

## **ABSTRACT**

Solid Waste Management (SWM) is increasingly becoming a critical issue for municipal authorities in Pakistan. Federal and Provincial governments are supportive of local efforts to improve management of solid waste but this is essentially a municipal function and it is at this level that challenges have to be addressed. The Management of Solid Waste is often the single largest activity that a municipality undertakes, and the effectiveness with which it carries out this role is perceived as a reliable measure of its effectiveness in providing services to its citizens. Walled city has population of 238,228. The total waste generation per year is 65,331 tons at the rate of 0.75 kg/person/day. At present 77% of the solid waste is collected and disposed at Saggian dumpsite, while 23% uncollected waste directly disposed in drains and open circular sewer. Illegal and dangerous practice of burning of solid waste is continuing unchecked in the city causing health hazards by considerable increase in the environmental pollution. Usually scavengers, gardeners, addicts and sanitary workers are involved in unfortunate daily routine burning of the waste. Gap analysis was also carried out in solid waste management system. There is a need to develop and implement clear integrated sustainable waste management plans for upgrading solid waste facilities and systems in the long term. Alternate options were suggested according to the Integrated Sustainable Solid Waste Management (ISSWM) plan. Solid waste management options suggested in this study include door to door waste collection, heuristic routing for SWM fleet and primary haulage of the waste by 55 CNG mini tippers. Nine waste enclosures were also suggested in accordance with waste catchment areas. It was calculated that 22,623 tons of recyclable waste/year generated in walled city can earn revenue of Rs. 166 million per annum. 13,116 tons/year compost can be produced from 43,720 tons/year of organic waste having revenue potential of Rs. 65.6 million per annum. 11,717 tons/year Refuse Derived Fuel (RDF) can be produced from 58,583 tons/year of the combustible solid waste. Power generation plant (3 MW capacity) can use RDF to generate electricity at the rate of 34,090 Kwh per day. Currently 65,331 tons/year solid waste is openly dumped at Saggian site, having potential to emit 1.91 Gg/year CH (38,200 tons CO eq/year) based on walled city waste component. Additional revenue can be earned through the carbon credits (CDM) under Kyoto Protocol.