



IPB University
— Bogor Indonesia —



SUSTAINABLE
DEVELOPMENT
GOALS



IPB UNIVERSITY
SUSTAINABILITY DEVELOPMENT GOALS
SDGs Report 2024



Book Titles:

SDGs Report 2024

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GLOSSARY

B

AQIMOS : Sistem Pemantauan Kualitas Udara IPB (Air Quality IPB Monitoring System).

D

DUI : Direktorat Umum dan Infrastruktur (Directorate of General Affairs and Infrastructure).

M

MBKM : Merdeka Belajar Kampus Merdeka (Independent Learning Independent Campus).

W

WWF : Dana Margasatwa Dunia (World Wildlife Fund).

Y

YPBB : Yaksa Pelestari Bumi Berkelanjutan (Yaksa, the Sustainable Earth Preserver)



Ensure sustainable consumption and production patterns



Learning Program



IPB University advances sustainability through its applied education programs, notably the **Bachelor of Applied Science in Environmental Engineering and Management** at the School of Vocational Studies. The program equips students with technical and managerial skills to design sustainable environmental systems and apply modern technologies in waste and water management. By combining engineering innovation with ethical professionalism, it fosters cleaner production and supports Indonesia's shift toward a circular, resource-efficient economy.

After highlighting the vocational-level contribution through the Environmental Engineering and Management program, IPB University further reinforces the same commitment at the undergraduate level. Within the Bachelor of Civil and Environmental Engineering, students learn through courses such as **Environmental Control Engineering, Liquid Waste Management Engineering, and Solid and Hazardous Waste Management Engineering (B3)**.



These subjects equip future engineers with the capacity to design sustainable infrastructure, manage waste efficiently, and develop cleaner production systems that reduce environmental impacts. In addition, the Communication and Community Development Studies program offers **the course Environmental Governance**, which empowers students to foster public awareness, promote behavioral change, and support policy advocacy for sustainable lifestyles.



The university also enhances responsible production and consumption standards through a **Seminar on Halal Certification for Culinary MSMEs**, helping local food businesses improve product quality and consumer trust. Through ElevateLocal, Vocational School students showcase and mentor MSMEs to implement responsible production models, promoting ethical entrepreneurship.



Ensure sustainable consumption and production patterns



Research and Innovation

IPB University continues to pioneer technologies that advance responsible production and environmental accountability. Leading this effort is the **Air Quality IPB Monitoring System (AQIMOS)**—a breakthrough innovation enabling real-time air quality monitoring within only 1.6 minutes, a major leap from the conventional 24-hour process. Developed by a cross-disciplinary research team, AQIMOS measures key pollutants such as PM2.5, PM10, CO, NO₂, SO₂, O₃, and hydrocarbons while also tracking weather parameters. Portable, solar-powered, and cost-efficient, this system supports faster and more transparent air quality management across regions and industries.



Complementing AQIMOS, IPB also developed the **Dustfall Canister**, an integrated device designed to both collect and filter airborne dust particles. Compact, lightweight, and locally producible, this tool simplifies the measurement and analysis of ambient air dustfall concentration—providing a faster, more practical, and affordable approach to environmental monitoring.

Building on these advances in sustainable technology, IPB University further promotes responsible production in the food industry through its flagship innovation, **Minyak Makan Merah (M3)**.



Developed through minimal refining without bleaching, M3 retains vital phytonutrients such as vitamins A and E, offering a more nutritious and environmentally friendly alternative to conventional cooking oil. Complementing this effort, IPB also advances applied research collaboration with industry partners through **the Indolivestock Research and Innovation Award 2024**, promoting technology transfer and quality improvement in the livestock and animal health sectors.

Research in Number



810

scholarly output
in 2020-2024



93

FWCI in
2020-2024



4538

citation count
in 2020-2024



15,27%

of all Indonesian
citation count



16,69%

of all Indonesian
scholarly output



Ensure sustainable consumption and production patterns

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Campus Operation

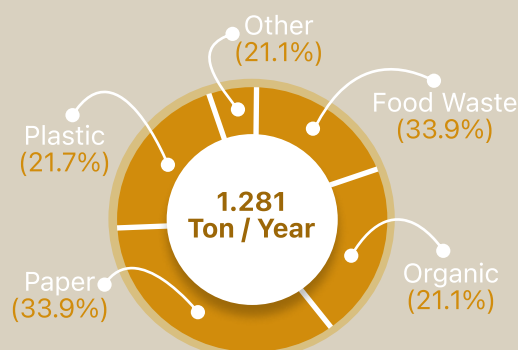


IPB University continues to lead sustainable innovation through **Taman Semangat**, a flagship living laboratory that embodies its zero-waste and circular economy vision. Within this hub, IPB integrates multiple green technologies that transform waste into valuable resources. The facility converts organic waste into compost within 24 hours using animal manure and dry leaves, while **two fuel-free eco-incinerators** process non-biodegradable waste such as plastics and styrofoam safely through a carbon-particle sprayer system that minimizes emissions and produces fine, non-pollutant ash.

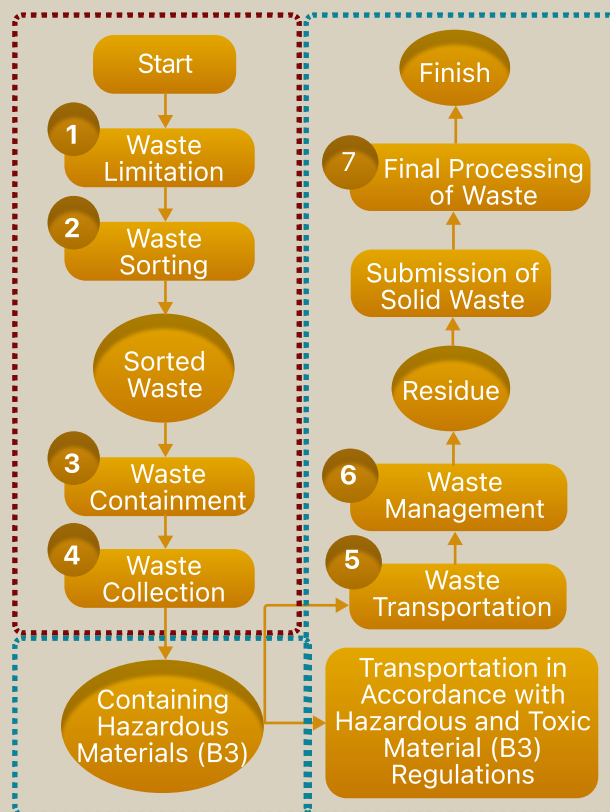


Complementing these efforts, the **Directorate of General Affairs and Infrastructure (DUI)** developed an innovation to recycle plastic waste into **eco-friendly paving blocks**. Each block is made from approximately 4.5 kg of plastic waste—including styrofoam and packaging materials—and molded using hydraulic technology for maximum strength and durability. In collaboration with the Faculty of Agricultural Technology, IPB continues refining this process to enhance product quality and support a circular economy. Through these integrated initiatives, IPB University showcases a comprehensive model for responsible waste management

Waste Composition in 2024



WASTE MANAGEMENT FLOW DIAGRAM





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Beyond these flagship innovations, IPB University has also strengthened its overall waste management system through a data-driven monitoring approach. All waste transport data are integrated into the IPB Sustainability Dashboard, enabling real-time tracking and carbon emission assessments. Portable wheel scales are used to accurately measure dump truck loads, optimizing efficiency and accountability.

In 2024, IPB generated around 3.5 tons of waste per day, equivalent to approximately 1,281 tons annually, or 0.12 kilograms per person per day—a figure lower than both national and global averages (0.156 kg/person/day at Itenas Bandung, 0.627 kg/person/day at UPI Padang, and 0.192 kg/person/day globally).



Bumi Berkelanjutan (YPBB) and the World Wildlife Fund (WWF). Comprising 12 students from various departments, the team conducted month-long programs in October 2024 focused on 3R principles—Reduce, Reuse, Recycle. Their key actions included a dialogue with the Directorate of Infrastructure, Dormitory Free Plastic Action, water station mapping, and digital campaigns to reshape student behavior toward sustainable consumption. Responding to national data showing 3.28 million tons of plastic waste in 2023, this project reinforces IPB University's community-driven commitment to reducing campus plastic waste and fostering environmental awareness among students.



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Community Engagement

IPB University continues to promote responsible consumption and production through collaboration with communities and active student involvement. Under Community Engagement, **the Training for Tofu Industry Wastewater Control** program assists local tofu industries in Bogor to manage liquid waste efficiently, enhancing production sustainability while protecting the environment. Meanwhile, students apply SDG 12 principles through entrepreneurial and community-focused initiatives. Furthermore, students launched **the Plastic Watch Project**, a campus-wide plastic reduction initiative funded by Yaksa Pelestari



PLASTIC WATCH
IPB UNIVERSITY





Ensure sustainable consumption and production patterns

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Student Activity



In the **MBKM Merdeka Entrepreneurship Program**, students from Jambi University successfully developed organic fertilizers from sheep and quail manure, transforming agricultural residues into valuable, eco-friendly products. Additionally, through the **SIGAP 2024** program, students from the Digital Communication and Media Vocational Program at IPB University educated the Jayaraksa community in Sukabumi on managing inorganic waste, including workshops that guided participants in converting waste into creative and marketable products.



Students act as agents of change. On January 19, 2024, 15 graduate students and faculty from the Tropical Marine Economics Program visited **SDN 03 Pagi** in Pulau Tidung, Thousand Islands, Jakarta, to educate elementary students on waste management and its impact on the marine environment, raising awareness about clean, sustainable coastal areas.



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"Technology and Ethics Unite for a Sustainable Earth."



SDGs Report 2024 : Supplementary Report