WWM PILLARS

For years 2021 - 2024

Clean Air **Development**

The clean air development research pillar is focused on both mitigation and adaptation measures aimed at achieving and sustaining clean air for all. Its primary focus revolves around addressing issues related to ambient air pollution including its impact and monitoring

Sustainable Waste Management

The Sustainable Waste Management research pillar addresses critical issues related to solid waste problem, as well as promoting practices of waste reduction and recycling in the circular economy implementation, ensuring a cleaner and more

Resilient Water Management

The Resilient Water Management research pillar concentrates on ensuring the accessibility and affordability of drinking water, creating a reliable clean water infrastructure, managing wastewater efficiently, and anticipating notential climate-related uncertainties

WATER AND WASTE MANAGEMENT (WWM)

The Water and Waste Management (WWM) cluster primarily addresses environmental issues and their impact on the community and ecosystem. WWM is actively tackling waste and pollution issues, including water pollution, air pollution, and solid waste management. Additionally. resiliency, WWM also focuses on Water, Sanitation, and Hygiene (WASH) for all. Some of our ongoing projects include WASH in Humanitarian Response, Resilient Water Management through Nature-based Solutions, Climate Change and Air Pollution, Waste to Energy, Waste Minimisation, and Circular Economy initiatives.

Cluster on Website

Clean Air Development K-Hub







PARTNERS

WWM CLUSTER PROFILE 2021-2024









CLIENTS















Cluster Chair: Dr. Elisabeth Rianawati (elisabeth.rianawati@rdi.or.id)

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Our Researchers: Dr. Akino Midhany Tahir | Dr. Saut Sagala | Ir. Immanuel Tedja Jarjaya Dr. Agil Azizi Dr. Vandith Va Yoshua Situmorang Ahmad Daudsyah Imami, M.T. Firdha Laila Amalia | Nabila Safitri | Michael Hutahaean

Current Publication

The potential of Biogas in Energy Transition in Indonesia. In IOP Conference Series:

Go, Y. I., Kurniasa, M., Potapova-Crighton, O. A., Himayati, L., Kumar, J. (2020). Treading water in a savannah: The reality of water scarcity in East Sumba; Policy Brief No. 5 | July 2020.

Alberdi, H. A., Sagala, S. A., Wulandari, Y., Srajar, S. L., & Nugraha, D. (2018). Biogas imple mentation as waste management effort in Lembang Sub-district, West Bandung District. In IOP Conference Series: Earth and Environmental Science (Vol. 158, No. 1, p. 012031). IOP Publishing.

Humaira, S., Rianawati, E., Sagala, S., & Sasongko, M. A. (2018). Preferences mapping of household biodigester in Bandung. In IOP Conference Series: Earth and Environmental Science (Vol. 158, No. 1, p. 012032). IOP Publishing.

Rianawati, E., Pratama, A., & Ardhanareswari, A. (2018). Water Management Strategy for Resilience: an Option for Climate Change Adaptation in Indonesia. Disaster Risk Reduction in Indonesia: Environmental, Social and Cultural Aspects, 119.

Pratama, A., Rianawati, E., Sagala, S. (2016). Resilience Perspective of Water Management in Indonesia. International Conference on Water Security and Climate Changes and Opportunities in Asia.

Energy Resilient Village Potential: Lessons Learned from Renewable Energy of Livestock Waste in Boyolali, Indonesia. In 3rd Planocosmo International Conference, Bandung, Indonesia.

Sagala, S. A., & Luo, P. (2015). Overview of Jakarta water-related environmental challenges. United Nations University Institute for the Advanced Study of Sustainability. Water and Urban Initiative Working Paper Series Number 04 - April 2015.

Wijaya, N. Sagala, S., Pratama, A., & Lubis, W. (2015), Vulnerability of Community on Water Supply and Sanitation Under Climate-Related Disasters in Urban Coastal Area: A Case Study of Semarang City, Indonesia; Joint International Conference of The 3rd PlanoCosmo & The 10th SSMS.

ROAD MAP

Our vision is to enhance research in environmental sustainability such as water, waste, and air quality management is outlined in our roadmap. We aim to delve deeper into water accessibility, municipal solid waste, and air pollution issues with the ultimate goal of enhancing resilience and sustainability.

Sustainable Waste Management

- 1. Mapping solid waste management actors
- 2. Identifying the potential of waste to energy for reducing solid waste in landfill
- 3. Analysing waste management implications on environmental health

Resilient Water Management

- 1. Exploring the potential of Nature-based Solutions (NbS) for water security
- 2. Understanding the significance of potential climate impact on water
- 3. Meeting basic WASH needs in emergency and recovery context Clean Air Development
- 1. Knowledge management of reducing air pollution
- 2. Identifying Community behaviour in reducing air pollution

Sustainable Waste Management

- 1. Integrating inclusive society in solid waste management
- 2. Identifying untreated solid waste over land and water bodies waste in landfills

Resilient Water Management

- 1. Strengthening water security through water-saving practices (including Nature-based Solution intervention)
- 2. Analysing the emerging contaminants in water resources and options for their removal

Clean Air Development

2021

1. Assessing policy intervention to reduce air pollution

Sustainable Waste Management

1. Increasing public awareness of specific solid waste (e.g. hazardous wastes, hazardous materials contained wastes, disaster-generated wastes, construction and demolition wastes, unprocessable wastes due to availability of technology and non-periodical generated wastes, e-waste)

2022

- 2. Analysing the effect of improper solid waste disposal on the ecosystem and health
- 3. Establishing solid waste management by enhancing reuse and recycling in the circular economy system

Resilient Water Management

- 1. Exploring opportunities for water reuse and recycling
- 2. Developing pathways to inclusive, safe, adequate, and affordable WASH access

Clean Air Development

- 1. Enhancing air quality for human health
- 2. Studying ecological impact

Sustainable Waste Management

- 1. Sustainable management and efficient use of natural resources for reducing solid waste generation
- Cross-sector and multi-stakeholder collaboration for sustainable solid waste management (source - segregation - collection - treatment - disposal), including finance and policy

Resilient Water Management

- Conceptualising hydro-socio-ecological relationship to enable more integrated and inclusive water management planning
- 2. Identifying Policy and incentives for developing universal access to water and sanitation

Clean Air Development

- 1. Economic incentive approaches to air pollution control
- 2. Integrating health and air quality considerations into various sectors









- Tetra Tech CCBO (2023) Trash Collection and Transportation Efficiency Analysis in Makassar
- C40 Cities (2023) Jakarta Air Quality Monitoring Plan & Transport Analysis Project
- NIES (2022-2023) Study of Flood Waste and River Waste in Jakarta
- iDE Global (2022-2023) CSmart: "A Study on Environmental Pollution Caused by Plastic Used In The Agriculture Sector" and "A Market Study On Plastic Mulching Film And Plastic Bags" in Cambodia
- Tetra Tech CCBO (2022) Women and Solid Waste Management in Semarang
- SATU Joint Research Scheme (2021) Urban Hydrometeorological Disaster Risk Reduction with Nature-based Solutions in Indonesia Planning and Design
- RDI x APEC (2021) Workshop on Community-Based Waste to Energy Management
- Kurita Water and Environment Foundation (2019) Stakeholder Acceptance Behavior of Infiltration Well and Rainwater Harvesting System as Runoff Water Management in Bandung City
- SNV (2017) Climate Vulnerability and Resilience Assessment of WASH infrastructure in Bandar Lampung, Tasikmalaya and Metro City