

Many journals ask the processing fee at the beginning of the submission only and do not allow the article to be processed for peer review unless the money is paid. Many ask for it once the article is accepted for publication. There are variable fee structures on the basis of type of article, its length, colour pages, etc. There is also the provision of waiver of publication charges in some journals. For example, Hindawi Publication provides an automatic waiver of article processing charges to authors based in any of the countries classified by the World Bank as low-income economies or lower-middle-income economies as of July 2016, and which have a 2015 gross domestic product of less than US\$ 200 billion.

The charges are often levied upon authors on the grounds of making their research more visible, where the readers need not pay for access to the articles. This ensures wide readability of the published material and also assures more citations if it is made freely available. There are two important trends emerging from this practice of charging the authors. The first is that it has allowed a number of predatory journals to line up by considering this exercise as a profitable avenue<sup>3,4</sup>. Secondly, and more importantly, it has restricted many genuine but self-financed researchers to publish their unique observation reports, case stories, hypotheses and view points for want of money in good journals. This raises a question against the very basic

concept of science and its spirit. We may be moving towards a publication hegemony, where power (money) and not merit decides what is going to get published.

1. Seethapathy, G. S., Santosh Kumar, J. U. and Hareesha, A. S., *Curr. Sci.*, 2016, **111**(11), 1759–1764.
2. Kozak, M. and Hartley, J., *J. Assoc. Inf. Sci.*, 2013, **64**(12), 2591–2594.
3. Beall, J., *Nature*, 2012, **489**(7415), 179.
4. Lakhotia, S. C., *Curr. Sci.*, 2015, **108**(8), 1407–1408.

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## Municipal solid waste management in Thailand

Due to rapid urbanization, municipal solid waste (MSW) management is now one of the major environmental challenges around the world. In Thailand about 73,560 tonnes/day of MSW was produced in 2015, i.e. approximately 1.13 kg/person/day (ref. 1). The existing treatment technologies have already been struggling to manage MSW, for example, biological conversion technology, incineration technology, sanitary landfill or recycling<sup>1</sup>. Due to several advantages associated with MSW management, thermal treatment (waste incinerator) is being used in Thailand. However, incineration plants are expensive to build, operate and maintain<sup>2</sup>. The gases are cleaned and emitted in environmentally friendly way but, the flue gas contains dioxins and furans, polycyclic aromatic hydrocarbons, volatile organic compounds, acid gases, heavy metals and other harmful substances after the incineration process<sup>3</sup>. Furthermore, as MSW is dumped in untreated form, the environment becomes contaminated<sup>3</sup>. By-products from the incinerator such as bottom ash (BA), fly ash (FA) and flue gas desulphurization residue (FGDR) are utilized for road construction and similar

purposes<sup>4</sup>. However, there is a possibility that the contaminants will leach out and pollute the soils, surface water and groundwater<sup>4</sup>. Heavy metals in BA and FA are mostly concentrated in the residues during the incineration process<sup>4,5</sup>. The incineration process can be used to produce electricity for nearby buildings or municipalities<sup>6</sup>, but requires large volumes of waste.

If the incineration plant is not properly managed, MSW does not disappear, but produces more toxic waste. This will further increase the potential health hazard. What is the way forward?

In order to protect the environment, Thailand has put in place environmental regulations and policies. The zero waste campaign for recycling and waste reduction must be considered to reduce the overall waste; this must also include composting organic waste. Furthermore, the incineration technology can be used, where appropriate, as part of a sustainable waste management and energy system. Every municipality or regional government must decide whether the advantages outweigh the disadvantages. The environmental feasibility of using the incineration technology must be

assessed to better understand the environmental and economic feasibility with regard to resource use.

1. National Report (in Thai), Pollution Control Department, Ministry of Natural Resources and Environment of Thailand, Government of Thailand, National Bureau of Statistics of Thailand, 2016.
2. Pirlone, F. and Candia, S., *Tema. J. Land Use, Mobility Environ.*, 2016, **9**(2), 209–225.
3. Sivula, L., Characterisation and treatment of waste incineration bottom ash and leachate. Ph D thesis, University of Jyväskylä, Finland, 2012.
4. Phoungthong, K., Zhang, H., Shao, L. M. and He, P. J., *Chemosphere*, 2016, **146**, 547–554.
5. Phoungthong, K., Xia, Y., Zhang, H., Shao, L. M. and He, P. J., *Front. Environ. Sci. Eng.*, 2016, **10**(2), 399–411.
6. Fazeli, A., Bakhtvar, F., Jahanshaloo, L., Sidik, N. A. C. and Bayat, A. E., *Renew. Sustain. Energy Rev.*, 2016, **58**, 1007–1016.

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