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Strengthening Source-Based Organic Waste Management Through Teba Modern in Serangan Village, Bali: Community Empowerment for Sustainable Consumption and Production

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Abstract.
Organic waste management remains a strategic issue for tourism-based communities because household activities, traditional markets, ceremonial practices, and visitor mobility continuously generate biodegradable residues. When organic waste is mixed with inorganic waste and transported directly to final disposal sites, the community loses an opportunity to recover nutrients, reduce transportation burdens, and strengthen environmental awareness. This article discusses the role of Teba Modern as a source-based organic waste management practice in Serangan Village, Bali, within the Sustainable International Community Service (SICS) 2 Bali 2026 program. The activity used a descriptive and participatory community service approach through program orientation, field observation, visual documentation, informal discussion, and qualitative reflection. The findings show that Teba Modern can function as a local ecological infrastructure that processes organic waste closer to its source, supports composting, and provides an educational medium for community members and university participants. The field observation also indicates that the effectiveness of Teba Modern depends on consistent waste separation, community participation, operational discipline, and simple monitoring of organic waste volume and compost output. The program contributes to Sustainable Development Goal 12 by promoting responsible consumption and production, while also supporting sustainable tourism, community empowerment, and academic-community collaboration. This article recommends strengthening source-separation education, preparing operational guidelines, developing simple waste data recording, and expanding partnerships among village institutions, universities, local government, and tourism actors.

Keywords: *Teba modern; Source-based waste management; Organic waste; Community composting; Serangan Village; Sustainable tourism; Community empowerment; SDG 12.*

I. INTRODUCTION

Waste management is one of the most visible sustainability challenges in communities that depend on tourism, local trade, and cultural activities. The problem is not only the quantity of waste produced each day, but also the way waste is separated, collected, treated, and valued before it reaches the final disposal stage. In many local contexts, organic waste is still treated as useless residue even though it can become compost and return nutrients to the soil. This condition makes

source-based waste management important because it places responsibility and treatment closer to the location where waste is generated.

Global waste generation is projected to increase significantly if current consumption and disposal patterns continue. The Global Waste Management Outlook 2024 emphasizes that municipal solid waste may rise sharply by 2050 and that poor waste governance can create environmental, health, and economic costs (United Nations Environment Programme, 2024a). The same concern is reflected in global waste projections that describe waste management as a public service issue and a development issue. Waste systems therefore need to move from a collect-and-dispose model toward prevention, separation, recovery, and circular resource use.

The World Bank explains that solid waste management affects public health, flooding, environmental quality, and urban livability. Poorly managed waste may clog drainage systems, create unpleasant public spaces, and reduce the attractiveness of tourism destinations (World Bank, 2018). This issue is especially relevant for Bali because the island depends heavily on environmental image, cultural landscape, and visitor experience. A tourism destination cannot be considered sustainable if waste generated by tourism and daily community activities is not managed responsibly.

Organic waste requires special attention because it is produced repeatedly from food preparation, households, markets, gardens, ceremonies, restaurants, and tourism facilities. If organic waste is disposed of in landfills without proper management, it may decompose under oxygen-limited conditions and contribute to methane emissions (Environmental Protection Agency, 2023b). Organic waste is therefore not only a sanitation problem but also a climate-related problem. Composting becomes a practical intervention because it converts organic residues into a useful soil amendment while reducing the amount of material sent to final disposal sites.

In many developing countries, waste management challenges are shaped by limited infrastructure, insufficient financing, weak coordination, and uneven public participation. A review of waste mismanagement in developing countries shows that improper collection, open dumping, and low recycling capacity remain persistent problems (Ferronato & Torretta, 2019). Another study on urban waste management challenges emphasizes that technical solutions will not be effective if they are separated from community behavior and institutional capacity (Abarca Guerrero et al., 2013). These findings suggest that community-based waste management should combine infrastructure, education, local leadership, and continuous monitoring.

Indonesia has a strong legal basis for improving waste management through waste reduction and waste handling. Law Number 18 of 2008 defines waste management as a systematic, comprehensive, and sustainable activity that includes waste reduction and waste handling (Republik Indonesia, 2008). Government Regulation Number 81 of 2012 further regulates household waste and household-like waste by emphasizing the importance of reduction, sorting, collection, transport, processing, and final treatment (Republik Indonesia, 2012). These regulations provide a policy foundation for village-level and community-level initiatives such as source-based organic waste treatment.

National waste data also show why organic waste treatment must be prioritized. The National Waste Management Information System provides composition data that can be used by local governments and communities to understand the dominant waste streams in Indonesia (Kementerian Lingkungan Hidup dan Kehutanan, n.d.). When organic waste forms a substantial

part of the waste stream, composting and other biological treatment methods become logical interventions. A source-based strategy is more efficient because organic waste can be separated before it is contaminated by plastics, packaging, metals, and other non-compostable materials.

The concept of responsible consumption and production is central to Sustainable Development Goal 12. SDG 12 calls for sustainable production patterns, responsible resource use, environmentally sound waste management, and substantial waste reduction through prevention, reduction, recycling, and reuse (United Nations Department of Economic and Social Affairs, n.d.). In the context of Serangan Village, SDG 12 can be translated into practical local actions such as separating organic waste, processing biodegradable residues, and using compost for plants and community spaces. This local translation is important because the SDGs can only be achieved when global goals are implemented through daily practices.

Serangan Village in Bali offers an important case for studying source-based organic waste management in a tourism and coastal community context. Local reporting describes the strengthening of the Serangan Bersinar ecosystem through the provision of ten Teba Modern units at Pasar Desa Adat Serangan (Radar Bali, n.d.). This local initiative indicates that waste management in Serangan is not only handled through conventional disposal, but also through a community-oriented facility that supports organic waste processing. The presence of Teba Modern shows that village institutions and partners can develop practical infrastructure that is close to the community.

This article is also connected to the Sustainable International Community Service (SICS) 2 Bali 2026 program. The program was held from 29 June to 2 July 2026 with the theme of strengthening local communities in Bali through SDG-oriented community empowerment (Nurdin, 2026). The program brought together university participants, local stakeholders, and community partners to connect academic learning with direct field experience. Within this context, the observation of Teba Modern in Serangan Village became a relevant learning site for understanding how sustainability concepts are implemented at the community level.

The urgency of this article lies in the need to document local waste management practice as both an environmental intervention and an educational process. Many discussions about waste management focus on large-scale technology, but village-level systems can also create meaningful change when they are understood, maintained, and replicated. Teba Modern provides a case of how organic waste can be managed near its source while strengthening awareness among residents, students, and tourism stakeholders. This article therefore aims to describe the role of Teba Modern in strengthening source-based organic waste management in Serangan Village, Bali, and to analyze its relevance to community empowerment and SDG 12.

Table 1. Main focus and analytical direction of the article

Article component	Description
Main issue	Organic waste generated by households, markets, tourism activities, and community practices needs to be managed closer to its source.

Local practice observed	Teba Modern as a community-based facility for processing organic waste and supporting composting in Serangan Village.
Program context	SICS 2 Bali 2026 as an international community service program that links academic learning, local empowerment, and SDG implementation.
Main analytical lens	Source-based waste management, community composting, sustainable tourism, and SDG 12.
Expected output	A descriptive community service article that documents the field observation and provides practical recommendations for future improvement.

Source: Author analysis based on field documentation, 2026.

II. METHODS

This article used a descriptive and participatory community service approach. The descriptive approach was selected because the activity aimed to document a real community practice rather than test a laboratory hypothesis or measure statistical causality. The participatory approach was selected because the field activity involved observation, discussion, reflection, and interaction among university participants and local stakeholders. This approach is suitable for community service writing because it allows practical findings to be connected with theoretical and policy perspectives.

The activity was conducted in Bali during the SICS 2 Bali 2026 program. The waste management observation focused on Serangan Village, especially the local waste processing environment connected with Teba Modern and organic waste handling. The broader program also included academic sessions, cultural learning, and visits to other Bali destinations, which helped participants understand the relationship between sustainability, tourism, and local identity. The combination of classroom-like sessions and direct observation made the program an experiential learning activity.

The first stage was program orientation and academic discussion. Participants attended the opening session and sustainability-related agenda to understand the goals of SICS 2 Bali 2026. This stage introduced the relationship between community empowerment, SDGs, tourism, and university collaboration. The orientation also prepared participants to view field sites not merely as tourist destinations, but as living communities with social, environmental, and economic challenges.

The second stage was field observation at the waste management site in Serangan Village. Participants observed organic waste piles, processing areas, supporting equipment, the physical condition of the facility, the surrounding community environment, and the way waste materials

were positioned for further treatment. Observation focused on visible indicators because the activity did not include laboratory analysis or quantitative waste weighing. The field documentation became the main empirical material for describing the practical operation and educational value of Teba Modern.

The third stage was visual documentation. Photographs were taken during the program session, cultural visits, and the field visit to the waste processing area. The photographs were used to support the article narrative, especially in showing the program context, participant involvement, local facility conditions, and the relationship between environmental management and tourism landscape. Visual data were treated as supporting documentation rather than as independent quantitative evidence.

The fourth stage was informal discussion and reflection among participants. The discussion focused on how Teba Modern can support source-based waste management, how community participation affects waste separation, and how tourism villages can integrate environmental responsibility into local development. Reflection also covered the limitations of the visit, especially the absence of long-term data on waste volume, compost quality, and behavioral change. These limitations were considered important so that the article does not overstate the findings.

The fifth stage was qualitative interpretation using literature and policy references. The analysis connected field observations with concepts of integrated sustainable waste management, decentralized composting, circular economy, household waste behavior, and SDG implementation. Integrated sustainable waste management emphasizes that waste systems require coordination among technical, social, financial, and institutional elements (Wilson et al., 2013). This framework helped interpret Teba Modern as more than a physical facility because its success depends on community practice and institutional continuity.

The interpretation also used the idea that waste systems in developing contexts must be analyzed through local governance and social participation. Systems-based approaches argue that waste management should not be reduced to a single technology or a single institution (Marshall & Farahbakhsh, 2013). This idea is relevant to Serangan because Teba Modern requires residents, market actors, village institutions, program partners, and local operators to perform complementary roles. The method therefore combined field observation with literature-based reasoning.

The limitation of this article is that it does not present laboratory results, compost nutrient analysis, emissions calculation, or numerical before-after measurement. The activity was conducted as a short community service and field learning program, so the data were mainly descriptive. Another limitation is that the article relies on available field documentation and secondary references to explain the broader context. Future studies should include waste composition measurement, compost quality testing, user interviews, and longitudinal monitoring to produce stronger evidence.

Table 2. Implementation stages of the community service article

Stage	Activity	Output
Orientation	Opening session, international discussion, and	Participants understood the program context and sustainability objectives.

	introduction to the SDG-based program agenda.	
Observation	Direct field visit to the waste management facility in Serangan Village.	Descriptive notes on organic waste handling, facility condition, and community setting.
Documentation	Photographic documentation of program sessions, field visit, and cultural context.	Visual evidence for figures and supporting explanation.
Reflection	Informal discussion about waste separation, community participation, and tourism responsibility.	Interpretive notes on strengths, challenges, and recommendations.
Analysis	Connection between field findings, waste management literature, policy, and SDG 12.	Community service article with theoretical and practical discussion.

Source: Author analysis based on field documentation, 2026.

III. RESULT AND DISCUSSION

A. Program context and field learning process

The SICS 2 Bali 2026 program provided an important context for linking academic knowledge with community-based sustainability practice. The opening session introduced participants to the broader goals of international community service, including collaboration, local empowerment, and SDG-oriented action. The presence of participants from different institutions created a learning environment where local problems could be discussed from multiple academic and cultural perspectives. This context strengthened the value of the field visit because participants were encouraged to observe, ask questions, and reflect on local environmental practices.

The program emphasized that sustainability should not remain only in seminars or policy documents. Participants were exposed to direct examples of how local communities in Bali respond to environmental and tourism-related challenges. This is important because experiential learning can help students understand that sustainable development requires practical action, not only theoretical explanation. The field visit to Serangan Village became one of the concrete moments where participants observed a local system for processing organic waste.

The program also showed that universities can play a strategic role in connecting research, education, and community service. University participants did not come only as observers, but also as learners who documented local practice and reflected on possible improvements. This form of engagement supports the idea that higher education institutions can contribute to local development by sharing knowledge and learning from community innovation. Academic-community

collaboration becomes stronger when the community is treated as a partner rather than only as an object of study.



Figure 1. SICS 2 Bali 2026 program session involving participants from various institutions
Source: Field documentation, 2026



Figure 2. Group documentation during the SICS 2 Bali 2026 program session
Source: Field documentation, 2026

B. Local condition of organic waste management in Serangan Village

The field observation at Serangan Village indicated that organic waste management is closely related to everyday community activities. Organic residues can come from household food preparation, local markets, religious and cultural activities, garden cleaning, and tourism-related consumption. When these residues are collected without separation, they may lose their potential value and become a burden for waste transportation and disposal. Teba Modern responds to this problem by supporting treatment near the point where organic waste is generated.

The observed waste processing area contained organic materials that were gathered and prepared for further handling. The presence of organic piles showed that the waste stream was not treated only as a disposal problem. Instead, organic residues were positioned as materials that could be decomposed and returned to the environment. This interpretation is important because changing the meaning of waste is part of building a circular mindset.

The field site also demonstrated the need for operational discipline. Organic waste that enters a composting system must be kept as clean as possible from plastic and other non-biodegradable materials. Contamination can make the process inefficient and reduce the quality of the final compost. Therefore, the quality of Teba Modern does not depend only on the facility itself, but also on sorting behavior before the waste arrives at the facility.

The observation supported the view that source separation is a foundation for sustainable waste management. When residents and market users separate organic waste from the beginning, the processing facility can work more effectively. When they do not separate waste properly, local operators must spend additional time sorting materials manually. This shows that community behavior becomes part of the technical performance of the facility.



Figure 3. Field observation at the waste processing facility in Serangan Village
Source: Field documentation, 2026



Figure 4. Organic waste materials and processing area observed during the field visit
Source: Field documentation, 2026

C. Teba Modern as source-based ecological infrastructure

Teba Modern can be understood as a form of ecological infrastructure because it supports the biological treatment of organic waste at a local scale. Unlike waste bins that only store waste temporarily, a source-based organic treatment facility encourages the community to process biodegradable material in a more purposeful way. This approach can reduce the distance between waste generation and waste treatment. It also makes the environmental process visible to residents and visitors.

Decentralized composting is relevant for communities that want to reduce dependence on centralized disposal systems. Decentralized community composting can shorten the waste chain and create opportunities for local participation (Bruni et al., 2020). In Serangan Village, Teba Modern reflects this principle because it supports organic treatment within the community environment. The facility therefore can become a bridge between environmental infrastructure and public education.

Community composting also has social value because it can make residents more aware of what happens after waste is discarded. The Environmental Protection Agency explains that community composting can bring composting closer to where organic materials are produced and used (Environmental Protection Agency, 2023a). This idea is relevant to Teba Modern because the facility can help residents see organic waste as a local resource. Visibility is important because invisible waste systems often make people feel disconnected from the consequences of consumption.

A feasibility study on decentralized residential food waste composting highlights the importance of location, participation, and operational planning (Pai et al., 2019). This lesson is useful for Serangan because Teba Modern should be placed and managed in a way that is accessible, clean, and acceptable to the community. If the location is too far from waste sources, residents may not use it consistently. If the operation is not maintained, the facility may lose trust and community support.

The ecological value of Teba Modern is also linked to nutrient cycling. Composting can transform organic material into a soil amendment that supports plants, gardens, and local green spaces. On-farm composting guidance explains that composting requires attention to material composition, moisture, aeration, and management to produce stable compost (Food and Agriculture Organization of the United Nations, 2003). Although Teba Modern operates in a community setting rather than a farm setting, the same basic biological principles remain relevant.

The composting process depends on microorganisms that break down organic material. A review of composting microbiome science explains that microbial communities play a central role in the decomposition and stabilization of organic residues (Meilander & Caporaso, 2024). This scientific perspective helps explain why composting is not only a simple disposal activity. It is a biological process that requires suitable conditions for microorganisms to work effectively.

Home composting guidance also emphasizes the importance of balancing materials, air, and moisture. The Environmental Protection Agency describes composting as a process that uses organic materials such as food scraps and yard waste to create a useful soil amendment (Environmental Protection Agency, 2025). This explanation can be adapted into simple community education materials for Teba Modern. Residents may understand the facility more easily when the process is explained in practical language.

Table 3. Practical interpretation of Teba Modern as ecological infrastructure

Function	Explanation	Expected benefit
Organic waste treatment	Organic residues are processed closer to the source instead of being immediately transported to final disposal.	Reduced disposal burden and improved local waste handling.
Composting medium	Biodegradable materials are decomposed through biological processes under managed conditions.	Compost can support soil health and green spaces.
Educational facility	The facility makes waste processing visible to residents, students, and visitors.	Improved awareness of responsible consumption and waste separation.

Community participation tool	Residents and local actors are encouraged to separate waste and support the facility operation.	Stronger shared responsibility and environmental behavior.
Tourism support facility	Cleaner and better-managed community spaces improve the environmental quality of tourism destinations.	More sustainable image for local tourism and cultural areas.

Source: Author analysis based on field documentation, 2026.

D. Community empowerment and behavioral change

The success of Teba Modern depends strongly on community empowerment. A facility can be built in a short time, but a habit of separating waste requires repeated education and consistent social reinforcement. Community members need to understand which materials can enter the organic waste system and which materials should be handled separately. Without this understanding, the facility may face contamination and operational problems.

Household behavior is a key factor in zero waste participation. Research on urban household behavior in Indonesia indicates that participation in zero waste practices is influenced by knowledge, attitudes, perceived convenience, and social factors (Amir et al., 2025). This finding is relevant to Serangan because residents and market users will be more likely to support Teba Modern when the system is easy to understand and easy to access. Education should therefore be practical, visual, and repeated through community channels.

Community empowerment also requires local ownership. Residents are more likely to maintain a waste management facility when they see it as part of their own community identity. In a village context, this can be supported through customary institutions, local leaders, market managers, youth groups, and household representatives. Teba Modern can become stronger if these groups are involved in planning, operation, and monitoring.

The field visit showed that students and academic participants can help strengthen community empowerment through documentation and reflection. By observing the local facility, participants gained an understanding of how waste management operates outside formal classroom settings. This learning process can generate ideas for future community service, educational campaigns, and collaborative research. It also allows participants to appreciate local innovation rather than assuming that sustainability only comes from external technology.

From a social sustainability perspective, waste management should be inclusive and understandable. A system that is too technical may discourage community participation. Simple posters, color-coded containers, short demonstrations, and regular reminders can help residents identify organic waste correctly. These tools can reduce confusion and make source separation a normal part of daily life.

Community empowerment also involves recognizing the economic and environmental value of compost. Compost can support household plants, village greening, urban farming, and local landscaping. If the community can see visible benefits from compost, the motivation to separate

organic waste may increase. This creates a positive cycle between behavior, facility performance, and environmental outcomes.



Figure 5. Participants and local stakeholders during the field visit at the waste processing site
Source: Field documentation, 2026

E. Contribution to SDG 12 and sustainable tourism

The Teba Modern initiative directly supports the practical meaning of SDG 12 in a local community setting. SDG 12 is not only about industrial production or consumer behavior at the global level. It also includes daily decisions about how households, markets, institutions, and tourism actors manage resources and waste. In Serangan Village, separating and processing organic waste can become a concrete form of responsible consumption and production.

The Food Waste Index Report 2024 highlights that food waste remains a major global issue with environmental, social, and economic implications (United Nations Environment Programme, 2024b). This issue is relevant to tourism areas because food consumption is part of visitor activity and hospitality services. If food residues are not managed properly, tourism can increase organic waste pressure. Teba Modern offers a local response by providing a place where organic residues can be processed more responsibly.

The contribution of Teba Modern is also consistent with zero waste thinking. Zero waste management encourages waste prevention, resource recovery, system redesign, and community participation (Zaman, 2015). Although Teba Modern alone cannot create a zero waste village, it can become one component of a broader waste reduction strategy. The facility can help shift community practice from disposal toward recovery.

The activity also supports sustainable tourism because cleanliness and environmental quality influence the experience of visitors. Bali is not only a tourism destination but also a cultural landscape with temples, coastal areas, local markets, and community life. Waste mismanagement can damage the visual quality and ecological health of these spaces. Teba Modern therefore supports tourism indirectly by helping maintain a cleaner and more responsible destination environment.

The field documentation from cultural destinations helped participants understand that tourism sustainability depends on the relationship between cultural identity and environmental responsibility. Tourism sites may attract visitors because of beauty, spirituality, architecture, and local heritage. These values can be weakened if waste is not managed in surrounding communities. Sustainable tourism therefore requires both cultural preservation and ecological management.

Waste management also contributes to SDG 11 on sustainable cities and communities. Cleaner community spaces, better waste infrastructure, and improved local participation can strengthen the resilience of tourism villages. The activity contributes to SDG 4 because participants learned through direct observation and reflection. It also contributes to SDG 17 because the program involved collaboration among universities, local stakeholders, and community partners.



Figure 6. Bali cultural landscape as the broader context of sustainable tourism and environmental responsibility

Source: Field documentation, 2026.



Figure 7. Cultural destination visit during the SICS 2 Bali 2026 program, highlighting the relationship between tourism, local identity, and sustainability
Source: Field documentation, 2026

F. Challenges observed during the field activity

The first challenge is consistency of source separation. Organic waste processing will be more effective when households, market users, and local businesses separate organic waste before it is mixed with other materials. If plastic packaging, metal, glass, or other inorganic residues enter the organic stream, the facility operator must perform additional sorting. This can reduce efficiency and create frustration for the people who maintain the facility.

The second challenge is operational maintenance. Composting requires routine attention because unmanaged organic waste can create odor, attract pests, and become visually unpleasant. Operators need simple guidance on the type of materials accepted, the frequency of turning or mixing, moisture control, and the expected processing time. Without these routines, the facility may be seen as a waste pile rather than a managed composting system.

The third challenge is data availability. The field observation produced useful descriptive documentation, but it did not include measurement of daily waste volume, compost yield, contamination rate, or the number of participating households. The Waste Wise Cities Tool emphasizes the importance of measuring municipal solid waste performance through systematic data collection (United Nations Human Settlements Programme, 2021). Simple data can help Serangan evaluate whether Teba Modern is reducing organic waste and improving community participation.

The fourth challenge is long-term behavioral change. Initial enthusiasm may be high when a program is newly introduced, but participation can decline if there is no follow-up. Residents may return to old disposal habits when separation is inconvenient or when they do not receive feedback about the results. This challenge shows that waste management is not a one-time project. It requires continuous education and social reinforcement.

The fifth challenge is integration with tourism actors. Restaurants, small food sellers, accommodation providers, and visitors may contribute to organic waste generation. If tourism actors are not included in the system, the burden may remain on residents and market managers. Tourism-related businesses should therefore be encouraged to separate organic waste and support local composting initiatives. This would make environmental responsibility part of the tourism value chain.

The sixth challenge is ensuring that compost has a clear use. Composting will be more meaningful if the final compost can be used for village plants, community gardens, temple surroundings, public green areas, or educational demonstration plots. If compost accumulates without use, the community may lose motivation. Linking compost output with visible greening activities can strengthen trust in the system.

Table 4. Challenges and recommended improvement strategies

Challenge	Implication	Recommended strategy
Inconsistent source separation	Organic waste may be contaminated and difficult to process.	Use simple visual guidance and repeated community education.
Operational maintenance	Composting may create odor or lose community trust if unmanaged.	Prepare standard operating procedures for accepted materials, mixing, moisture, and cleaning.
Limited data	Program impact is difficult to evaluate and communicate.	Record daily organic waste input, contamination rate, compost output, and user participation.
Behavioral change	Participation may decline after the program ends.	Involve local leaders, youth groups, market managers, and community representatives in routine campaigns.
Tourism integration	Tourism actors may remain outside the waste management system.	Invite restaurants, sellers, and tourism facilities to support source separation and organic waste delivery.
Compost utilization	Compost may accumulate without clear benefit.	Use compost for village greening, public plants, community gardens, and educational plots.

Source: Author analysis based on field documentation, 2026

G. Recommended monitoring indicators for future programs

Future community service programs should include simple monitoring indicators. The purpose of monitoring is not to make the program complicated, but to help the community understand progress and identify problems. A small notebook, spreadsheet, or mobile form can record the amount of organic waste received each day. Data can also show whether contamination decreases after educational activities are conducted.

The first recommended indicator is the estimated weight or volume of organic waste entering Teba Modern. This information can show how much material is prevented from going directly to final disposal. The second indicator is contamination rate, which can be measured by estimating the amount of inorganic material found in the organic waste stream. The third indicator is compost output, which shows whether the process produces usable material.

The fourth indicator is participation. The community can record the number of households, market sellers, or institutions that separate organic waste consistently. The fifth indicator is compost utilization, which records where the compost is used and whether it supports local plants or public spaces. These indicators are simple, but they can help future articles present stronger evidence. They can also help village managers communicate the value of Teba Modern to partners and residents.

Monitoring should be combined with feedback. If the community records that contamination is high, education should focus on sorting instructions. If compost output is low, operators should review the material balance and process management. If participation is low, the village can identify barriers such as distance, lack of information, or limited facilities. In this way, monitoring becomes a tool for learning rather than only a reporting obligation.

Table 5. Suggested indicators for future monitoring of Teba Modern

Indicator	Simple measurement method	Use of data
Organic waste input	Daily or weekly estimate of sacks, buckets, or kilograms entering the facility.	Shows waste reduction potential and processing demand.
Contamination rate	Visual estimate of non-organic materials found in the organic waste stream.	Evaluates the quality of source separation.
Compost output	Estimate of compost produced after processing.	Shows the material recovery benefit.
Participation	Number of households, sellers, or institutions involved in source separation.	Shows community engagement and behavioral change.

Compost utilization	Documentation of where compost is applied.	Connects processing output with visible environmental benefit.
Education activity	Number of demonstrations, posters, or community reminders conducted.	Links awareness activities with participation and waste quality.

Source: Author analysis based on field documentation, 2026

H. Overall discussion

Overall, the field observation indicates that Teba Modern is valuable because it combines physical infrastructure, local practice, and educational meaning. The facility is not only a place to place organic waste. It is also a practical symbol that waste can be treated as a resource when the community has the knowledge and willingness to separate it. This symbolic value is important because sustainable behavior often begins with visible and understandable local examples.

The environmental benefit of Teba Modern can be strengthened when it is connected to a broader circular economy strategy. Kaza and colleagues explain that waste management must shift toward systems that reduce waste generation, increase recovery, and improve resource efficiency (Kaza et al., 2018). Teba Modern contributes to this shift by keeping organic material within a local cycle. However, the facility should be supported by reduction at source, separation infrastructure, and compost utilization.

The social benefit of Teba Modern is related to community empowerment. Environmental sustainability impacts of waste management practices in the Global South are strongly influenced by institutional capacity, public participation, and local environmental awareness (Abubakar et al., 2022). In Serangan, community participation can determine whether Teba Modern becomes a sustained practice or only a temporary project. Therefore, education and local ownership are as important as physical infrastructure.

The program also demonstrates the value of international community service as a learning platform. Participants were able to connect SDG concepts with field reality and understand that sustainability depends on local actors. This learning process can encourage students to design future research and community service activities that are more grounded in local needs. The activity therefore created educational outcomes for participants while also documenting a community practice that can be improved.

The relationship between tourism and waste management should become a stronger part of future discussion. Tourism can bring economic benefits, but it also increases pressure on local infrastructure. If waste management is weak, tourism can damage the very environmental quality that attracts visitors. Teba Modern can help tourism communities show that local environmental management is part of destination responsibility.

The most important lesson from the field activity is that sustainable waste management must be simple enough to be practiced daily. A system that is too complicated may not survive after the program ends. Teba Modern should therefore be supported with clear sorting rules, regular

maintenance, visible compost use, and simple data recording. These practical steps can help convert a good initiative into a sustained community habit.

IV. CONCLUSION

This community service article concludes that Teba Modern in Serangan Village, Bali, represents a relevant model for strengthening source-based organic waste management. The facility supports the treatment of biodegradable waste closer to its source and creates an opportunity to reduce the burden on final disposal systems. It also provides an educational space where residents, students, and stakeholders can understand the importance of separating organic waste. In this sense, Teba Modern is not only a technical facility but also a community empowerment medium.

The field observation conducted during SICS 2 Bali 2026 showed that organic waste management requires the integration of infrastructure, behavior, local leadership, and continuous education. Teba Modern can work effectively when organic waste is separated properly, when operators maintain the process regularly, and when compost output is connected to visible community benefits. The activity also showed that international community service can connect academic learning with local sustainability practice. This connection is important because SDG implementation requires direct engagement with communities.

The initiative contributes mainly to SDG 12 by encouraging responsible consumption and production through waste separation, composting, and resource recovery. The program also supports SDG 4 through experiential learning, SDG 11 through cleaner and more sustainable community spaces, and SDG 17 through collaboration among universities, local stakeholders, and community partners. These contributions show that a local waste management practice can be linked to broader development goals. The SDGs become more meaningful when they are implemented through practical community actions.

Future programs should strengthen Teba Modern through simple monitoring indicators, community education, and operational guidelines. Recommended indicators include organic waste input, contamination rate, compost output, number of participating users, and compost utilization. Future research should also include interviews with residents and operators, compost quality testing, and long-term monitoring of behavior change. With these improvements, Teba Modern can become a stronger model for source-based organic waste management in tourism-based communities.

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