Investing in waste infrastructure for sustainability benefits

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Abstract

Solid waste management is a cornerstone of EU environment policy, and a key aspect of the transition to a more sustainable circular economy. Waste management principles require that waste is managed without endangering human health, harming the environment, causing nuisance through noise or odours, adversely affecting the countryside or places of special interest, but being an integral part of resource management by turning wastes into a resource. This is central to a circular economy, where waste is eliminated and resources are used in an efficient and sustainable way. Member states of the European Union (EU) are bound by the EC Landfill Directive (99/31/EC) to reduce the amount of biodegradable municipal waste (BMW) sent to landfill to 35% of 1995 levels. For example, the EU budget, mainly through the Structural Funds and the Cohesion Fund, has been providing considerable funding for infrastructure projects aimed at delivering the main objectives set out in the Landfill Directive (99/31/EC) and the Waste Framework Directive (2008/98/EC), with most of the efforts concentrated in the new or less advanced member states.

Planning for waste infrastructure, requires understanding of waste management needs in the long-term, and delivering an investment plan as a function of an integrated and coherent national and European strategy coupled with the need to recovering resources rather than just dealing with waste. Although waste infrastructure has to be delivered in order for member states to comply with the EU directives, a waste management strategy should ultimately deliver sustainability benefits rather than simply meet regulatory requirements. For example, evidence shows local authorities commonly seeking for the most cost-effective treatment option for their collected waste. Often collection and in some cases exportation of processed waste, currently the cheapest option, is preferred to investing in innovation and change that delivers environmentally sustainable treatment options, materials and energy recovery while at the same time reduction of waste. This is mainly down to regulations becoming the endpoint, and therefore a strategy the most cost effective way of getting there.

The Waste Hierarchy lays down a priority order of what constitutes the best overall environmental option in waste legislation and policy. Nonetheless in some cases departing from such a hierarchy may not be a problem but necessity. In those cases, technical feasibility, economic viability and environmental protection are some of the reasons that life cycle analysis (LCA) demonstrates sustainability benefits. For example, LCA often highlights the needs for understanding and optimising potential benefits of waste management options in light of both energy policy (incentives, need etc.) and market instability for recyclates (i.e. so there are options available for diversion when markets fail).

This paper presents the need for a more systematic and informed approach in assessing waste infrastructure requirements based on aspirational targets and a coherent basis of the state of the art of existing infrastructure. What is needed in practice is an overall assessment of the whole system under a holistic approach. The full range of environmental impacts of waste management systems need to be evaluated at a whole life cycle terms, in order to improve processes, support policy and provide a sound basis for informed waste management decisions. In depth understanding of waste generation in terms of arisings and composition, in order to inform not on treatment options for getting it out of mind but for treatment options that aim to deliver the best possible output that can be fed back to the economy, is also critical.

Keywords: regional infrastructure, waste composition, treatment capacity, sustainability, LCA, holistic