

琉球大学学術リポジトリ

バングラディッシュ・ダッカ市の環境的挑戦

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Abstract

Title: Environmental challenges in Dhaka City, Bangladesh.

In this thesis, we have developed a theory that there is an environmental hazard in Dhaka city. Dhaka is situated at 23°42' 58"N 90°23'46"E on the eastern bank of the Buriganga River. Rapid growth and urbanization has led to an increased number of vehicles and more movement between cities in Bangladesh. Road asphalt is produced at temperatures 20 to 46°C and temperature use bitumen emulsion. Most of the trips (about 60%) in Dhaka city are made on foot. Authenticity, the facilities providing for the pedestrians are inadequate so that pedestrian feels discomfort and searching for alternative ways. One of them is waste dumping beside the road. The current condition of waste management in Dhaka is a clear manifestation of poor sanitation in less developed nations. Primary and secondary data were collected for the thesis. Primary data were collected by the different experiment sets, sampling methods, questioners and from different sources like, Japanese Satellite, Online data source etc. Secondary data was collected through various books, reports, journals and articles, such as JAICA, Ministry of Environment and Forest (MOEF), Dhaka City Corporation (DCC) reports and different waste management plants in Japan. Data collection methods included document/literature review, semi-structured interviews, checklists and observation. We have done different types of analysis. Some data were tested at the laboratories and other data analyzed by the software like, Microsoft word, Excel, GIS, ACHICAD 18 computer software, Urban Co-benefits Evaluation Tools and statistical tools etc. First and second experiment we have seen, the road surface temperature can be reached 60°C which directly affects passenger body temperature, the main source of heat stroke in humans. The road surface temperature in a densely inhabited area was higher than that in a low-density area. Most vehicles are inefficient, so carbon and heat emissions are higher in traffic lanes. The air temperature and humidity on the highway reflected a variation in air temperature (5 °C) and humidity (25%), depending on location, traffic congestion and population density. Traffic congestion is high because of heavy pedestrian flows on the footpath and the main street. Simulated highway plan could reduce the pedestrian flows from the street. The final experiment found that wastewater from Dhaka city contained a diverse array of chemicals including toxic and non-toxic heavy metals, nitrates, phosphates, sodium (Na⁺), potassium (K⁺), sodium sulphate (SO₄²⁻), Calcium (Ca²⁺), chloride (Cl) and harmful polyaromatic hydrocarbons. The level of contamination was detected to exceed the World Health Organization (WHO) permissible limit in all areas. The study found that 90% waste collection rate and High tech solid waste incinerator plan could produce per day 262.125MWelectricity and potentially reduce totally 2.375 million tons GHG emissions per year and safe the water level.

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