

Preserving the Zero Waste Legacy: Banyumas and the Challenges of the Young Generation in Waste Management

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Abstract: *The zero waste concept is an important strategy in realizing sustainable and environmentally friendly waste management. Banyumas Regency is one of the regions in Indonesia that has begun to implement the zero waste principle through local government programs, community movements, and environmental education activities at the school and community levels. However, in its implementation, various challenges remain, especially in terms of the participation of the younger generation as the successors of this movement's legacy. Low environmental awareness, limited waste processing facilities, and the influence of a consumptive lifestyle are the main factors that hinder the creation of a zero waste culture among teenagers and students. This study aims to examine the role of Banyumas's younger generation in maintaining the zero waste legacy, analyze the obstacles faced, and formulate strategies to increase their active participation. The method used includes a literature review. The results of the study indicate that the younger generation has great potential as agents of change through creative innovations such as the use of social media for environmental campaigns, creative recycling activities, and the formation of waste awareness communities in schools and universities. To maintain the sustainability of the zero waste movement in Banyumas, synergy is needed between the government, educational institutions, and the community to create a participatory, educational, and sustainable waste management system.*

Keywords: *Zero waste, Banyumas, young generation, environment, waste management, sustainability*

Abstrak: Konsep zero waste menjadi salah satu strategi penting dalam mewujudkan pengelolaan sampah yang berkelanjutan dan ramah lingkungan. Kabupaten Banyumas merupakan salah satu daerah di Indonesia yang mulai menerapkan prinsip zero waste melalui program pemerintah daerah, gerakan komunitas, serta kegiatan edukasi lingkungan di tingkat sekolah dan masyarakat. Namun, dalam pelaksanaannya, masih terdapat berbagai tantangan yang dihadapi, terutama dalam hal partisipasi generasi muda sebagai penerus warisan gerakan ini. Rendahnya kesadaran lingkungan, keterbatasan fasilitas pengolahan sampah, serta pengaruh gaya hidup konsumtif menjadi faktor utama yang menghambat terciptanya budaya zero waste di kalangan remaja dan mahasiswa. Penelitian ini bertujuan untuk mengkaji peran generasi muda Banyumas dalam menjaga warisan zero waste, menganalisis hambatan yang dihadapi, serta merumuskan strategi untuk meningkatkan partisipasi aktif mereka. Metode yang digunakan meliputi studi literatur. Hasil penelitian menunjukkan bahwa generasi muda memiliki potensi besar sebagai agen perubahan melalui inovasi kreatif seperti penggunaan media sosial untuk kampanye lingkungan, kegiatan daur ulang kreatif, serta pembentukan komunitas peduli sampah di sekolah dan kampus. Untuk menjaga keberlanjutan gerakan zero waste di Banyumas, diperlukan sinergi

antara pemerintah, lembaga pendidikan, dan masyarakat guna menciptakan sistem pengelolaan sampah yang partisipatif, edukatif, dan berkelanjutan.

Kata kunci: Zero waste, Banyumas, generasi muda, lingkungan, pengelolaan sampah, keberlanjutan

Introduction

Waste management is one of the most pressing environmental challenges of the 21st century. Population growth, fast-paced consumption patterns, and reliance on single-use products have led to a year-on-year increase in waste volume. This situation not only creates hygiene issues but also impacts soil, water, and air pollution, contributing to the global climate crisis. In this context, the concept of *zero waste* has emerged as a strategic solution to reduce waste generation while encouraging behavioral changes toward a sustainable lifestyle.

Banyumas Regency is one of the regions in Indonesia that has begun implementing zero-waste principles through collaboration between the local government, educational institutions, and community groups. Various programs, such as waste banks, environmental education in schools, recycling activities, and plastic reduction campaigns, are concrete steps towards wiser waste management. However, the implementation of this concept still faces various obstacles, particularly in terms of engaging the younger generation. Yet, young people play a crucial role as agents of change, driving social and environmental transformation through innovation, creativity, and digital technology.

Low environmental awareness, limited waste management facilities, and the influence of a consumerist culture are the main factors hindering the sustainability of the zero-waste movement among youth and university students. Therefore, a comprehensive strategy is needed to strengthen the participation of the younger generation in preserving the zero-waste cultural heritage in Banyumas. Through synergy between the local government, educational institutions, and the community, it is hoped that a waste management system will emerge that is not only participatory and educational but also fosters moral and social awareness in accordance with the values of Pancasila and the objectives of *the Sustainable Development Goals* (SDGs).

This study aims to analyze the role of the young generation of Banyumas in maintaining the zero waste legacy, identifying the obstacles faced in its implementation, and formulating strategies to increase their active participation in creating sustainable waste management based on local wisdom values.

Research methods

This study employs a literature review with a descriptive qualitative approach, aiming to identify, evaluate, and integrate various scientific sources related to the topic of zero waste and youth involvement in waste management. This approach was chosen based on its suitability for exploring theoretical

understanding, real-world practices, and policies related to the implementation of the zero waste concept at the community level, particularly in Banyumas Regency.

The research process was carried out through three main steps. The first step was the systematic collection and selection of literature through academic databases such as Google Scholar, ScienceDirect, Portal Garuda, and Sinta Ristekdikti, as well as through publicly accessible sources such as the National Library of Indonesia Digital Library and publications from environmental organizations (WWF Indonesia, BebasSampah.ID). Keywords used in the search included: "zero waste", "sustainable waste management", "young generation and the environment", "Banyumas zero waste movement", and "the role of students in waste".

Criteria for literature inclusion included: (1) publications published within the last ten years to ensure current relevance; (2) focus on waste management, community participation, and environmental education; and (3) sources from scientific journal articles, books, proceedings, policy reports, or practical guides. One of the literature used was the Waste-Free Family Guidebook (Guru Belajar Foundation, 2025) which emphasizes the 7R principle (Rethink, Refuse, Reduce, Reuse, Repair, Rot, Recycle) as the basis for household lifestyle changes, as well as the work of Widiarti (2012) which discusses the independent implementation of the zero waste concept in households.

The second step is thematic content analysis, which is used to identify key themes in the literature, such as: (a) zero waste principles and practices at the household and community levels; (b) youth participation in driving environmental behavior change; and (c) challenges and collaborative strategies between government, communities, and educational institutions. This approach allows researchers not only to summarize but also to interpret the relationships between themes emerging in the literature.

The final step is the synthesis and interpretation of the results, where findings from various references are critically compiled to build a conceptual framework on how the younger generation in Banyumas can maintain zero-waste values as a local heritage and future innovation. The results of this synthesis are also linked to the values of Pancasila—especially mutual cooperation and social responsibility—and the Sustainable Development Goals (SDGs), specifically SDG 11 (Sustainable Cities and Human Settlements) and SDG 12 (Responsible Consumption and Production). Thus, this literature study method not only serves as a theoretical basis, but also as a tool to combine academic, social, and public policy perspectives in creating sustainable waste management in Banyumas Regency.

Research result

Based on literature research conducted, it was revealed that the zero waste concept has begun to be implemented in Banyumas Regency through various initiatives involving the local government, educational institutions, environmental communities, and citizen participation. The principle of a zero-waste lifestyle is

understood not only as a waste management strategy, but also as an ecological awareness rooted in local wisdom values. As explained in the Waste-Free Family Guidebook (Guru Belajar Foundation, 2025), a zero-waste lifestyle is more than just reducing waste, but rather building awareness about consumption, a sense of sufficiency, and responsibility towards nature. The 7R principle—Rethink, Refuse, Reduce, Reuse, Repair, Rot, and Recycle—is an important foundation in shaping more sustainable community behavior.

The implementation of zero waste in Banyumas is evident through various programs, such as waste banks, household composting, and eco-community movements in schools and universities. These initiatives align with research by Widiarti (2012), which highlights the importance of independent waste management at the household level through sorting, composting, and collecting salable items. This concept has been proven to reduce the volume of waste disposed of in landfills and also raise public awareness of the economic and ecological value of waste.

One crucial element for the success of the zero waste movement is the involvement of the younger generation as agents of change. Based on a literature review, university students in Banyumas actively contribute to environmental activities through social media campaigns, creative recycling projects, and the formation of environmentally conscious communities in schools and universities. This movement reflects the spirit of cooperation and social responsibility, which are manifestations of the values of Pancasila, particularly the Second and Fifth Principles. In this regard, environmental education serves as a strategic tool for instilling ecological ethics, social awareness, and sustainability awareness among young people.

However, the study also shows that the implementation of zero waste in Banyumas still faces several structural and cultural challenges. These challenges include low consistency in environmentally friendly practices, limited infrastructure for waste management, and the influence of a consumerist lifestyle resulting from modernization. As described by Widiarti (2012), changes in community behavior are often hampered by outdated mindsets that view waste as something to be discarded, not managed. This situation suggests the need for a comprehensive strategy to strengthen the role of education, technological innovation, and cross-sector collaboration so that the zero waste movement does not stop at just a ceremonial aspect.

Furthermore, efforts to maintain the sustainability of the zero waste movement in Banyumas are relevant to the achievement of the Sustainable Development Goals (SDGs), especially SDG 11 on Sustainable Cities and Human Settlements, SDG 12 on Responsible Consumption and Production, and SDG 13 on Climate Change Management. The implementation of zero waste principles not only strengthens the ecological dimension, but also the social and economic, through the establishment of a participatory and community-based waste

management system. Collaboration between the government, educational institutions, and environmental communities is key to creating a sustainable ecosystem that fosters a culture of environmental awareness among the younger generation.

Thus, this study confirms that the zero-waste movement in Banyumas is not merely a technical waste management agenda, but also a manifestation of moral, social, and national values. The younger generation plays a strategic role in preserving this heritage through innovation, ecological awareness, and a spirit of mutual cooperation, aligned with the values of Pancasila and the vision of sustainable development.

Discussion

Banyumas Regency has achieved remarkable success in waste management through the implementation of the Zero Waste to Landfill (ZWL) concept since 2018. Through collective efforts between the government, the public, local communities, and educational institutions, Banyumas has successfully managed approximately 98% of its waste to prevent it from ending up in landfills (Mongabay, 2024). This achievement reflects not only technical success but also social and cultural success in instilling a spirit of sustainability. However, this success cannot be celebrated forever without long-term planning. New challenges arising from modern developments, a consumer culture, and gaps in public awareness, especially among the younger generation, are the reasons why this discussion is crucial.

Zero waste is not just a slogan or a top-down program. It is a philosophy of life that encourages people to rethink what they consume, discard, and inherit. This concept requires the full involvement of all elements of society and cannot rely solely on government intervention. Therefore, Banyumas' success serves as an important inspiration that change can begin in communities, at home, and with young people with an innovative spirit. The younger generation, as agents of change with great potential, needs to be at the forefront of preserving, maintaining, and developing this heritage.

Furthermore, the values of Pancasila provide a strong ethical and ideological framework for bringing the zero waste spirit to life. The Second Principle, on Just and Civilized Humanity, conveys a strong message that protecting the environment is part of fighting for human rights, as a damaged environment will directly impact the quality of human life, especially for vulnerable groups. Similarly, the Fifth Principle, on Social Justice for All Indonesians, implies the importance of equal access to a healthy, clean, and decent environment. There should be no inequality, where some enjoy clean air and others must live near piles of garbage. Therefore, waste management must be part of the social justice agenda, and all citizens have an equal responsibility to make it happen (Koran Padang, 2025).

On the other hand, today's younger generation lives in a digital era, where everything is instant, and is exposed to a massive consumer culture. From online

shopping with plastic-coated packaging to fast fashion trends that generate textile waste, all of these contribute to the surge in waste volume. According to data from Indonesia Asri (2023), national waste production reached 68.5 million tons in 2023 and is expected to continue to increase. Ironically, only around 10-12% of the total waste is recycled. This means that most of the waste ends up in landfills or pollutes the environment. Therefore, the biggest challenge for the younger generation is not only the technical side of management, but rather changing the culture of consumption.

To address these challenges, the 7R principles can serve as both a practical and philosophical guide: Rethink, Refuse, Reduce, Reuse, Repair, Rot, and Recycle. This concept is not only relevant in the environmental field but also touches on spiritual and social values. Rethink and Refuse, for example, encourage us to rethink and reject the use of unnecessary items. This aligns with the teachings of frugal and simple living that have long been embedded in local cultures. Reduce and Reuse encourage us to reduce waste production and reuse items that are still usable, while Repair rekindles the spirit of repairing rather than throwing away. Rot teaches the importance of managing organic waste through composting, and Recycle encourages the reuse of waste to create new, useful products.

In the Banyumas context, the implementation of the 7Rs can be seen in the success of community programs such as waste banks, household composting, and the utilization of organic waste for maggots and inorganic waste for Refuse-Derived Fuel (RDF). These initiatives not only reduce the burden on landfills but also create economic value and strengthen community resilience. This is where the concept of zero waste intersects with the circular economy, which aims not only to reduce waste but also to create value from every waste produced.

Education plays a strategic role in creating an environmentally conscious generation. The Adiwiyata program, for example, serves not only as a formal means of educating students about the 3Rs but also as a platform for actualizing Pancasila values in a tangible way. At the university level, students have demonstrated that they are not only intellectual agents but also driving forces for social change. Waste-based innovations, such as processing banana peels into biodegradable plastic or utilizing onion peel waste for natural cosmetic products, are clear evidence that waste can become a new resource when managed with creativity and knowledge (Greeners, 2025).

However, all these efforts will not be optimal without a strong government support system. Political commitment in the form of funding allocation, environmentally friendly regional regulations, and institutional strengthening are essential. Banyumas has allocated approximately 6% of its regional budget (APBD) to the waste management sector, demonstrating that when there is political will, significant change can occur (Greeners, 2025). However, a report from the Indonesian Zero Waste Alliance (AZWI) emphasizes the importance of a comprehensive evaluation of existing governance. Weak institutions, lack of

regulatory enforcement, and technological limitations remain challenges that must be addressed.

Cross-sector collaboration is also the foundation for long-term success. Businesses, communities, academics, the media, and the government need to work together. Several companies have demonstrated positive steps by redesigning packaging for easier recycling and supporting the principles of Extended Producer Responsibility (EPR). Meanwhile, communities such as waste banks have demonstrated the effectiveness of grassroots approaches in supporting inclusive and sustainable waste management systems. All of this demonstrates that waste management is not just a technical matter, but also about building a social ecosystem that supports change.

The global context cannot be separated from this discussion. The concept of zero waste aligns closely with the Sustainable Development Goals (SDGs) agenda, particularly SDG 11 (Sustainable Cities and Human Settlements), SDG 12 (Responsible Consumption and Production), and SDG 13 (Addressing Climate Change). If Banyumas succeeds in reducing greenhouse gas emissions from the waste sector, it signifies that the region has taken part in national and international commitments to combat climate change (Mongabay, 2023).

Ultimately, the zero-waste movement in Banyumas reflects a society undergoing transformation—from a consumerist society to one that is reflective, critical, and environmentally responsible. This is a long-term struggle that requires more than just regulations and technology; it also requires social spirituality, collective awareness, and intergenerational leadership. The younger generation is the primary hope in this struggle. They not only inherit success but also bear the responsibility to correct shortcomings, add innovation, and build a more just and sustainable system.

Thus, Banyumas is not only a success story but also a moral call for other regions to follow its lead. Zero waste is not a final goal, but a long-term process toward a healthier, more civilized, and wiser society in its treatment of the earth. If this process continues to be maintained, developed, and passed on, Banyumas' legacy will not only be for today's generation but also for a brighter and greener future for the entire Indonesian nation.

Conclusion

The zero waste movement in Banyumas Regency is a concrete example of how environmental awareness can grow through cross-sector collaboration and the involvement of all levels of society. This effort focuses not only on waste management but also on developing a more sustainable mindset and lifestyle. By implementing the 7R principle (Rethink, Refuse, Reduce, Reuse, Repair, Rot, and Recycle), the public is encouraged to rethink their consumer habits, reject the use of single-use products, and reduce waste generation at the source. This approach

fosters awareness that environmental protection is not solely the government's responsibility but a shared responsibility.

In this context, Banyumas's youth play a strategic role as a driving force for social change. Through their creativity and innovative spirit, they have been able to create various inspiring programs and movements, such as recycling competitions, environmentally-themed digital campaigns, and the establishment of waste awareness communities in schools and universities. Furthermore, the use of social media has become an effective means of spreading ecological messages and raising public awareness of the importance of an environmentally friendly lifestyle. These efforts demonstrate that significant change can begin with small, consistent steps taken by concerned young individuals and groups.

However, the journey towards a zero-waste society is certainly not without various structural and cultural challenges. Many people still lack a thorough understanding of the negative impacts of waste on the environment, and the limited availability of modern waste management facilities prevents optimal waste management. Furthermore, the ever-increasing influence of consumerist lifestyles poses a significant obstacle to waste reduction. Therefore, the active role of local governments is needed to provide supportive policies, such as the development of waste banks, recycling facilities, and clear and firm regulations for household waste management.

On the other hand, environmental education needs to be strengthened from an early age through a school curriculum oriented towards sustainability values. Learning that is not only theoretical but also applied—for example, through cleanliness projects, urban farming, and school-based waste management—can shape students' character and empathize with nature. Integrating zero-waste principles with Pancasila values such as mutual cooperation, social justice, and moral responsibility is an important foundation in building a national character that cares about environmental sustainability. This is also in line with the Sustainable Development Goals (SDGs), particularly SDG 11 (Sustainable Cities and Human Settlements), SDG 12 (Responsible Consumption and Production), and SDG 13 (Addressing Climate Change).

The success of the zero-waste movement in Banyumas will ultimately depend on the synergy between policy, education, and public participation. The government can act as a facilitator and policymaker, educational institutions as centers of learning and innovation, and the community as the primary actors in daily behavioral change. With solid collaboration, it is hoped that a waste management system will emerge that is not only technically effective but also socially and culturally sustainable.

Overall, the zero-waste movement in Banyumas Regency reflects not only technical efforts to reduce waste but also a manifestation of moral awareness and shared responsibility for the preservation of the earth. Through a spirit of mutual cooperation, youth innovation, and support for equitable policies, Banyumas can

become an example of a region that has successfully implemented Pancasila values in addressing ecological challenges. Thus, the goal of realizing a clean, healthy, and sustainable society is not impossible, but rather a shared commitment to a better future for the earth.

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