

Activity 2.2.4

GUIDELINES

for Developing a Mediterranean Framework Directive in the Field of Urban Solid Waste Management



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GUIDELINES FOR DEVELOPING A MEDITERRANEAN FRAMEWORK DIRECTIVE IN THE FIELD OF URBAN SOLID WASTE MANAGEMENT

BACKGROUND

Urban solid waste is a major worldwide problem. Its improper storage and treatment can result in health, safety, environmental and even economic problems. As such, its proper collection, management and treatment are of paramount importance. Humans have been burying or open burning their solid waste for thousands of years, but this simply cannot continue.

The main driver for establishing proper solid waste management is sustainability and the circular economy concept. According to the European Union Waste Framework Directive (WFD) in 2008, "The first objective of any waste policy should be to minimize the negative effects of the generation and management of solid waste on human health and the environment. Waste policy should also aim at reducing the use of resources and favor the practical application of the waste hierarchy"¹.

This document provides general guidelines for the establishment of a Mediterranean Framework Directive (MFD). The MFD itself is not included here, nor is its preparation. These guidelines rely on a number of international guidelines and standards, such as the aforementioned EU WFD, the UN Guidelines for Framework Legislation for Integrated Waste Management² and on available information from the Israeli Ministry of Environmental Protection (IMEP) website³, in addition to other sources.

SOLID WASTE MANAGEMENT

Good solid waste management generally starts with the three R hierarchy, namely, Reduce, Reuse and Recycle, a well-known concept in the resource efficiency. That, as noted on the Global Development Research Center (GRDC) website, "helps us 'return' materials and resources to the lifecycle of a product, ensuring that we use less energy and produce less waste/pollution and emissions"⁴. It essentially aims to set up a sound material-cycle society within the concept of a circular economy, where "consumption of natural resources is minimized, and the environmental load is reduced, as much as possible"⁵.

The IMEP notes on its website that "Reduction at the source is the simplest and least expensive method of reducing the amount of solid waste buried in Israel's landfills" and that it is "at the top of the waste treatment hierarchy, because from an environmental point of view, the best treatment for waste is its prevention"⁶.

¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098>

² <https://www.unep.org/resources/report/guidelines-framework-legislation-integrated-waste-management>

³ https://www.gov.il/en/Departments/Guides/waste_treatment_hierarchy

⁴ <https://www.gdrc.org/uem/waste/more-3r.html>

⁵ <https://www.gdrc.org/uem/waste/3r-index.html>

⁶ https://www.gov.il/en/Departments/Guides/waste_treatment_hierarchy?chapterIndex=1



The IMEP has expanded this hierarchy to include Recover and Landfill, making it a five-level waste management hierarchy, which any WFD must address. According to the IMEP, this involves "reducing waste at the source, reuse of materials, recycling, energy recovery, and landfilling", in that order of importance. This hierarchy matches that of the European Commission of "Prevention → Reuse → Recycling → Recovery → Disposal", from the most favorable to the least.

Is this, however, enough? The answer, as evident in the actions of many countries, is a strong No! The recent approach is to move economies to become more "circular", and adopt the R approach, including the additional Recover and Refuse. Resource recovery optimizes waste treatment allowing it to be converted for a specific purpose, either to generate energy, or to create valuable products as new outputs. Refuse is the first step in the 5-R hierarchy, and entails refusing to buy wasteful or non-recyclable products.

Circular economy is restorative, meaning that organics safely re-enter the biosphere, and products of high quality are recovered. A related term is circulative resources, which are resources that can be extracted from waste materials, to be recirculated through the economy, via such processes as reduction, recycling or recovery.

The main aim of a successful WFD is finding ways that waste can be diverted from release into the environment while providing for economic development, that in turn enhances social development to reinforce good environmental management within a supportive governance framework, according to the UN Guidelines document. To be successful, the directive and the program must, by definition, involve individuals, households, manufacturers, big grocers, importers, local governments, and even national governments.

The WFD should "break the link between economic growth and the environmental impacts associated with the generation of waste"⁷, according to a joint paper prepared by the Environmental Coalition on Standards (ECOS), the European Environmental Bureau and others.

THE DECOST PROJECT

DECOST, an acronym from Decentralized Composting in Small Towns, is a project funded by the European Union under the ENI CBC Med program.

Municipal solid waste management, one of the major environmental challenges for the Mediterranean area, is directly affected by population growth and concentration, urbanization and tourism. The DECOST project has developed a new framework of waste management, building a closed-loop system of organic waste valorization, integrating decentralized home and community composting systems with urban agriculture⁸.

⁷ <https://ecostandard.org/wp-content/uploads/2022/07/ECOS-Joint-paper-Recommendations-on-Waste-prevention-targets-July-2022.pdf>

⁸ <https://www.enicbmed.eu/projects/decost>



Under DECOST, Integrated Municipal Solid Waste Management Plans and waste recycling pilot initiatives are implemented at four locations: Al-Sarow, Jordan; Tulkarem, Palestine; Venosa, Italy; and Vic, Spain. At the fifth location, the municipality of Shefa-Amr, Israel, a Replicability & Transferability (R&T) Plan is prepared to demonstrate how the concept of decentralized composting can be replicated and transferred to other small towns

In addition to diverting significant amounts of organic waste from landfills, the DECOST project fosters food security and accessibility, as a result of these urban agriculture initiatives. Individuals, households, commerce and industry will be encouraged to adopt sustainable behaviors through IT tools and big data analysis.

The implementation locations obviously vary in terms of characteristics, considerations, zoning by-laws, regulations, logistics and requirements, as do other locations in the Mediterranean, and around the world. Still, these guidelines provide a general framework for practically all locations.

GENERAL GUIDELINES

The following paragraphs outline the main considerations that require attention while preparing a WFD for Mediterranean countries. The considerations are presented in point form, and described in broad terms, not in depth, but in sufficient detail to enable their understanding and implementation.

- Establish the **purpose(s)** of the directive, such as protecting the environment, public health, safety, comfort, convenience, and the general welfare of people.
- Base the MFD on the **principles** of sustainable development, environmental justice, and the circular economy.
- Set the MFD as a **waste strategy** to encompass responsibility, content, consultation, environmental protection, infrastructure requirements, waste management hierarchy, and information collection and sharing.
- Set reasonable yet realistic and enforceable **policy targets** for the separation of biological waste and composting. In Greece, for example, the law requires that, by 2015, the percentage of separate collection of biological waste should be at least 5% of their total weight, and by 2020, at least 10% of their total weight.
- Emphasize and the links to **job creation** and **community participation**.
- Establish a list of applicable **definitions**, as comprehensive, clear and precise as possible. This list may rely on available lists from around the world, edited and customized to fit the local situation and conditions. Cities will obviously choose specific definitions appropriate for their communities, in addition to the general definitions. Examples of definitions to include are Composting; Compost



facility; Compost site, whether Backyard or Small or other; Food scraps; Mixed Municipal Solid Waste; Organic material; Recycling; Source-separated Organics; Yard waste.

- Identify the **target groups** for the directive, and consider addressing varying groups in separate directive sections, as relevant to each group. These groups include individuals, households, large grocers, big catering kitchens, commercial entities, hotels; wholesale food vendors.
- Include a mechanism for identifying main **stakeholders**, such as the ARENA analysis. Stakeholders include municipalities; regional and national governments; different ministries, in particular the Ministry of Environmental Protection (MoEP) and the Ministry of Agriculture and Rural Development; landfill site operators; inspection and enforcement units, such as the Green Police within the MoEP; environmental consultants; packaging and recycling companies; cattle, sheep and chicken owners.
- Ensure the MFD covers various **relevant aspects**, such as the social, economic, technological, political and administrative/managerial aspects. The social aspect involves waste minimization, educational measures, school involvements; the economic aspect involves waste recycling; the technological aspect involves waste disposal, collection, and treatment; and the political and administrative/managerial aspects cut across all the three issues of minimization, recycling and disposal.
- Include measures to combat **climate change** and to prevent or reduce the emission of **greenhouse gases** and ensure optimal treatment of waste. A key component of greenhouse gas emissions, according to the Justice Ministry in Israel, is the organic waste that originates from municipal waste. Estimates by the MoEP show that only about a third of this organic waste gets treated, and the waste treatment products are of poor quality and do not allow for their practical use.
- Require the examination of the economic viability of proposed measures and options, through a standardized **Benefit/Cost analysis** and business plans, as applicable.
- Give adequate and serious consideration to **Geographic Information Systems (GIS)** and their potential to be a helpful tool throughout the process. This can be expanded to include a spatial analysis to identify optimal locations for composting facilities, which entails considerations for specific beneficiaries, neighborhoods, number of commercial places, number of inhabitants, optimal routes of collection, optimal radii of compost sites, etc.
- Establish reasonable yet firm requirements for the **locations** of compost sites. These requirements should specify where composting sites are allowed, and how far they must be from properties and dwellings, as well as what measures must be in place to prevent seepage into streets, storm sewers, basins, lakes, groundwater and surface water. For example, in the state of Minnesota in the USA, no compost container may be located closer than five (5) feet, about 1.5 m, to any rear or side property line, or closer than twenty (20) feet, or 6.0 m, to any residential dwelling. Also, no



compost activities may be conducted within twenty (20) feet of any body of water or area designated as flood plain, shoreland or protected wetland.

- Identify available measures and **approaches**, depending on the target groups. Measures can be "soft", focusing on consumers, such as awareness raising and campaigning, or "strong" and binding, focusing for example on waste generators, such as levies and penalties.
- Identify the **types of waste** that are generated in the target area, typically the municipal area, and the related breakdown percentages. Here, clear and relevant definitions (see above) are critical. This includes plastics bags, containers and bottles; packing materials such as paper, carton, cardboard; organic or wet leftovers; metals, and others.
- Include a section on organic waste, and identify the available approaches for its treatment, including composting, be it home, community, commercial composting or other.
- Set clear and identifiable **targets**, using the SMART criteria (specific, measurable, assignable, realistic and time-related).
- Tackle **waste prevention** both quantitatively, by reducing the quantity of waste produced, or prolonging the lifespan of a product, thus delaying the moment when it becomes waste, and qualitatively through reducing the content of harmful substances in materials and products.
- Clearly identify the **incentives**, financial and otherwise, to offer large-scale waste generators, such as big grocers, catering kitchens, banquet halls and manufacturers. Some local municipalities in Spain get paid per composter by the Government, while in Italy, discounts are offered to those who participate in community composting projects.
- Set requirements for the **energy consumption** of various electro-mechanical composting systems, which are used to treat municipal solid waste that would otherwise be sent to landfills.
- Ensure the presence of a clear, comprehensive and effective **monitoring** system in place. Monitoring can be focused, continuous, through periodic surveys, or for set periods. Focused monitoring is typically performed in facilities that can have serious human health and environmental impacts. Continuous monitoring can be the most expensive option.
- Provide for a proper **reporting** mechanism along with relevant appropriate forms in order to report progress, achievements, difficulties and lessons learnt. The forms should be clear and easy to follow.
- Ensure **transparency** throughout, which should be two-way between local government and waste operators. This can be done through licensing operators and requiring them to report the types, nature and quantities of waste.



- Include **licensing** of the premises that recover, treat or dispose of waste, which is as important as licensing of waste collection and disposal operations. The purpose of licensing is to minimize the negative environmental impacts and maximize the environmental benefits. Licensing should be for a pre-determined period of time, and conditional on the effectiveness of the licensee. Some local government in the USA, as an example, require registration of any small compost site that has more than 4 cubic yards (3.05 m³) of material on site.
- Pay attention to businesses' sensitivity about their **commercial advantage**, which is what keeps many of them functioning. The need for reporting vital information must be balanced by the commercial confidentiality and secrecy needs of the business.
- Ensure **timeliness** throughout the process, whether it is timely reporting or timely remedial actions to prevent or mitigate health and environmental impacts.
- Ensure that proper and effective **enforcement** is in place, in line with the country's own legislation, and possibly also with international standards. Enforcement functions are often split between national and local governments.
- Set and define **fees** for users. Some local governments have implemented Pay-as-You-Throw (PAYT) programs, where residents are charged for the collection of municipal solid waste (ordinary household trash) based on the amount of waste they generate (throw away). Another example comes from Israel, where landfill operators pay a levy for every ton of MSW landfilled.
- Define and enforce **penalties** for offenders, which can fall under administrative, civil and/or criminal codes. The penalties can be a variety of separate or combined actions including revocation of license, compensation, restoration of affected areas, fines and even imprisonment, though the latter is very rare. One effective and common way to discourage offending is through the imposition of penalties, which can be heavy, for offences such as illegal disposal.

MFD MODEL

This section contains an outline typical section that a MFD needs to include, at the minimum.

Purpose

Identify the purpose(s) of the directive, which can include protecting environmental and public health, safety, comfort, convenience, and the general welfare of the people; establish the relevant powers, duties, rules, regulations, and standards; and promote a program of waste reduction through source separation of organic materials from mixed municipal solid waste.

Definitions

Identify and clearly define all the applicable terms.

Acceptable and Prohibited Materials



List here the acceptable materials at the compost site, such as food scraps, yard waste and any other compostable materials. It is also important to list the prohibited materials, in particular oils, grease, meat, dairy, diapers, or animal manure.

Compost Sites

This section specifies the requirements related to small compost sites, including location, area and volume, minimum distance from nearby buildings, bodies of water, and maintenance.

Registration Requirements

Specify the registration requirements for the parties responsible for the composting activities at the compost site and its maintenance. Registration will help local authorities track and monitor composting sites and their operators, but the process needs to be reasonable and not cumbersome.

Nuisances

Most composting complaints relate to nuisances, most frequently to pests like insects or rodents, or to odors. In most cases, the nuisance conditions can be avoided if the composter utilizes best practices for composting. Therefore, compost sites must be established in a way to minimize or even prevent odors or other nuisances.

Incentives

List the available incentives under the local authority's laws for residents, dwellings, grocers, caterers and others, in order to encourage them to separate their waste, and to compost.

Violations

Specify the enforcement methods and the penalties under the local authority's laws.