

## Possible Number of Dwelling Units Using Waste Plastic Bottle for Construction

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**Abstract :** Unlike other metro cities of India, Bhubaneswar—the capital city of Odisha, is expected to reach 1-million-mark population by now. The demands of dwelling unit requirement mostly among urban poor belonging to Economically Weaker section (EWS) and Low Income groups (LIG) is becoming a challenge due to high housing cost and rents. As a matter of fact, it's also noted that, with increase in population, the solid waste generation also increases subsequently affecting the environment due to inefficiency in collection of waste by local government bodies. Methods of utilizing Solid Waste - especially in form of Plastic bottles, Glass bottles and Metal cans (PGM) are now widely used as an alternative material for construction of low-cost building by Non-Government Organizations (NGOs) in developing countries like India to help the urban poor afford a shelter. The application of disposed plastic bottle used in construction of single dwelling significantly reduces the overall cost of construction to as much as 14% compared to traditional construction material. Therefore, considering its cost-benefit result, it's possible to provide housing to EWS and LIGs at an affordable price. In this paper, we estimated the quantity of plastic bottles generated in Bhubaneswar which further helped to estimate the possible number of single dwelling unit that can be constructed on yearly basis so as to refrain from further housing shortage. The estimation results will be practically used for planning and managing low-cost housing business by local government and NGOs.

**Keywords :** construction, dwelling unit, plastic bottle, solid waste generation, groups

**Conference Title :** ICSAUD 2015 : International Conference on Sustainable Architecture and Urban Design

**Conference Location :** Kyoto, Japan

**Conference Dates :** November 12-13, 2015