

MILMET Project

IO1-Handbook: Green sector situation

Recycling of materials in Greece

Policies

Solid waste management requires the design and implementation of national integrated systems which are sustainable and effective. Thanks to the reuse and the recycling of materials such as paper, glass, aluminium, plastic and metal, large amounts of raw materials and energy can be saved. In Greece, public willingness to protect the environment and improve public health is leading to a shift from waste management policies towards policies for sustainable materials management. According to the Ministry of Environment, Energy and Climate Change, the goal is the transition towards a “*model of self-sustainable development*”, that guarantees, among others, an equitable and long-term distribution of natural resources and a more relevant, equitable and appropriate development for all actors and future generations (EU Commission, n.d.). This transition is also expected to create new employment opportunities in the sustainable economic sector. (Υ.Π.Ε.Κ.Α., χ.χ.α).

Legal legislation on “Packaging and alternative management of packaging and other products” (2939/2001 and 4042/2012) consolidates the “extended producer responsibility” and states the mandatory participation of the producer in the management of packaging (ibid.). The New National Waste Management Plan (ΕΣΔΑ) 2020 - 2030 sets targets compatible with the EU Directives on source separation, which are also part of the Circular Economy Package Directives. The National plan aims to increase the amount of municipal solid waste that is reused and recycled to at least 55% of the total waste produced nationally (calculated by weight) by 2025 and 60% by 2030. A target is also set to limit landfilling to 10% of municipal solid waste by 2030 (Υ.Π.Ε.Κ.Α., χ.χ.β).

Institutions

The Hellenic Recycling Organisation (E.O.AN.) is the competent body of the Ministry of Environment, Energy and Climate Change for the design and implementation of recycling policies in Greece. It is responsible for the approval, supervision, and control of alternative management systems and monitors achievement of national recycling and recovery targets for those materials according to the National Waste Management Plan and at the regional and local level (Υ.Π.Ε.Κ.Α., 2021).

To date, four alternative management systems for packaging and packaging waste have been approved and are operating through the cooperation between producers or importers of packaging products and local authorities who are legally responsible for the collection of municipal waste (E.O.AN., χ.χ.). One of them, the Hellenic Recycling Recovery Company (EEAA) operates the Centres for the sorting of recyclable materials (ΚΔΑΥ).

In general, the process of the recycling of the materials in the country and the Hellenic Recycling Recovery Company faces many difficulties. The main cause stem from the failure of the competent authorities to address long-standing problems. Tax evasion in Greece associated with the enterprises producing or using recyclable and non-recyclable materials, is still not being tackled effectively and currently stands at 42% of the general tax evasion percentage and it concerns materials waste that does not participate in the official system, therefore not fulfilling their legal obligations (EEAA, 2022).

Recycling data

According to the Hellenic Recycling Agency, the production of packaging waste was estimated to 814,700 tons for the year 2018, an overall increase of 4% compared to 2017. Out of this, 506.980 tons were recycled. Table 1 shows the estimated packaging waste production by material and the percentage of this that is currently recycled.

Material	Produced Packaging Waste	Materials Recycling	% Recycling	
			Target	Performance
Glass	104,400	34,390	60	32.9
Plastic	202,100	80,420	22.5	39.8
Paper	356,700	326,280	60	91.5
Metal				
Aluminium	21,900	7,570	-	34,6
Other	129,600	58,320	-	-

Table 1: Material waste production and their recycling quantities (E.O.AN., 2018)

The situation in Patras

In the Municipality of Patras there are 26 large-capacity underground recycling bins, 3,030 blue bins for plastic, aluminium and paper, 250 bins with yellow lid for printed paper, 94 bins for glass and 26 bins for small electrical appliances, light bulbs, and printer toners (Δήμος Πατρέων, χ.χ.). The Centre for the sorting of recyclable materials in Patras has temporarily ceased operations, pending a decision on the municipal council's approval of the proposal of the Hellenic Recycling Recovery Company, which implies transferring the collection of the recyclable material and the operation of the local material recovery facility to the Municipality. The Municipality of Patras opposes this proposal, suggesting that they do not have the necessary expertise on operating the facility and there is not a comprehensive provision for the high costs for the collection, the transportation and the sorting of recyclable materials, which will necessarily be borne by the public (Δήμος Πατρέων, 2022).

Best practices

There is a number of factories operating in the Patras' industrial area that deal with the recycling of different materials, mainly metal and aluminium. Unfortunately, access to data regarding their operation, the number of workers they employ and their general contribution to the recycling process is lacking. In addition, several start-ups, innovative enterprises and NGOs operating in the extended area of Patras, are associated with the recycling of different materials and adopt the principals of circular economy.

The social cooperative enterprise "[Recycling at the source](#)" aims to disseminate recycling by separating materials at home, at work and in public places (paper, plastic, metal, electrical appliances, batteries, oil). The initiative has collected and disposed of hundreds of tons of first quality recyclable materials to local industries since 2014. Many volunteers visit their warehouse and bring their sorted recyclables. The cooperative also organizes Repair Cafes, where electronic appliances and computers are repaired and then donated to schools.

[Coffeeco](#) uses byproducts from coffee, beer and wine, to create microbiome-friendly skincare ingredients. By collecting and managing coffee waste, they are reducing the environmental impact of coffee consumption, especially in the city of Patras where a lot of coffeeshouses operate. Their Life Cycle Assessment (LCA) shows that for every ton of coffee ground that is reused, they eliminate 176 kg of CO₂e from the environment.

[PHEE](#) uses a type of seagrass, the dead leaves of the angiosperm *Posidonia Oceanica*, which according to scientists is one of the oldest living organisms on Earth. *Posidonia* leaves are

washed up on the Mediterranean coast in large quantities annually and are disposed of as waste. The PHEE team became the first company worldwide to fully use angiosperm as a raw material in order to create the PHEE-board, a highly aesthetic cellulose-based flat panel which can be applied in various industries such as furniture, accessories, packaging, interior decorations and many more.

The social enterprise [Liofyllo](#) uses different varieties of olive leaves, the agricultural waste from the olive oil production process (from the tree to the mill), and creates an innovative, environmentally friendly material. They manufacture two types of biodegradable panels aiming to make the products and their production process environmentally friendly. The panels have potential applications in a wide range of products. So far, Liofyllo has managed to upcycle 7,500 kg of olive leaves and 1,300 kg of olive wood.

Resources

International

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