KIAT KEMITRAAN INDONESIA AUSTRALIA UNTUK INFRASTRUKTUR

Kementerian PPN/ Bappenas

Australian Government

EMISI

(Emissions Measurement to Improve Sanitation in Indonesia)

Why measure emissions from sanitation?

Wastewater is estimated to contribute approximately 5% of global methane emissions[1] as well as contributing to nitrous oxide emissions.[2] Methane and nitrous oxide are greenhouse gases (GHGs) with significant global warming potential, 28 and 265 times greater than carbon dioxide respectively. Better managed sanitation can help reduce emissions. Global estimates do not fully consider the impact of non-sewered sanitation systems prevalent in rapidly growing cities and rural areas in low-and middle-income countries such as Indonesia.

A 2022 study in the city of Kampala Uganda estimated that almost 50% of the city's GHG emissions were from sanitation.[3] In many countries, legislation is already in place to require utilities and other service providers to reduce emissions. Measuring emissions can support the basis for pathways to reduce sanitation's contribution to emissions and help provide access to climate financing mechanisms for the sector.

Indonesia has committed to reduce its wastewater emissions as part of its Nationally Determined Contributions (NDC).

Project objectives and timeframe

The long-term goal of EMISI is to reduce the Indonesian sanitation sector's GHG emissions through improved awareness and understanding of sanitation sector emissions and more effective management of sanitation services in Indonesia.

Objectives of EMISI are:

To develop methodologies to quantify GHG emissions from key sanitation technologies represented in Indonesia, generating a dataset for relevant emission factors and identifying potential reduction strategies.

To estimate national GHG emissions from the Indonesian sanitation sector under current conditions and future scenarios.

To engage key Government of Indonesia and selected global stakeholders to build an understanding of the emissions from the sanitation sector in Indonesia and evolve policies and wider action to minimise emissions.

The project will be implemented between July 2024 and February 2026.

Outcomes

EMISI will produce national estimates for sanitation sector emissions together with a replicable methodology for the ongoing direct measurement of greenhouse gas emissions in the sector. Relevant government stakeholders including the Ministry of Public Works and Housing (MPWH), the Ministry of Environment and Forestry (MoEF), and Bappenas, will participate, providing the foundation for target setting, policy development and technical guidelines to support emissions reduction. The project will also ensure Indonesian and global sanitation stakeholders, including the Intergovernmental Panel on Climate Change (IPCC), have access to improved evidence datasets, methods, and skills for better emissions benchmarking and management.

The EMISI partnership

EMISI is an initiative of the Ministry of Public Works and Housing, supported by the Australian Government, through KIAT – the Indonesia Australia Partnership for Infrastructure. It is delivered by a consortium of sanitation experts from Indonesia, Australia and the UK. The EMISI consortium includes University of Technology Sydney (UTS), Universitas Indonesia (UI), Centre for Regulation, Policy and Governance (CRPG), University of Leeds and University of New South Wales (UNSW). The consortium has significant long-term experience in field analysis of sanitation systems, GHG measurement, and legal and regulatory analysis.

For more information

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[1] Gutierrez, O., Duan, H., Wu, Z., & Sharma, K. (2022). Mechanisms, source, and factors that affect methane emissions (pp. 43–62). https://doi.org/10.2166/9781789060461_0043

[2] Vasilaki, V., Pijuan, M., Duan, H., & Katsou, E. (2022). Full-scale emission results (N2O and CH4) (pp. 133–166). https://doi.org/10.2166/9781789060461_0133

[3] Johnson, J., Zakaria, F., Nkurunziza, A. G., Way, C., Camargo-Valero, M. A., & Evans, B. (2022a). Whole-system analysis reveals high greenhouse-gas emissions from citywide sanitation in Kampala, Uganda. Communications Earth and Environment, 3(1). https://doi.org/10.1038/s43247-022-00413-w