UNIVERSITI TEKNOLOGI MARA

URBAN METABOLISM FOR AREAS IN GREATER KUALA LUMPUR (KL) / KLANG VALLEY (KV) SPECIFICALLY IN KAJANG, PUTRAJAYA AND SEPANG USING MATERIAL FLOW ANALYSIS (MFA)

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Project paper submitted in partial fulfillment of the requirements for the degree of
Bachelor in Environmental Health and Safety (Hons.)

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Declaration by Student

Project entitled Urban Metabolism for Areas in Greater Kuala Lumpur (KL) / Klang Valley (KV) Specifically Kajang, Putrajaya and Sepang Using Material Flow Analysis (MFA) is a presentation of my original research work. Wherever contributions of other are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Miss Farah Ayuni bt Shafie as Project Supervisor and Dr. K. Subramaniam as Co-Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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Introduction: Urbanization is an activity to promote growth of economy, however urbanization pose some negative impacts towards society and environment thus lead to conurbation of cities to lower the congestion and overcrowding the city. The objective is to estimate and compare environmental impacts of the cities in Greater Kuala Lumpur/Klang Valley specifically Kajang, Sepang, and Putrajaya by using Material Flow Analysis (MFA).

Methodology: By using MFA, input flow of electricity usage, water usage, food consumption, and output flow of carbon dioxide emission, wastewater production and solid waste were assessed and analyzed. Primary and secondary data from governmental and private agencies were gathered, and any national data obtained were downscaled into kg/capita/day.

Results: Only water usage had significant difference among three districts, while electrical and food consumption is not significantly different. Kajang is the highest contributor of environmental impacts, followed by Sepang, and Putrajaya. Between Aveiro and Greater KL/KV, the latter has the higher water usage efficiency, higher solid waste production and lower carbon dioxide emission.

Conclusion: 0.188 koe/cap/day of energy will emit 0.455 kg/cap/day of carbon dioxide, out of 236.1 kg/cap/day of water usage, 95.3% came out as wastewater, and solid waste is way much higher than food and drinks consumption, assuming that it came from wastage of food, by products of food production and food wrappings.

Keywords: *urban metabolism, material flow analysis, input and outputs, sustainable development*