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Designing a framework for municipal solid waste management towards sustainability in emerging-economy countries - an application to a case study in Belo Horizonte (Brazil)

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ABSTRACT:

A sustainable municipal solid waste management (MSWM) system is recognized by Agenda 21 as an opportunity for cities for creating decent jobs, raising incentives for responsible consumption, and protecting the natural environment. However, according to our experience for many stakeholders and decision-makers in Belo Horizonte, Brazil, the principles for sustainability defined by the Bruntland Commission are far too abstract. They are not readily applicable to establish a sustainable MSWM system. Even though Brazilian cities are strongly being influenced by concepts developed in high-income countries to search for strategic policies and long-term action plans for MSWM, many decisions-makers have not paid much attention to an overall sustainability approach so far. Against this backdrop, the present paper introduces the municipal solid waste diagram (MSWD) as a comprehensive framework for assessing the current state of a MSWM system against a future sustainable one. The normative foundation of MSWD is the Integrative Concept of Sustainability (ICoS), which contrasts the conventional approach of sustainability which typically characterizes a sustainable future along the three dimensions of economy, environment and society. ICoS points out crucial documents for sustainable development (e.g., Brundtland report and Agenda 21), and moreover, it does not neglect the potential of the capability approach. By this, the dynamic interrelationship between the abovementioned dimensions is taken into account. Another characteristic of the MSWD is the strong involvement of stakeholders, experts, and decision-makers during the construction and application of that instrument. Their central task was to certify the relevance,

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