

Abstract

Hebron is an industrial governorate in the south of Palestine, and industries are concentrated in Hebron City. The idea of this study launched due to the lack of studies that evaluate status of industrial solid waste management in the governorate. This study presents the current status of industrial solid waste management in Hebron governorate and the opportunities for the application of cleaner production principles. Two surveys were conducted, one on localities level which represent 16 municipalities and one local council and the other on factories level which represent 91 factories. The localities survey aimed firstly to examine the current industrial solid waste management (ISWM) practices in terms of collection and transferring, temporal storage, and (treatment, processing, and final disposal), and secondly to assess level of services provided by localities for ISWM. The factories survey aimed firstly to examine the current ISWM practices on factories level in terms of ISW generation, temporal storage, collection and transferring, and (treatment, processing, and final disposal), and secondly to estimate quantities of ISW, and thirdly to identify the opportunities of practicing cleaner production (CP).

The results revealed the fact that ISW has been treated as MSW from sources to final disposal in the study area. Community container collection system is the main common practice used in the solid waste collection and storage, the percent of collecting solid wastes from the factories was 100%. There were no special containers for ISW in the study area, excluding six factories in Hebron city; but 100% of municipality's laborers who are responsible for collecting and transferring waste from containers to Yatta dumpsite. 52.94% of localities have problems in collecting and transferring ISW from factories.

The outcomes of the mean generation rates of ISW produced from factories was ordered from highest to lowest rate as: 719.38 kg/day from metals industries, 200 kg/day from paper and

printing industries, 166.64 kg/day from food and beverage industries, 127.14 kg/day from plastic industries, 39.4 kg/day from chemicals industries, and 20 kg/day from textile industries. In terms of ISW quantities; metals, papers, plastic, plants are the most common wastes resulted in the survey. Steel and plastic containers, which account for 36% for each of all temporal storage facilities, are the commonest method of ISW storage. Localities vehicles and trucks account for 52% of the means of transferring solid waste to the final disposal.

It was found that 21 out of 91 factories always treat SW after collection and before final disposal, 83.33% of them treat their waste by recycle and 16.67% by separation. 51.65% of factories produce a mixture of process and non-process ISW, the average rate of non-process ISW was 23.22 kg/day. Only 8.4% of factories always separate process ISW from non-process ISW. 85.7% of factories don't separate their ISW into specific components.

It is found that 66.3% of factories respondents said that they adopt an integrated preventive environment strategy. 23.1% of respondent heard about CPP. It is found that 13.6% of factories reuse and 16.5% recycle ISW as intra-industry reuse and recycle. 77.3% of the recyclable materials used as raw materials, and 22.7% of them use as an initial materials help in production. The study revealed that inter-industry reuse of paper recycling is practiced in recycling plant in Al-Khderah.

The outcomes of ISWM indicators are as follows: TSI is moderate (80.2%), CTI is good (90.1%), TFDI is good (81.3%), and CPI is good (97.8%), and SSI is good (39.6%), moderate (40.7%), and bad (19.8). The outcomes of cleaner production obstacles indicators are as follows: POCPI is strong (86.8%), FOCPI is strong (89%), TOCPI is strong (85.7%), and AOCPI is strong (83.5%). The outcomes of all cleaner production obstacles indicators are strong; all of them over 80%.

Finally, the study recommends imposing laws and policies to regulate the relations between all institutions involved in industrial solid waste management sector in order to create an integrated system for the industrial solid waste management.

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