Typology of Solid Waste Management in Malang Raya, Indonesia

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Typology analysis uses cluster analysis to group variables into smaller groups of variables. The typology survey data of the solid waste recycling facilities was obtained in a qualitative form, therefore the data was codified. This study aims to analyze the typology of solid waste management in Malang Raya, technically and non-technically. Data collection consists of eight operational technical aspects. Types of treated waste include only composted SW, only non composted SW, or a combination of the two. The processing methods include composting only, non composting only, non composting and plastic waste, composting and non composting, and Integrated Solid Waste Treatment Facility (TPST). Management agents include the city/district, self-help, or a combination of the two. The processing capacity includes <1 ton/day, 1-5 tons/day, 6-10 tons/day, >10 tons/day. Capital costs include own costs, grants, a combination of own costs and grants. Operational and maintenance costs include turnover of operating results or operational and maintenance funds. Profits include making or not producing financial benefits. Financial management includes a customer savings system and direct sales or direct sales. Collecting data on non-technical aspects of operations includes the location of solid waste recycling facilities, vision and mission, organizational structure, main tasks and functions, number of personnel, standard operating procedures, regional regulations on solid waste and regional spatial planning, history and institutional, operational and maintenance, and management strategies. The results of the analysis found 18 solid waste recycling facilities. According to the dendogram analysis at the beginning of the grouping, 8 clusters were formed. In case the similarities are large, the groups will be merged into one new group. The next stage (replaced distance=5) formed 6 clusters/groups. Cluster 1 includes Mojosari Solid Waste Bank and Pesanggrahan Solid Waste Bank. Cluster 2 is Malang Solid Waste Bank. Cluster 3 includes Muria Composting Unit, Asahan Composting Unit, Polowijen Composting Unit, Sawojajar Composting Unit, Supiturang Composting Unit, Jatimulyo Composting Unit, Narotama Composting Unit, VEDC Composting Unit, Pandanwangi Composting Unit, Manyar Composting Unit. Cluster 4 includes Tlogomas UDPK, Velodrom UDPK, Gadang UDPK. Cluster 5 includes Pandanrejo TPS 3R. Cluster 6 is Mulyoagung TPST which is found as the best cluster.

Keywords: Malang Raya region, Solid waste recycling facilities, Typology analysis.
**Biography:**

Dr. Hardianto is currently a lecturer at National Institute of Technology Malang, Indonesia, born in Trenggalek on Januari 1st, 1972. He is certified in Environmental Engineering field as a lecturer since 2000.

He has bachelor’s degree in Environmental Engineering, National Institute of Technology Malang, Indonesia (1998), Master’s degree (2008), and Doctor’s degree (2016) of Environmental Engineering in Sepuluh Nopember Institute of Technology Surabaya, Indonesia.

Dr. Hardianto shows an interest in solid waste management.

The international journals published were *Municipal Solid Waste Recycling Facilities in Malang Raya, Indonesia* (ARPN Journal, 2016) and *Potential and Environmental Impact of Integrated Waste Treatment Site Management* in Malang District (IJTS, 2017).
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**Letter of Invitation**

Dear Authors: **Dr. Hardianto**  
*(National Institute of Technology Malang, Indonesia)*

We are pleased to inform you that your abstract, entitled:  

**Typology of Solid Waste Management in Malang Raya, Indonesia**

has been reviewed and accepted to be presented at *6th Go Green Summit & Awareness on Climate Change International Conference to be held on 1st – 2nd July 2020 (Wednesday and Thursday, start from 09.00 till 16.00)* in Santika Premiere Hotel, Jalan Letjen Sutoyo no. 79, Malang 65141, Indonesia. Formerly, the venue was going to be held at Swiss Bell Hotel Rainforest Bali, Indonesia on 20th – 21st March 2020 and was postponed due to Covid 19.

We cordially invite you to attend our International Conference and present your research described in the abstract as a speaker.

Please submit your power points or slides before the deadlines.

Thank you.

Best regards,

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