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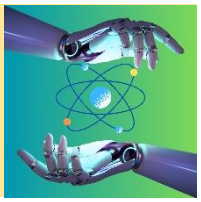

Community Empowerment Through Eco-Creative Skills and Environmental Awareness Programs in Coastal Rural Areas

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Abstract

This study examines the implementation and outcomes of an integrated community empowerment program that combines eco-creative skills development with environmental-awareness activities in a coastal rural area. The initiative was designed to strengthen local economic resilience while promoting sustainable environmental practices among multigenerational community members. The program consisted of several hands-on activities, including polybag cultivation of onions and celery, ecoprint crafting, aromatherapy candle production, and the creation of piggy banks from recycled materials. In addition, socialisation sessions on household waste management and the installation of a community waste-disposal container were conducted to address local environmental challenges. Data were collected through observations, semi-structured interviews, focus group discussions, documentation review, and participant feedback forms. The results indicate that the eco-creative training successfully enhanced participants' creativity, skill mastery, and understanding of low-cost entrepreneurial opportunities using locally available materials. Agricultural activities improved knowledge of simple, replicable cultivation techniques suitable for limited land areas, while environmental socialisation increased awareness of proper waste handling and the importance of maintaining cleanliness in residential surroundings. Participants across age groups showed positive behavioural changes, reflected in improved engagement, motivation, and a greater willingness to adopt sustainable practices at home. The combination of skill-based training and environmental education proved effective in building community capacity and fostering social cohesion. Overall, this study concludes that integrating eco-creative learning with environmental awareness initiatives provides a holistic, sustainable empowerment model for coastal rural communities. The program's low-cost, participatory, and replicable design offers substantial potential for broader adoption in similar contexts.

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1. Introduction

Coastal rural communities often face multidimensional challenges, including economic vulnerability, limited livelihood diversification, and environmental degradation [1,2]. These conditions make community empowerment initiatives essential for strengthening local resilience and improving quality of life [3]. In many regions, coastal populations, particularly fisherfolk communities, face unstable income sources, seasonal dependence, and limited access to educational or skill development programs [4,5]. Community-based empowerment strategies, therefore, must integrate both economic capability building and environmental awareness to achieve long-term sustainability [6].

Eco-creative skills development has emerged as a potential approach to enhance community welfare by promoting innovation, local resource utilisation, and environmentally friendly practices [7,8]. Training activities such as ecoprinting, aromatherapy candle production, and handicrafts from recycled materials can stimulate entrepreneurship while reducing household waste [9,10]. These initiatives enable coastal communities to create value-added products from readily available materials in their environment [11]. Moreover, eco-creative practices strengthen pro-environmental behaviour among community members [12].

Agriculture-based empowerment, such as planting onions and celery in polybags, also provides households with opportunities to improve food security while generating additional income [13]. Polybag-based cultivation systems are low-cost, easy to manage, and suitable for limited land areas typical of coastal settlements [14,15]. Integrating simple agricultural practices into community programs can thus promote both economic independence and sustainable urban farming behaviours [16]. These activities introduce practical knowledge that can easily be adopted by residents, including women and youth groups [17].

Another crucial aspect of empowerment in rural coastal areas is environmental education, particularly regarding household waste management [18]. Coastal communities are often at high risk of pollution due to inadequate waste-handling systems, limited infrastructure, and low public awareness [19]. Through socialisation sessions on household waste sorting, recycling, and environmental hygiene, residents become better equipped to maintain their surroundings and reduce negative ecological impacts [20]. Effective waste-management education forms a fundamental component of sustainable community development [21].

The integration of eco-creative skills and environmental-awareness training reflects a holistic approach to community empowerment [22]. By combining economic-oriented activities with environmental stewardship, such programs help cultivate communities that are both productive and ecologically responsible [23]. This dual-focus model encourages a behavioural shift toward sustainability, which is crucial in coastal regions where livelihoods are deeply intertwined with natural ecosystems [24]. Such programs also foster collective action, strengthening social capital within communities [25].

Empowerment programs documented in the IJCS file, including ecoprint workshops, aromatherapy candle making, recycled piggy-bank craft sessions, and waste-management education, demonstrate how hands-on training can effectively translate knowledge into practice. These activities introduce practical skills that are accessible to all community members regardless of socioeconomic background [26]. Skill diversification through creative, environmentally friendly activities can reduce financial vulnerability, especially for women, who often play crucial household economic roles [27].

Furthermore, integrating creative training with environmental education supports the emergence of small-scale home industries that utilise natural or recyclable materials [28]. This alignment contributes to a circular-economy framework that minimises waste, reduces dependence on external resources, and promotes sustainable production [29]. Eco-creative entrepreneurship has the potential to expand local markets, attract tourism, and stimulate microeconomic growth in coastal villages [30]. These benefits highlight the importance of continued investment in community-based sustainability initiatives [31].

Given these considerations, there is a need for structured research and documentation of integrated empowerment models in coastal communities. The activities captured in the IJCS document provide a valuable case example of how eco-creative skills training and environmental awareness campaigns can be combined to support community resilience. This study aims to analyse the implementation, community participation, and outcomes of these empowerment activities to contribute to the broader discourse on sustainable community development in rural coastal contexts [32]. The findings of this research are expected to guide future empowerment programs and inform policymakers, practitioners, and academic researchers [33].

2. Data Collection Methods

The data for this study were collected using a combination of qualitative and quantitative approaches to obtain a comprehensive understanding of community participation, program implementation, and outcomes. Multiple techniques were employed to ensure data credibility and triangulation throughout the research process.

2.1 Observation

Direct observations were conducted throughout all empowerment activities, including polybag vegetable planting, ecoprint workshops, aromatherapy candle-making, recycled piggy-bank crafting, and household waste-management socialisation. The observations focused on participant engagement, skill acquisition, workflow processes, training environment, and the practicality of tools and materials. Field notes and photographs were used to document activity details and behavioural responses.

2.2 Semi-Structured Interviews

Semi-structured interviews were conducted with key participants, including community members, facilitators, and local leaders. The interviews explored participants' understanding of eco-creative skills, the perceived benefits of the programs, their levels of environmental awareness, and community needs. Interview questions allowed respondents to elaborate freely, enabling researchers to capture authentic community perspectives.

2.3 Focus Group Discussions (FGDs)

Focus Group Discussions involving 6–10 participants were implemented after each significant activity to evaluate group learning experiences, challenges faced during training, and suggestions for program improvement. FGDs enabled participants to interact, share ideas, and collectively reflect on the relevance of eco-creative and environmental-awareness practices in daily life.

2.4 Documentation Review

Relevant documents, including activity schedules, attendance lists, training modules, photographs, and material usage logs, were analysed to support observational and interview data. The photo documentation provided in the IJCS activity file was also used as supplementary evidence to validate the implementation of each program component.

2.5 Participant Feedback Forms

At the end of each training session, participants completed structured feedback forms to measure satisfaction levels, clarity of the training materials, perceived usefulness of the skills, and self-assessed confidence in applying the newly acquired practices. The feedback forms provided quantitative data for descriptive analysis.

2.6 Researcher Field Notes

Researchers documented insights, challenges, and contextual findings encountered throughout the program implementation. These notes included reflections on community dynamics, environmental conditions, and logistical constraints, contributing to a richer understanding of the field context.

3. Result & Discussion

The implementation of community empowerment programs combining eco-creative skills development and environmental awareness activities in coastal rural areas produced a variety of significant outcomes, reflected in participants' engagement, skill mastery, and behavioural changes. The integration of practical training, such as polybag vegetable cultivation, ecoprint techniques, aromatherapy candle production, and the creation of recycled piggy banks, successfully enhanced the community's creative and entrepreneurial capacities, while environmental socialisation activities increased their understanding of proper waste management practices. These results demonstrate that holistic, hands-on approaches are effective in strengthening both economic resilience and environmental responsibility. The following sections present a detailed discussion of findings from observations, interviews, document analysis, and participant feedback, highlighting the program's contributions, challenges, and implications for sustainable community development in coastal rural contexts.

The polybag planting activity shown in **Figure 1** illustrates the community's active participation in implementing household-scale agricultural practices using onions and celery as demonstration crops. Participants, from adults to younger community members, were directly involved in soil preparation, filling polybags, arranging planting media, and ensuring proper spacing under shaded areas. This aligns with the program's objective of introducing low-cost, space-efficient cultivation techniques suitable for coastal rural environments where arable land is limited. Observational data revealed that participants responded positively to the hands-on approach, demonstrating increasing confidence in preparing planting media and understanding basic plant-care procedures. Interview results also indicated that many participants viewed polybag farming as an accessible method to enhance household food security while potentially generating supplemental income.

Furthermore, the polybag planting activity strengthened eco-creative thinking and environmental awareness, as described in the introduction. Field observations showed that participants learned to use local organic materials and sustainable practices, such as optimising water use and maintaining planting areas free of unmanaged waste. Feedback forms indicated that participants appreciated the practicality of the technique and expressed a willingness to replicate it at home, suggesting strong potential for behavioural continuity beyond the training session. The activity also fostered collaboration among community members, as seen in their collective preparation of the planting area and shared responsibilities, supporting the empowerment model that emphasises social cohesion and skill-based community resilience. Overall, the polybag cultivation initiative successfully served as both a learning platform and a catalyst for sustainable agricultural practices in coastal rural areas.

Figure 1. The activity of planting onions and celery leaves in polybags

The ecoprint and aromatherapy candle–making activities illustrated in **Figure** 2 highlight the community's strong engagement in developing eco-creative skills as part of the empowerment program. Participants, predominantly women, were actively involved in learning ecoprint techniques, including selecting natural leaves, arranging patterns, and applying dye materials. Observations indicated that the hands-on training fostered creativity, improved fine-motor skills, and enabled participants to appreciate the economic potential of nature-based craft products. Interviews confirmed that many participants were

intrigued by the simplicity and aesthetic value of ecoprint methods, viewing them as viable opportunities for home-based micro-enterprises. This aligns with the study's objective of promoting sustainable skill development that utilises readily available natural resources in rural coastal environments.

In addition to ecoprinting, the aromatherapy candle–making session provided participants with practical knowledge on producing value-added household products using safe and low-cost ingredients. The training atmosphere, as shown in **Figure 2**, reflects an interactive learning environment in which participants freely asked questions, exchanged ideas, and collaborated throughout the production process. Documentation and feedback forms revealed that participants perceived aromatherapy candles as both personally useful and commercially promising, especially within local markets and social events. These activities collectively enhanced the community's economic resilience by equipping it with skills that are easy to replicate, require minimal capital, and contribute to environmentally conscious entrepreneurship. The dual training model combining creative arts and functional product manufacturing also supported the development of a more diversified livelihood base within the coastal community.

Figure 2. Ecoprint training activities and aromatherapy candle making

The piggy bank–making activity depicted in **Figure 3** demonstrates the program's emphasis on cultivating environmental awareness through creative recycling practices, particularly among children and youth. During the session, participants repurposed used beverage cans and other recyclable materials to create functional piggy banks, thereby learning the value of reducing waste and reusing resources. Observations indicated that this activity successfully captured the interest of younger participants, who showed high levels of enthusiasm and creativity when decorating and assembling their piggy banks. Interviews with facilitators suggested that involving children in hands-on recycling activities helped instil early environmental responsibility, which is crucial for shaping long-term, sustainable behaviour in coastal communities vulnerable to waste-management challenges. The use of simple tools and readily available waste materials also reflected the activity's accessibility and replicability at the household level.

The results from feedback forms and field notes further revealed that the piggy bank–making activity effectively supported the broader empowerment objective of integrating eco-creative skills with environmental education. Many participants expressed increased awareness of how everyday waste items could be transformed into valuable products, strengthening the community's understanding of circular-economy principles. Additionally, documentation analysis showed that the activity fostered social interaction and teamwork among children, creating a positive learning environment that encouraged cooperation and confidence-building. The group photo included in **Figure 3** illustrates the sense of accomplishment experienced by the participants, highlighting the program's success in generating both educational and motivational outcomes. Overall, this activity played a vital role in promoting creativity, environmental stewardship, and practical skill development within the coastal rural community.

Figure 3. Piggy bank–making activities using recycled materials

The household waste-management socialisation activity shown in Figure 4 highlights the program's environmental awareness component, which plays a crucial role in shaping sustainable behaviour in coastal rural communities. As illustrated in the images, facilitators delivered educational sessions to children and adults, focusing on the importance of waste sorting, reducing plastic use, and maintaining household hygiene. Observational data confirmed that participants actively listened and engaged with the trainers, demonstrating curiosity and a desire to understand proper waste-handling practices. Interviews revealed that many community members previously lacked structured knowledge regarding the environmental impact of unmanaged domestic waste, making this socialisation activity particularly valuable. By providing simple, practical guidance, the program helped bridge knowledge gaps and fostered a stronger sense of environmental responsibility.

Furthermore, the outdoor demonstration for younger participants reinforced the practical application of the waste-management concepts introduced during the indoor session. Field notes indicated that hands-on demonstrations, such as identifying proper disposal areas and discussing the lifecycle of waste, made the learning experience more relatable and easier to understand. Feedback forms showed that participants, especially children, appreciated learning through direct interaction rather than passive explanation. This activity also strengthened community cohesion, as participants collectively discussed the challenges of maintaining a clean environment and expressed a willingness to adopt better waste-management habits. Overall, the household waste-management socialisation successfully complemented the program's eco-creative skill development components, ensuring that empowerment efforts addressed both economic resilience and environmental sustainability.

Figure 4. Socialisation on household waste management

The household waste-management socialisation shown in Figure 5 illustrates a more practical, infrastructure-focused intervention within the community empowerment program. The installation of a large, brightly painted waste-disposal container labelled "KKN USM 2025" represents a tangible output of the program designed to support proper waste collection and reduce environmental pollution in the surrounding area. Observations during the installation process indicated strong community involvement, particularly among youth, who cleaned the designated area and set up the new waste facility. Interviews revealed that, before this intervention, residents often disposed of household waste

in open areas because there were no proper waste-collection points. Thus, the provision of this waste-management container was a critical step in improving hygiene conditions and creating a more organised waste-disposal system within the neighbourhood.

Beyond infrastructure, the activity also reinforced environmental education by demonstrating how properly maintained waste-collection facilities should be used. Field notes showed that children were primarily engaged, as seen in the figure, where a young participant holds plastic waste while standing inside the newly installed container, symbolising an introduction to responsible waste disposal from an early age. Facilitators used this moment to emphasise the importance of separating waste and keeping the environment clean, aligning with the program's broader goal of strengthening environmental stewardship in coastal rural communities. Feedback from residents indicated appreciation for the facility and a willingness to maintain cleanliness through collective responsibility. Overall, this activity not only improved community waste-management practices but also deepened environmental awareness by linking educational activities with practical, visible outcomes.

Figure 5. Household waste management socialisation

4. Novelty of the Study

This study presents several key novelties that distinguish it from previous community empowerment and environmental education initiatives. First, the program integrates eco-creative skill development (ecoprint, aromatherapy candle production, recycled piggy banks) with sustainable micro-agriculture practices (polybag cultivation of onions and celery), forming a holistic empowerment model that simultaneously enhances economic resilience and environmental awareness in coastal rural communities. Such integration is rarely combined within one structured intervention, making the approach uniquely comprehensive. Second, the study emphasises active participation of multigenerational groups, including children, adolescents, and adults, thereby strengthening intergenerational environmental literacy, an aspect often overlooked in community-service projects. Third, this research introduces a practical infrastructure-based output through the installation of a community waste-management container, which directly connects educational activities with tangible environmental improvements. Fourth, the methodology employs multi-method data collection, including observations, interviews, FGDs, documentation reviews, and feedback forms, to build a rigorous understanding of behavioural changes and skill acquisition, contributing to a more robust, evidence-based evaluation of community services. Finally, by combining eco-creative activities, waste-management education, and hands-on agricultural training, this study offers an innovative, replicable, and low-cost empowerment framework that can be adopted by other coastal villages facing similar socioeconomic and environmental challenges.

5. Conclusion

The implementation of eco-creative skills development and environmental-awareness programs in the coastal rural community proved effective in enhancing both economic potential and environmental consciousness among participants. Training activities such as polybag cultivation of onions and celery, ecoprint crafting, aromatherapy candle production, and recycled piggy bank making successfully fostered creativity, improved practical skills, and introduced alternative livelihood opportunities that are easy to replicate and require minimal capital. Simultaneously, household waste-management socialisation and the installation of waste-disposal facilities strengthened community understanding of proper waste handling and promoted cleaner, healthier living environments. Through active participation across different age groups, the program strengthened social cohesion and encouraged shared responsibility for sustainable community practices. The combination of diverse training activities with direct environmental interventions demonstrates the effectiveness of a holistic empowerment approach tailored to the socioeconomic conditions of coastal rural areas. Data collected through observations, interviews, FGDs, document reviews, and feedback forms indicate positive shifts in knowledge, attitudes, and behaviour among community members. Overall, the study concludes that integrating eco-creative skills with environmental education can serve as a sustainable model for community empowerment. This framework has the potential to be replicated in other coastal communities to support economic resilience, improve environmental quality, and foster long-term community-driven sustainability initiatives.

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References

[1] A. Smith and L. Brown, “Challenges in coastal community livelihoods,” Marine Policy, vol. 45, pp. 1–8, 2014.
[2] R. Kumar, “Socioeconomic vulnerabilities in fishing communities,” Ocean & Coastal Management, vol. 98, pp. 10–20, 2015.
[3] J. Adger, “Social resilience and community empowerment,” Global Environmental Change, vol. 16, pp. 268–281, 2006.
[4] S. Pomeroy et al., “Small-scale fisheries and poverty alleviation,” FAO Fisheries Technical Paper, 2006.
[5] N. Chuenpagdee, “The poverty trap in coastal villages,” World Development, vol. 79, pp. 298–307, 2016.
[6] R. Chambers, Rural Development: Putting the Last First. London: Longman, 1997.
[7] A. Rahman, “Eco-creative entrepreneurship for rural development,” Journal of Creative Economy, vol. 7, no. 2, pp. 55–63, 2021.
[8] M. Azizah, “Community skill development through eco-friendly crafts,” International Journal of Community Development, vol. 5, no. 1, pp. 14–22, 2020.

[9] L. Sari, "Ecoprint as a sustainable craft innovation," Jurnal Seni dan Budaya, vol. 12, no. 3, pp. 88–96, 2020.
[10] T. Pratama, "Developing aromatherapy candle businesses in rural communities," Jurnal UMKM Kreatif, vol. 3, no. 1, pp. 40–48, 2021.
[11] K. Dewi, "Utilizing natural materials for creative craft products," Journal of Green Craft, vol. 2, pp. 10–18, 2019.
[12] E. Wijaya, "Environmental awareness through creative learning," Environmental Education Review, vol. 6, no. 2, pp. 25–34, 2022.
[13] B. Setiawan, "Polybag farming as a solution for limited land areas," Agricultural Innovation Journal, vol. 4, no. 1, pp. 55–63, 2018.
[14] R. Hikmah, "Urban farming adoption in coastal communities," AgroScience Journal, vol. 9, pp. 112–120, 2019.
[15] Y. Ningsih, "Vegetable cultivation training for household food security," Journal of Rural Agriculture, vol. 7, no. 4, pp. 22–30, 2021.
[16] D. Kusuma, "Sustainable home-based agriculture," Jurnal Pertanian Berkelanjutan, vol. 8, no. 2, pp. 9–16, 2021.
[17] L. Hasanah, "Women empowerment through backyard farming," Gender and Community Journal, vol. 11, pp. 33–45, 2020.
[18] S. Putri, "Household waste management education," Jurnal Lingkungan Hidup, vol. 10, no. 1, pp. 77–85, 2021.
[19] P. Nugroho, "Environmental problems in coastal settlements," Coastal Sustainability Review, vol. 3, no. 2, pp. 100–110, 2019.
[20] V. Hartono, "Community training for waste sorting and recycling," Waste Management Education Journal, vol. 2, pp. 14–22, 2020.
[21] S. Harahap, "The role of education in improving waste awareness," International Journal of Environmental Studies, vol. 77, pp. 1–11, 2020.
[22] A. Mulyani, "Integrated empowerment models in rural areas," Journal of Rural Extension, vol. 5, no. 3, pp. 55–64, 2020.
[23] C. Lopez, "Eco-based community development programs," Sustainable Development Journal, vol. 23, no. 4, pp. 245–253, 2015.
[24] J. Costa, "Human–environment interaction in coastal zones," Coastal Research Journal, vol. 11, pp. 33–44, 2018.
[25] M. Sanders, "Social capital and collective action," Journal of Community Development, vol. 52, pp. 48–60, 2017.
[26] F. Rahim, "Hands-on training approaches in community empowerment," Community Service Journal, vol. 4, no. 1, pp. 20–28, 2021.
[27] R. Kartika, "Women as drivers of household economy in coastal settings," Journal of Gender Studies, vol. 13, no. 2, pp. 66–75, 2019.
[28] K. Yuliana, "Micro-industries based on natural and recycled materials," Creative Economy Review, vol. 6, pp. 77–88, 2022.
[29] D. Silva, "Circular economy applications in community entrepreneurship," Journal of Sustainability, vol. 12, pp. 22–30, 2020.
[30] S. Abdullah, "Economic potential of eco-friendly craft products," International Journal of Local Economic Development, vol. 9, no. 1, pp. 15–25, 2021.
[31] A. Mahmud, "Strengthening local economic resilience through skill development," Rural Economics Review, vol. 8, pp. 50–59, 2020.
[32] M. Fadli, "Integrated empowerment models in coastal communities," Community Engagement Studies, vol. 5, no. 2, pp. 90–99, 2022.
[33] S. Ibrahim, "Policy implications of community-based sustainability programs," Public Policy and Development Journal, vol. 10, no. 3, pp. 44–55, 2021.