Editorial

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A few weeks ago, on September 29, the International Day of Awareness of Food Loss and Waste achieved significant publicity in many areas of the world. This day has been designated by the United Nations and its Food and Agriculture Organization (FAO) to promote global efforts for sustainable consumption and production of food and stimulate action from governments, local authorities, businesses and each and every one of us against food wastage. This comes in line with the global effort to achieve the Sustainable Development Goal (SDG) 12.3 – that is, to halve per capita global food waste at the retail and consumer levels and reduce food loss along production and supply chains (including post-harvest losses) by 2030.

Globally, a staggering quantity of food is wasted. It is estimated that around 14% of food produced is lost between harvest and retail, while an estimated 17% of total global food production is wasted from retail to the fork, with final consumption accounting for most of this waste (FAO, 2021). In the recently published *Food Waste Index Report 2021* (UNEP, 2021) it is estimated that 931 million tons of food waste are generated annually from retailers, households and the food service industry, of which nearly 570 million tons occur at the household level. Of course, these numbers are exactly what they are stated to be: estimates. Despite the increasing number of studies and body of research (Van Der Werf and Gilliland, 2017), primary data remain limited and mainly confined in a small number of developed countries and are obtained by highly diverse methods of acquisition that are not directly comparable. In some areas of the world, such as the EU, this is expected to improve, as countries have the legal obligation to specifically submit national reports on food waste generation by food supply chain stage, starting from 2022 for the 2020 reference year. This will not improve our estimates for other parts of the world with different socio-economic characteristics or just different food consumption attitudes.

However, what is more important is that globally a wide variety of stakeholders are undertaking initiatives and actions to reduce food waste that can be avoided, donate surplus food to those in need and find better and higher-value uses for the inedible parts of foodstuffs (Abeliotis *et al.*, 2019; Giamouri *et al.*, 2021; PaBlack *et al.*, 2021; Schinkel, 2019; Wong *et al.*, 2020).

Still, for quite some time and despite its significant impacts on climate, a large fraction of food waste, pretreated or not, will continue to be landfilled. The pragmatic target in this case is to operate landfills in a manner that minimises methane emissions to the atmosphere. The concept and practice of bioreactor landfills, equipped with methane-capture systems, may prove valuable for this purpose, as the first paper of this issue, by Tesseme and Chakma (2021), demonstrates. In many cases, non-source-separated food wastes are pretreated aerobically to reduce organic matter, and therefore methane generation potential, prior to landfilling. However, significant methane quantities are still produced in the landfill. Using flushing bioreactor technology, through the addition of large quantities of water, has been shown to accelerate the biowaste stabilisation process and lower landfill emissions, but it comes at the expense of fresh water, which is also a limited resource in many areas. The authors examined the flushing bioreactor landfill concept using wastewater instead of freshwater, in a pilot-scale study of lysimeter landfills in New Delhi, India. The addition of wastewater to the pretreated biowaste facilitated the onset of methanogenesis and resulted in significantly reduced values of leachate contaminants after 270 days of treatment compared to the control. Results indicated that feeding with wastewater may have multiple benefits for enhancing the biodegradation processes of pretreated waste in bioreactor landfills.

The second paper of the issue, by Zhuang *et al.* (2021), addresses a very different challenge of the circular economy transition effort, that of recovering construction and demolition waste (CDW), and especially their most difficult-to-separate

fractions, through the development of an advanced multi-sensor fusion method for the visual detection of CDW. The accuracy of the proposed method, when running on a central processing unit (CPU), was demonstrated to exceed 90%, while its detection efficiency could reach 25 000 CDW items per hour. Such values meet actual engineering requirements and can provide fine-resolution detection of difficult-to-separate CDW in real-life projects.

I hope you will find both papers stimulating and informative.

As I am coming to the end of my appointment as Editor and Chair of the Editorial Panel of *Waste and Resource Management*, I would like to warmly thank all members of the panel and the publishing office for their excellent and productive collaboration and great support to the journal. As a result, over recent years the journal has become stronger, with a steady inflow of high-quality papers, many of which achieve good citation records.

As a journal in the *Proceedings of the Institution of Civil Engineers* suite, *Waste and Resource Management* has a twofold aim: to highlight results of original research and to showcase practitioner papers, in all aspects related to the waste and resource industry and the transition to a circular economy, covering issues of civil to social engineering.

A significant contribution to the advances in the field is provided through themed issues and review papers. Any suggestions for future themes and reviews would be gladly received. As knowledge and good practice examples evolve fast, the journal offers a quicker access to fresh content in 'Ahead of Print' articles on its Virtual Library homepage.

Closing, we would like to address an open invitation to young, qualified researchers to join the journal Editorial Panel. Interested candidates may send their CV to the journal office in application.

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