

Implementation of pay-as-you-throw schemes in Greece: major benefits and future potential

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Abstract

Pay-as-you-throw (PAYT) schemes have been widely applied in European countries, as they greatly contribute to resource efficiency and circular economy, boosting recycling and composting. They serve as a strong economic incentive for sustainable waste management, by charging the residents and local businesses of municipalities according to the amount of residual waste they produce.

The effectiveness of such schemes is maximized when they combine with separate collection of various waste streams (biowaste, paper and cardboard, plastics and other recyclables).

Major benefits associated with PAYT have been identified across Europe and elsewhere. Among them, the most important include the significant reduction of residual waste for processing and final disposal, but also the fair distribution of waste management costs according to the polluter pays principle.

In Greece, on the other hand, there is limited experience on PAYT, gained mostly from pilot scale programs. Lack of appropriate legislative support creates barriers and reduces the potential for its implementation at municipal and national level.

However, as more and more municipalities in Greece acknowledge the beneficial effects of PAYT, the obstacles are gradually removed.

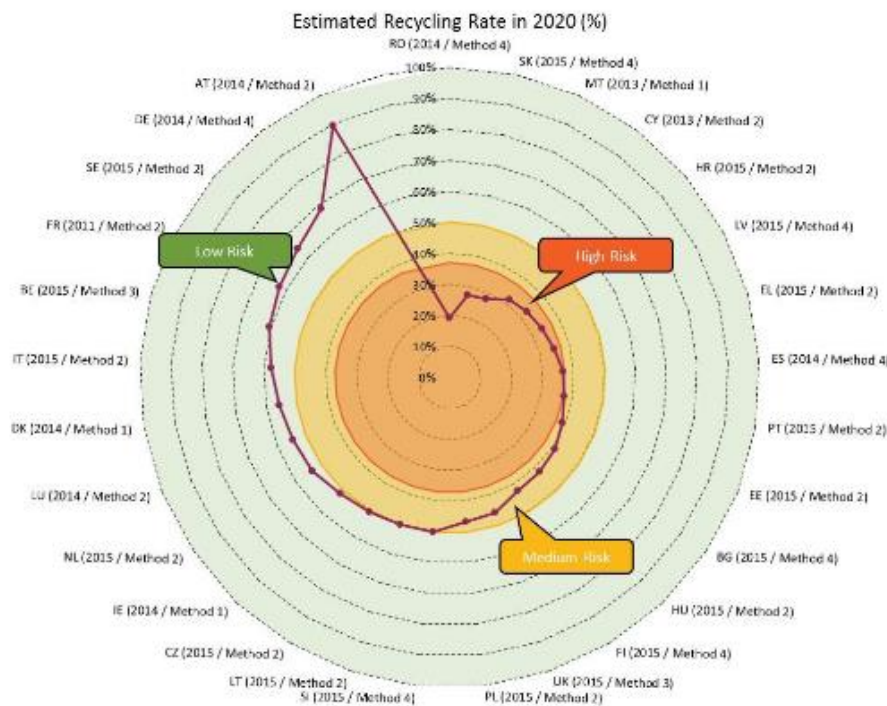
This paper aims to present the experience gained from pilot PAYT programs in Greece and discuss their future potential at municipal level.

Introduction

A recent study (March 2018) conducted by Eunomia, on behalf of DG Environment /European Commission, identified the *Member States at risk of Non-compliance* with the 2020 target set out in article 11 of the Waste Framework Directive 2008/98/EC, for 50% preparation for reuse and recycling of MSW[1]

According to this study, Greece is among those countries that are at high risk of failing to meet the WFD 2020 targets.

Figure 1: Estimated Recycling Rate in 2020, by Member State (source: Eunomia) [1]



A detailed discussion and categorization of the main causes of the observed poor recycling performance in these member states (including Greece), has concluded that the following **priority actions** are necessary in order to achieve the WFD targets [1].

- Set legally binding targets at *regional/local level* (recycling targets or reduction in residual waste targets)
- Ensure penalties for municipalities that fail to meet the targets
- Improve the convenience of recycling, offering *door-to-door* services
- Reduce the size and frequency of residual waste collections
- Implement pay-as-you-throw (PAYT) schemes that provide a clear *financial incentive* to citizens to sort recyclables and minimize residual waste. *However, certain prerequisites for the successful implementation of PAYT include the proper functioning and convenience of recycling services. Service provision is therefore a key factor for success. Minimum service requirements for separate collection, specifying the size of recycling containers and collection frequencies are already in place in member states that have achieved best performance. This also includes the development of separate collection and treatment of biowaste.*
- Impose fines to businesses/homeowners that fail to comply with municipal regulations.

The early warning report includes specific recommendations for those member states that are deemed at high risk of failing to meet the recycling targets. **For Greece, the most important recommendations include [2]:**

- *Implementation of the landfill tax*

- *Introduction of financial instruments, such as PAYT*
- *Upgrading municipal services in terms of separate collection, with the proper allocation of responsibilities among municipalities and Producer Responsibility Organizations (PRO)*
- *Upgrading the waste reporting system.*
- *Increase funding of prevention/reuse/recycling programs*
- *Focus on communication and awareness raising*
- *Provide technical support to municipalities to upgrade waste management services*

In 2016, the Association of Cities and Regions for Recycling and Sustainable Resource Management (ACR+) examined *the case studies of seven municipalities* from seven European countries: Interza (Belgium), Maastricht Municipality (the Netherlands), Umeå Municipality (Sweden), Zollernalbkreis (Germany), Treviso (Italy), Besançon (France) and Innsbruck municipality (Austria). The results have been presented in a report entitled “Cross-analysis of ‘Pay-As-You-Throw’ schemes in selected EU municipalities” [3].

The above study shows that PAYT can be a very useful instrument, well adapted to local requirements and conditions. It certainly contributes to the reduction of residual waste and increase of recycling and home composting. Apart from the above benefits, it is very well accepted by the citizens and other stakeholders.

Another ACR study (2017) entitled “Comparison of municipal waste management in EU cities” [4], identified the best practices in waste management. Source separation and PAYT seem to be the key factors to high recycling performances. The *best performing cities* rely on the following systems:

- Separate collection of paper and cardboard
- An effective source separation and separate collection of bio-waste.
- An effective separation and collection of other waste in civic amenity sites, allowed by a dense network of CAS
- A Pay-As-You-Throw (PAYT) scheme.

The National Solid Waste Management Plan of Greece [5], released in June 2015, also sets clear targets to be achieved by 2020:

- A clear reduction in per capita waste generation compared to 2015 level
- Preparation of re-use and recycling of source separated materials, including bio-waste, must cover 50% of the total waste generation, by the year 2020.

Considering the waste statistics for Greece, according to Eurostat data, only 17-18% of MSW is actually recycled. It is therefore highly unlikely that our country will achieve the WFD targets. However, based on the above findings and recommendations, we can conclude that *a priority action* required in Greece, in order to *achieve compliance with the WFD recycling targets* and boost circular economy is the careful design, introduction and implementation of PAYT schemes as part of those policies that ensure transition to sustainable waste management.

Methodology

Greece belongs to those EU countries that have not implemented PAYT schemes at municipal level, and a very limited experience in this area has been gained mostly through pilot municipal programs.

In order to identify the main obstacles inhibiting implementation of PAYT schemes at municipal level in Greece, a review of an important pilot PAYT project is presented and further discussed. In particular, this paper focuses on the LIFE Environment program, entitled: “The Development of Pay-As-You-Throw Systems in Hellas, Estonia and Cyprus (LIFE 07ENV/GR/000271)” implemented in the Municipality of Elefsina in the time period 2009-20011. The project was carried out by six partners from four EU member states: the Municipality of Elefsina, Aristotle University in Thessaloniki and the Ecological Recycling Society from Greece, Dresden Technical University from Germany, Tallinn University of Technology from Estonia and Technomart Ltd from Cyprus.

Pilot PAYT Program: description and Results

The pilot PAYT program in the municipality of Elefsina covered a population of 5500 inhabitants.

In the study area the waste infrastructure included:

- 65 bins with capacity of 1100 lt, for the collection of dry recyclables (cardboard/paper, plastics, metals, glass)
- 96 home composting bins, distributed to all interested households, free of charge
- 17 bulky waste containers, used also for the collection of green yard waste.
- Drop off sites for the collection of other recyclable materials, in collaboration with Producer Responsibility Organizations (PRO)

An extensive public awareness campaign was implemented prior to the pilot project. Thus, detailed information was provided to the residents of the pilot area via a door-to-door campaign.

The results are summarized in the following table.

Table 1. Quantities of materials collected during the pilot phase and one year before in the Municipality of Elefsina. [\[Final Report on PAYT in Elefsina\]](#)

	Residual waste collected (tn/yr)	Recyclable material collected (tn/yr)	Total amount of waste collected (tn/yr)	Amounts diverted for recycling
One year before the pilot project	859.270	161.830	1.021.100	15,8%
During the pilot project (9/2010-1/2011)	784.940	177.550	962.490	18,4%
Net difference over the two periods (tn)	-74.330	15.720	-58.610	2,6%
Difference over the two periods (%)	-8,65%	9,71%	-5,74%	16,39%

From the above table, it can be concluded that the overall increase in the separately collected recyclables, from 15.8% to 18.4% (net difference 2.4%), was not as high as expected.

Discussion of the Pilot PAYT program in Elefsina

From the pilot project in Elefsina, several constraints have been identified and further discussed. It is important to overcome these constraints, in order to maximize the effectiveness of the PAYT programs.

1. Ensure that the municipality that is about to implement a selected PAYT scheme, fulfils certain minimum requirements prior to its implementation. These are summarized in the following table.

Table 2. Requirements to be fulfilled prior to the Implementation of PAYT schemes

Priority Requirements	Time table (prior to the PAYT)	Responsible Authority
Municipal Prevention plan	One year	Municipality
Separate Collection of waste streams (including biowaste)	6 months	Municipality/ PRO
Civic amenity sites for the Collection of Recyclables	6 months	Municipality/ Regional Authorities
Home Composting Program	3-6 months	Municipality
Door -to -door collection in part or all municipal districts	8-months	Municipality/ Regional Authorities/ PRO
Tackling Administrative Constraints/ Municipal PAYT authority	One year	Municipality/ Regional Authorities /Hellenic Recycling Association
Raising Awareness Campaigns	6 months	Municipality/Regional Authorities/Hellenic Recycling Association

2. Ensure that the existing legislative framework adopts and implements the “polluter pays principle”

It is clear that municipalities must be charged on the basis of the residual waste they produce, so as citizens. In order to incentivize municipalities to reduce residual waste for third party treatment or disposal, *the landfill tax* should be implemented in Greece, increasing the disposal cost.

This means that municipalities should be fully and fairly charged for the treatment cost in MBT facilities and the disposal cost of their residual waste. In any other case the cost allocation is not fair. Municipalities that actually minimize their residual waste are practically subsidizing those that continue to produce increased volumes of residual waste.

Recently, in April 2019, the Greek Ministry for Environment amended the article 43 of the Law 4042/2012 and replaced the landfill tax with a circular economy fee. This accounts for 10 euros per ton of residual waste arising from municipalities and will be implemented from 1-7-2019. The fee will increase by 5 euros annually, effective from 1-1-2021, and reaching a maximum of 35 euros/ton. The provision for a landfill tax was 35 euros per ton of residual waste, increasing at the same rate as the circular economy fee.

It is therefore questionable whether this amendment will provide clear economic incentives to municipalities to effectively increase separate collection and reduce residuals.

3. Legislative initiatives that encourage the implementation of PAYT schemes.

This should address the following:

- Define the public authority responsible for the monitoring and support of the PAYT schemes in Greece (e.g. Hellenic Recycling Agency).
- Allow for voluntary implementation of PAYT in those municipalities that are willing to modify the charging mechanism.
- Allow for each municipality to select the appropriate PAYT scheme according to local and demographic characteristics
- Ensure that through the new charging system, there will be effective mechanism for the collection of the fees from the citizens and businesses.
- Address potential issues of illegal dumping.

The main problem which should be addressed prior to the implementation of PAYT is to ensure a guaranteed collection of municipal fees. A double rate fee can ensure steady flow of municipal fees: a flat rate based on the number of household members and the square meters of the household, and a variable charge that depends on residual waste generation.

Conclusions

The main conclusions drawn from the above are as follows:

- PAYT should be incorporated in a mix of environmental policy measures such as prevention programs, improved source separation and separate collection (including biowaste), successful collaboration between PR organizations and municipalities, enforcement of the landfill tax or other taxes and public information campaigns. If it is combined with good recycling infrastructure, it will definitely result in great reductions in residual waste and increase in capture rates of the recyclables and biowaste.
- In the examined case study of Elefsina, the achieved diversion rate was not very high. This implies that the recycling infrastructure and convenience for citizens was not appropriate. Improvements in the collection system are required, so as to make recycling more convenient to citizens. Door-to-door collection is an option that must be examined for part or all municipal districts.

- A well - organized informational campaign and program promotion can boost the participation rate and the overall effectiveness of PAYT. The informational campaign *should be continued throughout the program implementation* through regular public meetings, frequent update of electronically available data concerning the program and informational material distributed door-to-door.

Overall, the Greek municipalities have to move very fast in order to achieve the WFD targets. This is a challenging task, and there is no time to waste.

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