Community-Based Mangrove Reforestation Through Corporate Social Responsibility

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ABSTRACT

Mangrove forests played a vital role in protecting coastal ecosystems, sustaining biodiversity, and supporting community livelihoods. This study assessed the effectiveness of Corporate Social Responsibility (CSR) in Taiyo Yuden's mangrove reforestation project in Tuyom, Carcar, Cebu, during the Academic Year 2025–2026. Specifically, it examined the respondents' profiles, the level of CSR implementation, and the level of CSR effectiveness. Using a quantitative, descriptive-correlational design, data were collected from 120 purposively selected respondents using a researcher-developed questionnaire. Frequency, percentage, weighted mean, and Pearson's Product-Moment Correlation were used to analyze the data. The findings revealed that CSR implementation (M = 4.511) and CSR effectiveness (M = 4.542) were both rated Strongly Agree. Volunteerism and partnership support, stakeholder engagement, sustainability outcomes, and environmental impact emerged as the strongest dimensions. Furthermore, a significant positive relationship was found between CSR implementation and CSR effectiveness ($p < .001$), indicating that stronger implementation was associated with better environmental and community outcomes. Based on the findings, the study developed the Mangrove Survival & Biodiversity Enhancement Program (MSBEP) to strengthen community participation, environmental stewardship, biodiversity conservation, and sustainable coastal development. The study concluded that effective CSR implementation was essential for achieving long-term mangrove restoration and community resilience.

Keywords: Corporate Social Responsibility, Mangrove Reforestation, CSR Effectiveness, Community Participation, Biodiversity Conservation

INTRODUCTION

Along the world's coastlines, mangrove forests stand as silent guardians of ecological balance, protecting communities from storm surges, sustaining marine biodiversity, and supporting local livelihoods. Yet, despite their immense value, these ecosystems continue to face pressures from environmental degradation, climate change, and unsustainable human activities. As environmental challenges intensify, Corporate Social Responsibility (CSR) has emerged as a vital mechanism through which corporations contribute to ecosystem restoration while fostering sustainable community development.

The growing significance of CSR in mangrove conservation is evident in various environmental initiatives across Asia. Sattayapanich et al. (2022) emphasized that community participation serves as a critical factor in the success of environmental CSR projects, particularly in mangrove forest management. Similarly, Davins et al. (2022) found that although communities may recognize the importance of mangrove programs, participation often remains limited when awareness and engagement strategies are insufficient. Beyond participation, contemporary conservation efforts increasingly highlight the role of community empowerment and innovation. Hamdika and Winowatan (2025) demonstrated that conservation-based social innovation strengthens the capacity of vulnerable coastal communities, while Rahmat et al. (2025) observed that mangrove conservation programs can transform community values from resource exploitation toward environmental stewardship. In the same manner, Perdana and Tamburaka (2026) identified structured community engagement as a key driver of successful mangrove rehabilitation, reinforcing the importance of collaborative governance in environmental restoration.

Moreover, mangrove conservation has evolved beyond ecological protection and has become a pathway for sustainable economic development. Sabrina et al. (2024) reported that mangrove-based community programs promote environmental education, livelihood opportunities, and product innovation. Likewise, Rohim and Putranto (2024) found that community-based mangrove initiatives improve local welfare while addressing climate-related challenges.

In the Philippines, the success of mangrove rehabilitation initiatives is often linked to local participation and institutional support. Marquez and Olavides (2024) highlighted that integrating scientific knowledge with local ecological practices strengthens community ownership and long-term sustainability. Similarly, Quevedo et al. (2021) found that involving local residents in mangrove management enhances participation, awareness, and leadership. Furthermore, recent initiatives demonstrate how partnerships can expand the reach and impact of conservation efforts. Sun (2025) documented how collaborative environmental programs in Cebu have enabled large-scale tree and mangrove planting through corporate and community engagement. Likewise, Park et al. (2023) emphasized that environmental education, capacity-building activities, and collective action strengthen community commitment to mangrove protection and rehabilitation.

Despite the increasing implementation of CSR-driven environmental programs, limited empirical studies have examined how CSR implementation dimensions influence the effectiveness of community-based mangrove reforestation projects in coastal communities. Existing research has largely focused on participation, conservation outcomes, or community development independently, leaving a gap in understanding how CSR implementation and effectiveness interact within a single environmental initiative. This gap is particularly evident in the Philippine setting, where community-based mangrove reforestation programs continue to expand as part of corporate sustainability efforts.

Against this backdrop, the present study assesses the effectiveness of Corporate Social Responsibility (CSR) in Taiyo Yuden’s mangrove reforestation project in Tuyom, Carcar, Cebu, for the Academic Year 2025–2026. Specifically, it determines respondents' profiles, analyzes the level of CSR implementation, assesses CSR effectiveness, and develops a Mangrove Survival & Biodiversity Enhancement Program (MSBEP). Through this undertaking, the study contributes to the growing discourse on environmental CSR, sustainable coastal development, and community-based conservation by providing an evidence-based framework for strengthening future mangrove restoration initiatives.

Research Objectives

This study assessed the effectiveness of Corporate Social Responsibility (CSR) in Taiyo Yuden's mangrove reforestation project in Tuyom, Carcar, Cebu, for the Academic Year 2025-2026. Specifically, it sought to answer the following questions:

1. Determine the profile of the respondents.
2. Analyze the level of implementation of corporate social responsibility (CSR) dimensions as perceived by the respondents.
3. Assess the level of corporate social responsibility (CSR) effectiveness as perceived by the respondents.
4. Develop a Mangrove Survival & Biodiversity Enhancement Program (MSBEP) based on the findings of the study.

LITERATURE REVIEW

Corporate Social Responsibility (CSR) has evolved from a philanthropic undertaking into a strategic mechanism for fostering environmental sustainability, community development, and stakeholder well-being. In recent years, organizations have increasingly recognized that responsible business practices create value not only for corporations but also for the communities they serve. This shift has positioned CSR as an essential component

of sustainable development, particularly in projects that address environmental restoration and community empowerment.

Understanding beneficiaries' characteristics remains fundamental to evaluating CSR initiatives. Socio-demographic factors often shape how individuals perceive and respond to corporate programs. Enriquez (2020) found that age, gender, and other demographic characteristics influence stakeholders' perceptions of CSR effectiveness. Similarly, Mahmud et al. (2020) emphasized that community perceptions of societal progress are shaped by the nature and relevance of CSR programs implemented in their localities. In another context, Pratomo and Akbar (2024) highlighted the importance of understanding stakeholder backgrounds when assessing the effectiveness of CSR initiatives, as perceptions may vary depending on experience and community roles. Likewise, Hajar (2025) reported that beneficiaries' demographic characteristics significantly influence their evaluation of the long-term impact and sustainability of CSR programs.

The successful implementation of CSR depends on how effectively organizations translate their commitments into concrete actions. CSR implementation encompasses various dimensions, including community participation, awareness-raising, resource allocation, stakeholder engagement, and support for partnerships. Vuong and Bui (2023) explained that well-executed CSR activities enhance stakeholder perceptions and strengthen organizational credibility. Furthermore, Bhuiyan et al. (2022) found that beneficiaries expressed strong satisfaction when CSR programs were implemented consistently and responsibly. Similarly, Zia-ur-Rehman et al. (2022) noted that effective CSR implementation reflects an organization's commitment to social responsibility and environmental stewardship.

Among the implementation dimensions, stakeholder participation and collaboration play a particularly significant role. Ansu-Mensah et al. (2021) demonstrated that active stakeholder engagement enhances the quality and effectiveness of CSR initiatives by fostering trust and shared responsibility among community members, organizations, and regulators. Likewise, Afzali and Kim (2021) emphasized that stakeholders respond more positively to CSR initiatives when they perceive them as authentic and aligned with community needs. Similarly, Rosak-Szyrocka et al. (2022) found that positive perceptions of CSR strengthen confidence in organizations and contribute to favorable social outcomes.

Beyond implementation, the effectiveness of CSR remains a critical area of inquiry. Effective CSR programs generate tangible benefits for communities, organizations, and the environment. Hadi and Udin (2020), however, found that some CSR initiatives failed to meet stakeholder expectations, resulting in lower levels of perceived effectiveness. Their findings highlight that effectiveness is not guaranteed by implementation alone but depends on the extent to which programs address actual community needs. Conversely, Nugroho et al. (2024) reported that CSR initiatives positively influence stakeholder behavior and organizational outcomes when environmental and social concerns are adequately addressed.

Environmental sustainability has become one of the most important outcomes associated with CSR. As environmental challenges continue to intensify, corporations are increasingly expected to contribute to ecological protection and restoration. Le et al. (2024) found that CSR initiatives significantly contribute to sustainable development when integrated with environmental strategies and community-oriented programs. Likewise, Adu-Gyamfi et al. (2021) demonstrated that responsible organizational practices positively influence social and sustainability performance.

Furthermore, the literature consistently highlights the broader social and organizational benefits of CSR. Effective CSR initiatives strengthen trust, improve stakeholder relationships, and enhance perceptions of organizational legitimacy. Vuong and Bui (2023) observed that CSR activities improve stakeholder satisfaction and contribute to positive organizational outcomes, while Rosak-Szyrocka et al. (2022) emphasized the role of CSR in strengthening organizational image and stakeholder loyalty.

Collectively, the reviewed literature reveals that CSR implementation and effectiveness are interconnected processes influenced by stakeholder participation, awareness, resource support, collaboration, and sustainability-oriented actions. While previous studies consistently reported positive outcomes of CSR initiatives in terms of community development, environmental sustainability, organizational performance, and stakeholder

satisfaction, most investigations were conducted in corporate, banking, manufacturing, educational, and mining settings. Although these studies provide valuable insights, there is limited empirical evidence on community-based mangrove reforestation projects implemented through CSR programs in the Philippine context. Moreover, few studies have simultaneously examined respondent profiles, CSR implementation dimensions, and CSR effectiveness from the perspective of local beneficiaries.

Null Hypothesis

Ho_1: There is a significant relationship between CSR dimensions and CSR effectiveness.

METHODOLOGY

Design

This study employed a quantitative descriptive–correlational research design to assess the effectiveness of Corporate Social Responsibility (CSR) in the Taiyo Yuden Mangrove Reforestation Project in Barangay Tuyom, Carcar City, Cebu. The descriptive component was used to determine respondents' profiles and their assessments of CSR implementation and effectiveness, while the correlational component examined the relationships between CSR implementation dimensions and CSR effectiveness. This design was appropriate because it provided a systematic description of existing conditions and identified significant associations among the study variables.

Environment

The study was conducted in Barangay Tuyom, Carcar City, Cebu, the primary site of the Taiyo Yuden Mangrove Reforestation Project implemented through the Philippine Business for Social Progress (PBSP). The barangay is a coastal community characterized by mangrove rehabilitation activities, fishing-based livelihoods, and active participation in environmental conservation initiatives. The location was selected because it serves as a model community for CSR-driven mangrove restoration and community engagement programs.

Respondents and Sampling

The respondents consisted of 120 purposively selected participants, including fisherfolk beneficiaries, community leaders, and local residents directly involved in the mangrove reforestation project. Purposive sampling was employed to ensure that only individuals with direct experience and participation in CSR-related activities were included in the study. This approach enabled the collection of relevant and reliable information on the project's implementation and effectiveness.

Instrument

Data were gathered using a researcher-made survey questionnaire based on the identified dimensions of CSR implementation and effectiveness. The instrument comprised two major parts: the respondents' profile and the assessment of CSR implementation in terms of community participation, CSR awareness, resource allocation, stakeholder engagement, and volunteerism and partnership support, as well as CSR effectiveness in terms of environmental impact, livelihood improvement, sustainability outcomes, community empowerment, and perception of CSR success. The questionnaire utilized a four-point Likert scale to measure respondents' perceptions.

Procedure

Prior to data collection, the researcher secured the necessary permissions from the concerned authorities and stakeholders. After obtaining approval, the survey questionnaires were distributed to the identified respondents. The purpose of the study was explained, and informed consent was obtained before participation. Completed questionnaires were retrieved, checked for completeness, organized, and prepared for statistical analysis. The collected data were subsequently encoded, tabulated, analyzed, and interpreted to address the study's objectives.

Data Analysis

The data were analyzed using appropriate descriptive and inferential statistical tools. Frequency counts and percentages were used to describe the respondents' profile. The weighted mean was utilized to determine the level of CSR implementation and effectiveness. Pearson Product-Moment Correlation was used to examine the relationship between CSR implementation dimensions and CSR effectiveness. These statistical treatments enabled a comprehensive assessment of the study variables and their associations.

Ethical Considerations

The study strictly adhered to ethical research standards throughout the investigation. Participation was voluntary, and respondents were informed of the study's purpose, procedures, and significance before data collection. Informed consent was obtained from all participants, and confidentiality and anonymity were maintained by ensuring that individual responses were not disclosed or used for any purpose other than the study. Data were handled with the utmost privacy and stored securely in compliance with the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173). Respondents were likewise assured that they could withdraw from the research at any stage without consequences.

RESULTS AND DISCUSSION

Table 1. Profile of the Respondents (n=120)

Profile Variable	Category	Frequency	Percent
Age	Below 20	2	1.70
	20–29	10	8.30
	30–39	25	20.80
	40–49	49	40.80
	50–59	28	23.30
	60–69	4	3.30
	70–79	1	0.80
	80–89	1	0.80
Gender	Male	87	72.50
	Female	33	27.50
Highest Educational Attainment	Elementary Level	19	15.80
	Elementary Graduate	25	20.80
	High School Level	15	12.50
	High School Graduate	30	25.00
	Vocational/Technical	3	2.50
	College Level	18	15.00

	College Graduate	10	8.30
Occupation	Fisherfolk	61	50.80
	Laborer	6	5.00
	Vendor	11	9.20
	Community Leader/Barangay Official	21	17.50
	Private Employee	3	2.50
	Self-Employed	10	8.30
	Unemployed	5	4.20
	Others	3	2.50
Monthly Income	Below ₱5,000	15	12.50
	₱5,001–₱10,000	53	44.20
	₱10,001–₱15,000	46	38.30
	₱15,001–₱20,000	4	3.30
	Above ₱20,000	2	1.70
Length of Residence in the Community	Less than 1 year	3	2.50
	1–5 years	20	16.70
	6–10 years	25	20.80
	11–15 years	22	18.30
	16 years and above	50	41.70
Level of Involvement in CSR Activities	Not Involved	5	4.20
	Slightly Involved	7	5.80
	Moderately Involved	38	31.70
	Highly Involved	67	55.80
	Very Highly Involved	3	2.50

Table 1 presents the demographic profile of the respondents and reveals a community deeply connected to coastal resource management and mangrove conservation. The majority were aged 40–49 years (40.80%), followed by those aged 50–59 years (23.30%), indicating that participation in the mangrove reforestation initiative was largely driven by mature and economically active individuals. This finding suggests that environmental stewardship is often sustained by residents who possess extensive community experience and firsthand knowledge of coastal ecosystems. Similarly, de la Cruz et al. (2025) reported that experienced fisherfolk exhibit

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stronger knowledge, attitudes, and practices toward coastal resource management, highlighting the important role of age and experience in environmental participation.

The predominance of male respondents (72.50%) reflects the traditional structure of coastal communities where fishing and resource-based activities are commonly undertaken by men. Nevertheless, the presence of female participants demonstrates that mangrove conservation has evolved into a shared community responsibility. Regarding educational attainment, most respondents had an elementary or high school education. Despite relatively modest educational backgrounds, respondents remained actively engaged in conservation activities, suggesting that environmental awareness may be acquired through ongoing exposure and participation rather than solely through formal education. This observation supports the findings of Cudiamat and Valdez (2022), who emphasized that sustained interaction with mangrove ecosystems enhances community knowledge and awareness of their ecological and socio-economic value.

Occupationally, fisherfolk comprised more than half of the respondents (50.80%), while a substantial proportion were community leaders and barangay officials (17.50%). Coupled with the finding that most respondents earned between ₱5,001 and ₱15,000 per month, the results indicate that the community remains highly dependent on coastal resources for livelihood. Moreover, 41.70% of the respondents had resided in the community for more than 16 years, reflecting strong place attachment and a long-term commitment to local environmental conditions. Consistent with Dalimunthe et al. (2025), prolonged interaction with mangrove ecosystems strengthens community appreciation of nature-based solutions and encourages active participation in conservation efforts.

Perhaps the most notable finding is the high level of involvement in CSR activities, with 55.80% of respondents reporting high involvement.

The findings suggest that the success of community-based mangrove reforestation initiatives is strongly influenced by the presence of experienced residents, resource-dependent livelihoods, long-term community attachment, and active stakeholder participation.

Table 2. Summary of the Level of Corporate Social Responsibility (CSR) Implementation

Indicator	**Mean**	**Std. Dev**	**Interpretation**
Community Participation	4.467	0.424	Strongly Agree
Corporate social responsibility awareness	4.499	0.403	Strongly Agree
Resource allocation	4.468	0.446	Strongly Agree
Stakeholder engagement	4.555	0.302	Strongly Agree
Volunteerism and partnership support	4.567	0.324	Strongly Agree
Level of Implementation	**4.511**	**0.380**	**Strongly Agree**

Legend: 4.20–5.00 = Strongly Agree (SA); 3.40–4.19 = Agree (A); 2.60–3.39 = Neutral (N); 1.80–2.59 = Disagree (D); 1.00–1.79 = Strongly Disagree (SD).

Table 2 shows that the overall implementation of Corporate Social Responsibility (CSR) was rated Strongly Agree (M = 4.511, SD = 0.380), indicating that the mangrove reforestation initiative was effectively carried out across all dimensions. Notably, volunteerism and partnership support (M = 4.567) and stakeholder engagement (M = 4.555) received the highest ratings, suggesting that strong collaboration among corporations, community members, and partner organizations was vital to program implementation. This finding supports Deigh et al. (2016), who emphasized that volunteerism, partnerships, and community involvement are essential drivers of successful CSR initiatives.

Moreover, the high ratings for stakeholder engagement and CSR awareness demonstrate that respondents recognized the importance of shared responsibility and understanding CSR objectives. This aligns with Amor-Esteban et al. (2018), who highlighted stakeholder engagement as a foundation for transparency and accountability, and with Fatima and Elbanna (2023), who noted that CSR awareness strengthens the integration of responsible practices into organizational and community actions. Likewise, the favorable assessment of community participation and resource allocation reflects effective support mechanisms, consistent with Griffin and Prakash (2014), who argued that well-coordinated resources and stakeholder collaboration are critical to CSR success. This finding is further supported by Jesus et al. (2025), who emphasized that strategic resource allocation and effective decision-making contribute significantly to achieving organizational goals and program effectiveness.

The findings imply that CSR programs achieve greater effectiveness when supported by strong partnerships, active stakeholder engagement, heightened awareness, and adequate resource allocation. Sustaining these practices can strengthen environmental conservation efforts and promote long-term community participation in mangrove restoration initiatives.

Table 3. Summary of the Level of Corporate Social Responsibility (CSR) Effectiveness

Indicator	**Mean**	**Std. Dev**	**Interpretation**
Environmental Impact	4.5486	0.3439	Strongly Agree
Livelihood Improvement	4.5333	0.3124	Strongly Agree
Sustainability Outcomes	4.5607	0.3485	Strongly Agree
Community Empowerment	4.543	0.3585	Strongly Agree
Perception of CSR Success	4.525	0.3157	Strongly Agree
Level CSR Effectiveness	**4.5421**	**0.3358**	**Strongly Agree**

Legend: 4.20–5.00 = Strongly Agree (SA); 3.40–4.19 = Agree (A); 2.60–3.39 = Neutral (N); 1.80–2.59 = Disagree (D); 1.00–1.79 = Strongly Disagree (SD).

Table 3 shows that the overall level of CSR effectiveness was rated Strongly Agree (M = 4.5421, SD = 0.3358), indicating that the mangrove reforestation initiative successfully generated positive environmental and community outcomes. Among the indicators, sustainability outcomes (M = 4.5607) and environmental impact (M = 4.5486) received the highest ratings, suggesting that the program effectively promoted ecological conservation and long-term community development. This finding supports Abebe Mamo et al. (2024), who emphasized that well-implemented CSR initiatives significantly contribute to environmental sustainability and local development.

Moreover, the high ratings for community empowerment and livelihood improvement indicate that the initiative extended its benefits beyond environmental restoration, enhancing the well-being and resilience of community members. Similarly, Danilo and Mendoza (2025) highlighted that effective CSR programs strengthen livelihood sustainability and empower communities. Meanwhile, the strong sustainability outcomes align with the view of Fallah Shayan et al. (2022) that CSR initiatives grounded in sustainable development principles create lasting, measurable benefits. Likewise, the favorable perception of CSR success reflects stakeholders' confidence in the program, supporting Kumar et al. (2022), who found that CSR enhances community resilience and local economic development.

The findings imply that CSR initiatives are most effective when they integrate environmental protection, livelihood enhancement, sustainability, and community empowerment, thereby ensuring long-term ecological and socio-economic benefits.

Table 4. Correlations Between the Level of Implementation and the Effectiveness of CSR Activities

	Environmental impact		**Livelihood improvement**		**Sustainability outcomes**		**Community empowerment**		**Perceived Success**	
	r-value	**p-value**	**r-value**	**p-value**	**r-value**	**p-value**	**r-value**	**p-value**	**r-value**	**p-value**
Community Participation	.593**	0.000	.634**	0.000	.602**	0.000	.563**	0.000	.629**	0.000
Corporate social responsibility awareness	.634**	0.000	.647**	0.000	.666**	0.000	.586**	0.000	.655**	0.000
Resource allocation	.599**	0.000	.680**	0.000	.641**	0.000	.572**	0.000	.616**	0.000
Stakeholder engagement	.705**	0.000	.679**	0.000	.670**	0.000	.621**	0.000	.706**	0.000
Volunteerism and partnership support	.645**	0.000	.679**	0.000	.671**	0.000	.590**	0.000	.706**	0.000

Table 4 shows significant positive correlations between all CSR implementation dimensions and CSR effectiveness indicators ($p = 0.000$), indicating that stronger CSR implementation is associated with better environmental, social, and sustainability outcomes. Among the dimensions, stakeholder engagement demonstrated the strongest relationship with environmental impact ($r = .705$) and perceived success ($r = .706$), highlighting the value of collaborative participation in achieving program goals. This finding supports Zhang et al. (2022), who emphasized that CSR practices become more effective when supported by strong stakeholder collaboration.

Moreover, the positive relationships of CSR awareness, resource allocation, community participation, volunteerism, and partnership support with all effectiveness indicators suggest that successful CSR initiatives are built on informed stakeholders, adequate resources, and collective action. Similarly, Sarfraz et al. (2023) found that effective CSR implementation enhances environmental and sustainability performance, while Feng et al. (2022) reported that CSR practices positively influence sustainable outcomes and stakeholder confidence. Likewise, Bux et al. (2026) concluded that CSR adoption significantly contributes to environmental, social, and sustainability performance.

The findings imply that improving stakeholder engagement, community participation, awareness, resource allocation, and partnerships can significantly enhance the effectiveness and long-term success of CSR initiatives.

Program Generated

The study developed the Mangrove Survival & Biodiversity Enhancement Program (MSBEP), a two-phase framework illustrating how the effective implementation of CSR dimensions: community participation, CSR awareness, resource allocation, stakeholder engagement, and volunteerism and partnership support, leads to positive outcomes in environmental impact, livelihood improvement, sustainability outcomes, community empowerment, and perceived CSR success.

PHASE I. MANGROVE SURVIVAL AND BIODIVERSITY ENHANCEMENT PROGRAM (MSBEP)

INDICATOR	AREAS OF CONCERN	PROVISION	ACTIVITY/ACTIVITIES	MONITORING AND EVALUATION	SPECIFIC OBJECTIVES	SCHEME OF IMPLEMENTATION	BUDGETARY REQUIREMENTS	RESPONSIBLE CENTER/PERSON
1. Community Participation	Limited participation of some residents, declining participation during non-planting periods, insufficient youth involvement	Establishment of Community-Based Mangrove Stewardship Program (CBMSP) to ensure continuous local involvement in mangrove restoration	1. Mangrove planting activities (quarterly) 2. Coastal clean-up drives (monthly) 3. Formation of youth environmental groups 4. Community consultation meetings	1. Attendance sheets and participation rate 2. Survival rate of planted mangroves (quarterly) 3. Monitoring of meeting and activities per activity	To increase the active involvement of communities members in mangrove restoration and monitoring activities	1st Month – Orientation and formation of stewardship groups 2nd – 12th Month – Monthly participation activities and quarterly planting, Continuous Monitoring and feedback sessions	₱50,000.00 (seedlings, tools, logistics, training materials)	CSR Team; Barangay Officials; Community Leaders; Youth Coordinators
2. Corporate Social Responsibility Awareness	Inadequate understanding of CSR objectives, limited environmental literacy, low awareness of long-term mangrove benefits	Implementation of the CSR Environmental Education Program tailored to community literacy levels	1. Barangay-based seminars and workshops 2. Distribution of IEC (Information, Education, Communication) materials 3. Demonstration of proper mangrove planting techniques	1. Pre-test and post-test awareness assessment 2. Evaluation forms after training 3. Attendance and participation reports	To enhance awareness and understanding of CSR and environmental sustainability among stakeholders	1st Quarter – Development of materials and training design 2nd – 4th Quarter – Quarterly awareness sessions and continuous IEC dissemination	₱30,000.00 (printing materials, facilitator honorarium)	CSR Unit; Environmental Officers; Academe Partners
3. Resource Allocation	Insufficient monitoring equipment, delays in resource distribution, need for greater transparency in resource utilization	Establishment of the CSR Resource Management System, ensuring transparency and efficiency	1. Procurement of mangrove seedlings and tools 2. Budget planning and allocation meetings 3. Deployment of monitoring equipment	1. Financial reports and liquidation 2. Resource tracking 3. Internal audit reports (semi-annual)	To ensure efficient, transparent, and accountable use of CSR resources	Annual budgeting with quarterly release and monitoring of funds and resources	₱100,000.00 – ₱200,000.00 (seedlings, tools, monitoring devices, logistics)	Corporate CSR Committee; Finance Department; Project Manager
4. Stakeholder Engagement	Inconsistent coordination among stakeholders, limited communication channels, varying levels of commitment among partners	Strengthening of multi-sectoral partnerships among the corporation, the LGU, the NGO, and the community	1. Stakeholder meetings (quarterly) 2. Signing of Memorandum of Agreement (MOA) 3. Coordination and planning workshops	1. Meeting minutes and attendance records 2. Stakeholder satisfaction survey 3. Partnership evaluation reports	To strengthen collaboration, communication, and shared accountability among stakeholders	Quarterly stakeholder meetings and continuous coordination through designated focal persons	₱20,000.00 (meeting logistics, communication expensss)	Corporate CSR Head; LGU Officials; NGO Representatives; Community Leaders
5. Volunteerism and Partnership Support	Limited volunteer retention, irregular participation of organizations, lack of incentives for volunteers	Institutionalization of Corporate and Community Volunteer Program for mangrove restoration	1. Corporate volunteer planting activities (bi-annually) 2. Community volunteer mobilization 3. Partnership with NGOs and environmental groups	1. Volunteer participation reports 2. Feedback surveys 3. Activity completion reports	To increase manpower support and strengthen collaboration through volunteer engagement	Bi-annual corporate volunteer events and continuous community volunteer mobilization	₱40,000.00 (meals, transportation, volunteer kits, coordination)	HR Department; CSR Team; Partner Organizations

Goal: To ensure the long-term survival of mangroves, enhance biodiversity, and promote sustainable community development through collaborative governance and responsible stewardship.

The proposed Phase I of the Mangrove Survival & Biodiversity Enhancement Program (MSBEP) highlights that successful mangrove conservation begins with strong community participation, stakeholder collaboration, and responsible resource management. As the story of environmental restoration unfolds, the framework emphasizes that increasing awareness, strengthening partnerships, and encouraging volunteerism can transform stakeholders from passive beneficiaries into active stewards of the environment. Consequently, the program serves as a foundation for fostering collective responsibility, ensuring that mangrove reforestation efforts remain sustainable, community-driven, and capable of generating long-term ecological and social benefits.

PHASE II. MANGROVE SURVIVAL AND BIODIVERSITY ENHANCEMENT PROGRAM (MSBEP)

INDICATOR	AREAS OF CONCERN	PROVISION	ACTIVITY/ACTIVITIES	MONITORING AND EVALUATION	SPECIFIC OBJECTIVES	SCHEME OF IMPLEMENTATION	BUDGETARY REQUIREMENTS	RESPONSIBLE CENTER/PERSON
Environmental Impact	Declining mangrove survival rates; threats from pollution, climate change, and biodiversity loss; vulnerability to coastal erosion and environmental degradation	Implementation of Mangrove Ecosystem Restoration and Monitoring System	1. Mangrove reforestation (quarterly planting) 2. Coastal biodiversity assessment 3. Establishment of biodiversity plots 4. Water and soil quality checking	1. Survival rate of mangroves (every 3, 6, and 12 months) 2. Biodiversity index monitoring 3. Environmental condition reports	To improve mangrove survival, biodiversity, and ecosystem resiliency, and coastal resilience	Quarterly planting and continuous environmental assessment with adaptive management	₱120,000.00 (seedlings, tools, monitoring kits, environmental testing kits)	Environmental Officers; CSR Team; DENR Partners; Community Members
Livelihood Improvement	Limited alternative livelihood opportunities; dependence on unsustainable fishing activities; insufficient income-generating programs	Development of Community-Based Sustainable Livelihood Program	1. Training on mangrove-friendly enterprises 2. Establishment of eco-based livelihood (e.g., seaweeds, handicrafts, eco-tours) 3. Marketing and branding assistance	1. Income tracking of beneficiaries 2. Livelihood performance evaluation 3. Beneficiary feedback reports	To enhance community opportunities and economic well-being through sustainable livelihoods	1st–2nd Quarter – Training and capacity building 3rd – 4th Quarter – Implementation and marketing	₱80,000.00 (training, startup kits, livelihood support materials)	CSR Unit; LGU; Livelihood Coordinators; DOLE/DTI Partners; Community Leaders
Sustainability Outcomes	Need for long-term sustainability mechanisms; limited institutionalization of programs; inadequate policy integration	Establishment of Long-Term Sustainability and Resilience Framework	1. Development of a sustainability plan 2. Integration with local ordinances and policies 3. Strengthening of governance (LGU policies)	1. Long-term survival rate tracking 2. Data inventory and baseline comparison reports 3. Annual evaluation report	To ensure long-term environmental, social, and economic sustainability of the program	Continuous implementation with policy integration and periodic review and improvement	₱60,000.00 (policy review, system, reporting materials)	CSR Committee; LGU; Environmental Partners
Community Empowerment	Limited leadership participation; low community ownership; need for capacity building and environmental awareness	Implementation of Community Capacity-Building and Leadership Development Program	1. Training of community leaders 2. Formation of local environmental committees 3. Skills building on mangrove management and monitoring	1. Leadership participation records 2. Skills assessment and training evaluation 3. Community-led activity reports	To strengthen local capacity, stewardship, and ownership of the mangrove program	Bi-annual training and continuous community engagement and implementation	₱40,000.00 (training, materials, leadership activities)	CSR Team; Barangay Officials; Community Leaders; NGO Partners
Perception of CSR Success	Limited awareness of project achievements; insufficient stakeholder feedback; need for transparent communication	Establishment of CSR Feedback and Evaluation Mechanism	1. Conduct of perception surveys 2. Community feedback sessions 3. Stakeholder evaluation meetings	1. Survey results (semi-annual) 2. Feedback records 3. Stakeholder satisfaction index	To assess stakeholder perception and improve CSR program effectiveness	Semi-annual survey and quarterly feedback meetings	₱20,000.00 (survey tools, documentation, meeting expeness)	CSR Unit; Research Team; LGU; Community Representatives

GOAL: To ensure the long-term survival of mangroves, enhance biodiversity, and promote sustainable community development through collaborative governance and responsible stewardship.

The proposed Phase II of the Mangrove Survival & Biodiversity Enhancement Program (MSBEP) underscores that lasting environmental success extends beyond tree planting and into the sustained improvement of

ecosystems and communities. As the journey toward sustainability progresses, the framework demonstrates that strengthening environmental protection, livelihood opportunities, community empowerment, and stakeholder trust creates a cycle of resilience and shared responsibility. Consequently, the program promotes long-term mangrove survival, biodiversity enhancement, and sustainable community development, ensuring that the benefits of CSR initiatives endure for future generations.

CONCLUSION

From a vision of restoring degraded coastal ecosystems emerged a collaborative effort that united corporations, local stakeholders, and the community toward a common environmental goal. The findings revealed that the Corporate Social Responsibility (CSR) dimensions, including community participation, CSR awareness, resource allocation, stakeholder engagement, and volunteerism and partnership support, were effectively implemented and significantly contributed to positive environmental, social, and sustainability outcomes. Moreover, the study found that stronger CSR implementation is associated with greater CSR effectiveness, underscoring the importance of inclusive governance and shared responsibility for achieving sustainable mangrove restoration.

Consequently, environmental stewardship is most sustainable when communities are empowered, stakeholders are actively engaged, and corporate commitments extend beyond compliance toward long-term ecological responsibility. Guided by these findings, the adoption of the Mangrove Survival & Biodiversity Enhancement Program (MSBEP) is strongly recommended. The program may serve as a strategic framework for strengthening mangrove survival, enhancing biodiversity, promoting community participation, and institutionalizing collaborative CSR practices. Through its implementation, stakeholders can foster ecological resilience, improve community well-being, and ensure the long-term sustainability of mangrove reforestation initiatives in coastal communities.

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