



Better Health. Better Environment. Sustainable Choices.

Fact sheet 11

Contaminated sites and waste

Towards a circular economy

Summary

The health impacts of past and present waste disposal activities, including those for hazardous waste, are currently unclear but can be substantial. There exist hundreds of thousands of contaminated sites in Europe, with many incidents of documented human direct exposure to a variety of noxious agents. It does not need to be so: prevention of waste production and clean processing cycles can be seen as opportunities to minimize impacts and support sustainability, through a transition towards a circular economy.



Overview

Waste-related activities are a sizeable proportion of all activities at reported contaminated sites in European Environment Agency (EEA) member countries. Management of waste is a demanding and challenging undertaking in all European countries, with important implications for human health and well-being, environmental preservation, sustainability and economy. A clear strategic direction and strong EU legislation have resulted in marked progress in several countries. However, in many cases, informal, uncontrolled or poorly managed practices and old technologies have been known to produce adverse human health impacts, for example, with documented increases of cancer risk, congenital anomalies, and respiratory disease. In addition, less severe health and well-being outcomes are obviously relevant, such as annoyance due to odour, or a general deterioration of local environments. An overall estimate of these impacts is not available; exploratory work suggests that annoyance may outweigh the other effects in terms of burden of disease – but data are sparse and uncertainty is significant.

Key messages

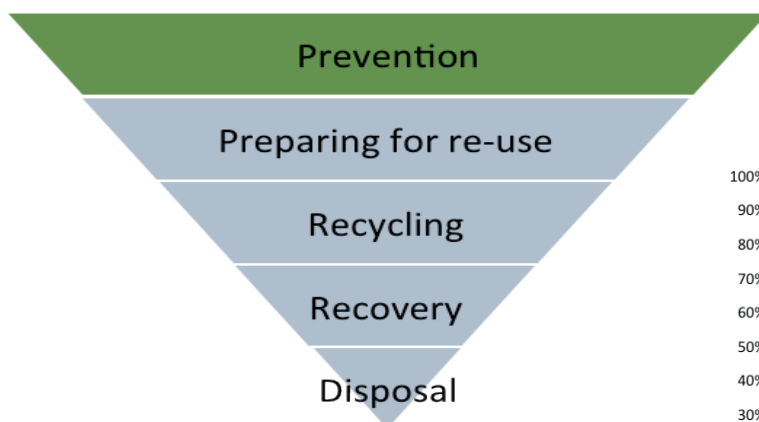
Waste and contaminated sites are important public health issues, with a marked variability between countries: while the largest health impacts are likely to occur where old technologies are deployed, the waste industry has made progress in some countries in minimizing emissions and it has become a profitable enterprise. This progress, and adherence to the strategic direction of the EU, cannot only be adopted by other countries to reduce impacts, but also contributes to long-term sustainability and fulfilling some key targets under SDG 12 – Responsible consumption and production. This includes, for for example, Target 12.5, which states: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Some points of importance include:

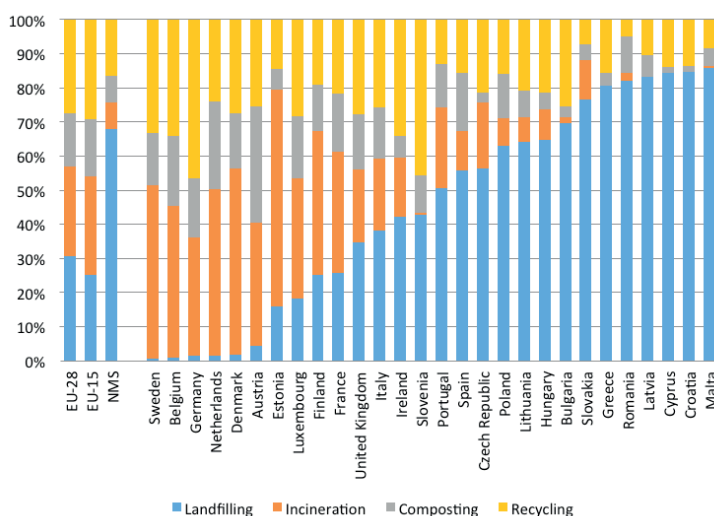
- ▶ In terms of public health, informal or uncontrolled waste processing practices, still prevalent in some countries and involving direct acute exposure, should be urgently eradicated. In general, the most contaminated sites should be identified and remediated as a matter of urgency.
- ▶ Modern technologies for waste collection, processing and disposal should be deployed where possible – this will greatly contain impacts and contribute to sustainability.
- ▶ Despite the efficiency of modern technologies, priority should be given to a reduction in waste production and an increase in reuse and recycling, in line with the so-called EU waste hierarchy (see Fig. 1). This will benefit health and sustainability.
- ▶ Further progress in this direction can be made through a rapid transition towards a circular economy. It is essential, however, to prevent adverse health consequences from being inadvertently introduced, for example, through the recycling of materials containing toxic agents.

Figure 1: The EU ‘waste hierarchy’



Source: WHO Regional Office for Europe, 2016

Figure 2: Types of waste disposal in EU countries



Source: Derived from: Environmental Data Centre on Waste [website]. Luxembourg: Eurostat; 2016 (<http://ec.europa.eu/eurostat/web/waste/data>, accessed 10 June 2016).

Key facts

- ▶ In 2013, per capita waste production in the EU ranged from 272 kg/year in Romania to 747 in Denmark. Overall production decreased by 7% between 2004 and 2013.
- ▶ There are large differences in distribution by type of processing (see Fig. 2). A significant use of landfills as a main means of waste disposal (over 65% of total waste) occurs in countries that more recently joined the EU.
- ▶ Different studies estimate that approximately 2–6% of the population are affected by waste-related exposures.
- ▶ The population living in proximity to waste disposal plants tends to be more deprived than the general population.



- ▶ An excess risk of cancer, respiratory disease and adverse reproductive outcomes has been found in people living near landfills and old-generation incinerators; however, the evidence is not conclusive. Air emissions of CO₂ and air pollutants have measurable health impacts, costing between €4–63 per ton of disposed waste, depending on the technology used.
- ▶ Waste and hazardous waste account for about one-quarter of the approximate 350 000 contaminated sites in EEA countries. This number is expected to grow.
- ▶ A lack of systematic data from non-EU countries makes it difficult to develop a pan-European assessment and direct the necessary efforts, expertise and resources towards countries that could make improvements.

“Best buys”

- ▶ Thanks to substantial investments over the years, in several countries – for example, Austria, Germany and the Netherlands – waste collection, processing and final disposal have developed into an organized and well-monitored system, giving rise to a profitable industry. Given the low emissions from modern facilities, impacts on human health are minimized. Separate collection, reuse, recycling, and the phasing out of landfilling also improve sustainability.
- ▶ Progress has also occurred in tackling informal practices in some countries. Different initiatives have been undertaken to improve the status of informal waste collectors (IWCs) in southeast WHO European Member States, such as Serbia, through collaboration between international governmental organizations, national governments, the civil sector and recycling businesses. Examples of collaboration include: the formalization of work through the establishment of cooperatives, trade unions, and employment in public utility companies; the distribution of equipment, protective clothes and trainings for occupational safety and business development; and support on social issues, such as health care, education and child labor.
- ▶ Italy is one of a few countries that has a permanent system (the Italian SENTIERI project) for the epidemiological surveillance of the health of people living near large industrial facilities and contaminated sites. Mortality and morbidity from relevant causes, selected a priori on the basis of available scientific evidence, are periodically analysed and publicly reported.

Figure 3: Industrial sources of pollution are often found in densely populated areas



Source: WHO Image Library

Figure 4: Landfilling operations



Source: WHO Image Library



Policy implications/recommendations

Eradicate uncontrolled and illegal waste disposal and trafficking in affected countries by:

- ▶ Conducting and compiling national assessments of the extent of these activities and their likely exposures.
- ▶ Increasing public awareness of the importance of safe waste disposal and responsible consumption through, for example, educational initiatives addressing children and youth and targeted communications.
- ▶ Enhancing the collaboration with, and support for, the judicial system to identify and prosecute those responsible for the illegal and criminal management, disposal and trafficking of waste, especially hazardous waste.

Prevent and eliminate potential adverse health impacts from waste and contaminated sites by:

- ▶ Identifying priority sites for remediation or phasing out activities (based on negative health impacts), beginning with national inventories of landfills, obsolete waste facilities and industrially contaminated sites.
- ▶ Ensuring that residual landfills are safely operated, in line with best available technologies (BAT).
- ▶ Promoting the engagement of the health sector in the development of policies related to waste management at the national and sub-national level.
- ▶ Enhancing capacities at the national and sub-national level to assess impacts and manage health risks related to waste and contaminated sites.
- ▶ Ensuring that no 'exporting' of hazardous waste takes place from rich to poor countries, for example, with e-waste.

Key references

Environmental Data Centre on Waste [website]. Luxembourg: Eurostat; 2016 (<http://ec.europa.eu/eurostat/web/waste/data>, accessed 10 June 2016).

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Industrially Contaminated Sites and Health Network (ICSHNet, COST Action IS1408). Rapporti ISTISAN. Rome, Italy: Istituto Superiore di Sanità; 2016. (http://www.iss.it/binary/publ/cont/16_27_web.pdf)

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