



## Türkiye'nin Katı Atık Yönetiminin AB İlerleme Raporları Bağlamında İncelenmesi

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### ÖZET

Bu makale, Avrupa Birliği entegrasyon sürecinde Türkiye'de benimsenen katı atık yönetimi uygulamalarını AB İlerleme Raporlarına dayanarak analiz etmektedir. Türkiye'nin katı atık yönetimi uygulamaları üzerindeki etki, 1998 yılından bu yana AB İlerleme Raporlarında sunulan katı atık verilerinde açıkça görülmektedir. Özellikle 1998 yılından sonra başlatılan katı atık yönetimi uygulamaları, takip eden her ilerleme raporunda tutarlı bir gelişme göstermiştir. Bu çalışma, sürdürülebilir katı atık uygulamalarının gelişmiş ülkeler tarafından küresel olarak benimsenmesini ve Türkiye'de yeni ve dönüştürücü değişikliklere duyulan ihtiyacı incelemektedir. Çalışmada, Avrupa Birliği tarafından Türkiye için yayınlanan ilerleme raporları analiz edilmiş ve nitel araştırma yöntemlerinden biri olan içerik analizi yöntemi kullanılmıştır. Araştırma sonuçları, Türkiye'nin katı atık yönetimi politikalarının ve uygulama araçlarının, değişen ihtiyaç ve koşullara uyum sağlamak amacıyla AB ilerleme raporlarından doğrudan etkilendiğini göstermiştir.

**Anahtar Kelimeler:** Katı atık yönetimi, Türkiye'de katı atık yönetimi, AB İlerleme Raporları

# Exploration of Turkey's Solid Waste Management in the Context of EU Progress Reports

## ABSTRACT

This article analyses the solid waste management practices adopted in Turkey during the European Union integration process, based on the EU Progress Reports. The impact on Turkey's solid waste management practices is evident in the solid waste data presented in the EU Progress Reports since 1998. In particular, solid waste management practices initiated after 1998 have shown a consistent development in each subsequent progress report. This study examines the global adoption of sustainable solid waste practices by developed countries and the need for new and transformative changes in Turkey. The study analysed the progress reports published by the European Union for Turkey and used the method of content analysis, one of the qualitative research methods. The research results showed that Turkey's solid waste management policies and implementation tools are directly influenced by the EU progress reports in order to adapt to changing needs and conditions.

**Keywords:** *Management of solid waste; Management of solid waste in Turkey; EU Progress Reports*

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## **1. INTRODUCTION**

In the last century, with the rise of globalisation, affluence and urbanisation, the consumption culture of societies has changed, leading to new consumption habits. The movement of rural populations, formerly producers, into urban environments has increased the incentive for factory-produced goods. Increasing amounts of waste have put additional pressure on environmental resources. Issues such as population growth, unplanned urbanisation, industrialisation, consumption frenzy and natural disasters have led to escalating environmental problems such as air, water, soil, noise and visual pollution (Zeytin and Kırlioğlu, 2014:239). Efforts to overcome these problems have included both local and international solutions. In Turkey, which is considered a developing country, industrialisation and rising living standards have led to an increase in waste. Waste, defined as materials produced and deemed unusable by their producers, is a major source of environmental pollution. Among the different types of waste, solid waste is the largest. Solid waste refers to solid materials and sludge from treatment processes that must be disposed of regularly for public peace and environmental protection (Zengin and Ulutaş, 2016: 27). The term solid waste generally includes materials that are not as fluid as water or other liquids and are not gaseous. Solid waste generally refers to household food waste, plastic packaging, glass, metal, etc., that are disposed of in dustbins.

Solid waste management is a critical issue because it threatens environmental resources such as soil, air and water. It involves a series of processes, from waste generation to final disposal, including collection, reduction, temporary storage, transfer, transportation, reuse and recycling, which are assessed from economic, engineering, public health and aesthetic perspectives and include administrative, financial, legal, engineering and planning functions (Bilgili, 2020: 92).

In the environmental policies of the European Union, it aims to reduce pollution in order to eliminate pollution, to take measures, not to harm the ecological balance of natural resources while ensuring sustainable development, to prevent environmental damage at the source, and to ensure harmonisation with sectoral policies in terms of environmental protection (Erdem and Yenilmez, 2017:92). On the other hand, environmental policies in Turkey, which is considered a developing country, are based on the negotiated agreements reached in the EU harmonisation process. The European Union's environmental policies are complex and thorough, playing an increasingly significant role in negotiations as their scope expands annually. The Union's emphasis on environmental policies is clear in the negotiation chapters, with a growing range of directives for candidate countries. This situation has some consequences for Turkey (Yaylı and Kaya, 2020: 674). To comply with EU environmental policy, more legislation and implementation is needed.

As a result, aligned legal frameworks and principles in environmental matters, especially in solid waste management, have emerged. Solid waste management gained momentum after the 1980s due to the emphasis on environmental issues in EU accession policy. Solid waste is one of the key environmental chapters for EU membership. Although solid waste practices and achievements vary between EU Member States, the aim is to achieve a regional standard. This study examines how Management of solid waste in Turkey has evolved in accordance with of the EU Progress Reports, analysing each report to determine the status and progress of solid waste practices.

## **2. MATERIAL AND METHODS**

This article is an extended version of the conference paper titled "Analysing Solid Waste Management in Turkey within the Framework of EU Progress Reports" published by the authors in 2020. Progress Reports are evaluation reports prepared by the EU Commission for countries applying for membership. Turkey's first Progress Report was published in 1998 and has been published every year since then. This study analyzes the progress made in the field management of solid waste in Turkey in the context of the EU Progress Reports published annually since 1998. The analysis includes whether recommendations in previous reports have been taken into account, what progress has been made and where deficiencies. The aim is to reveal the development of solid waste management and the current status of solid waste practices in Turkey in the context of EU Progress Reports. In addition, within the framework of EU harmonization studies, legal regulations regarding solid waste are listed chronologically.

Qualitative research; It includes various methods such as observation, interview, historical analysis, document analysis and text analysis. In this study, qualitative research design was adopted and content analysis method was used. Content analysis is a technique within the qualitative research method that aims to analyse many different materials such as documents, texts and documents within certain rules in order to reach objective, measurable and verifiable information (Metin ve Ünal, 2022: 273). Content analysis synthesises research that plays an important role in disseminating research knowledge and shaping further research, policy, practice and public perception (Suri & Clarke, 2009: 396). In this study, in addition to progress reports, literature and relevant legal regulations were also utilised.

## **3. THEORETICAL FRAMEWORK: SOLID WASTE MANAGEMENT**

Conventional landfilling, incineration, composting and solid waste treatment are among the commonly used methods of waste disposal (Abdel-Shafy and Mansour, 2018: 1280). Landfilling involves the systematic disposal of both biodegradable and non-biodegradable waste in a designated landfill or landfill site, away from the suburban areas of a municipality. This method has traditionally been a common and profitable waste management strategy in many countries (Nanda and Berruti, 2021: 1440).

Composting is defined as "a biological process that decomposes and stabilises organic material under conditions that promote the development of thermophilic temperatures due to biologically generated heat, resulting in a final product that is sufficiently stable for storage and land application without causing adverse environmental effects" (Wigneswaran et al., 2016: 408).

Solid waste treatment and incineration are other common methods. In both cases, waste must be separated at source or immediately prior to treatment. The main problem encountered in the management of almost all solid wastes is that they are complex mixtures and are often subjected to unsuitable storage conditions, where they undergo degradation prior to collection and subsequent treatment (Hamer, 2003: 73).

The organised storage of waste is crucial to prevent landfill gas leakage, which can lead to fire hazards and contribute to long-term global warming due to high methane levels, and leachate drainage, which causes permanent groundwater pollution (Nanda and Berruti, 2021: 1442). Regardless of their characteristics, waste should not be directly disposed of in environments where human and living beings reside without any precautions. This requirement was made a legal obligation in Turkey with the Environmental Law enacted in 1983. Therefore, landfill and source separation methods are very important to integrate solid waste management stages and ensure high efficiency.

The importance Turkey attaches to waste management has progressed in parallel with the European Union accession process. Turkey first joined the European Economic Forum on July 31, 1959, beginning its candidacy process by applying to the community. At the Helsinki Summit in 1999, Turkey was granted candidate status by the EU. Subsequently, it was decided to start negotiations at the Brussels Summit in 2004. After gaining participant status, Turkey was required to align with the EU in the environmental field, as well as in many other areas (Gül and Yaman, 2021: 1271). In consequence of this decision and in accordance with the report and recommendation of the European Commission dated 6 October 2004, Turkey, which has the status of 'Participant Country', was required to set out short, medium and long-term goals in the environmental strategy document to be prepared for alignment with the Accession Partnership and to implement the environmental *acquis* accordingly. This was in line with the decision of the European Commission dated 6 October 2004. Since 3 October 2005, the EU has been providing guidance to Turkish environmental policy through the publication of several official documents (Environmental Law, 1983).

The European Union and Turkey began accession negotiations, comprising 35 chapters, in 2005. They opened the environment chapter for negotiations in 2009, incorporating harmonization efforts in this field into the negotiation agenda. The European Commission annually organizes an examination of candidate countries compliance with the *acquis*. The progress reports published highlight the advancement of candidate countries in each chapter of the accession negotiations and are important documents due to their evaluations. Although Turkey's accession negotiations began in 2005, the progress reports started being published in 1998, with the environmental chapter included since the beginning. Therefore, the environment chapter had been included in progress reports before its opening for negotiations in 2009, and annual developments in the environment chapter, like other chapters, were also evaluated in these reports (Yaylı and Kaya 2020: 665). Waste management is a focal point within the environmental chapter. The reports are structured into two sections: diagnoses and expectations (Dağdır, 2020: 65). Within this framework, the primary aim of this study is to assess Turkey's advancements in these domains by analyzing the assessments and projections concerning solid waste management in the EU progress reports.

#### **4. MANAGEMENT OF SOLID WASTE IN TURKEY ACCORDING TO THE EU PROGRESS REPORTS**

##### **4.1. Legal Framework Concerning Solid Waste**

The origins of legal regulations regarding waste management in Turkey date back to ancient times. The Municipality Law No. 1580 and the General Hygiene Law No. 1593, which came into effect in 1930, include regulations on issues such as collecting and storing waste and taking necessary measures to protect public health (Turkish Court of Accounts, 2007:12). Since then, other legislation has included provisions directly or indirectly related to waste management in the context of protecting the environment and human health. Regulation of solid waste increased after the establishment of the Ministry of the Environment in 1991 and the issuance of solid waste regulations. The establishment of the Ministry of Environment in 1991 led to the inclusion of cleaning services and solid waste management within the ministry's purview. The legal arrangements prior to the first Regular Report on solid waste management are as follows (Dağdır, 2020:36):

- Municipality Law No. 1580 (14 April 1930)
- General Public Health Law No. 1593 (24 April 1930)

- Environmental Law No. 2872 (9 August 1983)
- Law on the Administration of Metropolitan Municipalities No. 3030 (27 June 1984)
- Regulation on Control of Solid Wastes (14 March 1991, Official Gazette No. 20814)
- Regulation on Control of Medical Wastes (20 May 1993, Official Gazette No. 21586)
- Regulation on Control of Hazardous Wastes (27 August 1995, Official Gazette No. 22387)

Municipality Law No. 1930, which was given to municipalities as the service area of solid waste, is the first law that mentions solid waste and their collection. General Public Health Law, which came into force in 1930, also contains various provisions regarding solid waste. According to this law, it is mandatory for the streets of every settlement with a municipality to be kept clean by washing and sweeping. Collected waste is spread around (General Republic Health Law, 1930). The Environmental Law enacted in 1983 is the first comprehensive legislation regarding solid waste. However, since there were many deficiencies in the law regarding solid waste, the Solid Waste Control Regulation was issued in 1991. This regulation aims to eliminate legal and technical deficiencies regarding solid waste. The first five laws mentioned above did not elaborate on waste management, but included general definitions of responsible institutions.

The Law on the Management of Metropolitan Municipalities No. 3030, dated 1984, held the metropolitan municipalities responsible within the region they are responsible for determining the collection places of waste and establishing the necessary facilities for their disposal (Law on the Administration of Metropolitan Municipalities, 1984). In addition to these laws, regulations on medical waste were issued in 1993 and on hazardous waste in 1995. The legislation adopted following the progress reports is as follows:

- Regulation on Control of Waste Oils (Official Gazette No: 25353, dated 21.02.2004)
- Regulation on Control of Construction and Demolition Wastes (Official Gazette No: 25406, dated 18.03.2004)
- Law No. 5216 on Metropolitan Municipalities (10.07.2004)
- Regulation on Control of Packaging and Packaging Wastes (Official Gazette No: 25538, dated 30.07.2004)
- Regulation on Control of Waste Batteries and Accumulators (Official Gazette No: 25744, dated 31.08.2004)
- Regulation Amending the Regulation on Control of Waste Batteries and Accumulators (Official Gazette No: 25744, dated 03.03.2005)
- Municipality Law No. 5393 (dated 03.07.2005)
- Regulation on General Principles of Waste Management (Official Gazette No: 26927, dated 05.07.2008)
- Regulation on Landfilling of Wastes (Official Gazette No: 27533, dated 26.03.2010)
- Regulation on Waste Management (Official Gazette No: 29314, dated 02.04.2015)
- Zero Waste Regulation (Official Gazette No: 30829, dated 12.07.2019)

All regulations concerning the control of waste oils, construction and demolition waste, the control of waste batteries and accumulators and packaging waste were adopted in 2004. At this point, 2005 is

important as the year when environmental negotiations with the EU started. The negotiations aimed to bring Turkey into line with EU environmental legislation. The General Principles of Waste Management were adopted in 2008 and the Ordinance on Waste Management in 2010. Regulations on The Storage and Management of Waste were adopted in 2015, and finally the Zero Waste Regulation came into force in 2019 (Dağıdır, 2020: 16).

When all legislation enacted before and after the progress reports are compared, about seven legal acts dealing with solid waste were enacted over a period of 70 years. Prior to the EU harmonisation process, environmental issues were dealt with in a very limited manner and generally in development plans, but it is seen that these plans did not elaborate on environmental issues and only expressed superficially (Biyani and Gök, 2014: 298). Turkey's solid waste management process has been influenced by the EU harmonisation process, especially since the 2000s, and legal frameworks have been harmonised with EU directives. As a result, many EU environmental legislations have been implemented in Turkey.

The Zero Waste project, launched by the Ministry of Environment and Urbanisation in 2017, is important in terms of solid waste management (Alakaş et al., 2018: 191). Zero waste is a whole systems approach that aims to eliminate rather than 'managing' waste (Curran and Williams, 2012: 3). A zero waste management system is a management system that considers both the benefits and costs of waste management. It is a system that is designed to prevent waste generation, reduce waste, collect it separately at the source, temporarily store it, separate it for collection, transport it and process it (The Ministry of Environment, Urbanization and Climate Change, 2022). Furthermore, the regulations enacted during the harmonisation process with the European Union also endorse the zero waste approach. It is anticipated that Turkey will adopt more environmentally friendly approaches in the future, including sustainable waste management, zero waste and integrated waste management, and will be supported by legal regulations.

More detailed regulations on solid waste have emerged under the influence of EU Progress Reports. The sections on solid waste within the framework of the progress reports are detailed below:

#### **4.2. Solid waste management according to the European Union's Turkey progress reports from 1998 to 2023**

The first progress report on Turkey's harmonisation process was published in 1998. While these reports were called "Progress Reports" between 1998 and 2016, they were published as "Country Reports/Turkey Reports" after 2016. In 2017, no progress report was published for 2017 due to the pause in Turkey's EU accession process. From 1998 to 2023, a total of 24 reports were published by the EU. According to the progress reports, solid waste issue is listed and detailed chronologically below:

**1998 Progress Report:** This report does not contain any information on solid and urban waste, but only mentions the lack of *acquis* on waste (European Commission, 1998).

**1999 Progress Report:** The report states that the Ordinance on the Control of Medical Waste has been partially amended in accordance with the EU Directive. This is the first mention of a waste-related development. However, it also points out that no progress has been made on waste incineration, which is one of the most commonly used waste disposal techniques (European Commission, 1999).

**2000 Progress Report:** It is emphasised that there has been no progress on the waste acquis. It is also noted that in the field of the environment, municipalities have been given responsibility for collecting municipal waste, in addition to the Ministry of the Environment (European Commission, 2000).

**2001 Progress Report:** The report notes that there has been no progress on the waste acquis. Waste management is identified as one of the most problematic areas, with 93% of household waste falling into the category of illegally dumped and uncontrolled waste. Despite the fact that the Ministry of Environment has 800 staff and the municipalities 500 staff, it is pointed out that waste collection and disposal is left to the municipalities, which are understaffed, underfunded and underequipped. It is suggested that environmental inspection committees be set up to impose penalties for negligence and that municipal staff be trained in environmental policy (European Commission, 2001).

**2002 Progress Report:** It is mentioned that there is a lack of waste disposal and that no progress has been made in waste management compared to the previous year. According to the Environmental Inspection Regulation, every company must provide data on its waste and prepare an inspection report. The establishment of the Environmental Inspection Directorate at central level and the need to increase efforts in waste management are emphasised. Although the legislation on waste management has been aligned, there are shortcomings in its implementation and it is stated that a sufficient amount of financial resources should be made available to the sector (European Commission, 2002).

**2003 Progress Report:** The provision of technical and financial assistance for the adoption of EU standards in environmental areas such as waste management is emphasised. Although waste management legislation is aligned, it is noted that further efforts are needed to harmonise with national legislation and that financial resources should be made available to the sector. Limited progress in waste management is highlighted (European Commission, 2003).

**2004 Progress Report:** The report criticises the failure to transpose the Packaging Waste Directive into national law, but notes the following developments in waste management. A law on the transboundary shipment of hazardous waste in the Mediterranean has been adopted. Legislation has also been adopted on the control of packaging waste, excavated soil, construction and demolition waste, waste oils, port and harbour waste collection facilities and batteries and accumulators. Although legislation on waste management has developed to some extent, it is stressed that a national strategy and a waste management plan need to be prepared and that waste management is one of the most critical issues (European Commission, 2004).

**2005 Progress Report:** There has been minimal advancement in the field of waste management, with some developments in the transposition of waste management legislation. These developments include the directive concerning medical waste management, an enforcement regulation for solid waste and an implementing regulation on hazardous waste. It is emphasised that waste management legislation is advanced in terms of transposition of directives into national law and that legislation on electrical and electronic waste is in preparation. Further efforts are needed to fully transpose the



directives on landfilling and incineration. In general, further implementation efforts are needed and the national waste management plan needs to be adopted (European Commission, 2005).

**2006 Progress Report:** The implementation of the *acquis* is progressing well, with a significant degree of compliance with the Waste Framework Directive and implementation of the Hazardous Waste Directive. Further alignment is required in aspects such as routine waste storage and incineration, as well as the development of a national waste management strategy, as emphasized in the preceding report (European Commission, 2006).

**2007 Progress Report:** Alignment with the EU is necessary for energy recovery from waste, and a directive on the regulation of used tires and waste imports has been implemented. However, the report also highlights the absence of advancements in the adequate storage and incineration of waste, as well as the lack of a national waste management strategy (European Commission, 2007).

**2008 Progress Report:** The report criticises the continued absence of a national strategy for waste management. It notes minimal progress on end-of-life vehicles and electrical and electronic waste, no progress on landfilling and limited progress overall (European Commission, 2008).

**2009 Progress Report:** Alignment with EU legislation on packaging waste has improved, but it is stressed that no progress has been made on the proper storage of waste. Directives on waste incineration have been harmonized, but are criticized on the grounds that the scope of application is insufficient (European Commission, 2009).

**2010 Progress Report:** The law on waste incineration has been adopted and good progress has been made in the area management of waste. Turkey has adopted the National Waste Management Plan 2009-2013 and legal legislation regarding hazardous waste management, the handling of waste from ships and the regulation of waste have been revised to align with the *acquis*. Regulations concerning the enduring storage of waste have also been enacted. It is underlined that all this progress is positive for integration efforts (European Commission, 2010).

**2011 Progress Report:** The reception of waste from ships is identified as requiring closer monitoring and legislation has been adopted on the incineration of solid waste, waste materials, packaging waste and end-of-life vehicles. Efforts are being made to bring the storage of certain wastes, such as waste oils and hazardous medical waste, up to EU standards and to collect different categories of waste separately. However, it is emphasised that Turkey must formulate national, regional, and local strategies for waste management that align with the EU Waste Framework Directive (European Commission, 2011).

**2012 Progress Report:** The report notes that legislation on the control of electronic waste has been adopted. It notes that regular storage facilities have been brought up to EU standards, that efforts to improve the hazardous waste legislation are continuing, and that sorting and recycling capacity has been increased. However, it criticises the fact that the requirements of the EU framework directive have not yet been met (European Commission, 2012).

**2013 Progress Report:** The report notes that efforts to bring permanent storage facilities up to EU standards continue, but that no significant progress has been made in efforts to increase sorting and recycling capacity. The report criticises the fact that the requirements of the EU Framework Directive are still not being met (European Commission, 2013).

**2014 Progress Report:** Continued efforts are underway to align landfill facilities with EU standards, and capacity for sorting, recycling, and managing medical waste has been enhanced. It is emphasised that more needs to be done on separate collection and reducing biodegradability and that the requirements of the EU Framework Directive are still not met (European Commission, 2014).

**2015 Progress Report:** More waste statistics on agricultural and construction waste are needed. While environmental legislation has been aligned, implementation in the waste management sector needs to be strengthened. It is highlighted that efforts to upgrade waste treatment facilities to EU standards have been partially completed and are ongoing, and that capacity for sorting, recycling, treatment of medical waste and recycling of hazardous waste has been increased. However, it is noted that shortcomings remain in the separate collection and reduction of biodegradable waste and that regional implementation of the EU Framework Directive remains insufficient (European Commission, 2015).

**2016 Turkey Report:** It is noted that data on agricultural and construction waste are still incomplete. Waste management and industrial pollution prevention practices are criticised as still weak. It is stressed that waste management legislation needs to be properly implemented and that economic instruments to encourage and prevent waste generation are limited and need to be improved. In addition, regional and local waste management plans need to be completed (European Commission, 2016).

In 2017, the progress report was not published due to decisions taken by the European Commission and the deadline of April 2018 for the revitalisation of the accession process.

**2018 Turkey Report:** It highlights the need for more waste data on agricultural and construction waste and that waste management practices are still inadequate. The Commission reiterates its 2016 recommendations, stressing the need for strategic planning, significant investment and improved administrative capacity. The preparation of local waste management plans in line with the EU's Waste Framework Directive is also positively highlighted (European Commission, 2018).

**2019 Turkey Report:** Waste statistics have improved, but the lack of data on agricultural and construction waste is emphasised. Progress has been noted in waste management, such as the implementation of a zero waste strategy, sustainable use of natural resources, reduction of landfilling, and promotion of recycling and reuse. A law prohibiting the distribution of lightweight plastic bags for free came into effect in January 2019, drawing public attention. Efforts to upgrade waste treatment facilities to meet EU standards have continued. Despite increased efforts to separate, recycle and treat medical waste, it was criticised that local and regional waste management plans are still not

implemented. The economic instruments incentivising waste recycling have improved but are still insufficient (European Commission, 2019).

**2020 Turkey Report:** Data on construction waste is still lacking and needs to be addressed. Some progress is noted, such as partial alignment of waste management legislation with the EU acquis, the adoption of a zero-waste approach in waste management, efficient use of natural resources, reducing regular storage, promoting recycling, and reusing strategies. Additional progress includes the charge for plastic bags, the zero-waste policy adopted for municipalities, buildings, and residential areas from July 2019 expected to be completed by 2023, and the deposit application for plastic bottles by 2021. Efforts to bring waste treatment facilities to EU standards continue. Efforts to segregate, recycle, and treat medical waste have increased. It is emphasized that local and regional waste management plans need to be adopted and that economic incentives to promote recycling and prevent waste generation have shown improvement but are still limited (European Commission, 2020).

**2021 Turkey Report:** It was highlighted that significant strides had been achieved in enhancing capacity and adherence in waste management and wastewater treatment, but that there were still shortcomings in the implementation and enforcement of legislation. It was noted that only a small proportion of last year's recommendations had been implemented and that these recommendations therefore remained relevant (European Commission, 2021).

**2022 Turkey Report:** Although there have been positive developments in terms of increased capacity and compliance with legislation on waste management and waste water treatment, it was emphasised that there are still shortcomings in the implementation of legislation. It was noted that a more sustainable and coordinated environmental policy should be implemented, which would require strategic planning, major investments and strengthened administrative capacity (European Commission, 2022).

**2023 Turkey Report:** It is noted that the legislation on waste management is partially compatible with the EU acquis and that the zero waste legislation adopted in 2019 continues to be implemented. In this context, the recycling rate in Turkey has been increased to 27% by 2023. It was emphasised that developments in the deposit management system for the recycling of one-way drinks packaging and in the treatment of medical waste were continuing. However, it is noted that local and regional practices, which are considered as one of the important actors in waste management, are insufficient and should be strengthened. It is noted that Turkey does not accept the recycling legislation related to the EU Ship Recycling Regulation and these facilities are criticised in terms of safety, effective waste management and environmental hazards. As a result of the earthquakes that occurred in Turkey in February 2023, the waste management systems, existing infrastructure and equipment of municipalities in the earthquake region were seriously damaged. In addition, it is emphasised that various problems remain, such as the management of debris removal, the release of asbestos and damage to the ecosystem into which debris is thrown (European Commission, 2023).

The findings under the 'waste management' heading, which covers solid waste in the progress reports, are presented in Table 1. In this context, the term 'no progress' is used for situations where

there is no progress in the progress report, 'limited progress' is used for situations where there is limited progress, and 'good progress' is used for situations where progress is reported at a high level.

Table 1. Waste Management Indicators According to Progress Reports 1998-2023

<b>Year</b>	<b>No Progress</b>	<b>Limited Progress</b>	<b>Good Progress</b>
1998		✓	
1999	✓		
2000	✓		
2001	✓		
2002	✓		
2003		✓	
2004		✓	
2005			✓
2006			✓
2007		✓	
2008		✓	
2009		✓	
2010			✓
2011			✓
2012		✓	
2013		✓	
2014		✓	
2015			✓
2016			✓
2018		✓	
2019			✓
2020		✓	
2021		✓	
2022		✓	
2023		✓	

A total of 25 progress reports were published in the period covering the years 1998-2023. The progress reported under the title of 'waste management' in these reports is presented in Table 1. Accordingly, it is seen that 'no progress' was reported 7 times, 'limited progress' 11 times and 'good progress' 7 times.

The annual progress reports published by the European Commission on the level of harmonisation of candidate countries with the EU acquis play an important role in the negotiation process. In the reports, the EU assesses the harmonisation and readiness of the candidate country for each of the 35 chapters negotiated (Yaylı and Kaya, 2020: 664). Among the negotiation chapters opened between the EU and Turkey, the 'Environment' chapter ranks 27th (Republic of Turkey Ministry for EU Affairs). In Chapter 27, Environment is assessed in the context of horizontal legislation, air quality, water quality, waste management, nature protection, industrial pollution control and risk management, chemicals,

noise, climate change, administrative capacity and civil protection. EU Progress Reports, which are taken into account in Turkey's EU integration process, have been published every year since 1998 (except 2007).

It is observed that there was no progress or limited progress between 1998-2002 due to the first years of integration and the existence of political and economic instability in the country. In 2003 and 2004, it is seen that limited progress was made as a result of the work carried out by the new government as a result of the EU integration policies, and in 2005-2006, good progress was made with the regulations made due to the reforms made as a result of the promise of full membership to the EU. In 2007, there was a partial progress in legislation and the lack of regulations on landfill, incineration and electrical-electronic waste was emphasised. In 2008, some of the shortcomings in the previous year's report were addressed, but the lack of a national waste management plan and regulations for various special waste types were emphasised. In the 2009 report, some legislative arrangements were made and the deficiencies regarding landfill and mining waste were mentioned. For the years 2010-2011, it is seen that good progress has been achieved in the waste management chapter with activities such as increasing the number of storage facilities, increasing sorting and recycling capacity and establishing waste plans.

In the 2012, 2013 and 2014 progress reports, limited progress and insufficient alignment with the EU Waste Framework Directive were emphasised. In 2015 and 2016, it was emphasised that good progress was made with regulations in various areas such as mining waste, biodegradable waste, hazardous waste and landfill in line with the EU Waste Framework Directive. According to the 2018 Progress Report, it is stated that limited progress has been made as well as shortcomings in various areas such as separate collection of different types of waste, recycling and hazardous waste. In 2019, it was emphasised that good progress was made as strategies were adopted to promote landfilling, reduction, recycling and reuse. Limited progress was made in 2020, 2021 and 2022, emphasising the lack of regulations for recycling and special waste, as well as the need to develop waste management plans of local and regional nature. The progress report published in 2023 highlighted partial progress with the EU acquis, the lack of local and regional waste management plans, shortcomings in legislation on ship recycling, as well as shortcomings with regard to textile waste and shipyard waste. On the other hand, the waste problem that emerged after the February 6 earthquake in Turkey in February 2023, which affected 11 provinces, was mentioned.

As indicated in the table, it is noteworthy that no progress was made for Turkey in the years when the earliest progress reports were published and limited and good progress was made in the following period. Considering the issues raised in the EU accession process and the findings in the progress reports published before, it can be said that studies on waste management have been carried out in Turkey and waste management policies and implementation tools have been adopted.

## **5. CONCLUSION**

The issue of solid waste constitutes an environmental problem for all countries. However, countries vary in their waste management processes. In addition to individual countries, international organizations also set numerous targets regarding environmental regulations. In other words, environmental regulations have found their place among the regulations of many international bodies, notably the EU.

The European Union plays a decisive role in the countries with which it negotiates on environmental policy. The importance given by the Union to environmental policies is reflected in the negotiation chapters and directives for candidate countries are gradually increasing. Like other candidate countries, Turkey also has to harmonise with EU environmental policies. Regulations on solid waste in Turkey have gained momentum after 1990 and especially after 2000 with the EU membership process. Turkey's attitude towards environmental policies has progressed by prioritising economic motives. This is also seen in the progress reports. When the issue of waste management is considered, the level of progress in a comparison made before and after the negotiations is behind the expected level. The fact that the phrase 'partial progress' is mostly used in the progress reports confirms this.

This study concludes that Turkey's solid waste management practices have benefited significantly from the EU harmonisation process. Harmonisation with EU directives has not only improved the infrastructure and legal framework, but also increased public awareness and participation in sustainable waste management practices.

The main concerns highlighted in the reports can be summarised as follows: alignment with the acquis, problems in transposition of directives into national legislation, problem of providing statistical data, standards to be achieved gradually such as landfilling, incineration, preparation and implementation of waste management plans at national, regional and local level, need to adopt special provisions for special waste, lack of human resources, resources and equipment, insufficient progress in the implementation of recovery, recycling and sorting processes, the need to adopt special rules for waste of certain nature, insufficient human, financial and equipment resources, insufficient progress in recovery, recycling and sorting activities, absence of measures to prevent and minimise waste generation. These issues constitute shortcomings in waste management, which are common to all progress reports. Turkey has endeavoured to address these shortcomings over time. It can thus be concluded that the regulations pertaining to environmental protection and solid waste management in Turkey are significantly influenced by the EU Progress Reports.

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## **EXTENDED ABSTRACT**

### **Introduction and Research Questions & Purpose**

Solid waste management includes various stages from waste generation to disposal. These stages consist of waste prevention, reduction, reuse, recycling, recycling, reuse and final disposal processes. This study aims to address solid waste management in Turkey within the framework of the progress reports published by the EU by emphasising the importance of 'recycling, recovery and reuse, which are more environmentally friendly activities in solid waste management'. In this framework, based on the hypothesis that Turkey is influenced by the EU progress reports, the questions 'What are the deficiencies in solid waste management in Turkey?' and 'Which of the deficiencies have been improved over time?' are sought to be answered.

### **Methodology**

Content analysis method, one of the qualitative research methods, was used in the study. In this framework, in order to reveal Turkey's solid waste management practices, legal regulations as well as the progress reports organised by the EU for Turkey were examined. Progress reports have been published every year since 1998. Each progress report focuses on whether the directives requested in the previous year have been fulfilled and what the new deficiencies are. Accordingly, the progress made according to the progress reports is presented in a general table.

### **Results and Conclusions**

It has been determined that the legal regulations on solid waste management in Turkey have been shaped in line with the EU recommendations within the framework of harmonisation with the EU acquis. On the other hand, harmonisation with EU directives has not only improved the infrastructure and legal framework, but has also increased public awareness and participation in sustainable waste management practices.

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