

Chapter Three - Best Available Technologies (BAT) for WtE in Developing Countries

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ABSTRACT

This chapter analyzes the best available technologies (BAT) for waste to energy (WtE) for the developing countries (DCs) in Latin America, Asia, and Africa. A general overview of WtE commercialized technologies is presented (biological and thermal treatments), as well as the general situation of the market in the DCs of each region (local manufacturers, availability of the equipment locally information regarding equipment origin). As shown in this chapter, the technology most commercialized is biogas and biomethane (in some cases), in almost all DCs analyzed here. This is because thermal treatment technologies still face economic challenges, since investment costs are high, mainly in the case of incineration process. This is due to the gas cleaning process to fulfill environmental standards regarding heavy metals, dioxins, and furans emissions. Moreover, there is discussion on the most adequate thermal treatment process considering the amount of municipal solid waste (MSW) available and the size of the plant. Regarding political issues, as discussed previously in [Diaz-Chavez and Coelho \(2017\)](#), solid waste management is one of the most politically visible urban services but it does not receive much attention from governments in the DCs. The management of MSW is essentially view as an environmental problem that requires attention to protect public health and resolves the problem of collection an, treatment and deposit. In many DCs, it is also an important source for economy and jobs, particularly for the poor who live in large urban centers although it may also create major public health risks. Different studies have focused on the use of waste for energy production with different applications. Nevertheless, as [Nuss et al. \(2012\)](#) point out, in the future, the waste containing carbon should not only be used just for energy production, but also to recycle material considering a circular economy with larger benefits in terms of climate change because of landfill diversion. In addition, [Diaz-Chavez and Coelho \(2017\)](#) indicate “the circular economy for avoidance of waste to landfill may be probably one of the major contributors to make a better efficient use of resources and energy and reduce environmental impacts significantly.” This should be the focus in the DCs and emerging economies.

Keywords

Municipal solid waste; Energy conversion;Technologies;Biodigestion
Incineration;Gasification;Latin America;Asia;Africa

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