



From literacy to norms: learning eco-andragogy through participatory environmental change in coastal Banyuwangi

Author Name(s): Kholis Ridho, Sita Aisah Anggita, Ali Irfani

Publication details, including author guidelines

URL: <https://jurnal.konselingindonesia.com/index.php/jkp/about/submissions#authorGuidelines>

Editor: Zadrrian Ardi

Article History

Received: 13 Sep 2025

Revised: 25 Oct 2025

Accepted: 30 Nov 2025

How to cite this article (APA)

Ridho, K., Anggita, S.A. & Irfani, A. (2025). From literacy to norms: learning eco-andragogy through participatory environmental change in coastal Banyuwangi. Jurnal Konseling dan Pendidikan. 13(3), 450-462. <https://doi.org/10.29210/1171900>

The readers can link to article via <https://doi.org/10.29210/1171900>

SCROLL DOWN TO READ THIS ARTICLE



Indonesian Institute for Counseling, Education and Therapy (as publisher) makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications. However, we make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors and are not the views of or endorsed by Indonesian Institute for Counseling, Education and Therapy. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Indonesian Institute for Counseling, Education and Therapy shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to, or arising out of the use of the content.

Jurnal Konseling dan Pendidikan is published by Indonesian Institute for Counseling, Education and Therapy comply with the [Principles of Transparency and Best Practice in Scholarly Publishing](#) at all stages of the publication process. Jurnal Konseling dan Pendidikan also may contain links to web sites operated by other parties. These links are provided purely for educational purpose.



This work is licensed under a [Creative Commons Attribution 4.0 International License](#).

Copyright by Ridho, K., Anggita, S.A. & Irfani, A. (2025).

The author(s) whose names are listed in this manuscript declared that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript. This statement is signed by all the authors to indicate agreement that the all information in this article is true and correct.

Jurnal Konseling dan Pendidikan

ISSN 2337-6740 (Print) | ISSN 2337-6880 (Electronic)





From literacy to norms: learning eco-andragogy through participatory environmental change in coastal Banyuwangi

Kholis Ridho^{1*)}, Sita Aisah Anggita², Ali Irfani¹

¹Journalism Study Program, Faculty of Da'wa and Communication, UIN Syarif Hidayatullah Jakarta, Indonesia

²Social Work Study Program, Faculty of Da'wa and Communication, UIN Syarif Hidayatullah Jakarta, Indonesia

ABSTRACT

The ecological transformation of coastal communities is achieved through the transmission of values, social interaction, education, participation, and institutionalization of collective norms. This study aims to analyze how the EcoRanger program, initiated by the NGO Greeneration Indonesia, can encourage changes in ecological behavior in the community of Pancer Hamlet, Banyuwangi. Using a phenomenological approach, this study explores residents' subjective experiences of the program intervention through in-depth interviews, participant observation, and documentation studies. The results indicate that the EcoRanger intervention successfully fostered ecological awareness through educational activities (Educamp and EnviroSport), the provision of integrated waste management facilities (SEKOLA), and routine activities for residents and tourists (Weekly Beach Clean-Up). These changes are both material—visible in waste sorting and management practices—and immaterial, in the form of shifts in attitudes, active participation, and the formation of new, collectively maintained social norms. Religious values and local traditions, such as Petik Laut (Sea Sacred) and Baritan, contribute to the internalization of cleanliness messages as part of the community's faith and identity. EcoRanger acts as a social facilitator, filling the gap in the state's role in providing environmental services and public education. This study concludes that sustainable ecological transformation requires synergy between education, infrastructure, citizen participation, and the accommodation of local values. Theoretically, this research offers a novel contribution through the formulation of the concept of community ecoandragogy—an ecological education approach based on lived experience, critical reflection, and the institutionalization of social norms—that broadens the scope of ecopedagogy and can be replicated in other coastal areas.

Keywords:

Ecological transformation,
Community-based eco-andragogy,
Coastal communities,
Participation,
Waste management,
Ecoranger.

Corresponding Author:

Kholis Ridho,
UIN Syarif Hidayatullah Jakarta, Indonesia
Email: kholis.ridho@uinjkt.ac.id

Introduction

Waste management in Indonesia has entered a phase of systemic crisis. Although the government has set a target to manage 51% of national waste by 2025, realities on the ground reveal the state's weak presence in building a just, participatory, and sustainable system. The TPA Bantar Gebang landfill, representative of large-scale urban waste management, is nearing its capacity, while the

much-anticipated Waste-to-Energy projects have yet to yield significant results ([Pemerintah Provinsi DKI Jakarta, 2025](#)). The gap between policy ambitions and local capacities highlights how communities are often viewed as mere objects of intervention, rather than as active subjects of change.

Data from the Ministry of Environment indicates that Indonesia generates approximately 175,000 tons of waste per day, with plastic waste projected to increase from 6.8 million tons in 2017 to 8.7 million tons by 2025 ([Kementerian Energi dan Sumber Daya Mineral Republik Indonesia, 2025](#)). Despite these ambitious targets, many communities continue to struggle with outdated "collect-and-dump" paradigms and a lack of structural support ([Atmanti, 2023](#)). This phenomenon highlights a disjuncture between national policy design and the socio-ecological realities at the community level. In the absence of substantive state engagement, communities are compelled to seek alternative, contextually grounded solutions rooted in their lived experiences.

Amid this institutional vacuum, local initiatives have emerged, offering community-based alternatives. One such initiative is EcoRanger, a facilitative program initiated by the NGO Greeneration Indonesia in Banyuwangi ([Greeneration Foundation, 2022](#); [Waste4Change, 2020](#)). This program not only addresses waste management from a technical standpoint but also fosters ecological awareness through social, spiritual, and participatory approaches. This phenomenon demonstrates that communities are capable of constructing more adaptive and context-sensitive management systems, even in the absence of adequate structural support ([Azami et al., 2025](#)).

This study departs from a critique of the state's technocratic approach, highlighting the agency of local communities in constructing meaningful ecological systems ([Rizki & Asteria, 2023](#)). Utilizing a phenomenological approach, the research seeks to understand how NGO-led social facilitation can transform ecological consciousness among coastal communities as a form of social reconstruction. Rather than focusing on quantitative measures of program Effectiveness, the study emphasizes the meaning of ecological behavioral change as it emerges from social interaction, local values, and lived community backgrounds.

As an environmental NGO, EcoRanger has successfully developed a participatory approach to building ecological awareness among coastal communities. Through an accompaniment process that actively involves residents, the program promotes behavioral change in waste management, strengthens the local economy, and enhances the sustainability of community-based tourism ([Giampiccoli, 2020](#)). This approach positions communities not as passive recipients of education, but as active, reflective, and empowered agents of socio-ecological transformation.

EcoRanger's practice can be interpreted as a form of Participatory Action Research (PAR) oriented toward community-based eco-andragogy. This study is grounded in three key theoretical pillars: community participation, ecological behavior change, and eco-andragogy. These frameworks are employed to understand how social facilitation can shape ecological awareness that is both contextual and sustainable. By integrating interpretive approaches with thematic analysis, the study contributes to the development of a social facilitation model for community-based waste management. The findings aim to enrich academic discourse on ecological consciousness and also to provide practical recommendations for more inclusive, participatory, and justice-oriented environmental policy. In this context, waste management is understood as a technical issue and as a field of socio-ecological education for adults (communities) that demands active and reflective participation.

This study positions the EcoRanger program as a facilitative practice grounded in Participatory Action Research (PAR), oriented toward the development of community-based eco-andragogy. Although the program does not explicitly label its approach as PAR, its core characteristics—active community involvement, collective reflection, and shared action—align closely with PAR principles ([Chevalier, 2019](#); [Kindon et al., 2007](#)). This approach enables communities to become subjects of change rather than mere recipients of intervention. In the context of eco-andragogy, EcoRanger's facilitation can be understood as an ecological education process that is liberating, contextual, and rooted in lived experience ([Blackburn, 2000](#)). Eco-andragogy emphasizes the importance of cultivating ecological awareness through dialogue, critical reflection, and concrete action, all of which

are embedded in local social and cultural conditions. Waste management, therefore, is not merely a technical issue but a transformative field of socio-ecological education for adult communities (Brown et al., 2013). The success of eco-andragogical and PAR-based approaches lies not only in fostering environmental literacy and awareness but also in establishing new social norms that sustain ecological integrity for future generations.

Recent studies have increasingly criticized Indonesia's waste management policies, highlighting the gap between national ambitions and local realities. Rahmah (2025) notes that despite government targets for integrated waste systems, waste accumulation continues to rise, and technocratic approaches fail to address root issues on the ground (Rahmah, 2025). Indonesia was the fifth-largest waste-producing country in the world in 2020, according to the World Bank's The Atlas of Sustainable Development Goals 2023 report (Annur, 2023), with a pollution score of 58.75, suggesting that low public awareness stems not from apathy, but from the absence of adequate support systems. These critiques reinforce the finding that macro-level policies have yet to be evaluated by contextual and participatory facilitative strategies (Ultimate Kilimanjaro, 2025; Universitas Muhammadiyah Surakarta, 2025). A growing body of research confirms the crucial role of educational and community-based facilitation in fostering ecological awareness and promoting behavioral change in waste management. Studies in Lantan (Hidayatulloh et al., 2025) and Kroya (Lutfi et al., 2023) demonstrate that transforming waste into economically valuable goods enhances community skills and also strengthens ecological responsibility. Other studies, such as those published in the Journal of Environmental Research and Knowledge (2024) and in Madugondo (Istanabi et al., 2022), demonstrate that socially participatory composting and waste banks can promote the adoption of sustainable new norms. Research on mangrove ecotourism in Sugian (Hidayat et al., 2024) further illustrates how social capital and local values serve as foundational parts in developing contextual ecopedagogical practices. Similar patterns have emerged in coastal regions of Brazil, where environmental education, community empowerment, and coastal conservation are integrated into participatory frameworks (Berchez et al., 2016; de Souza Pimentel et al., 2019; Pazoto et al., 2023).

Synthesizing these studies reveals that ecological behavioral change is most effective when built through educational, participatory, experiential, and sustainable approaches. This aligns with the principles of eco-andragogy, where environmental education is not limited to the transfer of technical knowledge, but involves cultivating awareness through social interaction and local values. As adult members of society, communities must be asked to organize their own environments. Sensitivity to ecological issues and active participation are forms of social capital that drive controlled and sustained social transformation. In this context, EcoRanger functions as a community-based social facilitator, enabling participatory transformation of coastal environments in tangible and locally grounded ways.

The success of EcoRanger, like other community empowerment initiatives, emerges amid the limited role of the state in providing adequate educational and facilitative systems. Functions of social organization that the state should carry out are often adopted by civil society organizations (Ishida, 2018; Lewis, 2002). This study offers methodological novelty by evaluating transformative outcomes through eco-andragogical education and PAR, involving the researcher's direct engagement with community life, observing day-to-day ecological behavioral shifts, and even testing tourist responses through social experiments such as the "trash trap." By integrating phenomenological inquiry, eco-andragogical evaluation, and community participation, this study not only documents socio-ecological transformation but also proposes a facilitation model rooted in the lived experiences of coastal communities.

Methods

Research Approach and Design

This study employs a qualitative approach with a descriptive-phenomenological design. The design was chosen to explore the meaning of social change and ecological behavior from the lived experiences of coastal communities involved in environmental facilitation programs. The phenomenological model draws on the philosophy of Edmund Husserl, which posits that individuals

respond to phenomena based on their subjective consciousness, which shapes their behavior (Husserl, 2012). The research strategy is interactive and flexible, with the researcher serving as the primary instrument directly engaged in the natural context of the study (Sugiyono, 2022).

Conceptually, this approach is enriched by the framework of eco-andragogy—an ecological education model rooted in adult community learning through dialogue, critical reflection, and collective action. Eco-andragogy is positioned as an extension of andragogy theory (Knowles, 1980) and aligns with the spirit of community development based on Participatory Action Research (PAR) (Kemmis, 2005), Action Research, and Rapid Rural Appraisal (RRA) (Chambers, 1994). Within this framework, communities are treated as subjects of change, not merely objects of intervention.

Although the EcoRanger program does not explicitly utilize the term eco-andragogy, it has applied its principles through social facilitation, environmental education, and the institutionalization of ecological norms. The researchers positioned themselves as external evaluator of the eco-andragogical and empowerment processes carried out by EcoRanger. While participating in field observation and reflective engagement, the researchers did not act as direct program implementers, but rather as critical observers documenting, assessing, and interpreting the socio-ecological transformation occurring at the community level.

Data Collection Techniques

Data were collected using three primary techniques: 1) In-Depth Interviews. Conducted purposively with key informants directly involved in the program, including EcoRanger team members, community leaders, residents, village officials, and tourism managers. Interviews were held between November 21 and 30 December 2020, focusing on intervention strategies, behavioral changes, and ecological awareness in both present and future contexts; 2) Participatory Observation. The researcher lived among the residents of Dusun Pancer for one month and actively participated in various EcoRanger activities, including waste sorting, beach cleaning, and environmental education. This approach enabled the researcher to directly experience the social dynamics and the process of ecological value internalization within the community. One form of field reflection involved a "trash trap" experiment, where waste was deliberately placed in tourist areas to observe visitor responses to ecological norms; 3) Document Analysis. Conducted by reviewing village profiles from the Sumberagung Village Office and program documents provided by EcoRanger as supporting data. Informants were selected purposively based on their direct involvement in the program and relevance to the research focus. Informant codes were used to maintain anonymity and facilitate data tracking during thematic analysis.

Table 1. List of Informants

No	Informant Code	Information Sought	Number
1	E1, E2	EcoRanger Profile	2
2	D1, D2	General Overview of the Village	2
3	P1, P2	Overview of Dusun Pancer	2
4	M1–M4	Material & Immaterial Changes	4

Data Analysis Techniques

Data analysis was conducted in a staged and interpretive manner, consistent with the phenomenological approach. The process began with systematic transcription of interviews and documentation of field observations. The data were then manually coded to identify key themes, including forms of intervention, ecological behavioral change, and community responses to the EcoRanger program. The analytical stages included: (1) Data Reduction: Selecting relevant information from interviews, observations, and documents; (2) Data Presentation: Organizing findings into thematic matrices and field narratives; (3) Conclusion Drawing: Identifying consistent patterns across data sources (Miles & A. Huberman, 1994). Interpretation was carried out by linking field findings to the framework of eco-andragogy and the theory of planned behavior (Ajzen, 1991), while also considering the socio-cultural context of coastal communities. Triangulation was applied to verify data across sources and to test the consistency of meanings from multiple perspectives.

Researcher's Positionality

The researcher has been an active advocate for civil society since 2004, with extensive experience in community facilitation and social organizing. This experiential foundation served as epistemic capital, enriching the interpretive process while also demanding methodological vigilance against potential bias (Smith et al., 2009). To maintain research integrity, the researcher engaged in daily reflective journaling, team discussions, and repeated confirmation of findings with key informants.

Data Validity

Data validity was strengthened through source triangulation, involving confirmation from EcoRanger facilitators, residents, tourists, and village officials. Key aspects confirmed included the success of the waste management program, shifts in ecological behavior, and the institutionalization of new norms. Direct observation of practices such as household waste sorting and participation in beach clean-up activities provided triangulated evidence of behavioral transformation.

Results and Discussion

Program Success Indicators

The success of the EcoRanger program is measured through two primary indicators: (1). A reduction in the volume of waste managed in Dusun Pancer; (2). An increase in community and tourist participation, as well as heightened ecological awareness. Operational data from SEKOLA (Sentra Kelola Sampah) indicate that approximately 60 tons of waste were successfully managed over six months, accounting for around 40% of the estimated total waste in the area. Community participation in activities such as the Weekly Beach Clean Up, Educamp, and EnviroSport reflects sustained and active engagement in environmental initiatives.

Table 2. Sekola Program and Waste Reductin, 2019-2020

	2019	2020
Organized	37 times	20 times
Participant	1.592 people	725 people
Accumulated garbage	5,4 ton	2,2 ton

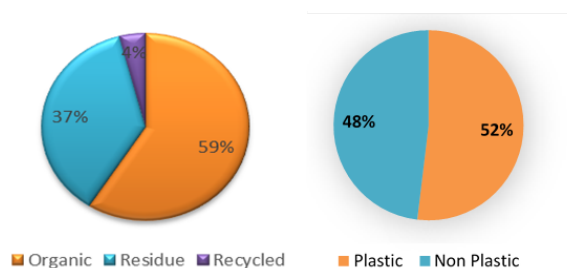


Figure 1. Percentage of waste managed by SEKOLA

Figure 2. Percentage of SEKOLA recycled waste



Figure 3. Community Service to Clean up the Garbage Dump on Pulau Merah Beach



Figure 4. Beach Clean-up Activities by the Community and Tourists



Figure 5. Developing New Tourism with Local Youth

Material Changes in Waste Management

Material changes in waste management are evident in household-level waste sorting practices, the utilization of SEKOLA facilities, and the reduction of unmanaged waste in tourist areas. Residents have begun sorting waste at the source, paying monthly service fees, and utilizing EcoRanger's collection and processing services. The shift from a "collect-and-dump" paradigm to a "collect-and-manage" model reflects a structural transformation in community-based environmental management systems.

In Dusun Pancer, this transformation is marked by the adoption of household waste sorting, regular use of the Sentra Kelola Sampah (SEKOLA) facility, and a noticeable decline in littering within tourism zones. Residents now sort waste at the source, contribute a monthly fee of Rp 20,000, and actively participate in the collection and processing services provided by EcoRanger. This paradigm shift from "collect-and-dump" to "collect-and-manage" signifies a community-driven restructuring of environmental governance. Statements from key informants support these findings. A village official (D2) noted: "Gradually, residents have come to realize that the Rp20,000 monthly fee is nothing compared to the effort required to sort waste at the SEKOLA facility." (Interview, 25 November 2020). Similarly, the head of RT 08 Pulau Merah (P1) emphasized the community's positive reception: "No complaints... it is beneficial, really—no downside." (Interview, December 30, 2020)

Active participation in waste disposal at SEKOLA indicates widespread acceptance of the system. According to the head of PMBR, nearly all residents of RT 08 now routinely dispose of waste at EcoRanger-managed collection points, demonstrating their support for responsible waste management. Business operators in the Pulau Merah tourist area also reported that the program significantly helps prevent waste accumulation, reinforcing SEKOLA's role as a public infrastructure that directly enhances cleanliness and visitor comfort.

These material changes are not merely technical; they are the result of social processes involving education, trust-building, and community participation in a system perceived as fair and beneficial. Within the framework of eco-andragogy, these changes reflect the success of experiential ecological learning and collective action among adult community members.

Comparable studies by [Winoto et al. \(2025\)](#) show that material changes in village-level waste management depend not only on technology, but on active citizen participation as the driving force of transformation ([Suryawan & Lee, 2025](#)). Household-level waste sorting and monthly fee contributions represent structural shifts also observed in household waste management studies in Semarang. Furthermore, the reduction of unmanaged waste in tourist areas demonstrates the Effectiveness of SEKOLA as a community infrastructure. Integrated digital waste management systems have been shown to reduce waste volume by up to 70% through data monitoring, route optimization, and increased citizen engagement ([Kannan et al., 2024](#); [Mapa, 2025](#)).

Immaterial Changes: Attitudes, Norms, and Participation

The socio-cultural transformation of the Dusun Pancer community is reflected in five dimensions of immaterial change that unfolded gradually and collectively:

1) Understanding of the Program. Prior to the intervention, residents were unfamiliar with EcoRanger and unaware of its objectives. Following the program's implementation, they began to view EcoRanger as a solution to waste-related issues and gained basic knowledge of responsible waste management. Informant M1 stated: "EcoRanger became known for its clean-up activities... people learned how to sort waste and understood its benefits." (Interview, November 28, 2020). Information about the program spread through social media and direct interactions, reinforcing public understanding of responsible waste management principles;

2) Attitudes Toward the Program. Initially, EcoRanger's presence was met with suspicion, as it was perceived as potentially linked to sensitive social conflicts surrounding mining issues. Informant D1 remarked: "We wondered if this was a program from person A or B... because social conflict here is sensitive." (Interview, November 25, 2020). However, after experiencing the program's benefits, community attitudes shifted toward active acceptance. Informant P2 affirmed: "Now residents are happy when EcoRanger holds activities... they feel involved." (Interview, December 30, 2020);

3) Participation in the Program. Community participation increased significantly. Residents engaged as clients of SEKOLA services, members of the operational team, and active participants in environmental activities such as the Weekly Beach Clean Up and Educamp. The head of PMBR stated: "Almost all residents of RT 08 now dispose of their waste at EcoRanger's facility... that is real support." (Interview, December 29, 2020). Informant M3 also noted that some residents began volunteering in environmental education activities, indicating internalization of values and a sense of ownership toward the program;

4) Emergence of New Social Norms. Social sanctions emerged against littering behaviors. Informant Suko, head of RT 08, shared: "People who throw trash into the river are now sought out... they do not dare anymore since EcoRanger arrived." (Interview, December 30, 2020). In tourist areas, business operators and managers routinely reprimand visitors who fail to maintain cleanliness. These reprimands have become normalized as part of collective ecological norms;

5) New Habits. Residents began sorting waste at the source, utilizing management services, and even transforming waste into handicrafts. Informant D2 explained: "The waste is sorted... dry waste is sometimes sold, sometimes made into crafts... people are starting to understand." (Interview, December 23, 2020). This shift marks a transition from destructive behaviors (dumping and burning waste) to productive and ecological practices.

Table 3. Immaterial Changes Due to the EcoRanger Program

No	Immaterial Changes Post EcoRanger Program	Previous conditions
1	Understanding of the EcoRanger program a. Bringing change/solving problems with the solutions offered b. Concern in the field of cleanliness and tourism c. Have knowledge related to waste management d. 4) Known through his activities, known both directly and from social media	People are not aware of the EcoRanger program.
2	Acceptance and rejection of EcoRanger a. The initial arrival was suspected to be due to social conflict b. Accepted because the local community has regarding the benefits of the program c. 3) Accepted by the unrestricted public because of program activities	There is no approval or rejection of the EcoRanger program.
3	Participation in the EcoRanger program a. Local communities are concerned and become part of the ER team b. The community is open-minded to its ideas c. The community enjoys to become Sekola's clients d. 4) Local communities participate in program activities, especially clean-up. Likewise, with the broad public.	There is no participation in the EcoRanger program.
4	Attitude towards people who throw rubbish poorly a. The community's intensity in reprimanding is advancing b. Find out the people who throw rubbish into the river and charge sanctions	a. The community reprimands people who are caught throwing rubbish carelessly b. 2) People do not care because before there were waste management facilities, many people still threw rubbish into the river
5	Habits in managing waste a. The public participates in the Waste Management Center services b. 2) Sorting waste from the source	a. Most people still throw away and burn rubbish b. 2) People still mix organic waste and non-organic waste.

These immaterial changes align with the principles of eco-andragogy, where ecological learning occurs through lived experience, critical reflection, and collective action (Freire, 1970). The empowerment process also reflects the Participatory Action Research (PAR) approach, in which communities are not merely beneficiaries but active agents in shaping sustainable ecological norms and systems.

Mechanisms of Socio-Educational Intervention

Ecological behavioral transformation in the Dusun Pancer community did not occur spontaneously, but rather through a series of consistently designed and implemented socio-educational interventions by EcoRanger. These interventions reflect the principles of eco-andragogy and Participatory Action Research (PAR), wherein learning processes unfold through direct experience, critical reflection, and community-based collective action.

1) Educamp and EnviroSport: Media for Ecological Value Internalization. Educamp was held twice in 2019 with a total of 74 participants, while EnviroSport involved 65 participants in a single event. Both were designed as experiential learning spaces that foster ecological awareness through active participation. Informant M2 stated: "Educamp was not just theory... we were invited to clean up, discuss, and reflect together." (Interview, November 28, 2020). These activities enabled both residents and external participants to directly experience the importance of environmental stewardship, while also building ecological solidarity across groups.

2) World Clean Up Day and FORSI: Institutionalizing Community Movements. EcoRanger was entrusted as the regional coordinator for Banyuwangi during World Clean Up Day 2019 and elevated to leadership status in 2020. This involvement demonstrates institutional capacity and social influence that extends beyond the local scale. Informant E1 noted: "We were trusted to coordinate because of the consistency of our movement... it was a key moment to expand our network." (Interview, November 21, 2020). As part of institutionalizing the movement, EcoRanger initiated the formation of FORSI (Forum Aksi Banyuwangi Bebas Sampah), comprising various environmental communities such as Geopark Ijen, Portir Addaariat, Osoji Club, and YOT Banyuwangi. Informant M4 shared: "FORSI is a collaborative platform... now clean-up and educational activities can be replicated elsewhere." (Interview, November 29, 2020). This institutionalization strengthens the sustainability of the movement and opens pathways for replication in other coastal regions.

3) SEKOLA: A Symbol of Paradigm Shift in Waste Management. The Sentra Kelola Sampah (SEKOLA) facility serves as a convergence point between technical intervention and social transformation. Residents not only utilize the facility but also participate in its operations and decision-making processes. Informant D2 explained: "SEKOLA is not just a dumping site... it is a place for learning, discussion, and where residents feel a sense of ownership." (Interview, December 23, 2020). SEKOLA symbolizes a paradigm shift from a "collect-and-dump" system to a "collect-and-manage" model, where waste management is understood as a collective responsibility and an integral part of community identity.

These interventions demonstrate that EcoRanger is not merely implementing technical programs, but actively cultivating a community-based ecosystem of ecological learning. Within the framework of eco-andragogy, activities such as Educamp, EnviroSport, and the institutionalization of FORSI represent forms of lifelong education that are both contextual and transformative. From a Participatory Action Research (PAR) perspective, the active involvement of residents in the design, implementation, and evaluation of the program suggests that socio-ecological change arises from sustained, reflective, and participatory processes.

Institutionalization of Ecological Norms and Social Control

New ecological norms have emerged in Dusun Pancer through routine activities, participatory education, and active social monitoring. This process demonstrates that behavioral change is not merely technical, but also cultural and normative in nature. According to social norm theory (Cialdini, 2003) and common-pool resource governance (Ostrom, 2009), the successful formation of ecological norms depends on the internalization of values, collective oversight, and informal social sanctions. A strong indicator of norm institutionalization was the "trash trap" social experiment conducted by the researchers. Over four days, waste was deliberately placed in the Pulau Merah tourist area to observe

the responses of the community and visitors. The results showed that the trash was promptly picked up and disposed of properly. The researchers were even reprimanded by a resident, who assumed they were a tourist violating the community's cleanliness norms: "I was scolded by a resident for littering... they thought I was a tourist who didn't know the rules. That shows the norm is alive." (Field Observation Notes, December 27, 2020). Informant S, head of RT 08, emphasized that residents now actively reprimand and even seek out those who litter: "People who throw trash here are tracked down... it is serious. Since EcoRanger came, no one dares to dump diapers in the river anymore." (Interview, December 30, 2020). In the tourist area, business owners and site managers routinely confront visitors who litter. These reprimands have become part of a shared social ethic: "We usually scold tourists who litter... they often apologize and even join the clean-up." (Interview with business operator, December 28, 2020).

Routine activities such as the Weekly Beach Clean Up (WBCU), Educamp, and Envirosport serve as mediums for internalizing ecological values. Active participation in SEKOLA's operational team and local environmental forums, such as FORSI, reflects a shift from passive to proactive behavior in maintaining environmental cleanliness. EcoRanger program documents also note that in 2020, community participation in beach clean-up activities increased, with 2.2 tons of waste collected during WBCU events—52% of which was plastic. These data indicate that ecological norms are not only internalized but also actualized through measurable collective action. Thus, the institutionalization of ecological norms in Dusun Pancer is the result of synergy between education, community participation, and social monitoring. EcoRanger functions as a facilitator that animates ecological values through concrete practices, rather than symbolic campaigns. Within the framework of eco-andragogy, this process reflects a form of social learning that is contextual, reflective, and sustainable.

Analysis of the Link Between Intervention and Change

The ecological behavioral transformation of the Dusun Pancer community is the result of a synergy between education, active participation, and the institutionalization of local values. The eco-andragogical approach enables communities to learn through lived experience, critical reflection, and collective action, while Participatory Action Research (PAR) ensures citizen involvement throughout the entire change process. In this context, EcoRanger functions as a social facilitator, filling the gap left by the state in providing environmental services and public education.

1) Filling the Gap in Public Services. EcoRanger established the Sentra Kelola Sampah (SEKOLA) as a community-based waste management facility previously unavailable in Dusun Pancer. This facility operates as a 3R (Reduce, Reuse, Recycle) waste station, enabling residents to sort, transport, and manage waste responsibly. In practice, EcoRanger has assumed the role of the state in providing equitable and participatory environmental infrastructure. This aligns with critiques of the state's weak presence in local waste governance (Pramuji, 2025).

2) Education and Awareness Building. Through programs such as EcoRanger Academy, Educamp, and Envirosport, EcoRanger fulfills an educational function that should ideally be part of public policy. These activities not only enhance environmental literacy but also promote new social norms that support sustainable and ecological behavior. Informant M2 stated that Educamp "was not just theory—it involved direct practice and group discussions," highlighting that the learning process was contextual and participatory.

3) Community Organizing and Movement Institutionalization. EcoRanger successfully organized both local and regional communities through the formation of FORSI (Forum Aksi Banyuwangi Bebas Sampah). This forum serves as a coordination platform for environmental groups, enabling the replication of activities such as clean-ups, education, and reforestation. Informant M4 noted that FORSI "became a space for collaboration... now activities can be replicated elsewhere," indicating the institutionalization of a sustainable socio-ecological movement.

4) and Institutional Legitimacy. EcoRanger has gained broad acceptance among residents, business operators, and village officials. In some cases, the community refers more to EcoRanger than to formal institutions for matters of waste management and environmental education. Informant D2 emphasized that "SEKOLA is not just a dumping site... it is a place for learning, discussion, and where

residents feel a sense of ownership." This suggests that EcoRanger has achieved social legitimacy as a substitute actor for state functions in the ecological domain.

Analysis of Program Sustainability: Five Supporting Pillars

The sustainability of the EcoRanger program relies on five interrelated pillars: 1) Regulatory Framework. EcoRanger encouraged the village government to issue Village Regulation No. 8 of 2019 concerning the Management of Household and Similar Waste. However, the success of such regulation depends not only on its issuance but also on adequate socialization and enforcement, including informal social sanctions for violations. A combination of formal legal instruments and informal norms forms a critical foundation for maintaining the system's sustainability; 2) Institutional Aspects. The long-term sustainability of SEKOLA relies on capable local actors to assume waste management responsibilities after EcoRanger's operational phase. Participatory analysis identified three potential stakeholders: the Village-Owned Enterprise (BUMDes), KUB Bina Karya, and the Pulau Merah tourism management. Among them, tourism managers are considered the most institutionally prepared, having directly experienced the benefits of SEKOLA and the Weekly Beach Clean-Up (WBCU) activities. Nevertheless, multi-stakeholder collaboration remains essential to ensure both technical and non-technical continuity; 3) Community Participation. Community participation is key to sustainability. Informant PMBR noted that "almost all residents of RT 08 now dispose of their waste at EcoRanger's facility," indicating that the service has become a public necessity. Residents' knowledge and capacity in waste sorting and management have improved, along with a growing sense of ownership over the system they helped build. Therefore, decision-making and daily operations must continue to involve the community actively; 4) Accommodation of Religious and Cultural Values. Islamic values and local traditions such as Petik Laut, Baritan, and the Clean Village Movement serve as effective media for conveying ecological messages. Phrases like "cleanliness is part of faith" are more readily accepted when delivered in religious and cultural language. This strengthens the internalization of ecological norms as part of the community's spiritual and cultural identity; 5) Technical Support and Cross-Sectoral Funding. The operational sustainability of SEKOLA depends heavily on technical readiness and financial support. Key challenges include limited land access (as the facility currently occupies Perhutani-owned land), inadequate infrastructure, and suboptimal allocation of village funds. However, there is potential support from the tourism sector—particularly the Pulau Merah tourism managers, who have expressed commitment to contributing financially. Additionally, waste service fees regulated under the Village Regulation can serve as a sustainable funding source to support waste collection and sorting teams.

Theoretical Contribution: Eco-Andragogy

Within the landscape of development and environmental education literature, approaches that explicitly integrate ecological, pedagogical, and participatory dimensions in coastal contexts remain fragmented. This study aims to integrate these three dimensions into a unified conceptual framework, termed community-based eco-andragogy, drawing on the intellectual traditions of Galtung (structural transformation), Chambers (local participation), and Freire (liberatory education)—while remaining grounded in the lived experiences of the Dusun Pancer community (Galtung, 2023). Although the term eco-andragogy has not been widely discussed in contemporary literature, its practices are beginning to emerge in recent studies, particularly in Brazil, where environmental education, community empowerment, and coastal conservation are increasingly integrated. Research by (Cararo et al., 2022; Miloslavich et al., 2011), and GPF Brazil (2023) demonstrates that participatory and experiential approaches have been applied in coastal settings, albeit without being explicitly framed as eco-andragogy.

This study thus offers a novel theoretical contribution by formulating community-based eco-andragogy as a conceptual framework that bridges ecological education, social empowerment, and locally grounded environmental transformation. The concept not only expands the scope of ecopedagogy and andragogy, but also provides a reflective foundation for designing socio-ecological interventions that are contextual, participatory, and sustainable.

In environmental education literature, ecopedagogy is typically assessed by its success in fostering ecological literacy and critical awareness of environmental issues. Its primary focus lies in educational processes that are liberatory, reflective, and transformative, as articulated by Freire and his followers.

Key indicators include conceptual understanding, perceptual shifts, and engagement in environmental action.

However, in the context of adult communities directly involved in locally based environmental management practices, this approach requires expansion. Here, community-based eco-andragogy emerges as an alternative framework for education. Unlike ecopedagogy, which centers on literacy, eco-andragogy is measured by a community's capacity to collectively establish new social norms as adaptive strategies in response to empowerment interventions. These new norms are not only educational but also working, as evidenced by waste sorting practices, informal sanctions against environmentally harmful behavior, and the institutionalization of community-based management systems. In other words, eco-andragogy does not stop at awareness; it moves toward the institutionalization of ecological values in everyday life.

Conclusion

This study demonstrates that the socio-ecological interventions implemented by EcoRanger in Dusun Pancer, Banyuwangi, have successfully promoted behavioral change in sustainable waste management. Through educational, facilitative, and participatory approaches, EcoRanger not only provided technical infrastructure such as the Sentra Kelola Sampah (SEKOLA) but also cultivated new social norms collectively upheld by both residents and tourists. The transformation observed is both material and immaterial in nature. Materially, the community began sorting waste at the source, contributing monthly fees, utilizing collection and processing services, and maintaining cleanliness in tourist areas. Immaterially, there was a shift in attitudes, increased active participation, and the internalization of ecological values integrated with local traditions and Islamic spirituality. These changes reflect the success of an eco-andragogical process, where ecological learning occurs through lived experience, critical reflection, and collective action among adult community members. Within the framework of Participatory Action Research (PAR), EcoRanger effectively facilitated active community involvement in the design, implementation, and evaluation of the program. The community evolved from passive beneficiaries to empowered and reflective agents of change. This approach facilitated the institutionalization of community-based environmental movements, including the establishment of FORSI and the replication of educational activities in other regions.

Methodologically, the study employed a phenomenological approach to understand the meaning of ecological change from the residents' perspective, drawing on their lived experiences. Participatory observation, in-depth interviews, and social experiments such as the "trash trap" provided analytical depth into the processes of value internalization and social dynamics. The researcher's position as an external evaluator allowed for critical reflection on eco-andragogical and PAR practices without being embedded in the program's operational structure.

Theoretically, this study contributes to the development of community-based eco-andragogy, an extension of ecopedagogy and andragogy, by emphasizing ecological education grounded in lived experience, local values, and spirituality. The EcoRanger intervention model demonstrates that sustainable ecological change relies not only on technology or policy, but also on social relationships, community legitimacy, and the integration of local values. The term eco-andragogy is introduced not as a definitive claim, but as a conceptual offering born from reflective practice in community-based ecological empowerment. With an exploratory tone, the concept is proposed to bridge the gap between ecological literacy fostered through ecopedagogy and the institutionalization of social norms emerging from participatory processes. The researcher acknowledges that the term is not yet established in the literature. However, precisely for that reason, it is presented as an initial contribution open to critique and further development.

In conclusion, this study presents a replicable model of social facilitation for other coastal regions and offers recommendations for the development of more inclusive, participatory, and community-based environmental policies.

Acknowledgement

The authors would like to express their gratitude to the Greeneration Foundation (GF) for initiating the EcoRanger program, and especially to the Banyuwangi EcoRanger team for providing access and support throughout the research and empowerment activities. Appreciation is also extended to the Sumberagung Village Government for granting research permits, and to the local community for their invaluable assistance during fieldwork.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Annur, C. M. (2023). *Inilah negara penghasil sampah terbesar dunia, ada Indonesia?* <https://databoks.katadata.co.id/infografik/2023/07/05/inilah-negara-penghasil-sampah-terbesar-dunia-ada-indonesia>
- Atmanti, H. D. (2023). Kajian pengelolaan sampah di Indonesia. *Pembangunan Berkelanjutan Di Indonesia Dalam Mewujudkan Tujuan Ekonomi Inklusif*, 15–27.
- Azami, Y. S. S., Nurlaela, S., & Euriga, E. (2025). Pendampingan Kelompok Tani Kawasan Perkotaan Berbasis PAR dalam Kegiatan Pengelolaan Sampah Organik. *Abdi: Jurnal Pengabdian Dan Pemberdayaan Masyarakat*, 7(1), 98–108.
- Berchez, F. A. S., Ghilardi-Lopes, N. P., Correia, M. D., Sovierzoski, H. H., Pedrini, A. de G., Ursi, S., Kremer, L. P., Almeida, R. de, Schaeffer-Novelli, Y., & Marques, V. (2016). Marine and coastal environmental education in the context of global climate changes-synthesis and subsidies for ReBentos (Coastal Benthic Habitats Monitoring Network). *Brazilian Journal of Oceanography*, 64(spe2), 137–156.
- Blackburn, J. (2000). Understanding Paulo Freire: Reflections on the origins, concepts, and possible pitfalls of his educational approach. *Community Development Journal*, 35(1), 3–15.
- Brown, T., Jeanes, R., & Cutter-Mackenzie, A. (2013). Social ecology as education. In *The socioecological educator: A 21st century renewal of physical, health, environment and outdoor education* (pp. 23–45). Springer.
- Cararo, E. R., Chimello, V. F., Piovezana, L., Lima-Rezende, C. A., Santos, J. A., & de Souza Rezende, R. (2022). Environmental education in Brazil: trends and gaps from 2015 to 2019. *Research, Society and Development*, 11(4), e45211427598–e45211427598.
- Chambers, R. (1994). Participatory rural appraisal (PRA): Analysis of experience. *World Development*, 22(9), 1253–1268.
- Chevalier, J. M. (2019). *Participatory action research: Theory and methods for engaged inquiry*. Routledge.
- Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12(4), 105–109.
- de Souza Pimentel, D., de Gusmão Pedrini, A., Kawabe, L. de A., Robim, M. de J., Berchez, F. A. de S., & Meireles, C. P. (2019). Opportunities and challenges to implement environmental education in Brazilian coastal and marine protected areas. *Coastal and Marine Environmental Education*, 103–117.
- Freire, P. (1970). *Pedagogy of the oppressed*, New York (Herder & Herder) 1970.
- Galtung, J. (2023). A structural theory of imperialism. In *Imperialism* (pp. 59–108). Routledge.
- Giampiccoli, A. (2020). A conceptual justification and a strategy to advance community-based tourism development. *European Journal of Tourism Research*, 25, 2503.
- Greeneration Foundation. (2022). *EcoRanger dan nelayan Banyuwangi berhasil tangani 13,56 ton sampah laut*. EcoRanger Indonesia. <https://ecoranger.id/?sustain-travel=berhasil-tangani-1356-ton-sampah-laut-dan-pesisir-kolaborasi-nyata-61-nelayan-banyuwangi-melalui-program-ecoranger>
- Hidayat, A., Wijayanti, I., & Evendi, A. (2024). Modal Sosial Dalam Pengelolaan Kawasan Ekowisata Mangrove Berkelanjutan Di Pesisir Desa Sugian. *Prosiding Seminar Nasional Mahasiswa Sosiologi*, 2(1), 89–108.
- Hidayatulloh, S., Dani, B. O. P., Rizkyantara, E., Litah, P. N., Mariadi, M., Sari, S., Putri, A. I., Pratama, L.

- A. A., Munawarah, J., & Atsar, A. (2025). Edukasi dan pendampingan masyarakat tentang pengolahan sampah menjadi barang bernilai. *Jurnal Wicara Desa*, 3(3), 435–442.
- Husserl, E. (2012). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: First book: General introduction to a pure phenomenology* (Vol. 2). Springer Science & Business Media.
- Ishida, Y. (2018). Civil Society Organizations. In *Global Encyclopedia of Public Administration, Public Policy, and Governance* (pp. 792–801). Springer.
- Istanabi, T., Miladan, N., Suminar, L., Kusumastuti, K., Aliyah, I., Soedwihajono, S., Utomo, R. P., Werdiningtyas, R. R., & Yudana, G. (2022). Pengelolaan Bank Sampah sebagai implementasi Ekonomi Kreatif di Bank Sampah Guyub Rukun Dusun Madugondo, Kecamatan Piyungan, Bantul. *PengabdianMu: Jurnal Ilmiah Pengabdian Kepada Masyarakat*, 7(3), 407–413.
- Kannan, D., Khademolqorani, S., Janatyan, N., & Alavi, S. (2024). Smart waste management 4.0: The transition from a systematic review to an integrated framework. *Waste Management*, 174, 1–14.
- Kementerian Energi dan Sumber Daya Mineral Republik Indonesia. (2025). *Proyek Waste to Energy di 10 Kota Prioritas: Tantangan dan Harapan*. <https://www.esdm.go.id/id/media-center/arsip-berita/proyek-waste-to-energy-di-10-kota-prioritas>
- Kemmis, S. (2005). *Participatory Action Research: Communicative action and the public sphere*. The Sage handbook of qualitative research/Sage.
- Kindon, S., Pain, R., & Kesby, M. (2007). Participatory action research: Origins, approaches and methods. In *Participatory action research approaches and methods* (pp. 35–44). Routledge.
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy: Revised and updates*. Adult Education.
- Lewis, D. (2002). Civil society in African contexts: Reflections on the usefulness of a concept. *Development and Change*, 33(4), 569–586.
- Lutfi, A., Achrodi, S., & Firmansyah, A. (2023). Pendampingan Pengelolaan Sampah Berbasis Masyarakat di Desa Kroya, Indramayu. *Jurnal Pusat Inovasi Masyarakat*, 5(2), 183–195.
- Mapa, M. T. (2025). Community-Based Waste Management for Village Environmental Sustainability in Urban Semarang. *KnE Social Sciences*.
- Miles, M. B., & A. Huberman, M. (1994). *Matthew B. Miles, Michael Huberman - Qualitative Data Analysis_ An expanded Sourcebook 2nd Edition (1994).pdf* (p. 338).
- Miloslavich, P., Klein, E., Díaz, J. M., Hernández, C. E., Bigatti, G., Campos, L., Artigas, F., Castillo, J., Penchaszadeh, P. E., & Neill, P. E. (2011). Marine biodiversity in the Atlantic and Pacific coasts of South America: knowledge and gaps. *PloS One*, 6(1), e14631.
- Pazoto, C. E., Duarte, M. R., & Silva, E. P. (2023). Ocean literacy in Brazilian formal education: A tool for participative coastal management. *Australian Journal of Environmental Education*, 39(4), 507–521.
- Pemerintah Provinsi DKI Jakarta. (2025). *TPST Bantargebang dalam kondisi darurat, kapasitas hampir penuh*. Dinas Lingkungan Hidup DKI Jakarta.
- Rahmah, N. N. (2025). *Menteri LH: Pengelolaan sampah baru 15%, masih jauh dari target*. <https://katadata.co.id/ekonomi-hijau/ekonomi-sirkular/68bfe41584782/menteri-lh-pengelolaan-sampah-baru-15-masih-jauh-dari-target>
- Rizki, M. N., & Asteria, D. (2023). Local ecological knowledge and it's benefit to conservation programs in indonesia. *International Journal of Conservation Science*, 14(4), 1527–1548.
- Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfa Beta.
- Suryawan, I. W. K., & Lee, C.-H. (2025). Green transition management: The key role of community participation in developing resilient waste management policies for coastal and inland communities. *Environmental Science and Pollution Research*, 1–18.
- Ultimate Kilimanjaro. (2025). *The 12 dirtiest countries in the world (2025)*. <https://www.ultimatekilimanjaro.com/dirtiest-countries-in-the-world-most-pollution/>
- Universitas Muhammadiyah Surakarta. (2025). *Indonesia's ongoing waste woes*. <https://www.ums.ac.id/en/news/global-pulse/indonesia-s-ongoing-waste-woes>
- Waste4Change. (2020). *Pengelolaan sampah bertanggung jawab: EcoRanger di Pulau Merah Banyuwangi*. <https://waste4change.com/blog/pengelolaan-sampah-tempat-wisata-ecoranger-banyuwangi/>