict community members' participation in the GSPMF environmental CSR project. In this study, participation in the environmental CSR project is defined as the dependent variable, and it could be divided into three stages. The first stage is participation in planning the GSPMF environmental CSR project, which will be investigated by exploring whether community members shared their desires and relevant information in planning the project and have taken part in the decision-making process for developing activities and relevant strategies. The second stage is participation in implementing the GSPMF environmental CSR project. To measure community participation at this stage, this study assesses whether community members participated in implementing a mangrove restoration and conservation program. In this stage, participants can take part in various activities such as planting mangrove trees, preparing planting areas, cleaning mangrove forests, providing plant seeds or young mangrove trees, donating money, or persuading people to participate in the project. The last stage is participation in monitoring the project, which will be evaluated by exploring participants' engagement in looking after planted mangrove trees, monitoring problems occurring in the project area, and informing responsible organizations about solving occurring problems. The participation of community members in all of these activities was requested by CPF, the initiator of the project.

For potential determinants of community participation in the environmental CSR project, based on reviews of relevant literature, potential factors are divided into two groups (see Figure 1). The first group is business enterprise-related factors, which included OPR quality [75,76] and perceived CSR credibility [22,79–81]. People with a perceived strong OPR quality will tend to accept behaviors, notions, or recommendations from their trusted organization. Many scholars have posited that people's perception of a strong relationship with a business enterprise may contribute to motivation to participate in that business enterprise's project [70,76]. For CSR credibility, based on the theory of source credibility, people who perceive the corporate credibility of a firm tend to behave in the way that responses to a firm's expectation [79–81] due to confidence in a firm's capability to complete its goals. Therefore, it is likely that community members with perceived CSR credibility can be more active participants in CSR projects.

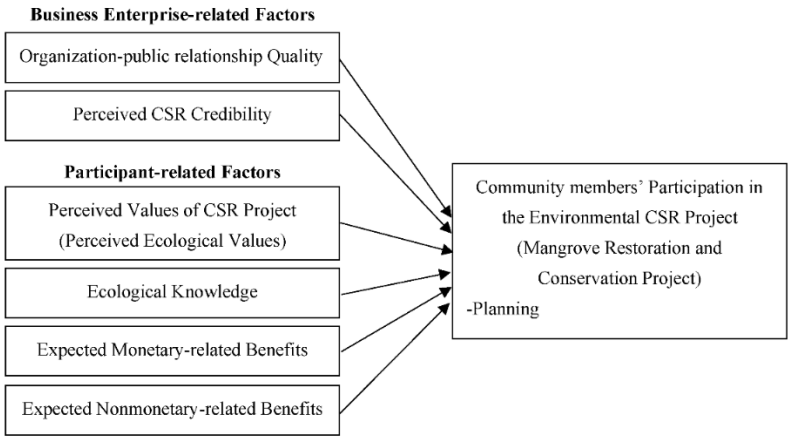

Figure 1. Theoretical Framework.

In the context of this study, we formulated hypotheses as follows:

Hypothesis 1. *OPR quality predicts community members' participation in each stage of environmental CSR project development (the mangrove forest management project), including the planning, implementing, and monitoring stages.*

Hypothesis 2. *CSR credibility predicts community members' participation in each stage of environmental CSR project development (mangrove forest management project), including the planning, implementing, and monitoring stages.*

The second group consists of participant-related factors, including perceived values of CSR projects or perceived ecological values [26,86], ecological knowledge [82,83,85], and expected benefits from participation, including monetary-related benefits and nonmonetary-related benefits [90–92] (see Figure 1). Many scholars have posited that participants' perceived CSR values, particularly the value of the CSR program to society and the environment, could lead to motivation to support the CSR program [26,86]. In this study, the CSR program is a mangrove forest management project. Therefore, it can be assumed that community members who can perceive ecological values of the mangrove forest project would be likely to participate in the environmental CSR project's development. For ecological knowledge, participants' possession of ecological knowledge can imply their capability to take part in an environmental CSR activity [82,84]. In this study, the environmental CSR is a mangrove forest management project. Therefore, participants may need to possess a certain degree of ecological knowledge to play roles in diverse mangrove forest management activities, such as practicing conservation or restoration activities or sharing related information in a decision-making process. Insufficient ecological knowledge can cause hesitation among participants to take part in the project [25,28,82]. Furthermore, participants' expected benefits of participation may also help promote participation in the environmental CSR project. As stated by Hsu and Lin [93], expected benefits could positively affect individual attitudes and then affect behaviors. In the field of natural resource management, many scholars have posited that community members' expected benefits, including monetary or nonmonetary-related benefits, could motivate participation in natural resource management [90–92]. In this way, it can be assumed that expected monetary and nonmonetary-related benefits could affect community members' participation in the environmental CSR project. Based on the discussion of participant-related factors, we formulated hypotheses as follows:

Hypothesis 3. *Perceived ecological values predict community members' participation in each stage of environmental CSR project development (the mangrove forest management project), including the planning, implementing, and monitoring stages.*

Hypothesis 4. *Ecological knowledge predicts community members' participation in each stage of environmental CSR project development (the mangrove forest management project), including the planning, implementing, and monitoring stages.*

Hypothesis 5. *The expectation of monetary-related benefits predicts community members' participation in each stage of environmental CSR project development (the mangrove forest management project), including the planning, implementing, and monitoring stages.*

Hypothesis 6. *The expectation of nonmonetary-related benefits predicts community members' participation in each stage of environmental CSR project development (the mangrove forest management project), including the planning, implementing, and monitoring stages.*

4. Methodology

4.1. Study Area and Population

The GSPMF project is an environmental CSR initiated by CPF, one of the major publicly listed companies in Thailand. The project has been operated since 2014 in the Pakprasae sub-district of Rayong province. The project planned to restore 64,000 m^2 of the Prakprasae

mangrove forest area and to conserve the mangrove forest situated in the Pakprasae sub-district [14] (see Figure 2). The total area of the Prakprasae mangrove forest is 9.6 km^2. The project also intended to release 10,000 young fish within the project area to recover the mangrove ecosystem. Most importantly, ecotourism in the area has also been promoted by several activities, such as sustainable production of local products, planting mangrove trees, sightseeing mangrove forest scenery, etc. Four local communities (Villages 1, 2, 3, and 7) are situated adjacent to the Prakprasae mangrove forest area and are targeted by this CSR project for livelihood and well-being improvement. These communities included 3133 people [95]. These people have been encouraged to participate in the CPF GSPMF project since 2014.

Figure 2. Study area.

4.2. Participants and Ethical Issues

The sample size was calculated based on the application of the Yamane formula with a confidence coefficient of 95% [96]. The result revealed that 355 community members were required. Then, a sample random sampling technique was used to select participants in the study area. The general characteristics of participation are shown in Table 1. All participants were explained the research objectives and relevant research activities by researchers, and participants could decide whether they would participate in the project. This research project was also approved by the research ethical committee from King Mongkut's University of Technology on 11 May 2022. The approval number is KMUTT I RB-CoE-2022-748.

4.3. Measures

A questionnaire was developed and used as a research tool for data collection. To measure all research variables, questionnaire items were either applied from other relevant studies or developed based on relevant concepts. All the items were measured on a five-point Likert scale ranging from 1 to 5, denoting strong disagreement to strong agreement or never participating to regularly participating.

Table 1. Participant characteristics (n = 355).

Participant Characteristics	*n*/Average	Percentage
Average Age (Years)	54 (±15.145)	-
Career		
Fishery	22	6.20
Laborer	178	50.14
Private business owner such as tourism service providers and merchants.	73	20.56
Officer in a private company	11	3.10
Workers in governmental offices	18	5.07
No job	53	14.93
Place of Origin		
Within the community	267	75.21
Outside the community	88	24.79
- In another village in the same subdistrict	47	13.24
- In another subdistrict of the district	24	6.76
- In another district of the province	14	3.94
- From another province	3	0.85

- Participation in sustainable mangrove forest management

To measure participants' degree of participation in the environmental CSR program, participants were asked to indicate their frequency of participating in each stage of mangrove forest management, including planning, implementing, and monitoring the project. The responses ranged from (1) very low or no participation, (2) low or passive participation, (3) average participation, (4) high (active) participation, and (5) very high participation [97]. For participation in planning the CSR project, participants were asked on a frequency basis to participate in sharing information (such as their desires and information about problems related to mangrove forests in the area) with a business enterprise, and also in the decision-making process for establishing restoration and conservation activities and allocating resources. In measuring participation in implementation, participants were asked to indicate their frequency of participating in practicing mangrove tree planting and supporting planting activities, such as supporting the project financially, advertising planting activities, and educating volunteers. Lastly, participants were asked to indicate their frequency of participating in maintaining, evaluating mangrove forest conditions, and involving themselves in related problem solving. These questions were adapted from Fistiningrum and Harini [98] and Jaruek et al. [99].

- Quality of organization–public relationship

To measure the quality of OPR, participants' perceptions of the trustworthiness of the business firm, control mutuality, the firm's commitment to the relationship with the community, and satisfaction with the relationship with the business firm will be measured [22,69,70]. Five-point Likert scale questions were used. The responses ranged from 1 (completely disagree) to 5 (completely agree). To measure OPR quality in the aspect of trustworthiness, participants were asked to indicate their agreement on statements such as "I am certain that CPF will fulfill its roles following their promise with the community" and "I am certain that CPF will always take my concerns and opinions into consideration when a decision is made". Regarding the aspect of control mutuality, participants were asked to indicate their agreement on these statements: "CPF always listens to the community's voices" and "When contacting the community, CPF is always not overbearing". Participants were asked to indicate their agreement with "I feel that CPF has tried to maintain a long relationship with the community" and "Whenever I need to talk to CPF, I can always contact the company and talk" to measure OPR quality in the aspect of commitment. Lastly, to measure perceived OPR quality in the aspect of satisfaction, participants' agreements with the statements "I am certain that any activities developed by the CPF company will

be useful for our community" were explored. All these questions were adapted from Lee et al. [22].

- Perceived CSR Credibility

Participants' perceived CSR credibility was measured by these three items, including "I clearly understand the objectives of the CSR project, and believe that the company has sufficient capability to make it successful", "I clearly understand the types of activities and relevant plans of the CSR project, and believe that the company is competent to make it successful", and "In case I do not understand the CSR project or have some questions, CPF will be eager to respond to my inquiry". All three items were adapted from Perex and del Bosque [100] and Lee et al. [22] and aimed to measure participants' perceived expertise of the firm in completing the project as well as the trustworthiness of the firm in terms of its social performance [24].

- Perceived values of the CSR project (perception of ecological values)

To measure the participants' perceived ecological values, the participants' perceived values of ecological services provided by the Pakprasae mangrove forest were explored. As stated in the Millennium Ecosystem Assessment [88] and discussed above, the ecological services of nature are classified into four groups: provisioning, regulating, cultural, and supporting services. These services could potentially contribute to both the improvement of human well-being and the socio-economic development of a society. Many scholars have explored people's perceptions of the ecological values of a natural resource based on the ecosystem services it provides [101–104]. This study also measured participants' perceptions of the ecological values provided by a mangrove forest based on subjective valuation. For example, to measure perceived ecological value related to the provisioning services of a mangrove forest, participants were asked to indicate their agreement on these statements: "Mangrove trees can be used to produce firewood and charcoal" and "Mangrove trees can be used for the construction of shelters and the production of furniture". To measure the value related to regulating services, participants were asked to indicate their agreement on whether "Mangrove forests can help protect land from erosion" and "Mangrove forests can help minimize wind speed and weaken ocean currents". Participants were also asked to indicate their agreement with the statement "Mangrove forests are a primary habitant for young aqua animals" to measure their perceived ecological value related to supporting services. Lastly, to measure the perception of cultural values, we assessed participants' agreement statements, such as "Mangrove forests can be used as a recreational place" and "Mangrove forests can be a place where community members connect and get together". These questions were adapted from Cebrián-Piqueras et al. [103] and Ayala-Azcárraga et al. [102].

- Ecological knowledge

Ecological knowledge refers to knowledge about ecological systems, current ecological issues, and conservation actions [105–107]. Cebrián-Piqueras et al. [103] measured participants' ecological knowledge by measuring knowledge about species of flora, fauna, and fungi in the study area, ecological practices, and use of biodiversity. Arcury [108] defined relevant ecological knowledge as general ecological system knowledge, current events, and conditions in conservation, as well as specific examples of threats and threatened plants. This study measured participants' ecological knowledge by assessing their knowledge of ecological systems, current ecological issues, and conservation actions [105–107]. The self-report measure of ecological knowledge was used by asking whether or not participants knew about the following issues: "I know the types of plant species of mangrove forests in the community", "I know the types of animal species living in mangrove forests", "I know the major causes of mangrove forest deterioration in the community", "I know that the best time to plant mangrove trees in the community is during September–February of the next year", and "I know that before planting trees in the areas that used to be shrimp ponds, it is necessary to improve soil quality by removing accumulated sediment in the

ponds". These knowledge-type questions were adapted from Cebrián-Piqueras et al. [103]. Self-reported ecological and environmental knowledge has been widely adopted by many previous studies [109–111].

- Expected benefits

Participants' expected benefits from the environmental CSR project were divided into categories, such as monetary-related benefits and nonmonetary-related benefits. To measure participants' expected monetary-related benefits, participants were asked to indicate their agreement on these statements: "I expected that I would receive financial benefits from the participation in the CSR activities", "I expected that I would have an opportunity to enhance my skills for career from participation in the CSR activities", and "I expected that my participation in the CSR project would make my current job more stable". Regarding participants' expectations of nonmonetary-related benefits, participants were asked to indicate their agreement with these sample statements: "I expected that the participation in the CSR project would make me have more friends" and "I expected that the participation in the CSR project would help environmental quality of the community improved, and made natural resources in the community more plentiful". The responses ranged from 1 to 5, denoting strong disagreement to strong agreement. All questions were adapted from Lee et al. [22] and Nusong [112].

4.4. Data Collection and Data Analysis

To evaluate the content validity for all variables, the content validity of the questionnaire was evaluated by three relevant experts. Experts recommended some minor changes to some items in order to enhance the clarity of the items for local community members. The modified questionnaire sheet was then sent to 30 participants in those targeted communities as a pilot test. Cronbach's alpha (α) was calculated to measure the reliability of the questionnaire. For the entire questionnaire, Cronbach's α was 0.90, which was greater than 0.70. This implies that the items are reliable [113]. Questionnaire surveys were then conducted in four targeted local communities during June–July 2022.

Approximately 400 questionnaire sheets were distributed, but only 370 sheets were returned. After checking the completion of the responded questionnaire sheets, 15 sheets were excluded due to incompletion. Finally, there were 355 questionnaire sheets suitable for the analysis. Then, multiple linear regression analyses were conducted to examine significant determinants of community participation in the environmental CSR project.

5. Results

5.1. Descriptive Statistics of Study Variables

Table 2 shows the average score of all study variables. Considering the dependent variable, a level of community participation in each stage of the mangrove forest management project, the result revealed that participants reported the highest engagement in the monitoring stage (M = 2.95, SD = 1.091). The participation in planning stage had an average score of 2.65 (SD = 1.168), and the participation in the implementing stage had an average score of 2.84 (SD = 1.228). Considering independent variables, for the enterprise-related factors, OPR quality has an average score of 3.74 (SD = 1.282), while perceived CSR credibility had an average score of 3.60 (SD = 1.176). For participant-related factors, participants reported an average score of perceived ecological values of 3.84 (SD = 1.095) and reported an average score of 3.22 (SD = 1.839) for ecological knowledge. The variable of expectation of monetary-related benefits had an average score of 3.17 (SD = 1.173), while the expectation of nonmonetary-related benefits had an average score of 3.48 (SD = 1.173). Cronbach's alpha was calculated to measure the reliability of scales used for measuring each variable. The result revealed that the value of Cronbach's alpha for each variable was higher than a threshold of 0.70 [113] (Cronbach, 1951), indicating the reliability of the measurement of each variable.

Table 2. Descriptive statistics (n = 355).

Variables	Indicators	Mean/*n*	SD	Cronbach's Alpha
	Dependent Variable			
1. Level of participation in planning the CSR project.	1. I have attended meetings and shared my opinions with CPF Company about the current problems in mangrove forests and about ecological management project in the community area.	2.64	1.193	0.950
	2. I have expressed my desires on ecological management project (CSR project) to CPF Company. Those proposed desires were such as expected outcomes and benefits, types of conservation activities, needed career skills, etc.	2.69	1.486	
	3. I have been invited by CPF Company to take part in a decision making process for developing and planning activities relevant to the CSR project.	2.72	1.246	
	4. I have participated in the planning the utilization of resources in the CSR project such as participating in allocating financial recourse or managing volunteers in CSR activities.	2.55	1.049	
	Average score	2.65	1.168	
2. Level of participation in implementing the CSR project.	1. I have participated in seeking plant seeds and young plants for the ecological conservation project in the community.	2.59	1.603	0.959
	2. I have participated in planting mangrove trees in the community.	3.09	1.457	
	3. I have participated in preparing spaces used for conservation activities.	2.99	1.438	
	4. I have participated in inspecting whether volunteers plant mangrove trees correctly.	3.21	1.337	
	5. I have participated in managing solid wastes in mangrove areas.	3.35	1.387	
	6. I have participated in donating money used for ecological conservation activities.	2.55	1.412	
	7. I have participated in donating assets, materials, or resources that support conservation activities. Those assets, materials, and resources are such as foods, planting tools, boats, etc.	2.50	1.543	
	8. I have participated in communicating and advertising the project.	2.60	1.204	
	9. I have participated in encouraging other residents to participate in the project.	2.66	1.293	
	Average score	2.84	1.228	
3. Level of participation in monitoring the CSR project.	1. After the project implementation, I look after mangrove trees and forests.	2.93	1.172	0.970
	2. I have informed responsible staff or organizations when I saw that mangrove trees were died or any problems in mangrove forests.	2.96	1.156	
	3. I have planted mangrove trees when I saw that some trees were died or damaged.	2.90	1.190	
	4. I have looked after mangrove forests and ensured that there is no invasion from improper human activities and no destruction of the forest.	2.97	1.122	
	5. I have informed responsible staff or organizations when I saw destruction of the forest or invasion from residents.	2.99	1.139	
	Average score	2.95	1.091	

Table 2. *Cont.*

Variables	Indicators	Mean/*n*	SD	Cronbach's Alpha
	Independent Variables			
X1. OPR quality	1. I am certain that the any activities developed by the CPF company will be useful for our community.	3.79	1.217	0.980
	2. I am certain that the CPF company will fulfill its roles following their promise with the community.	3.62	1.183	
	3. I am certain that the CPF company will always take my concerns and opinions into consideration when a decision is made.	3.67	1.317	
	4. When contacting with the community, the CPF company is always not overbearing.	3.81	1.325	
	5. The CPF company always listens to the community's voices.	3.66	1.197	
	6. Whenever I need to talk to the CPF Company, I can always contact the company and talk.	3.79	1.44	
	7. I feel that the CPF Company has tried to maintain a long relationship with the community.	3.81	1.296	
	Average score	3.74	1.282	
X2. Perceived CSR credibility	1. I clearly understand the objectives of the CSR project and believe that the company has sufficient capability to make it success.	3.65	1.238	0.955
	2. I clearly understand types of activities and relevant plans of the CSR project, and believe that the company is competent to make them success.	3.55	1.258	
	3. In case that I cannot understand about the CSR project or have some questions, the CPF company will be eager to response my query.	3.59	1.186	
	Average score	3.60	1.176	
X3. Perceived ecological values	1. Mangrove forests can help protecting land from erosion.	4.00	1.025	0.964
	2. Mangrove forests can help minimizing wind speed and weakening ocean currents.	4.01	1.132	
	3. Mangrove forests can refresh air and improve air quality.	4.07	1.381	
	4. Mangrove trees can be used to produce firewood and charcoal.	3.62	1.491	
	5. Mangrove trees can be used for construction of shelters and production of furniture.	3.33	1.401	
	6. Mangrove forests have diverse species of aqua animals and some terrestrial animals which are human food.	3.78	1.264	
	7. Mangrove forests have diverse plant species which can be consumed by human.	3.59	1.426	
	8. Mangrove forests are a primary habitant for young aqua animals.	3.87	1.177	
	9. Mangrove forests can be a tourist attraction.	3.96	1.245	
	10. Mangrove forests can be used as a recreational place.	4.12	1.311	
	11. Mangrove forests can be a place where community members connect and get together.	3.92	1.308	
	12. Mangrove forests are attached with community beliefs, values, and spirituality.	3.81	1.403	
	13. Mangrove forests can be a learning source for natural ecosystems.	3.89	1.368	
	Average score	3.84	1.095	

Table 2. *Cont.*

Variables	Indicators	Mean/*n*	SD	Cronbach's Alpha
X4. Ecological knowledge	1. I know that before planting trees in the areas which used to be shrimp ponds, it is necessary to improve soil quality by removing accumulated sediment in the ponds.	223 (yes)	62.8%	0.826
		132	37.2%	
	2. I know that the best time to plant mangrove trees in the community is during September-February of the next year.	232 (yes)	65.4%	
		123	34.6%	
	3. I know major causes of mangrove forest deterioration in the community.	217 (yes)	61.1%	
		138	38.9%	
	4. I know types of plant species of mangrove forests in the community.	234 (yes)	65.9%	
		121	34.1%	
	5. I know types of animal species living in mangrove forests.	237 (yes)	66.8%	
		118	33.2%	
	Average score *	3.22	±1.839	
X5. Expectations of monetary-related benefits	1. I expected that I would receive financial benefits from participation in CSR activities.	2.62	1.538	0.837
	2. I expected that I would have an opportunity to enhance my skills for career from participation in CSR activities.	3.38	1.217	
	3. I expected that my participation in the CSR project would make my current job more stable.	3.52	1.274	
	Average score	3.17	1.173	
X6. Expectations of nonmonetary-related benefits	1. I expected that the participation in the CSR project would make me have more friends.	3.15	1.245	0.968
	2. I expected that the participation in the CSR project would help environmental quality of the community improved, and made natural resources in the community more plentiful.	3.46	1.287	
	3. I expected that the participation in the CSR project would help strengthening the community relationship.	3.68	1.346	
	4. I expected that the participation in the CSR project would make me joyful and happy.	3.48	1.347	
	Average score	3.48	1.277	

Note: * Total score of 5.

5.2. Determinants of Community Participation in the Environmental CSR Project

A multiple regression analysis was performed to examine how enterprise-related factors and participant-related factors could predict participants' levels of participation in each stage of the environmental CSR project, including the planning, implementing, and monitoring stages. To test whether each independent variable has a significant impact on participation in the planning stage, defined as a dependent variable, all independent variables were first included in the multiple linear regression analysis. The results shown in Table 3 revealed that participants' ecological knowledge and expectations of nonmonetary-related benefits were not statistically significant. Therefore, they were excluded from the analysis, and other significant independent variables, including perceived ecological values, perceived CSR credibility, OPR quality, and expectation of monetary-related benefits, were included in the analysis again to examine their power to predict the dependent variable. The results illustrated that the linear combination of these significant variables significantly predicted participation in the planning of the environmental CSR project ($F = 115.238$; $p = 0.000$). The multiple correlation coefficient (R) was 0.754, and R^2 was 0.568. This indicates that the linear combination of these four significant variables predicted 56.8% of the variance in community participation in planning the environmental CSR project. To test multicollinearity among the variables, tolerance and variance inflation factors (VIFs) were calculated. The results revealed VIF values ranging from 1.970–2.603, and tolerance values ranging from 0.288–0.881, indicating that multicollinearity did not exist. Considering the

power of each significant variable in predicting the dependent variable, the results revealed that perceived ecological values had the strongest power to predict participation in the planning stage (β = 0.409, $p < 0.001$). The expectation of monetary-related benefits was the second strongest power (β = 0.365, $p < 0.001$). Perceived CSR credibility had a beta value of 0.285 ($p < 0.001$), and the beta value of OPR quality was −0.240 ($p < 0.001$).

Table 3. Summary of Regression Analysis for Variables Affecting Residents' Participation in Planning the Environmental CSR Project (n = 355).

Explored Factors	B	S.E.	Beta	t	p	Tolerance	VIF
Constant	−0.292	0.168		−1.734	0.084		
X1 OPR quality	−0.212	0.053	−0.225	−3.988	0.000	0.388	2.580
X2 Perceived CSR credibility	0.298	0.057	0.301	5.192	0.000	0.368	2.717
X3 Perceived ecological values	0.431	0.055	0.406	7.836	0.000	0.459	2.180
X4 Ecological knowledge	−0.026	0.024	−0.041	−1.089	0.277	0.881	1.134
X5 Expectation of monetary-related benefits	0.387	0.061	0.386	6.370	0.000	0.336	2.973
X6 Expectation of nonmonetary-related benefits	−0.039	0.061	−0.042	−0.636	0.525	0.288	3.478
R = 0.755; R^2 = 0.571; *Adj.* R^2 = 0.563; *S.E.est* = 0.772; F = 77.119; p-value = 0.000							
2nd Step							
Constant	−0.346	0.158		−2.192	0.029		
X1 OPR quality	−0.226	0.051	−0.240	−4.446	0.000	0.424	2.359
X2 Perceived CSR credibility	0.283	0.056	0.285	5.037	0.000	0.384	2.603
X3 Perceived ecological values	0.434	0.052	0.409	8.295	0.000	0.507	1.970
X5 Expectation of monetary-related benefits	0.366	0.056	0.365	6.575	0.000	0.401	2.493
R = 0.754; R^2 = 0.568; *Adj.* R^2 = 0.563; *S.E.est* = 0.772; F = 115.238; p-value = 0.000							

Considering the determinants of community participation in implementing the environmental CSR project, the results of multiple linear regression analysis suggested that the ecological knowledge variable should be removed due to its lack of statistical significance (p = 0.617) (see Table 4). After removing the ecological knowledge variable, the result of the multiple linear regression analysis revealed R = 0.828 and R^2 = 0.685. The linear combination of the five significant variables significantly predicted participation in implementing the environmental CSR project (F = 151.789; p = 0.000). Approximately 68.5% of the variances in community participation in implementing the project were predicted by the linear combination of these five significant variables. Among these five significant variables, perceived ecological values were the strongest predictor (β = 0.311, $p < 0.001$), and perceived CSR credibility was the second strongest predictor (β = 0.266, $p < 0.001$). OPR quality had a significant negative effect on the dependent variable (β = −0.098, $p < 0.001$). The results also revealed VIF values ranging from 2.077–3.367, and tolerance values ranging from 0.297–0.481, indicating that multicollinearity did not exist.

For the participation in monitoring the environmental CSR project, first, the result of multiple linear regression analysis suggested that expectations of monetary and nonmonetary-related benefits should be removed due to their lack of statistical significance (p = 0.304) and (p = 0.090), respectively (see Table 5). After removing those two variables, the result of multiple linear regression analysis revealed R = 0.625; R^2 = 0.390. The linear combination of those four significant variables could significantly predict participation in monitoring the environmental CSR project (F = 55.949; p = 0.000). Approximate 39.0% of variances in community participation in monitoring the project could be predicted by the linear combination of these four significant variables. Among these four significant variables, perceived ecological values was the strongest predictor (β = 0.409, $p < 0.001$), and ecological knowledge was the second strongest predictor (β = 0.350, $p < 0.001$). OPR quality had a significant negative effect on the dependent variable (β = −0.216, $p < 0.001$), and perceived CSR credibility had a significant positive effect on the dependent variable (β = 0.281, $p < 0.001$). Additionally, the result revealed VIF values ranging from 1.089–

2.155, and tolerance values ranging from 0.464–0.918, indicating that multicollinearity did not exist.

Table 4. Summary of Regression Analysis for Variables Affecting Residents' Participation in Implementing the Environmental CSR Project (n = 355).

Explored Factors	B	S.E.	Beta	t	p	Tolerance	VIF
Constant	−0.665	0.151		−4.396	0.000		
X1 OPR quality	−0.097	0.048	−0.098	−2.022	0.044	0.388	2.580
X2 Perceived CSR credibility	0.280	0.052	0.268	5.414	0.000	0.368	2.717
X3 Perceived ecological values	0.341	0.050	0.306	6.886	0.000	0.459	2.180
X4 Ecological knowledge	−0.011	0.021	−0.016	−0.500	0.617	0.881	1.134
X5 Expectation of monetary-related benefits	0.265	0.055	0.251	4.844	0.000	0.336	2.973
X6 Expectation of nonmonetary-related benefits	0.214	0.055	0.219	3.899	0.000	0.288	3.478
R = 0.828; R^2 = 0.685; *Adj.* R^2 = 0.680; *S.E.est* = 0.695; F = 126.261; p-value = 0.000							
2nd Step							
Constant	−0.691	0.142		−4.864	0.000		
X1 OPR quality	−0.097	0.048	−0.098	−2.032	0.043	0.388	2.579
X2 Perceived CSR credibility	0.277	0.051	0.266	5.397	0.000	0.372	2.687
X3 Perceived ecological values	0.346	0.048	0.311	7.173	0.000	0.481	2.077
X5 Expectation of monetary-related benefits	0.265	0.055	0.251	4.844	0.000	0.336	2.973
X6 Expectation of nonmonetary-related benefits	0.209	0.054	0.214	3.876	0.000	0.297	3.367
R = 0.828; R^2 = 0.685; *Adj.* R^2 = 0.680; *S.E.est* = 0.694; F = 151.789; p-value = 0.000							

Table 5. Summary of Regression Analysis for Variables Affecting Residents' Participation in Monitoring the Environmental CSR Project (n = 355).

Explored Factors	B	S.E.	Beta	t	p	Tolerance	VIF
Constant	0.531	0.186		2.860	0.004		
X1 OPR quality	−0.250	0.059	−0.284	−4.260	0.000	0.388	2.580
X2 Perceived CSR credibility	0.190	0.063	0.204	2.989	0.003	0.368	2.717
X3 Perceived ecological values	0.371	0.061	0.374	6.103	0.000	0.459	2.180
X4 Ecological knowledge	0.196	0.026	0.330	7.458	0.000	0.881	1.134
X5 Expectation of monetary-related benefits	0.069	0.067	0.074	1.030	0.304	0.336	2.973
X6 Expectation of nonmonetary-related benefits	0.115	0.067	0.132	1.701	0.090	0.288	3.478
R = 0.633; R^2 = 0.401; *Adj.* R^2 = 0.391; *S.E.est* = 0.852; F = 38.810; p-value = 0.000							
2nd Step							
Constant	0.496	0.185		2.672	0.008		
X1 OPR quality	−0.191	0.054	−0.216	−3.525	0.000	0.464	2.155
X2 Perceived CSR credibility	0.261	0.056	0.281	4.695	0.000	0.485	2.061
X3 Perceived ecological values	0.405	0.059	0.409	6.881	0.000	0.494	2.025
X4 Ecological knowledge	0.208	0.026	0.350	8.037	0.000	0.918	1.089
R = 0.625; R^2 = 0.390; *Adj.* R^2 = 0.383; *S.E.est* = 0.867; F = 55.949; p-value = 0.000							

6. Discussion and Conclusions

This study examined factors contributing to community members' participation in the GSPMF project, which is an environmental CSR project initiated by CPF. In general, the results revealed that the significant predictors of community members' participation at each stage of the project were significantly different (see Table 6). As stated by Mbeche et al. [60], the participation of local people in forest management may differ across the different stages of the forest management program, including planning, implementation, and monitoring, and significant factors affecting participation in each stage may also differ. Understanding determinants of community participation in each stage of the management program could have implications for the development of communication strategies to encourage the

active participation of local community members. Surprisingly, the participants' perceived ecological values were the strongest predictor of participation in all stages. This implies that local community members will actively participate in all stages of sustainable mangrove forest management if they can perceive the value of mangrove ecosystem services. This finding is in line with Zhang et al.'s [104] study, which revealed that farmers' perceived values of farmland significantly affected their participation in ecological environmental protection on farmland. Similarly, Hernes and Metzger [114] showed that the active participation of stakeholders in biosphere management and conservation activities was significantly affected by stakeholders' perceived environmental values, such as wildlife values and the beauty of nature. Local community members' perceived direct and indirect values of mangrove ecosystems could greatly affect their motivation to participate in all stages of management due to the fact that most community members' livelihoods are related to the utilization of mangrove resources, such as careers related to ecotourism in the area, fisheries, and fishery-related activities. Most importantly, considering that regulating the services of mangrove ecosystems can mitigate possible natural disasters in the area and protect community land, community members who could perceive these types of value could be more motivated to participate in all stages of the management project. Perception of the ecological values of mangrove ecosystems enables community members to recognize how the CSR project has created values for the welfare of society and the environment. Community members could also perceive the social and environmental responsibility of a business firm, which can affect their decision to participate in a CSR project. As indicated by Truong [115], people's decision to engage in natural resource management hinges on their desire to preserve the values of ecological systems for future generations, society, and their well-being.

Table 6. Summary of the Results.

Explored Factors	Significant Predictors of Community Members' Participation in the Environmental CSR Project		
	Planning	**Implementing**	**Mornitoring**
X1 OPR quality	Negative significance	Negative significance	Negative significance
X2 Perceived CSR credibility	Positive significance	Positive significance	Positive significance
X3 Perceived ecological values	Positive significance *	Positive significance *	Positive significance *
X4 Ecological knowledge			Positive significance
X5 Expectation of monetary-related benefits	Positive significance	Positive significance	
X6 Expectation of nonmonetary-related benefits		Positive significance	

Note: * the strongest predictor.

Similar to perceived ecological values, both business enterprise-related factors, including perceived OPR quality and CSR credibility, significantly affected the participation of community members in all stages of the mangrove forest management project. Surprisingly, however, perceived OPR quality significantly and negatively affected participation in all stages of the project. A strong interrelationship between an enterprise and community members could make community members hesitant to participate in all stages of the project. People might have felt confident that CPF would fulfill its roles and behave as promised to the communities. This result contradicts many previous studies that found that mutual trust and a strong relationship between parties could promote active participation in the project [116–119]. For instance, Stern and Coleman [118] and Smith et al. [119] found that people's participation in a biosphere reserve management project was significantly influenced by their perceived trust in local authorities, who were mainly responsible for the management. Regarding the variable of perceived CSR credibility, the results revealed that perceived CSR credibility significantly and positively affected community members' participation in all stages of the mangrove forest management project. This implies that community members' perceived competence in operating the environmental CSR project and their confidence in the success of the project may motivate active participation from

local community members. Therefore, it is important that an enterprise clearly inform community members about concrete objectives, goals, and processes to ensure that the CSR project can be completed. As reported by Josephs and Humphries [120], people's clear understanding of management objectives and relevant information would result in confidence in the project and a readiness to act in response to the project.

Considering the participants' expected benefits, only expected monetary-related benefits had a significant effect on the participation of community members in the planning stage, whereas nonmonetary-related benefits had no significant effect. This implies that community members' initial decision to take part in the planning stage of the CSR was based on their expectation to improve their economic status by gaining more income and having a stable job. In degraded ecological systems, local people's jobs related to the utilization of natural resources, such as fisheries and ecotourism-related services, could suffer; thus, people construct their expectations of monetary benefits from the environmental CSR project and decide to first participate in the planning stage. As stated by Satti et al. [121], economic incentives highly influence community members' decisions to engage in a natural resource management project because community members always expect to improve their household's economic situation. Livelihoods of local communities adjacent to natural resource areas are mostly related to natural resource utilization; thus, CSR projects that involve increasing agricultural productivity, maintaining forests, improving access to water for livestock and croplands, and improving soil quality would be very influential in promoting the participation of local communities. Mbeche et al. [60] also revealed that community members' expected economic benefits had a positive effect on their engagement in participatory forest management in Kenya.

Concerning community participation in implementing the environmental CSR project, the current study revealed that both expected monetary- and nonmonetary-related benefits had a significant effect on participation. This suggests that to promote participation in the implementation stage, in addition to expected monetary benefits, community members' perceptions of nonmonetary benefits (such as increased social cohesion, amusement in the participation process, and improved community environmental quality) must be promoted. As stated by Kanel and Dahal [122], participatory forest management with the active participation of local communities, including the poor and minority groups, can enhance social cohesion and social support due to their social interaction, which in turn increases community security. These perceived values from participation in implementing the environmental CSR project should also be promoted through creative participatory processes, such as community volunteering for mangrove tree planting or community volunteering for ecotourism activities. However, regarding participation in the monitoring process, the current study found that both expected monetary and nonmonetary-related benefits were not significant predictors. It is possible that most monitoring activities were individual-based and required some professional knowledge and skills in detecting and solving problems in the mangrove forest. Although they might have had expectations of receiving benefits, the community members might have excluded themselves from the process due to insufficient capability.

Finally, considering that community members' possession of ecological knowledge is related to ecological conservation capacity, the results of this study revealed that ecological knowledge was not a significant predictor of participation in both the planning and monitoring stages of the GSPMF project. This contradicts the knowledge deficit model [108,123], which assumes that knowledge may lead to attitudes and eventually contribute to behavioral change. Many previous studies have confirmed a direct relationship between ecological knowledge and behavioral intention [124,125]. However, Brunk [126] said that human behavior is complex; thus, knowledge can be limited to predicting changes in human behavior. In this study, ecological knowledge had no power to determine community members' participation in planning and implementing the environmental CSR project. However, we found that knowledge had a significant effect on participation in the monitoring stage. As discussed above, to participate in monitoring a mangrove forest

management project, community members may need some specific knowledge capacity, such as how to identify mangrove tree conditions, suitable conditions for planting and growth, and suitable species. Further, monitoring activities are mostly individual, so they hardly support each other in monitoring activities. Thus, ecological knowledge may play a vital role in promoting community participation in the monitoring stage of mangrove forest management.

In conclusion, the findings of this study provide both theoretical and practical contributions. This study suggests that the determinants of community participation in each stage of mangrove forest management are different due to differences in activities at each stage, which require different levels of effort from the participants. Mbeche et al. [60] also confirm that the participation of community members in forest management is determined by different significant factors. Participation in monitoring mangrove forest management projects is mostly an individual activity in which people are encouraged to monitor problems in mangrove ecosystems and the progress of mangrove reforestation. These activities require specific knowledge for participation; therefore, the role of ecological knowledge is significant. As indicated by Cebrián-Piqueras et al. [103], ecological knowledge is positively correlated with people's perceptions of ecological change and the perceived vulnerability of some water-dependent ecosystems, including mountain lakes and riparian forests. Thus, people with ecological knowledge may be able to detect ecological problems and take action for restoration. However, ecological knowledge cannot predict community participation in planning and implementing the project.

Further, when operating mangrove forest management as an environmental CSR project established by a business enterprise, enterprise-related factors, including OPR quality and perceived CSR credibility, are significant in promoting community participation in all stages of management. Notably, this study found that a higher OPR quality contributes to a lower level of participation by community members due to the community's reliance on a business enterprise. Therefore, with a high level of OPR quality, a business enterprise should actively communicate with local communities about the significant roles of local communities in promoting the success of the project; otherwise, they would be reluctant to participate. For perceived ecological values, this study found that perceived ecological value is the strongest predictor of community participation at all stages because community members can recognize the contributions of CSR projects to the whole society and environment. Therefore, we recommend that community members be educated on the diverse ecological values of mangrove ecosystems to enhance their participation. To educate community members about diverse ecological services, a mechanism or system for fostering information sharing among community members is recommended. As indicated in the study by Truong, D.D. [115], most community members perceive ecological values from their daily livelihoods and social networks, whereas a small number of community members perceive ecological values from television, radio, and local media programs.

Finally, for the expected benefits from participation, community members' decisions to engage in the planning stage are influenced only by expected monetary-related benefits. This is because their current careers and livelihoods might be negatively impacted by degraded mangrove ecosystems; thus, improving mangrove ecosystems may bring economic benefits to their households. Dolisca et al. [127] also recommended that monetary incentives are important to promote the greater participation of community members in forest management activities. However, for participation in implementing the project, both expected monetary and nonmonetary-related benefits are significant incentives because interactive participatory activities in the implementation stage may create social interactions, which in turn lead to social cohesion and support. When this contribution is perceived by community members, they are likely to participate in implementing the project.

Surprisingly, both expected monetary and nonmonetary-related benefits did not predict community participation in the monitoring stage of this study; however, ecological knowledge significantly affected participation only in monitoring the project. Therefore, we suggest that the enhancement of ecological knowledge (ecological systems, current

ecological issues, and conservation actions) may help promote community participation in monitoring CSR projects.

7. Limitations of the Study

This study has some limitations that should be addressed. First, the study employed a self-report measure to observe participants' ecological knowledge. Future research, including an observation of actual knowledge, is recommended. Second, the socio-economic characteristics of participants can also affect their participation in a mangrove forest management project. These factors could be included in future research.

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References

1. Venturelli, A.; Fasiello, R.; Pizzi, S. CSR Education in *Economia aziendale* Curricula: An Overview. *Adm. Sci.* **2021**, *11*, 137. [CrossRef]
2. Trireksani, T.; Zeng, Y.; Djajadikerta, H.G. Extent of sustainability disclosure by Australian public universities: Inclusive analysis of key reporting media. *Aust. J. Public Adm.* **2021**, *80*, 830–848. [CrossRef]
3. Schimperna, F.; Nappo, F.; Collaretti, F. Universities and CSR Teaching: New Challenges and Trends. *Adm. Sci.* **2022**, *12*, 55. [CrossRef]
4. World Business Council for Sustainable Development. 1998. Available online: www.wbcsd.org (accessed on 12 May 2022).
5. Micheal, B. Corporate Social Responsibility in International Development: An Overview and Critique. *Corp. Soc. Responsib. Environ.* **2003**, *10*, 115–128. [CrossRef]
6. Yuan, Y.; Lu, L.Y.; Tian, G.; Yu, Y. Business Strategy and Corporate Social Responsibility. *J. Bus. Ethic* **2020**, *162*, 359–377. [CrossRef]
7. Dilling, P.F. Sustainability Reporting In A Global Context: What Are The Characteristics of Corporations That Provide High Quality Sustainability Reports An Empirical Analysis. *Int. Bus. Econ. Res. J.* **2010**, *9*, 19–30. [CrossRef]
8. Junior, A.D.S.; Martins-Silva, P.D.O.; Feu, K.S.; Komino, A.C.; Da Silva, V.C.; Vasconcelos, K.C.D.A. Corporate social responsibility in the perspective of Brazilian management students: The inversion of the pyramid. *Soc. Responsib. J.* **2018**, *16*, 50–72. [CrossRef]
9. Brammer, S.; Millington, A.; Rayton, B. The contribution of corporate social responsibility to organizational commitment. *Int. J. Hum. Resour. Manag.* **2007**, *18*, 1701–1719. [CrossRef]
10. Sustainable Capital Market Development. 2022. Available online: https://www.setsustainability.com/page/disclosure (accessed on 20 June 2022).
11. Levy, S.E.; Park, S.-Y. An Analysis of CSR Activities in the Lodging Industry. *J. Hosp. Tour. Manag.* **2011**, *18*, 147–154. [CrossRef]
12. Smith, D. The Frankenstein syndrome: Corporate responsibility and the environment. In *Business and the Environment: Implications of the New Environmentalism*; Smith, D., Ed.; Chapman in the Mining Idustry: Perspectives from Stakeholder Groups in Argentina: London, UK, 1993; pp. 172–189.
13. Turker, D. Measuring Corporate Social Responsibility: A Scale Development Study. *J. Bus. Ethic* **2009**, *85*, 411–427. [CrossRef]
14. CPF. 2022. Available online: https://www.cpfworldwide.com/en/sustainability/project/forest (accessed on 20 June 2022).

15. Njoroge, O.; Ngugi, J.J.; Olielo, T.K.; Mungiria, M.; Nyaga, M. *Business Studies, Form One Students Book*, 3rd ed.; Kenya Literature Bureau: Nairobi, Kenya, 2007.
16. Leach, C.W.; Ellemers, N.; Barreto, M. Group virtue: The importance of morality (vs. competence and sociability) in the positive evaluation of in-groups. *J. Pers. Soc. Psychol.* **2007**, *93*, 234–249. [CrossRef]
17. Sen, S.; Bhattacharya, C.B.; Korschun, D. The Role of Corporate Social Responsibility in Strengthening Multiple Stakeholder Relationships: A Field Experiment. *J. Acad. Mark. Sci.* **2006**, *34*, 158–166. [CrossRef]
18. Gilberthorpe, E.; Banks, G. Development on whose terms?: CSR discourse and social realities in Papua New Guinea's extractive industries sector. *Resour. Policy* **2012**, *37*, 185–193. [CrossRef]
19. Mutti, D.; Yakovleva, N.; Vazquez-Brust, D.; Di Marco, M.H. Corporate social responsibility in the mining industry: Perspectives from stakeholder groups in Argentina. *Resour. Policy* **2012**, *37*, 212–222. [CrossRef]
20. Prno, J.; Slocombe, D.S. Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories. *Resour. Policy* **2012**, *37*, 346–357. [CrossRef]
21. Owen, J.R.; Kemp, D. Social licence and mining: A critical perspective. *Resour. Policy* **2013**, *38*, 29–35. [CrossRef]
22. Lee, S.Y.; Zhang, W.; Abitbol, A. What Makes CSR Communication Lead to CSR Participation? Testing the Mediating Effects of CSR Associations, CSR Credibility, and Organization–Public Relationships. *J. Bus. Ethics* **2017**, *157*, 413–429. [CrossRef]
23. Huang, Y.H. Public Relations Strategies, Relational Outcomes, and Conflict Management Strategies. Unpublished. Master's Thesis, University of Maryland, College Park, MD, USA, 1997.
24. Newell, S.J.; Goldsmith, R.E. The development of a scale to measure perceived corporate credibility. *J. Bus. Res.* **2001**, *52*, 235–247. [CrossRef]
25. Raposo, A.; Durão, A.; Morais, M.M.; Vasconcelos, L. Public Participation: A Tool for Water Conservation and Environmental Management. In Proceedings of the 1st International Congress on Engineering and Sustainability in the XXI Century—INCREaSE 2017, Faro, Portugal, 11–13 October 2017; pp. 583–593.
26. Mohr, L.A.; Webb, D.J.; Harris, K.E. Do Consumers Expect Companies to be Socially Responsible? The Impact of Corporate Social Responsibility on Buying Behavior. *J. Consum. Aff.* **2011**, *35*, 45–72. [CrossRef]
27. Hartmann, P.; Apaolaza-Ibáñez, V. Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *J. Bus. Res.* **2012**, *65*, 1254–1263. [CrossRef]
28. Chen, S.; Liu, N. Research on Citizen Participation in Government Ecological Environment Governance Based on the Research Perspective of "Dual Carbon Target". *J. Environ. Public Health* **2022**, *2022*, 5062620. [CrossRef] [PubMed]
29. Commission for European Communities. *Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions*; Towards a Global Partnership for Sustainable Development. COM (2002) 82 Final; European Commission: Brussels, Belgium, 2022.
30. Labuschagne, C.; Brent, A.C.; van Erck, R.P. Assessing the sustainability performances of industries. *J. Clean. Prod.* **2005**, *13*, 373–385. [CrossRef]
31. KPMG International Cooperative. *A New Vision of Value: Connecting Corporate and Societal Value Creation*; KPMG International Cooperative: Amstelveen, The Netherlands, 2014.
32. Alam, S.M.S.; Islam, K.M.Z. Examining the role of environmental corporate social responsibility in building green corporate image and green competitive advantage. *Int. J. Corp. Soc. Responsib.* **2021**, *6*, 8. [CrossRef]
33. Andrei, J.; Panait, M.; Ene, C. *Environmental Protection between Social Responsibility, Green Investments and Cultural Values*; Faculty of Economic Sciences, Petroleum-Gas University of Ploiesti: Ploiesti, Romania; MPRA: Munich, Germany, 2014; Volume 60189, pp. 2–8.
34. Saran, S.M.; Shokouhyar, S. Crossing the chasm between green corporate image and green corporate identity: A text mining, social media-based case study on automakers. *J. Strat. Mark.* **2021**, *29*, 1–24. [CrossRef]
35. Rashid, A.Z.M.M.; Craig, D.; Mukul, S.A.; Khan, N.A. A journey towards shared governance: Status and prospects for collaborative management in the protected areas of Bangladesh. *J. For. Res.* **2013**, *24*, 599–605. [CrossRef]
36. Ailawadi, K.L.; Luan, Y.J.; Neslin, S.A.; Taylor, G.A. The impact of retailers' corporate social responsibility on price fairness perceptions and loyalty. In Proceedings of the Inra-Idei Seminar on Competition and Strategies in the Retailing Industry, Toulouse, France, 16–17 May 2011; pp. 16–17.
37. Rahman, S. Evaluation of definitions: Ten dimensions of corporate social responsibility. *World Rev. Bus. Res.* **2011**, *1*, 166–176.
38. Kathiresan, K.; Bingham, B.L. Biology of mangroves and mangrove Ecosystems. *Adv. Mar. Biol.* **2001**, *40*, 81–251. [CrossRef]
39. Salampessy, M.L.; Febryano, I.G.; Martin, E.; Siahaya, M.E.; Papilaya, R. Cultural Capital of the Communities in the Mangrove Conservation in the Coastal areas of Ambon Dalam Bay, Moluccas, Indonesia. *Procedia Environ. Sci.* **2015**, *23*, 222–229. [CrossRef]
40. Alongi, D.M. *The Energetics of Mangrove Forests*; Springer: Dordrecht, The Netherlands, 2009.
41. Giesen, W.; Wulfrrat, S.; Zieren, M.; Schoten, L. *Mangrove Guidebook for Southeast Asia*; Dharmasarn Co., Ltd.: Bangkok, Thailand, 2007.
42. Alongi, D.M.; Sasekumar, A.; Tirendi, F.; Dixon, P. The Influence of Stand Age on Benthic Decomposition and Re-cycling of Organic Matter in Managed Mangrove Forests of Malaysia. *J. Exp. Mar. Biol. Ecol.* **1998**, *225*, 197–218. [CrossRef]
43. Duke, N.C.; Meynecke, J.O.; Dittmann, S.; Ellison, A.M.; Anger, K.; Berger, U.; Marcha, C.; Diele, K.; Ewel, K.C.; Field, C.; et al. A World Without Mangroves? *Science* **2007**, *317*, 41–42. [CrossRef] [PubMed]
44. Kauffman, J.B.; Donato, D.C. *Protocols for the Measurement, Monitoring and Reporting of Structure, Biomass and Carbon Stocks in Mangrove Forests*; CIFOR: Bogor, Indonesia, 2012.

45. Kusmana, C. Integrated Sustainable Mangrove Forest Management. *J. Nat. Resour. Environ. Manag.* **2015**, *5*, 1–6. [CrossRef]
46. Food and Agriculture Organization. *United States Forest Service Tropical Forestry Mangrove Forest Management Guidelines*; Food and Agriculture Organization: Rome, Italy, 1994; p. 117.
47. Blaser, J. *Criteria and Indicators for the Sustainable Management of Tropical Forests*; ITTO Policy Development Series No. 21; International Tropical Timber Organization: Yokohama, Japan, 2016.
48. Tang-Lee, D. Corporate social responsibility (CSR) and public engagement for a Chinese state-backed mining project in Myanmar—Challenges and prospects. *Resour. Policy* **2016**, *47*, 28–37. [CrossRef]
49. IAP2. Foundations of Public Participation. 2003. Available online: http://www.iap2.org/indexpdfs/foundations-bro.pdfi (accessed on 17 June 2022).
50. Arnstein, S.R. A Ladder of Citizen Participation. *J. Am. Inst. Plan.* **1996**, *35*, 216–224. [CrossRef]
51. Mostert, E. The challenge of public participation. *Water Policy* **2003**, *5*, 179–197. [CrossRef]
52. Newig, J.; Pahl-Wostl, C.; Sigel, K. The role of public participation in managing uncertainty in the implementation of the Water Framework Directive. *Eur. Environ.* **2005**, *15*, 333–343. [CrossRef]
53. EU. *Guidance on Public Participation in Relation to the Water Framework Directive. Active Involvement, Consultation, and Public Access to Information*; Common Implementation Strategy Guidance Document No. 8; EU: Luxembourg, 2002.
54. Djosetro, M.; Behagel, J.H. Building local support for a coastal protected area: Collaborative governance in the Bigi Pan multiple use management area of suriname. *Mar. Policy* **2020**, *112*, 103746. [CrossRef]
55. Van Lavieren, H.; Spalding, M.; Alongi, D.M.; Kainuma, M.; Clüsener-Godt, M.; Adeel, Z. *Securing the Future of Mangroves United Nations University, Institute for Water*; Environment and Health: Hamilton, ON, Canada, 2012.
56. Uphoff, N.T. *Feasibility and Application of Rural Development Participation: A State-of-the Art Paper*; Rural Development Committee, Centre for International Studies, Cornel University: Ithaca, NY, USA, 1979.
57. Cohen, J.; Uphoff, N. Participation's place in rural development: Seeking clarity through specificity. *World Dev.* **1980**, *8*, 213–235. [CrossRef]
58. Islam, K.K.; Rahman, M.; Fujiwara, T.; Sato, N. People's participation in forest conservation and livelihoods im-provement: Experience from a forestry project in Bangladesh. *Int. J. Biodivers. Sci. Ecosyst. Serv. Manag.* **2013**, *9*, 30–43. [CrossRef]
59. Obadire, O.; Mudau, M.; Zuwarimwe, J.; Mensah, P.S. Participation Index Analysis for CRDP at Muyexe in Limpopo Province, South Africa. *J. Hum. Ecol.* **2014**, *48*, 321–328. [CrossRef]
60. Mbeche, R.; Ateka, J.; Herrmann, R.; Grote, U. Understanding forest users' participation in participatory forest management (PFM): Insights from Mt. Elgon forest ecosystem, Kenya. *For. Policy Econ.* **2021**, *129*, 102507. [CrossRef]
61. Chowdhury, S.B. Participation in Forestry: A Study of People's Participation on the Social Forestry Policy in Bangladesh: Myth or Reality? Master's Thesis, University of Bergen, Bergen, Norway, 2004.
62. Tadesse, S.; Woldetsadik, M.; Senbeta, F. Forest users' level of participation in a participatory forest management program in southwestern Ethiopia. *For. Sci. Technol.* **2017**, *13*, 164–173. [CrossRef]
63. Eddiwan, K.; Hanifah, A. Community-based mangrove forest management action in Rangsang region, district of Kepulauan Meranti, Riau. *MOJ Ecol. Environ. Sci.* **2018**, *3*, 62–65. [CrossRef]
64. Reed, M.S.; Graves, A.; Dandy, N.; Posthumus, H.; Hubacek, K.; Morris, J.; Prell, C.; Quinn, C.H.; Stringer, L.C. Who's in and why? A typology of stakeholder analysis methods for natural resource management. *J. Environ. Manag.* **2009**, *90*, 1933–1949. [CrossRef] [PubMed]
65. Evans, K.; Guariguata, M.R.; Brancalion, P.H.S. Participatory monitoring to connect local and global priorities for forest restoration. *Conserv. Biol.* **2018**, *32*, 525–534. [CrossRef]
66. Broom, G.M.; Casey, S.; Ritchey, J. Toward a Concept and Theory of Organization-Public Relationships. *J. Public Relat. Res.* **1997**, *9*, 83–98. [CrossRef]
67. Ledingham, J.A.; Bruning, S.D. Relationship management in public relations: Dimensions of an organization-public relationship. *Public Relat. Rev.* **1998**, *24*, 55–65. [CrossRef]
68. Bruning, S.D.; Ledingham, J.A. Relationships between organizations and publics: Development of a multi-dimensional organization-public relationship scale. *Public Relat. Rev.* **1999**, *25*, 157–170. [CrossRef]
69. Yang, S. An integrated model for organization-public relational outcomes, organizational reputation, and their antecedents. *J. Public Relat. Res.* **2007**, *19*, 91–121. [CrossRef]
70. Ki, E.-J.; Hon, L.C. Reliability and Validity of Organization-Public Relationship Measurement and Linkages among Relationship Indicators in a Membership Organization. *J. Mass Commun. Q.* **2007**, *84*, 419–438. [CrossRef]
71. Grunig, J.E.; Huang, Y. From organizational effectiveness to relationship indicators: Antecedents of relationships, public relations strategies, and relationship outcomes. In *Public Relations as Relationship Management: A Relational Approach to Public Relations*; Ledingham, J.A., Bruning, S.D., Eds.; Lawrence Erlbaum Associates: Hillsdale, NJ, USA, 2000; pp. 23–54.
72. Ko, D.-G. The mediating role of knowledge transfer and the effects of client-consultant mutual trust on the performance of enterprise implementation projects. *Inf. Manag.* **2014**, *51*, 541–550. [CrossRef]
73. Hon, C.L.; Grunig, J.E. *Guidelines for Measuring Relationships in Public Relations*; The Institute for Public Relations: Gainesville, FL, USA, 1999.
74. Huang, Y.H. ORPA: A cross-cultural, multiple-item scale for measuring the effects of corporate social marketing on consumer behavior. *J. Public Relat. Res.* **2001**, *13*, 61–90. [CrossRef]

75. Ki, E.J. A model of an organization-public relationship for the banking industru. *Public Relat. Rev.* **2013**, *39*, 216–218. [CrossRef]
76. Du, S.; Bhattacharya, C.; Sen, S. Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication. *Int. J. Manag. Rev.* **2010**, *12*, 8–19. [CrossRef]
77. Riley, M.W.; Hovland, C.I.; Janis, I.L.; Kelley, H.H. *Communication and Persuasion; Psychological Studies of Opinion Change*; Yale University Press: New Haven, CT, USA, 1953.
78. Sternthal, B.; Dholakia, R.; Leavitt, C. The Persuasive Effect of Source Credibility: Tests of Cognitive Response. *J. Consum. Res.* **1978**, *4*, 252–260. [CrossRef]
79. Goldberg, M.E.; Hartwick, J. The Effects of Advertiser Reputation and Extremity of Advertising Claim on Advertising Effectiveness. *J. Consum. Res.* **1990**, *17*, 172–179. [CrossRef]
80. Goldsmith, R.E.; Lafferty, B.A.; Newell, S.J. The Impact of Corporate Credibility and Celebrity Credibility on Consumer Reaction to Advertisements and Brands. *J. Advert.* **2000**, *29*, 43–54. [CrossRef]
81. Lafferty, B.A.; Goldsmith, R.E.; Newell, S.J. The Dual Credibility Model: The Influence of Corporate and Endorser Credibility on Attitudes and Purchase Intentions. *J. Mark. Theory Pract.* **2002**, *10*, 1–12. [CrossRef]
82. Jabeen, G.; Yan, Q.; Ahmad, M.; Fatima, N.; Qamar, S. Consumers' intention-based influence factors of renewable power generation technology utilization: A structural equation modeling approach. *J. Clean. Prod.* **2019**, *237*, 117737. [CrossRef]
83. Karimi, S.; Papamichail, K.N.; Holland, C.P. The effect of prior knowledge and decision-making style on the online purchase decision-making process: A typology of consumer shopping behaviour. *Decis. Support Syst.* **2015**, *77*, 137–147. [CrossRef]
84. Lee, E.-J. How perceived cognitive needs fulfillment affect consumer attitudes toward the customized product: The moderating role of consumer knowledge. *Comput. Hum. Behav.* **2016**, *64*, 152–162. [CrossRef]
85. Martin, V.; Smith, L.; Bowling, A.; Christidis, L.; Lloyd, D.; Pecl, G. Citizens as Scientists: What Influences Public Contributions to Marine Research? *Sci. Commun.* **2016**, *38*, 495–522. [CrossRef]
86. Singhapakdi, A.; Lee, D.-J.; Sirgy, M.J.; Roh, H.; Senasu, K.; Yu, G.B. Effects of perceived organizational CSR value and employee moral identity on job satisfaction: A study of business organizations in Thailand. *Asian J. Bus. Ethic* **2019**, *8*, 53–72. [CrossRef]
87. Afonso, F.; Félix, P.M.; Chainho, P.; Heumüller, J.A.; de Lima, R.F.; Ribeiro, F.; Brito, A.C. Assessing Ecosystem Services in Mangroves: Insights from São Tomé Island (Central Africa). *Front. Environ. Sci.* **2021**, *9*, 501673. [CrossRef]
88. Millenium Ecosystem Assessment. *Ecosystems and Human Well-Being: Biodiversity Synthesis*; World Institute: Washington, DC, USA, 2005.
89. McFarlane, B.L.; Boxall, P.C. Factors influencing forest values and attitudes of two stakeholder groups: The case of the foothills model forest, Alberta, Canada. *Soc. Nat. Resour.* **2000**, *13*, 649–661.
90. Adhikari, S.; Kingi, T.; Ganesh, S. Incentives for community participation in the governance and management of common property resources: The case of community forest management in Nepal Forest. *Policy Econ.* **2014**, *44*, 1–9. [CrossRef]
91. Araral, E. What explains collective action in the commons? Theory and evidence from the Philippines. *World Dev.* **2009**, *37*, 687–697. [CrossRef]
92. Coulibaly-Lingani, P.; Savadogo, P.; Tigabu, M.; Oden, P.C. Factors influencing people's participation in the forest management program in Burkina Faso, West Africa. *For. Policy Econ.* **2011**, *13*, 292–302. [CrossRef]
93. Hsu, C.L.; Lin, J.C.C. What drives purchase intention for paid mobile apps?–An expectation confirmation model with perceived value. *Electron. Commer. Res. Appl.* **2015**, *14*, 46–57. [CrossRef]
94. Meinzen-Dick, R.; Knox, A. Collective action, property rights and devolution of natural resource management: A conceptual framework. In *Collective Action, Property Rights and Devolution of Natural Resource Management: Exchange of Knowledge and Implications for Policy*; Meinzen-Dick, R., Knox, A., Gregoria, M.D., Eds.; Zentralstelle für Ernährung und Landwirtschaft: Feldafing, Germany, 2001; pp. 41–73.
95. Prakprasae Sub-District Municipality. 2020. Available online: http://www.prasae.com/viewcontent.asp?group=2&contentid=13 (accessed on 7 December 2020).
96. Yamane, T. *Statistics: An Introductory Analysis*, 3rd ed.; Harper and Row Publication: New York, NY, USA, 1973.
97. Pretty, J.N. Participatory learning for sustainable agriculture. *World Dev.* **1995**, *23*, 1247–1263. [CrossRef]
98. Fistiningrum, W.; Harini, R. The impacts of mangrove ecotourism management on the socio-economic conditions of people in kulonprogo regency. *IOP Conf. Ser. Earth Environ. Sci.* **2021**, *683*, 012116. [CrossRef]
99. Jaruek, Y.; Thungngern, J.; Kummanee, K.; Seeniang, P. Farmers' Participation in Mangrove Forest Conservation and Management: A Case Study Mangrove Forest Conservation Project Ban Tam Thong at Pak-Klong Sub-district, Pathio District, Chump. 2020. Available online: https://kuojs.lib.ku.ac.th/index.php/jasm/article/view/3606 (accessed on 7 December 2021).
100. sillsPerex, A.; del Bosque, I.R. Customer personal features as determinants of the formation process of corporate social responsibility perceptions. *Psychol. Mark.* **2013**, *30*, 903–917.
101. Sills, K.; Halter, B.; Frank, A. *Put a Price on It: Measuring Ecological Value of a Diverse Landscape*; Environmental Studies and Sciences, Skidmore College: Saratoga Springs, NY, USA, 2017.
102. Ayala-Azcárraga, C.; Diaz, D.; Zambrano, L. Characteristics of urban parks and their relation to user well-being. *Landsc. Urban Plan.* **2019**, *189*, 27–35. [CrossRef]
103. Cebrián-Piqueras, M.A.; Filyushkina, A.; Johnson, D.N.; Lo, V.B.; López-Rodríguez, M.D.; March, H.; Oteros-Rozas, E.; Peppler-Lisbach, C.; Quintas-Soriano, C.; Raymond, C.M.; et al. Scientific and local ecological knowledge, shaping per-ceptions towards protected areas and related ecosystem services. *Landsc. Ecol.* **2020**, *35*, 2549–2567. [CrossRef]

104. Zhang, L.; Lin, X.; Qiu, B.; Ou, G.; Zhang, Z.; Han, S. Impact of Value Perception on Farmers' Willingness to Par-ticipate in Farmland Fallow: A Case-Study in Major Grain-Producing Areas of Hubei and Hunan, China. *Sustainability* **2022**, *14*, 724. [CrossRef]
105. Kotchen, M.J.; Reiling, S.D. Environmental attitudes, motivations, and contingent valuation of nonuse values: A case study involving endangered species. *Ecol. Econ.* **2000**, *32*, 93–107. [CrossRef]
106. Fryxell, G.E.; Lo, C.W.H. The Influence of Environmental Knowledge and Values on Managerial Behaviours on Behalf of the Environment: An Empirical Examination of Managers in China. *J. Bus. Ethic* **2003**, *46*, 45–69. [CrossRef]
107. Mostafa, M. Gender differences in Egyptian consumers' green purchase behaviour: The effects of environmental knowledge, concern and attitude. *Int. J. Consum. Stud.* **2007**, *31*, 220. [CrossRef]
108. Arcury, T. Environmental Attitude and Environmental Knowledge. *Hum. Organ.* **1990**, *49*, 300–304. [CrossRef]
109. Pan, S.-L.; Chou, J.; Morrison, A.M.; Huang, W.-S.; Lin, M.-C. Will the Future Be Greener? The Environmental Behavioral Intentions of University Tourism Students. *Sustainability* **2018**, *10*, 634. [CrossRef]
110. Hsu, S.; Roth, R.E. An Assessment of Environmental Literacy and Analysis of Predictors of Responsible Environmental Behaviour Held by Secondary Teachers in the Hualien Area of Taiwan. *Environ. Educ. Res.* **1998**, *4*, 229–249. [CrossRef]
111. Zhu, Y. *An Assessment of Environmental Literacy among Undergraduate Students at Two National Universities in Hubei Province, China*; Florida Institute of Technology: Melbourne, FL, USA, 2015.
112. Nusong, O. Community Participation In Management of Aquatic Animal Protected Area: A Case Study of Moo 1, Pa-Khad Sub-District, Singhanakhon District Songkhla Province. Master's Thesis, Prince of Songkla University, Songkhla, Thailand, 2017.
113. Cronbach, L.J. Coefficient alpha and the internal structure of tests. *Psychometrika* **1951**, *16*, 297–334. [CrossRef]
114. Hernes, M.I.; Metzger, M.J. Understanding local community's values, worldviews and perceptions in the Galloway and Southern Ayrshire Biosphere Reserve, Scotland. *J. Environ. Manag.* **2017**, *186*, 12–23. [CrossRef] [PubMed]
115. Truong, D.D. Villagers' Perception and Attitude Toward Wetland Values and Conservation in Vietnam: A Case Study of Xuan Thuy Ramsar National Park. *Front. Sociol.* **2021**, *6*, 763743. [CrossRef] [PubMed]
116. Putnam, R.D. *Bowling alone: The Collapse and Revival of American Community*; Simon; Schuster: New York, NY, USA, 2000; ISBN 9780684832838.
117. Teilmann, K. Measuring social capital accumulation in rural development. *J. Rural Stud.* **2012**, *28*, 458–465. [CrossRef]
118. Stern, M.J.; Coleman, K.J. The Multidimensionality of Trust: Applications in Collaborative Natural Resource Management. *Soc. Nat. Resour.* **2014**, *28*, 117–132. [CrossRef]
119. Smith, J.W.; Leahy, J.E.; Anderson, D.H.; Davenport, M.A. Community/Agency Trust and Public Involvement in Resource Planning. *Soc. Nat. Resour.* **2013**, *26*, 452–471. [CrossRef]
120. Josephs, L.I.; Humphries, A.T. Identifying social factors that undermine support for nature-based coastal management. *J. Environ. Manag.* **2018**, *212*, 32–38. [CrossRef]
121. Satti, H.A.; Young, H.; Adam, A.M. *Participation in Integrated Natural Resource Management Projects: Reflections from North Darfur*; A Feinstein International Center Brief; Tufts University: Boston, MA, USA, 2021.
122. Kanel, K.R.; Dahal, G.R. Community forestry policy and its economic implications: An experience from Nepal. *Int. J. Soc. For.* **2008**, *1*, 50–60.
123. Durant, J.; Evans, G.; Thomas, G. The public understanding of science. *Nature* **1989**, *340*, 11–14. [CrossRef]
124. Park, C.W.; Mothersbaugh, D.L.; Feick, L. Consumer Knowledge Assessment. *J. Consum. Res.* **1994**, *21*, 71. [CrossRef]
125. Ricky, Y.K.C.; Lorett, B.Y.L. Antecedents of green purchase: A survey in China. *J. Consum. Mark.* **2000**, *17*, 338–357.
126. Brunk, C.G. Public Knowledge, Public Trust: Understanding the 'Knowledge Deficit'. *Community Genet.* **2006**, *9*, 178–183. [CrossRef] [PubMed]
127. Dolisca, F.; Carter, D.R.; McDaniel, J.M.; Shannon, D.A.; Jolly, C.M. Factors influencing farmers' participation in forestry management programs: A case study from Haiti. *For. Ecol. Manag.* **2006**, *236*, 324–331. [CrossRef]