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SEPARATE COLLECTION OF MUNICIPAL SOLID WASTE AND FATE OF THE RESIDUAL UNSORTED FRACTION: A SCENARIO ANALYSIS

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Abstract

Three scenarios for the management of Municipal Solid Waste (MSW) produced in the study area of Bari (Southern Italy) were defined and evaluated in terms of separately collected material and fate of the residual fraction. The first scenario represented the bring points MSW separate collection system in the current configuration with a collection rate approx. 40%. The second scenario considered the study area in the optimal configuration, with a percentage of separate collection > 80% obtained through a door-to-door system. In both scenarios, the residual/unsorted fraction of MSW was destined for conventional mechanical-biological treatment. The third scenario was an intermediate one, with a separate collection percentage equal to the legal limit (65%); the residual/unsorted fraction of MSW was destined in a Secondary Raw Material Recovery (SRMR) plant. As described in the contribution, the SRMR plant can potentially produce Secondary Recovered Fuel (SRF), homogeneous sorted waste (PET, HDPE, PP, LDPE, ferrous materials, non-ferrous materials and mixed paper) and stabilized organic fraction to be landfilled. By means of mass balances that quantify the collected fractions, scenario 3 proved to be the most promising; the amount of potentially obtainable material was higher than that of the other two scenarios. With reference only to this aspect, the study shows how the optimal configuration for a large metropolitan area is not always the one with the highest percentage of separate collection. As the incoming waste to SRMR plant contains organic, the potentially recoverable homogeneous fractions could be of low quality, resulting in decreased economic quotation or market demand. This aspect needs to be further investigated together with a more accurate economic feasibility analysis.

Keywords: boost selection, bring points, door-to-door, mass balance, mechanical-biological treatments

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