

## TABLE OF CONTENTS

REGULATORY IMPACT ANALYSIS REPORT FORMAT.....	1
ENTITY CONDUCTING THE REGULATORY IMPACT ANALYSIS.....	1
NAME OF THE REGULATION CONSIDERED.....	1
LIST OF ABBREVIATIONS .....	1
GLOSSARY .....	1
EXECUTIVE SUMMARY .....	2
PROCESS INFORMATION AND TIMELINE RELATED TO THE CONDUCT OF THE REGULATORY IMPACT ANALYSIS .....	5
CHALLENGES AND BARRIERS ENCOUNTERED DURING THE ANALYSIS.....	5
EXISTING SITUATION ANALYSIS FOR THE SECTOR OR FIELD.....	6
8.1	
LEGISLATION.....	7
8.1.1. INTERNATIONAL AGREEMENTS TO WHICH TURKEY IS A PARTY.....	7
CHAPTER II: RELEVANT MINISTRIES AND ADMINISTRATIVE UNITS.....	12
II.1. MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE.....	12
II.2. MINISTRY OF AGRICULTURE AND FORESTRY .....	14
II.3. MINISTRY OF HEALTH.....	15
CHAPTER III: NATIONAL LEGISLATION.....	16
III.1. LAW NO. 2709, THE CONSTITUTION OF THE REPUBLIC OF TURKEY .....	16
III.2. LAWS .....	19
III.2.1. LAW NO. 2872, THE ENVIRONMENT LAW.....	19
III.2.2. LAW NO. 5216, THE METROPOLITAN MUNICIPALITIES LAW.....	28
III.2.3. LAW NO. 5393, THE MUNICIPALITIES LAW .....	29
III.2.4. LAW NO. 5237, THE TURKISH PENAL CODE.....	29
III.2.5. LAW NO. 5488, THE AGRICULTURE LAW.....	30
III.2.6. LAW NO. 5403, THE LAND PROTECTION AND LAND USE LAW.....	32
III.2.7. LAW NO. 5262, THE ORGANIC AGRICULTURE LAW.....	33
III.2.8. LAW NO. 6831, THE FOREST LAW.....	34
III.2.9. LAW NO. 5326, THE LAW ON ADMINISTRATIVE FINES.....	35

8.2 REGULATIONS - COMUNIQUÉS - CIRCULARS.....	36
8.2.1. REGULATIONS RELATED TO THE ENVIRONMENT.....	36
8.2.1.1. ENVIRONMENTAL IMPACT ASSESSMENT REGULATION.....	36
8.2.1.2. ENVIRONMENTAL PERMIT AND LICENSE REGULATION .....	36
8.2.1.3. STRATEGIC ENVIRONMENTAL ASSESSMENT REGULATION.....	36
8.2.1.4. ENVIRONMENTAL PERMIT AND LICENSE REGULATION .....	36
8.2.2. ENVIRONMENTAL INSPECTION REGULATION .....	40
8.2.3. REGULATION ON EVALUATION AND MANAGEMENT OF ENVIRONMENTAL NOISE.....	43
8.2.4. REGULATION ON AIR QUALITY ASSESSMENT AND MANAGEMENT.....	43
8.2.5. REGULATION ON CONTROL OF ODOR-PRODUCING EMISSIONS.....	44
8.3 CHAPTER: REGULATIONS RELATED TO WASTE.....	48
8.3.1. ZERO WASTE REGULATION.....	48
8.3.2. WASTE MANAGEMENT REGULATION.....	66
8.3.4. REGULATION ON GENERAL PRINCIPLES OF PRE-TREATMENT AND RECOVERY FACILITIES FOR WASTE.....	87
8.3.5. REGULATION ON THE CONTROLLED DISPOSAL OF WASTE.....	100
8.3.5. REGULATION ON THE INCINERATION OF WASTE.....	121
8.4. REGULATIONS RELATED TO WATER, SOIL, AGRICULTURE, AND COMPOST.....	137
8.4.1. REGULATION ON SOIL POLLUTION AND CONTROL .....	137
8.4.2. REGULATION ON THE CONTROL OF SOIL POLLUTION AND POINT-SOURCE POLLUTED AREAS .....	138
8.4.3. REGULATION ON ORGANIC, MINERAL, AND MICROBIAL FERTILIZERS USED IN AGRICULTURE.....	139
8.4.4. REGULATION ON THE CONSERVATION, USE, AND PLANNING OF AGRICULTURAL LANDS.....	141
8.4.5. REGULATION ON GOOD AGRICULTURAL PRACTICES.....	141
8.4.6. REGULATION ON THE PRINCIPLES AND IMPLEMENTATION OF ORGANIC AGRICULTURE.....	142
8.4.7. REGULATION ON THE PRODUCTION, IMPORT, AND MARKETING OF ORGANIC, ORGANOMINERAL FERTILIZERS, AND SOIL CONDITIONERS, AS WELL AS MICROBIAL, ENZYME-CONTAINING, AND OTHER PRODUCTS USED IN AGRICULTURE.....	142
8.4.8. REGULATION ON THE PROTECTION OF WATERS AGAINST AGRICULTURAL NITRATE POLLUTION.....	143
8.4.9. CIRCULAR ON PREVENTION OF STUBBLE BURNING.....	144
8.4.10. EXAMPLES OF GOVERNORATE CIRCULARS AND COMUNIQUÉS .....	146

8.4.11. COMMUNIQUÉ ON AMENDMENTS TO THE COMPOST REGULATION .....	152
8.6 REGULATIONS RELATED TO INCENTIVES.....	154
8.6.1. COMMUNIQUÉ ON SUPPORT FOR AGRICULTURE-BASED ECONOMIC INVESTMENTS WITHIN THE SCOPE OF THE RURAL DEVELOPMENT INVESTMENT SUPPORT PROGRAM.....	154
PREFERRED OPTION.....	166
IMPLEMENTATION PLAN .....	166
MONITORING AND EVALUATION .....	171
CONCLUSION .....	172
DECLARATION OF SENIOR MANAGEMENT ASSURANCE.....	173

## **REGULATORY IMPACT ANALYSIS REPORT FORMAT**

### **ENTITY CONDUCTING THE REGULATORY IMPACT ANALYSIS**

Ministry of Agriculture and Forestry, General Directorate of Agricultural Research and Policies  
(TAGEM)

NAME OF THE REGULATION UNDER CONSIDERATION

REGULATORY IMPACT ANALYSIS FOR STUBBLE MANAGEMENT FOR SUSTAINABLE  
AGRICULTURAL PRODUCTION

LIST OF ABBREVIATIONS

BÜGEM: General Directorate of Agricultural Production of the Ministry of Agriculture and Forestry

SWOT: Strengths, Weaknesses, Opportunities, Threats analysis 4echnol regulation

TAGEM: General Directorate of Agricultural Research and Policies

UNIDO: United Nations Industrial Development Organization

GEF: Global Environment Facility

PM: Particulate Matter

BC: Black Carbon

HM: Heavy Metals

TOAK: Agriculture and Livestock, Forestry and Land Use

#### GLOSSARY

a) Analysis report: Regulatory impact analysis report prepared for draft laws and presidential decree drafts

b) Ministry: Ministry of Agriculture and Forestry

c) Presidency: Strategy and Budget Presidency

ç) Multi-criteria decision analysis: A technique that involves determining the weight of each criterion based on how much it affects the decision and its importance, and scoring options for each criterion by assigning a value to each criterion

d) Regulation: Draft laws and presidential decree drafts

e) Regulatory impact analysis: Preliminary assessment conducted to demonstrate the impact of draft laws and presidential decree drafts on the budget, legislation, social, economic and commercial life, environment, and relevant sectors

f) Provincial directorate: Provincial Directorate of Agriculture and Forestry

g) Provincial director: Provincial Director of Agriculture and Forestry

h) Law: Law No. 5488 dated 25/04/2006 on Agriculture

i) Technical Personnel: Technicians, technicians, and engineers in the technical services class serving in the provincial-district organizations of the Ministry of Agriculture and Forestry

i) Stubble: The root and stem parts of plants remaining in the soil after harvesting crops

j) Biomass: The general name for all non-fossilized biological materials obtained from living or recently living organisms

k) Crop residue: Plant parts remaining on the soil surface after harvesting, such as seeds, fruits, tubers, stems, etc.

l) Biomass power plant: Industrial facility that uses biomass as fuel to produce steam and electricity

- m) Agricultural supports: All kinds of fertilizer, certified seeds, fuel, etc., provided at different percentages by the Ministry
- n) Farmer: Individuals or legal entities who engage in agricultural production continuously or for at least one production period or cultivation cycle as owners, tenants, sharecroppers, or partners
- o) Compost: Organic fertilizer produced by the decomposition of plant and animal waste-materials in a moist and oxygenated environment
- ö) Biopellet: Compressed fuel particles of 5-8 mm in diameter and up to 5-6 cm in length produced by drying and grinding plant and animal materials to a certain moisture content and particle size
- p) Biobriquette: Compressed fuel particles of different shapes and sizes, with a diameter of 5-8 cm, produced by drying and grinding plant and animal materials to a certain moisture content and particle size
- r) SWOT analysis: Method for identifying strengths, weaknesses, opportunities, and threats related to a regulation and evaluating how these will change over time
- s) Administration: The Presidency, ministries, affiliated, related, relevant institutions and organizations, and other public institutions and organizations

## **EXECUTIVE SUMMARY**

Agriculture, like in many parts of the world, holds a crucial position in Turkey's economy. However, issues such as by-products generated during agricultural activities, environmental impacts, and resource utilization have gained increasing importance. Stubble is one of the agricultural by-products that emerge during field activities, predominantly after harvesting cereals, which constitute the largest group of crops grown in Turkey. Recent advancements in agricultural technologies and mechanization have led to an increase in the quantity of products obtained from agricultural lands, consequently resulting in an increase in stubble volume.

Stubble is generally defined as agricultural residues left in the field after harvesting, such as stalks, straw, hay, and leftover leaves. Stubble can refer to various residues, including the roots left in the soil, fields cultivated without following, maize stalks, uncut stalks left in the soil, weeds on field borders (ditches or mounds), field remnants, harvest time, fallowed fields, and thorn bushes. However, the most suitable meaning is used to refer to "the rooted stalk portions left in the field after crops are harvested." Stubble consists of various plant residues such as stems, leaves, and roots of the previous period's harvested crops and weed

killed by various means. Stubble affects the performance of planting machines by clogging seed outlets, preventing penetration into the soil, and causing blockages in other parts. Stubble can be found on the field surface in various forms, including short, long, moist, dry, loose, intertwined, upright, piled up, newly harvested, weathered, chopped, or left as is, spread on the soil surface, or partially buried in the soil. In addition to stubble, there are also straw remnants left behind by combine harvesters on the field surface after cereal harvesting. With the widespread use of agricultural land for farming purposes, the inevitable increase in stubble 6echno after harvesting has become a significant concern. One of the primary reasons 6echnol increase in stubble 6echno in Turkey is the transition from traditional to modern agriculture, where agricultural machinery automatically harvests the crop, cutting the roots a few centimeters below the surface and leaving behind large quantities of stubble. Wheat, barley, rye, maize, and rice are among the most commonly harvested crops in Turkey. The total harvested area for these crops is approximately 23 million hectares. Although the amount of residue obtained after harvesting varies from product to product and region to region, it averages around 50 million tons.

The ban on stubble burning has been enforced in Turkey since 1989. However, despite the environmental and economic drawbacks of stubble burning, it remains prevalent in agricultural fields. One of the significant adverse effects of stubble burning is the reduction in soil fertility. When stubble is burned, the organic matter content in the soil decreases, soil structure deteriorates, and water retention capacity decreases, leading to a decrease in field productivity. Additionally, air pollution resulting from stubble burning poses a significant environmental health concern.

The increase in stubble 6echno also raises agricultural production costs. Since stubble is a by-product of agricultural production, additional costs are incurred for cleaning the field after harvesting and disposing of the residue. This imposes additional financial burdens on farmers.

Efforts are underway in Turkey to mitigate the increase in stubble 6echno and promote environmentally friendly agricultural production. One of the most significant solutions is to convert stubble into natural fertilizers by shredding it in the field. In this method, agricultural machinery shreds the residue after harvest and incorporates it into the soil, allowing the stubble layer to disappear harmlessly and contribute to soil nutrients.

In conclusion, the 6echno of stubble, an essential by-product of agricultural production in Turkey, is increasing, negatively affecting both soil productivity and environmental health. Instead of environmentally and economically harmful methods like stubble burning, the management of stubble in an environmentally friendly manner by shredding it in the field is

crucial technological sustainability of agricultural production. At this point, raising awareness among farmers and ensuring proper utilization of agricultural land can help control stubble technology and its environmental impacts.

The Ministry of Agriculture and Forestry's General Directorate of Agricultural Research and Policies (TAGEM) and the United Nations Industrial Development Organization (UNIDO), with funding from the Global Environment Facility (GEF), have been implementing the "Project to Support Sustainable Biomass Technology Green Growth in the Turkish Economy" since 2018. The technology aims to trigger sectoral transformation in the agricultural industry through the application of modern bioenergy technologies, thereby increasing energy performance and competitiveness while reducing greenhouse gas emissions.

As part of the supported main technology, the Sustainable Biomass Use Project aims to evaluate the biomass potential of agricultural waste in Turkey and shed light on the clean energy potential using indigenous resources and technologies in line with sustainability principles. Within the scope of the technology objectives, considering the fight against climate change, the process of evaluating agricultural waste in the context of climate change and energy has become necessary. In this context, the current situation of agricultural waste, particularly crop-related waste, in Turkey has been identified, and waste management principles and processes have been addressed. In addition, recycling agricultural waste and energy alternatives have been examined, and commonly used technologies have been discussed. Key considerations for agricultural biomass-to-energy investments, requirements for sustainable facilities, and general planning and operational processes have been addressed. Decision-making processes and the principles that need to be established have been discussed. As a result of all these efforts, it has been determined that a shift from the current disposal method of stubble to environmentally friendly management is needed, and the need for a Regulatory Impact Analysis has arisen.

The purpose of this Regulatory Impact Analysis is to determine alternative measures to prevent stubble burning, taking into account the damage it causes to soil and the environment, after operations such as stubble or residue removal following harvesting or pruning in plant production, in accordance with the principle of sustainability, human health, and environmental sensitivity as envisaged in Law No. 5488 dated 25/04/2006 on Agriculture, to identify alternative measures for stubble burning, and to establish the principles of stubble management to educate technical staff and farmers.

**PROCESS INFORMATION AND TIMELINE REGARDING THE CONDUCT OF REGULATORY  
IMPACT ANALYSIS**

<b>Date</b>	<b>Location</b>	<b>Number of Participants</b>
June 24-25, 2022	Konya	59
December 16-17, 2022	Manisa	89
February 2-3, 2023	Ankara	59
April 27-28, 2023	Bursa	60
June 1-2, 2023	Erzurum	68
July 12-13, 2023	Van	70
August 31 - September 1, 2023	Samsun	71
October 5-6, 2023	İzmir	54
November 9-10, 2023	Antalya	63

The above-mentioned trainings were attended by representatives from the General Directorate of Agricultural Research and Policies, the Ministry of Energy and Natural Resources, the Ministry of Agriculture and Forestry, the Ministry of Environment and Urbanization, UNIDO, private sector representatives, universities, municipalities, Development Agencies, the Ministry of Industry and Technology, and representatives of NGOs.

**CHALLENGES AND BARRIERS ENCOUNTERED DURING THE ANALYSIS**

During the analysis process, intensive meetings and idea exchanges were held with stakeholders in different provinces on different dates (representatives of the public sector, domestic and international academic representatives, farmers, representatives of farmer cooperatives, representatives of the private sector, representatives of non-governmental organizations). Although there were disagreements among the participants during the analysis processes, common consensus environments were established through mutual discussions, especially under the moderation of academic representatives. It took time for the authorities and practices of different Ministries to find a common ground in the management of stubble issues; however, this process was positively concluded with the Regulatory Impact Analysis guide documents. Although there were difficulties in increasing farmers' awareness of the environmental hazards of stubble burning and convincing them of the harmfulness of burning in terms of sustainable agriculture practices and the health and



environment of farmers, especially considering the argument that alternative methods are economically burdensome, farmers reached consensus on this issue after consultation meetings.

### **CURRENT SITUATION ANALYSIS RELATED TO THE SECTOR OR FIELD**

When the sectoral breakdown of greenhouse gas emissions, which cause climate change, is examined, it can be seen that they are classified into 5 main sectors: Energy sector, Agriculture and livestock, Forest and Land Use (FLU), Transportation sector, Industry and waste. There may be some variations in the approaches and definitions of scientific institutions conducting studies. For example, in some publications, the transportation sector is included in the energy sector, which includes energy used in transmission lines, buildings, and industry. Thus, the share of the energy sector in greenhouse gas emissions exceeds 70%, or emissions from land use are separately evaluated. In evaluations related to climate change, agricultural activities are examined under the title of Agriculture and Livestock, Forest and Land Use (FLU). Depending on the way these activities are examined (for example, if changes in land use are not considered within agriculture), they constitute 19-29% of greenhouse gas emissions.

Approximately 23% of greenhouse gas emissions are from Agricultural activities, Agriculture and Livestock, Forest and Land Use (FLU), and their sub-sectors are defined as Livestock and Fertilizer (animal manure) 5.8%, rice/paddy cultivation 1.3%, stubble burning 3.5%, arable agricultural land 4.1%, forested areas 2.2%, planted agricultural areas 1.4%, pastures/rangelands 0.1%.

Due to the increasing pressures on water resources resulting from climate change, such as increasing temperatures and changing precipitation patterns, agricultural activities are seen as the primary and most vulnerable sector affected by climate change. On the other hand, the burning of agricultural waste, animal waste, and the increasing deforestation due to new agricultural areas are significant components of the climate change problem.

If agricultural activities do not undergo a transformation towards sustainability and basic concepts such as resource conservation, decarbonization, energy efficiency, and circularity are not developed and implemented, the share of the agricultural sector in greenhouse gas emissions will increase significantly as other sectors reduce their emissions.

The environmentally friendly management of agricultural waste towards sustainable agriculture is crucial for reducing stress on the environment and achieving goals by preventing the environmental damage caused by current stubble disposal approaches and largely preventing waste. Stubble refers to the remaining plant roots in the soil, fields planted without fallowing, corn stalks, stems left uncut, weeds on the field borders, and the remnants of harvested crops left in the field. Despite being prohibited due to the perception that crop residue burning facilitates quick soil preparation, facilitates soil cultivation, controls diseases and pests, controls weeds, and removes plant residues at the lowest cost, stubble burning incidents are encountered.

Stubble burning poses various risks such as forest fires, burning of telephone and energy transmission lines, traffic accidents due to fog formation, spreading of fires to neighboring unharvested fields, and burning of animal shelters and settlements in nearby villages. As a result of stubble burning, fires cause billions of liras in financial losses each year.

## **8.1 LEGISLATION**

### **8.1.1. INTERNATIONAL AGREEMENTS TO WHICH TURKEY IS A PARTY**

#### **I.1. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)**

The United Nations Framework Convention on Climate Change (UNFCCC), which came into force in 1994 and was the first and most important step taken internationally against the adverse effects of global warming on the climate, aims to reduce greenhouse gas emissions, promote research and technology cooperation, and protect greenhouse gas sinks (such as forests and oceans). In achieving these objectives, the UNFCCC implements the principle of "common but differentiated responsibilities and respective capabilities" in the country classifications in the annexes of the Convention, taking into account the development levels, historical responsibilities, development priorities, and special circumstances of the Parties. Developed countries listed in Annex I are countries with historical responsibilities, and they are obliged to limit greenhouse gas emissions, improve greenhouse gas sinks, and report relevant country data; countries listed in Annex II are subcategories of Annex I countries and, in addition to the responsibilities of Annex I countries, they have financial responsibilities and

are responsible for financing and technology transfer to developing non-Annex I countries. Non-Annex I countries are encouraged but not obligated to take on specific obligations.

Turkey, due to its membership in the OECD, initially appeared in Annexes I and II of the UNFCCC but subsequently, as a result of subsequent initiatives, was recognized as a Annex I country with special conditions by being removed from Annex II. However, in truth, Turkey is a developing country with low historical responsibility for global greenhouse gas emissions and low per capita emissions. Since the signing of the UNFCCC in 1992, it is clear that there has been a radical change in historical responsibilities. However, half of the world's top 10 emitters are still not included in Annex I. Moreover, although Turkey's inclusion in the Annexes is due to its OECD membership, four countries that joined the OECD after 1992 are not Annex I countries. Furthermore, nine of the G-20 countries, representing the largest economies, are also not included in Annex I.

Turkey became a Party to the UNFCCC by approving it with Law No. 4990 published in the Official Gazette dated 16.

## **I.2. KYOTO PROTOCOL**

The Kyoto Protocol was adopted in 1997 and entered into force in 2005. The Protocol specifies quantified emission reduction targets for Annex I parties.

Turkey became a Party to the Kyoto Protocol on August 26, 2009, following the submission of its accession instrument to the United Nations. This followed the adoption of Law No. 5386 by the Turkish Grand National Assembly on February 5, 2009, and Cabinet Decision No. 2009/14979 dated May 13, 2009.

When the Kyoto Protocol was adopted, although Turkey was included in Annex I of the UNFCCC, it did not have quantified emission reduction commitments under the Protocol.

## **I.3. PARIS AGREEMENT**

The Paris Agreement is based on the United Nations Framework Convention on Climate Change (UNFCCC) and aims to regulate the post-2020 climate change regime after the expiration of the Kyoto Protocol.

Despite not having historical responsibilities, Turkey, as a developing country, is using its limited resources to combat climate change. Although Turkey is considered an Annex I country under the UNFCCC, it signed the Paris Agreement, demonstrating its sincere commitment to combating climate change. As a rapidly developing country, Turkey has high potential for mitigation, but it faces challenges in areas such as finance, technology mechanisms, and capacity building. Turkey aims to have equal opportunities with countries at a similar level of development. However, Turkey's position within the UNFCCC does not align with current realities. Turkey aims to achieve greater progress in global climate action with fair positioning within the UNFCCC and is taking initiatives accordingly.

Turkey signed the Paris Agreement on April 22, 2016, at the High-Level Signature Ceremony held in New York, along with representatives from 175 countries. It was emphasized in our National Statement that Turkey signed the Agreement as a developing country.

The "Law Proposal on Approval of the Paris Agreement" dated May 29, 2019, which was approved by the Foreign Affairs Commission of the Turkish Grand National Assembly, found the Paris Agreement suitable for approval along with the declaration of our country on April 22, 2016.

#### **I.4. VIENNA CONVENTION AND MONTREAL PROTOCOL ON SUBSTANCES THAT DEplete THE OZONE LAYER**

Turkey became a party to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer in 1991.

National and international efforts related to the Vienna Convention and the Montreal Protocol are coordinated by our Ministry.

With 196 states and the European Union as parties, the Montreal Protocol is considered the first universally ratified agreement in the history of the United Nations and an extraordinary example of international cooperation due to its implementation.

Turkey has accepted four amendments to the Montreal Protocol, namely the London, Copenhagen, Montreal, and Beijing Amendments, and is among the countries successfully implementing the Protocol.

With the Montreal Protocol, the phasing out of substances that deplete the ozone layer has led to a rapid increase in the use of alternative fluorinated greenhouse gases, especially in the refrigeration and air conditioning sectors.

With the Kigali Amendment, the Montreal Protocol has added Fluorinated Greenhouse Gases (Hydrofluorocarbons, HFCs), which have a strong greenhouse gas effect, to the list of "Controlled Substances" in the annex, aiming to reduce their consumption within a specified timeframe. It is expected that the implementation of the Kigali Amendment will reduce global temperature rise by 0.5 degrees Celsius by 2100.

The first reduction is expected to be made by developed countries in 2019.

As Turkey is classified among developing countries under the Montreal Protocol, it will cease the consumption of HFCs at a certain reference value by 2024 and will make its first reduction by 2029.

Additionally, Turkey, being among developing countries, benefits from the Multilateral Fund (MLF) under the Montreal Protocol and will receive support from the MLF for the implementation of the Kigali Amendment.

With the entry into force of Article 4 of the Kigali Amendment, trade restrictions will be imposed on non-party countries starting from 2033.

The process of becoming a party to the Kigali Amendment is ongoing, and on May 29, 2019, the "Draft Law Proposal on the Amendment to the Montreal Protocol, on Which Agreement Was Reached at the Twenty-Eighth Meeting of the Parties (Kigali Amendment-2016)" was approved by the Turkish Grand National Assembly's Foreign Affairs Commission.

## **I.5. OTHER CONVENTIONS**

### **I.5.1. BERNE CONVENTION**

Turkey, as a party to the Bern Convention since 1984, is obligated to take necessary legal and administrative measures to protect the plant and animal species listed in Appendix 1 and Appendix 2 of the Convention, along with their natural habitats.

### **I.5.2. CITES CONVENTION**

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has developed a worldwide system requiring governments' permission for trade in endangered wildlife to control such trade.

### **I.5.3. PARIS CONVENTION FOR THE PROTECTION OF WORLD CULTURAL AND NATURAL HERITAGE**

The Convention aims to establish a new regime for the collective protection of exceptional cultural and natural heritage on a permanent basis and in accordance with modern scientific methods.

#### **I.5.4. RAMSAR CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE AS WATERFOWL HABITATS**

The main purpose of the Convention is to emphasize the principle that wetlands constitute a significant resource economically, culturally, scientifically, and recreationally and that they will not be brought back if lost.

#### **I.5.5. CONVENTION ON BIOLOGICAL DIVERSITY (RIO CONVENTION)**

The Convention's objective is to ensure the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the use of genetic resources, taking into account all rights over genetic resources and technologies, and ensuring the appropriate transfer of such resources and technologies, including financial support.

#### **I.5.6. STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS (POPs)**

The objective of the Stockholm Convention is to ban or restrict the production, importation, and exportation of certain pesticides used in agriculture, industrial chemicals, and by-products of industrial processes that persist in the environment, accumulate in the fatty tissues of humans and wildlife, and pose a risk to human health and the environment. Turkey signed the "Stockholm Convention on Persistent Organic Pollutants" on May 23, 2001, and it was approved by the Turkish Grand National Assembly on April 14, 2009, becoming law No. 5871. The Convention entered into force for Turkey on January 12, 2010. Regulations concerning the management and utilization of crop residues in Turkey are very limited in number. These regulations have been developed specifically to suit the country's conditions and have been implemented.

## **CHAPTER II: RELEVANT MINISTRIES AND ADMINISTRATIVE UNITS**

According to the Constitution of the Republic of Turkey, improving the environment, preventing environmental pollution, and protecting the environment are the duties of all public institutions and organizations as well as citizens. When we approach the subject from the perspective of public institutions and state organs, it is seen that the legislative, executive, and judicial organs, which perform the basic functions of the state, are competent and responsible for environmental issues.

In terms of their areas of responsibility, the organizations directly related to biomass, waste, biofuels, and compost are as follows:

## **II.1. MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE**

The organization, duties, and powers of the Ministry of Environment and Urbanization were reorganized by the Presidential Decree No. 1 on the Organization of the Presidency published on July 10, 2018, and it consists of the central and provincial organization, as well as affiliated, related, and associated institutions.

By the Presidential Decree No. 85 published in the Official Gazette dated October 29, 2021, and numbered 31643, the name of our Ministry was changed to the Ministry of Environment, Urbanization, and Climate Change.

The Ministry of Environment, Urbanization, and Climate Change is structured to prepare legislation related to settlement, environment, and urbanization; to conduct urban transformation studies; to supervise implementations; to ensure the development of professional services; to prevent environmental pollution; to ensure the protection of our environment and nature; and to combat the effects of climate change.

It is the responsibility of the Ministry of Environment, Urbanization, and Climate Change to provide overall coordination for the healthy implementation of environmental services, including the harmonization of EU environmental legislation, and to develop and implement environmental policies in Turkey. The main task of the Ministry is to determine policies and principles related to environmental protection and pollution prevention and reduction in a very general sense, to regulate relevant legislation, and to ensure its implementation.

Within the Ministry's organization, under the Directorate General of Environmental Management, there are the Zero Waste and Waste Processing Department Presidency and the Water and Soil Management Department Presidency.

According to the Presidential Decree No. 1 on the Organization of the Presidency, the duties of the Directorate General of Environmental Management are as follows:

Directorate General of Environmental Management

ARTICLE 103 - (1) The duties and powers of the Directorate General of Environmental Management are as follows:

- a) To prepare legislation related to the prevention and control of environmental pollution, develop standards, determine measurement, detection, and quality criteria; to provide opinions on environmental pollution according to the characteristics of the receiving environment,
- c) To conduct studies on policies and strategies for clean production and integrated pollution prevention, and to prepare relevant legislation,
- ç) To conduct studies on promoting the use of clean energy, especially renewable energy sources, and to determine targets and criteria for the use of fuels in a manner that does not cause air pollution,
- d) To determine criteria related to waste and chemicals with negative effects on the environment, including free zones, throughout the country, noise and vibration, and air pollution,
- f) To realize effective environmental management, to determine necessary economic tools to ensure the compatibility of waste and chemicals with the environment, to develop standards in this regard,
- ğ) To establish procedures and principles regarding the protection of underground and surface waters, seas, and soil, the elimination and control of polluting substances and pollution for the purpose of preventing pollution or disposing of it, to make and have emergency intervention plans made, to determine appropriate technologies for environmental protection, to determine the qualifications of facilities to be established for this purpose, and to take and have necessary measures taken within this framework,
- h) To conduct studies on setting goals, policies, and criteria regarding waste and chemicals management,
- i) To determine the design principles and criteria of wastewater treatment facilities together with the Ministry of Agriculture and Forestry, and to carry out approval procedures,
  - To conduct studies on setting policies and strategies for minimizing waste at the source, sorting, collection, transportation, temporary storage, recovery, disposal, reuse, treatment, conversion to energy, and final disposal of wastes,
- j) To determine the principles regarding the transportation of wastes and the licenses for the transportation of hazardous wastes in cooperation with relevant institutions and organizations, to ensure their implementation, to monitor, to determine the current pollution status of areas contaminated with waste and chemicals, and to conduct and have studies



conducted on risks to the environment and human health and the improvement of contaminated areas,

k) To determine criteria for the import and export of fuels, waste, and chemicals to be banned or restricted and other substances that may cause environmental pollution, and to ensure their implementation,

l) To conduct studies on preparing national environmental strategies and action plans and to ensure coordination,

## **II.2. MINISTRY OF AGRICULTURE AND FORESTRY**

The duties of the Ministry of Agriculture and Forestry are regulated in the 14th Chapter of the Presidential Decree No. 30474 published in the Official Gazette dated July 10, 2018. The Ministry of Agriculture and Forestry undertakes important duties at the point of cooperation between regulations regarding waste management and agricultural policies with its regulations on the protection of agricultural lands, good agricultural practices, and organic agriculture.

ARTICLE 410 - (1) The duties and powers of the Ministry of Agriculture and Forestry are as follows:

a) To conduct research on the development of plant and animal production, aquaculture production, and agricultural sector development, and to develop agricultural policies,

b) To ensure the production, safety, and reliability of food, rural development, and the protection and efficient use of soil, water resources, and biodiversity,

c) To carry out studies on the organization and awareness of farmers, effective management of agricultural supports, and regulation of agricultural markets; to conduct studies to determine general policies for agriculture and animal husbandry, to monitor and control their implementation,

ç) To conduct studies to develop policies for the protection, development, operation, rehabilitation, and maintenance of forests, combating desertification and erosion, afforestation, and rehabilitation of forest-related pasture lands,

d) To conduct studies for the development of policies for the protection of nature, to ensure the identification of protected areas, the protection, management, development, operation, and operation of national parks, nature parks, natural monuments, nature conservation areas, wetlands, and biological diversity and hunting and wildlife management,

e) To conduct studies to develop policies for the protection and sustainable use of water resources, to coordinate national water management,

f) To carry out studies in cooperation with relevant organizations at the national level to monitor international studies and contribute to them,

g) To perform other duties given by laws or presidential decrees.

The Ministry of Agriculture and Forestry is the ministry responsible for agricultural and forestry affairs in Turkey. Furthermore, since all seas and inland waters have been declared as fish production and production areas in accordance with the provisions of Law No. 1380 on Fisheries and relevant regulations, it is responsible for water quality, monitoring, protection, and practices in these areas. On the other hand, it is responsible for land use in rural areas and the development of water resources. The Ministry monitors surface waters in agricultural lands for pollution caused by nitrates and pesticides. The Ministry also has responsibilities for fish farms, control of aquatic products and pesticide, and obligations related to Genetically Modified Organisms.

### **III. HEALTH MINISTRY**

Among the duties assigned to the Ministry of Health by Article 352 of Presidential Decree No. 1:

ARTICLE 352 - (1) In order to ensure that everyone leads their life in a state of complete physical, mental, and social well-being, the duties and powers of the Ministry of Health include conducting studies to protect and improve public health, reduce and prevent health risks.

It is evident that the Ministry has responsibilities regarding public health. At this point, it is clear that the Ministry has responsibilities in the purification of waste from its harmful effects on human health.

The Ministry is also responsible for taking and ensuring measures related to environmental health in accordance with the relevant provisions of Law No. 1593 on General Hygiene Law and Decree Law No. 181. It prevents the harm to public health caused by Non-Sanitary Establishments and conducts necessary inspections.

The licensing and permit procedures of Non-Sanitary Establishments are carried out in accordance with the provisions of the Regulation on Workplace Opening and Operating Licenses.

## **CHAPTER III: NATIONAL LEGISLATION**

### **III.1. CONSTITUTION OF THE REPUBLIC OF TURKEY NO. 2709**

## B. Land ownership

Article 44 - The State takes necessary measures to protect and improve the efficient operation of the land, prevent erosion, and provide land to peasants engaged in farming who do not own or have insufficient land. The law may determine the extent of the land according to different agricultural regions and types for this purpose. Providing land to peasants who do not own or have insufficient land shall not result in a decrease in production, a reduction in forests, or a decrease in other land and underground wealth.

The distributed lands for this purpose cannot be divided, transferred to others except through inheritance provisions, and can only be operated by the distributed farmers and their heirs. In case of loss of these conditions, the principles regarding the return of the distributed land by the State are regulated by law.

## C. Protection of agriculture, animal husbandry, and workers in these production sectors

Article 45 - The State prevents the non-purposeful use and destruction of agricultural lands, meadows, and pastures, and facilitates the provision of farming tools, equipment, and other inputs for those engaged in agriculture and animal husbandry in order to increase agricultural production in line with the principles of agricultural production planning.

The State takes measures to ensure that agricultural and animal products are evaluated and their real values reach the producers.

# **VIII. Health, environment, and housing**

## A. Health services and environmental protection

Article 56 - Everyone has the right to live in a healthy and balanced environment.

Improving the environment, protecting environmental health, and preventing environmental pollution are the duties of the State and citizens.

The State regulates the planning and provision of health services by coordinating health institutions centrally to ensure that everyone lives in physical and mental health and efficiency is increased in human and material resources through cooperation.

The State fulfills this duty by benefiting from health and social institutions in the public and private sectors and supervising them.

General health insurance may be established by law for the widespread provision of health services.

# **I. Planning; Economic and Social Council**

Article 166 - It is the duty of the State to plan economic, social, and cultural development, especially the balanced and harmonious development of industry and agriculture at the national level, by identifying and evaluating national resources and using them efficiently. Measures are envisaged in the plan to increase national savings and production, stabilize prices, ensure balance in foreign payments, develop investment and employment; societal benefits and needs are taken into account in investments; the efficient use of resources is targeted. Development initiatives are carried out according to this plan.

The procedures and principles regarding the preparation, approval, implementation, modification, and prevention of changes that will disrupt the integrity of development plans are regulated by law.

(Additional paragraph: 7/5/2010-5982/23) An Economic and Social Council is established to provide advisory opinions to the President in the formation of economic and social policies. The establishment and functioning of the Economic and Social Council are regulated by law.

### III. Exploration and operation of natural resources and assets

Article 168 - Natural resources and assets are under the control and disposition of the State. The right to explore and operate these belongs to the State. The State may transfer this right to real and legal persons for a certain period. Whether exploration and operation of natural resources and assets, jointly with the State by real and legal persons or directly by real and legal persons, is subject to the explicit permission of the law. In this case, the conditions to be complied with by real and legal persons, and the supervision, control procedures and principles, and sanctions to be imposed by the State are specified by law.

### IV. Forests and forest villagers

#### A. Protection and development of forests

Article 169 - The State enacts necessary laws and takes measures to protect and expand the areas of forests. New forests are planted in the place of burned forests; other types of agriculture and animal husbandry cannot be carried out in these places. All forests are under the surveillance of the State.

The ownership of State forests cannot be transferred. State forests are managed and operated by the State in accordance with the law. These forests cannot be acquired by prescription and cannot be subject to usufruct rights except for public interest.

No activity or action that may harm forests is allowed. Political propaganda that leads to the destruction of forests cannot be made; general and special amnesties cannot be granted exclusively for forest crimes. Crimes committed with the intention of burning forests, destroying forests, or narrowing forests cannot be included in the scope of general and special amnesty.

Areas within or adjacent to forests inhabited by village communities are evaluated through cooperation between the State and these communities in terms of their development, protection, and operation of forests, as well as the surveillance and operation of forests; and the assessment of lands that have completely lost their forest status due to science and technology before 12/31/1981; and the identification and exclusion of areas deemed useless for conservation as forests based on science and technology; and the relocation of village communities partially or completely to these areas within or outside forest boundaries. The State regulates the allocation of these areas for the benefit of these communities by reviving the mentioned places by law.

The State takes measures to facilitate the provision of farming tools, equipment, and other inputs for these communities. The lands belonging to the communities relocated from within forests are immediately afforested as State forests.

## **III.2. LAWS**

### **III.2.1. LAW NO. 2872 ON ENVIRONMENT<sup>2</sup>**

Legislation regarding the management of waste falls within the scope of the "Environmental Law". The purpose of the Environmental Law of the Republic of Turkey, which was published in the Official Gazette No. 18132 dated 09.08.1983 and came into force, amended with a new law published in the Official Gazette No. 26167 dated 13.05.2006, is to protect the environment, which is the common habitat of all living beings in nature, considering the principles of sustainable development.

The purpose of the Environmental Law is to ensure the protection and improvement of the environment in line with the principles of sustainable environment and sustainable development. Within the framework of this law, aims include ensuring the correct use of lands in parallel with protection principles, preventing water and air pollution, and determining measures and regulations that can be taken to protect natural resources.

Within the scope of the law, it is considered essential to reduce waste generation at its source and to use environmental technologies that enable waste recovery. Obligations such as obtaining permits, treatment, and disposal are also determined within the scope of the Environmental Law.

In Article 8 of Law No. 2872 on the Environment: It is prohibited to directly or indirectly release, store, and engage in similar activities in the environment for all kinds of waste and residues.

According to the amendment in Article 11 of the Law Amending the Environmental Law No. 5491; "Metropolitan municipalities and municipalities are obliged to establish, establish, operate, or operate domestic solid waste disposal facilities.

Definitions regarding waste are included in Article 2 titled Definitions of the Environmental Law. Accordingly;

Waste: Any substance generated as a result of any activity and thrown or left into the environment,

Solid waste: Solid waste materials that need to be disposed of in a regular manner, especially for the protection of the environment and the harmony of the society,

Domestic solid waste: Solid wastes from places such as residences, industry, workplaces, picnic areas, which are not within the scope of hazardous and harmful waste,

Hazardous waste: Substances that adversely affect ecological balance and the natural structures of humans and other living beings by physical, chemical, and/or biological means and materials contaminated with these wastes are considered as hazardous wastes.

In the same article, in the definition of the Work Termination Plan; It is foreseen that the plan indicating the timing of the processes such as site selection, project, tender, construction, commissioning involved in the realization of sewage treatment plants and/or sewerage and solid waste disposal facilities within the framework of the work termination plan covers waste.

Among the principles related to the improvement and protection of the environment and the prevention of pollution in the Environmental Law; It is envisaged that the use of environmentally compatible technologies that reduce waste generation at its source and enable waste recovery is essential.

Furthermore, in this paragraph, the practices related to the implementation of this paragraph are determined by the Ministry. (2) In the paragraph added to this paragraph by Article 12 of Law No. 7261 dated 24/12/2020, the phrase "prevention and elimination" is added after the phrase "prevention and elimination", the phrase "widespread adoption of zero waste, implementation of circular economy principles and combating climate change" after the phrase "promoting clean technologies," and the phrase "promotion of clean technologies," after the phrase "promotion of clean technologies,". the phrase "promotion of electric or electric vehicles, promotion of recycled water reuse of wastewater, and promotion of recycled water reuse of wastewater," is added after the phrase "promotion of clean technologies," the phrase "taking collateral and" is added after the phrase "taking collateral and". and the phrase "carbon trading for tracking greenhouse gas emissions" is added after the phrase "taking collateral and". (2) The procedures and principles regarding the practices

in this paragraph are determined by the Ministry with the Law No. 7261 dated 24/12/2020 and the 12th article of the law. With the 12th article of the law, the phrase “widespread adoption of zero waste, implementation of circular economy principles and combating climate change” was added after the phrase “prevention and elimination of prevention and elimination,” and the phrase “promotion of clean technologies,” was added after the phrase “promotion of clean technologies,”. the phrase “promotion of electric or electric vehicles, promotion of recycled water reuse of wastewater, and promotion of recycled water reuse of wastewater,” is added after the phrase “promotion of clean technologies,”, the phrase “taking collateral and” is added after the phrase “taking collateral and”. and the phrase "carbon trading for tracking greenhouse gas emissions" is added after the phrase "taking collateral and". (2) The procedures and principles regarding the practices in this paragraph are determined by the Ministry with the Law No. 7261 dated 24/12/2020 and the 12th article of the law.

**Prohibition of pollution:**

Article 8 - It is prohibited to directly or indirectly release, store, transport, dispose of, and engage in similar activities that may harm the environment in any way, contrary to the standards and methods specified in the relevant regulations.

Obligation to obtain permission, treatment, and disposal (1)

Article 11 - (Amended: 26/4/2006-5491/8 md.)

Facilities and businesses, as well as settlements, whose wastes are not considered appropriate to be directly or indirectly discharged into the environment as a result of production, consumption, and service activities, are obliged to treat and dispose of their wastes in accordance with the standards and methods specified in the regulations and to obtain the permits foreseen.

The facilities and businesses and settlements covered by the obligation specified in the first paragraph;

Building permits are not granted unless the projects and documents showing that they will fulfill this obligation are submitted to the relevant authority at the building permit stage.

From those whose construction is completed, no operating permit and/or building use permit is granted to those who do not fulfill this obligation.

If they do not fulfill their treatment and disposal obligations despite having a building permit, building use permit, or operating permit issued, the issued building use or operating permit is canceled.

Natural and legal persons planning to make changes in their activities and/or expand their facilities are obliged to fulfill their obligations to treat or dispose of their wastes in accordance with the procedures and principles specified in the regulation.

Paragraph 8; Waste producers are obliged to take measures to minimize their waste using appropriate methods and technologies. (Additional sentences: 24/12/2020-7261/13 md.)

Waste producers can manage their wastes through companies authorized as waste management responsible. However, waste producers whose qualifications are determined by the Ministry are obliged to manage their wastes through waste management responsible companies. The responsibilities of waste producers and the authorization and obligations of waste management responsible companies are regulated by the regulation issued by the Ministry.

Paragraph 9 (Amended paragraph: 24/12/2020-7261/13 md.) It is essential to prevent or reduce the production and harm of wastes and to separate recyclable wastes at their source. Those who have obtained documents by establishing a zero waste management system can deliver their waste, which they have collected separately according to their types, to waste processing facilities licensed by the Ministry for recycling. The procedures and principles regarding the preparation of waste management plans and the zero waste management system are determined.

Activities in connection with and/or planning to expand their facilities by individuals and legal entities are obliged to fulfill their obligation to treat or dispose of their waste in accordance with the procedures and principles specified in the regulation.

Paragraph 8; Waste producers must take measures to minimize their waste using appropriate methods and technologies. (Additional sentences: 24/12/2020-7261/13 md.) Waste producers can also fulfill their waste management obligations through companies authorized as waste management responsible. However, waste producers whose qualifications are determined by the Ministry are obliged to manage their waste through waste management responsible companies. The procedures and principles regarding the authorization of waste producers and waste management responsible companies and their obligations are regulated by the regulation issued by the Ministry.

Paragraph 9 (Amended paragraph: 24/12/2020-7261/13 md.) It is essential to prevent or reduce the production and harm of wastes and to separate recyclable wastes at their source. Those who have obtained documents by establishing a zero waste management system can deliver their waste, which they have collected separately according to their types, to waste



processing facilities licensed by the Ministry for recycling. The procedures and principles regarding the preparation of waste management plans and the zero waste management system are determined by the regulation issued by the Ministry, and within this framework, it is mandatory to establish and operate the zero waste management system.

Paragraph 10 (Additional paragraph: 24/12/2020-7261/13 md.) It is essential to use wastes for the purpose of reducing the use of natural resources and increasing recycling. Regulations on the use of wastes or recycled materials obtained from wastes and principles regarding mandatory use are determined by the regulation issued by the Ministry. Wastes that cannot be recycled are disposed of by appropriate methods determined by regulations.

Paragraph 11 Wastes that cannot be recycled are disposed of by appropriate methods determined by regulations.

Paragraph 12 Metropolitan municipalities and municipalities are obliged to establish, establish, operate, or operate domestic solid waste disposal facilities. Those benefiting from and/or benefiting from this service are obliged to participate in the investments, operations, maintenance, repair, and improvement expenditures made by responsible managements. Solid waste collection, transportation, and disposal fees are collected from those benefiting from this service according to the tariff determined by the municipal council. The fees collected in accordance with this paragraph cannot be used for services other than solid waste-related services.

Under the responsibility of producers, importers, and market entrants, producers, importers, and market entrants subject to obligations are obliged to come together under the coordination of the Ministry to establish associations with legal personality for the purpose of fulfilling their obligations regarding the collection, transportation, recycling, reuse, and disposal of waste generated as a result of the useful life of their products and the coverage of necessary expenses for these, as well as for the realization of educational activities. The principles and procedures for the transfer of responsibilities of institutions and organizations subject to obligations to these associations are determined by regulations issued by the Ministry.

Producers of hazardous waste are obliged to dispose of their waste in accordance with the principles to be determined by regulations.

Individuals and/or legal entities wishing to establish and operate waste recovery, recycling, and disposal facilities are obliged to obtain a license from the Ministry in accordance with the principles specified in the regulation, with the condition of obtaining permission regarding product standards, suitability for sale of their products, and market control, as determined by the relevant institutions. (Additional sentences: 24/12/2020-7261/13 md.) The amounts of

collateral to be obtained from individuals and/or legal entities required to obtain a license and waste management responsible companies are determined based on the type, quantity, and disposal cost of the waste for which they are responsible, and the principles regarding these collaterals are determined by the regulation issued by the Ministry.

Companies or organizations engaged in waste transportation and/or collection activities, excluding domestic waste, are required to obtain a license from the Ministry. Companies and organizations carrying out the transportation and collection of domestic waste are registered by the Ministry.

If municipalities establish service unions for the purpose of establishing wastewater treatment, waste disposal, and waste recovery facilities, technical and financial assistance is provided by the Ministry in terms of research, feasibility, and project matters. Project construction projects can be supported by credit or assistance within the framework of Article 18 of this Law. In case the credit debt is not repaid, follow-up is carried out in accordance with the provisions of Law No. 6183 on the Procedure for Collecting Public Receivables, and the amounts are collected from the shares of the relevant municipalities in the İller Bankası within the framework of the additional 4th article of the Law on the Allocation of Share from General Budget Tax Revenues to Municipalities and Provincial Special Administrations.

Treatment and disposal obligations and the facilities and settlements subject to these obligations, the treatment and disposal systems mandatory to be established in accordance with these obligations, the establishment, repair, improvement, operation, and determination of contribution shares for wastewater infrastructure systems, and the principles and procedures regarding the establishment of treatment and disposal systems, waste treatment, and pre-treatment systems are regulated by regulations issued by the Ministry. Other authorities granted by other laws in this regard are reserved.

The permits necessary to ensure the implementation of this Law and the procedures and principles to which these permits shall be subject are determined by regulations issued by the Ministry.

It is mandatory for institutions, organizations, and facilities that may have adverse effects on the environment due to their activities to prepare emergency response plans to control and reduce the adverse effects of accidents related to their activities on the environment. The

procedures and principles regarding this matter are regulated by regulations issued by the Ministry.

Based on these plans, local, regional, and national emergency plans are prepared by relevant institutions and organizations under the coordination of the Ministry.

Coastal facilities such as ports, shipyards, ship maintenance and repair, ship dismantling, marinas, etc., are responsible for the collection, storage, transportation, and disposal of oily, greasy solid waste, bilge, dirty ballast, slop, liquid waste, domestic wastewater, and solid waste generated in their own facilities and on ships and other marine vessels. The procedures and principles regarding this matter are determined by regulations issued by the Ministry.

#### Environmental Contribution Fees, Other Revenues, and Budget Appropriations

To prevent environmental pollution, improve the environment, and support investments related to the environment:

- a) The amount equivalent to one percent of the CIF value of fuel and waste subject to control importation and one thousandth of the CIF value of scrap shall be collected.
- b) One percent of the fee for water and used water removal collected by metropolitan municipalities' water and sewerage administrations is collected as an environmental contribution fee. The amounts collected are transferred to the relevant accounts of the responsible authorities by the fifteenth of the following month at the latest and recorded as revenue in the budget.
- c) In addition, revenues obtained within the scope of Annexes 11 and 13, any kind of grant, aid, and donations obtained from domestic and foreign sources, as well as loan principal repayments and loan interests, are collected, transferred to the account of the Ministry of Environment and Urbanization Central Treasurer's Office, recorded as revenue in the budget.

The procedures and principles regarding the collection of the above-mentioned revenues and the use of the appropriations foreseen in the budget are determined by regulations issued by the Ministry upon the favorable opinion of the Ministry of Treasury and Finance.

#### **Administrative Penalties:**

**Administrative penalties include the following:**

f) A fine of sixty thousand Turkish Liras (328,819 TL) is imposed on those who fail to establish or operate waste intake, pre-treatment, treatment, or disposal facilities required under Article 11.

j) A fine of twenty-four thousand Turkish Liras (131,516 TL) is imposed on those who dispose of waste into the soil without complying with the prohibitions or standards prescribed in the law and regulations or without taking measures.

t) Separate fines of two million Turkish Liras (10,961,356 TL) are imposed on those who facilitate the entry of hazardous wastes into the country in any way.

u) A fine of two million Turkish Liras (10,961,356 TL) is imposed on those who export or transit hazardous wastes without prior notification to the relevant authorities.

v) Fines ranging from one hundred thousand Turkish Liras (548,048 TL) to one million Turkish Liras (5,480,664 TL) are imposed on those who collect, separate, temporarily and temporarily store hazardous wastes, recycle, reuse, transport, package, label, dispose of, or fail to properly close hazardous waste disposal facilities according to the rules, in violation of the prohibitions or limitations set forth in this Law and related regulations.

y) A fine of one hundred thousand Turkish Liras (548,048 TL) to one million Turkish Liras (5,480,664 TL) is imposed on those who produce, process, import, export, transport, store, use, package, label, sell, or offer for sale chemicals or goods containing such chemicals in violation of the procedures, prohibitions, and limitations specified in this Law and related regulations.

z) (Added: 29/11/2018-7153/5 md.) Those who fail to pay the recycling participation fee in accordance with additional Article 11 of this Law are subject to an administrative fine equal to 20% of the participation fee amount.

A fine of 1,500 Turkish Liras (2,043 TL) is imposed on those who fail to comply with the principles determined for the recycling participation fee.

cc) (Added: 24/12/2020-7261/17 md.) A fine of twenty thousand Turkish Liras (27,240 TL) is imposed on those who fail to establish the zero waste management system stipulated in Article 11 and cannot document its establishment.

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l) Those who burn stubble contrary to subparagraph (c) of Additional Article 1 of this Law are subject to an administrative fine of twenty Turkish Liras (386.79 TL) per decare. If the act of

burning stubble is committed in areas adjacent to forests and wetlands or in densely populated areas, the fine is increased fivefold.

Teşvik (Incentives):

Activities related to the prevention and remediation of environmental pollution benefit from incentive measures. For this purpose, new principles may be introduced by the Ministry of Treasury and Finance at the beginning of each year in consultation with the Ministry.

(Added Paragraph: 29/11/2018-7153/7 md.) Municipalities, provincial special administrations, institutions, organizations, and enterprises that establish and implement the zero waste management system for the separate collection and storage of waste at the source are subject to incentive measures by the Ministry. The procedures and principles for the implementation of this provision are determined by regulations issued by the Ministry.

(Added Paragraph: 26/4/2006-5491/20 md.) The President is authorized to apply a discount of up to fifty percent on the electricity tariff used in wastewater treatment facilities operated by organizations that establish, operate, and fulfill the obligations specified in the regulations.

The principles regarding incentive measures are determined by regulation. Individuals and legal entities that commit acts resulting in the penalties specified in this Law cannot benefit from the incentive measures specified in this article and the incentive measures previously applied to them are discontinued if they fail to fulfill their obligations within the specified period.

Additional Article 1 – (Added: 26/4/2006-5491/23 md.)

The principles regarding the protection and prevention of soil pollution are as follows:

- a) The procedures and principles for the protection and prevention of soil pollution and remediation shall be determined by regulations to be issued by the Ministry, taking into account the opinions of relevant organizations.
- b) The procedures and principles regarding quarrying and mining activities, excavations made in the field for material and soil supply, deposits, and waste left in nature, and the restoration of the natural structure disturbed by these activities shall be determined by regulations to be issued by the Ministry, taking into account the opinions of relevant organizations.

c) Burning stubble, damaging pastures and meadows, and any activity that may cause erosion are prohibited. However, controlled stubble burning may be permitted within the framework of action plans prepared by the governorships in regions where second crops are planted and under the responsibility of the governorships.

d) The principles regarding the extraction of sand, gravel, and similar materials from the seas within the territorial waters of the country, riverbeds, dry riverbeds, lake beds, and agricultural lands shall be determined by regulations to be issued by the Ministry, taking into account the opinions of relevant organizations.

#### Temporary Article 4 –

...According to waste legislation: All ministries and civil society organizations must work together for the reuse, reduction of quantities, and recycling of waste. It is forbidden to pollute the environment. If there is a potential for waste generation due to production, the establishment must prepare an environmental impact assessment report. If the establishment fails to obtain approval based on the report, it cannot start operations. All establishments must recover their waste in the manner specified in the laws. Disposal must be carried out within the framework of relevant laws in cases where recovery is not possible. The polluting establishment is obliged to clean up again. The Ministry may provide electricity discounts for organizations planning to operate their own wastewater treatment plants. Burning of animal waste is strictly prohibited. Establishments are obliged to keep odor emissions within permitted values.

Failure to comply with the provisions of the relevant regulations issued by the Ministry of Environment and Urbanization contains provisions for any administrative fines or sanctions. Waste producers must take measures to reduce their waste to a minimum using appropriate methods and technologies. It is essential to prevent or reduce the production and harm of waste and to collect recyclable waste separately at the source.

The principles for the preparation of waste management plans shall be regulated by regulations to be issued by the Ministry. Individuals and/or legal entities wishing to establish and operate waste recovery, recycling, and disposal facilities are obliged to obtain a license from the Ministry, in accordance with the principles determined by the regulations, subject to obtaining permission from the relevant institutions regarding product standards, suitability for sale of their products, and market surveillance. Polluters and those causing harm to the environment are responsible without requiring fault for the pollution and degradation they cause. The polluter is also liable for compensation for damages according to general provisions arising from the damages caused.

Activities related to the prevention and remediation of environmental pollution benefit from incentive measures. For this purpose, new principles may be introduced by the Ministry of Treasury and Finance at the beginning of each year in consultation with the Ministry.

According to the Environmental Law, violation of the relevant law prohibits any action or activity that may cause environmental pollution. The organic content and recyclability of animal waste should be considered as a more sustainable option for the management of animal waste through aerobic or anaerobic composting for biogas and renewable energy recovery. Waste management strategy particularly offers biogas facilities as an important alternative for organic fraction. Therefore, recovery of biogas and compost through anaerobic digestion of animal waste is important in redirecting such waste out of landfill areas, preventing water pollution, and preventing the spread of harmful gases from animal waste into the atmosphere.

Those benefiting from this service and/or intending to benefit from it are obliged to contribute to the investment, operation, maintenance, repair, and improvement expenses to be made by responsible managements. Solid waste collection, transportation, and disposal fees are charged to those benefiting from this service according to the tariff determined by the municipal council. The fees collected under this paragraph cannot be used for services related to solid waste other than those specified.

### **III.2.2. LAW NO. 5216 ON METROPOLITAN MUNICIPALITIES**

Among the duties of municipalities according to Article 7 of Law No. 5216 on Metropolitan Municipalities:

"... preparing and having the solid waste management plan prepared; performing services related to the reuse, recycling, storage, and disposal of solid waste and excavation except for the collection of solid waste at the source and transportation to transfer stations..."

Article 7 - Metropolitan municipality's duties, powers, and responsibilities are as follows:

i) Ensuring the protection of the environment, agricultural areas, and water basins in line with the principle of sustainable development; afforestation; collecting non-industrial workplaces, entertainment venues, other workplaces affecting public health and the environment in specific locations of the city; determining construction material, scrap storage areas and sales points, excavation soil, debris, sand, and gravel storage areas, wood and coal sales and storage areas, taking measures to prevent environmental pollution during their transportation; preparing the metropolitan solid waste management plan, carrying out services related to the reuse, recycling, storage, and disposal of solid waste and excavation,

except for the collection of solid waste at the source and transportation to transfer stations, establishing, having established, operating, or having operated facilities for this purpose; conducting services related to industrial and medical waste, establishing, having established, operating, or having operated necessary facilities for this purpose; collecting, recovering, treating marine waste, and making necessary arrangements regarding this.

### **III.2.3. MUNICIPALITY LAW NO. 5393**

Duties and responsibilities of the municipality

Article 14 - The municipality, under the condition of being of local common interest;

a) Urban infrastructure such as urban infrastructure, water and sanitation, transportation, geographic and urban information systems; environment and environmental health, cleanliness and solid waste; municipal police, fire brigade, emergency aid, rescue and ambulance; urban traffic; burial and cemeteries; afforestation, parks, and green areas; housing; culture and art, tourism and promotion, youth and sports, dormitories for middle and higher education students (The last paragraph of Article 75 of this Law, municipalities, provincial administrations, their affiliated organizations, and companies subject to the audit of the Court of Accounts, and the unions they are members of, do not apply to the construction, maintenance, and furnishing of middle and higher education student dormitories and all kinds of school buildings belonging to the State.); social services and assistance, marriage, vocational training; economic and commercial development services. (...) (Additional sentences: 12/11/2012-6360/17 md.) Metropolitan municipalities and municipalities with a population of over 100,000 are required to open guesthouses for women and children. Other municipalities may also open guesthouses for women and children by evaluating their financial situation and service priorities.

Powers and privileges of the municipality

Article 15 - The powers and privileges of the municipality are as follows:

g) Performing and having performed all services related to the collection, transportation, separation, recycling, elimination, and storage of solid waste.

### **III.2.4. TURKISH PENAL CODE NO. 5237**

Turkish Penal Code No. 5237

With Articles 181 and 182, penalties for intentional and negligent pollution of the environment have been regulated, providing criminal sanctions up to imprisonment for those responsible.



## **PART TWO**

### **Crimes Against the Environment**

Intentional pollution of the environment

Article 181 - (1) A person who intentionally disposes of waste or residues in a manner that violates the technical procedures determined by relevant laws and causes harm to the environment, shall be sentenced to imprisonment for a term of six months to two years.

(2) A person who illegally imports waste or residues into the country shall be sentenced to imprisonment for a term of one to three years.

(3) In case the waste or residues exhibit permanent characteristics in soil, water, or air, the penalty to be imposed under the preceding paragraphs shall be increased by twice.

(4) If the acts defined in the first and second paragraphs are committed regarding waste or residues that have qualities capable of causing incurable diseases, diminishing reproductive capacity, or changing the natural characteristics of animals or plants for humans or animals, a prison sentence of not less than five years and a judicial fine of up to one thousand days shall be imposed.

(5) Legal entities shall be subject to specific security measures for the acts defined in paragraphs two, three, and four of this Article.

Negligent pollution of the environment

Article 182 - (1) A person who negligently causes the disposal of waste or residues in a manner that harms the environment shall be punished with a judicial fine. If these waste or residues have a permanent effect on soil, water, or air, a prison sentence of two months to one year shall be imposed.

(2) A person who negligently causes the disposal of waste or residues with qualities capable of causing incurable diseases, diminishing reproductive capacity, or changing the natural characteristics of animals or plants for humans or animals in soil, water, or air shall be sentenced to imprisonment for a term of one to five years.

### **III.2.5. AGRICULTURAL LAW NO. 5488**

Purpose

ARTICLE 1 - The purpose of this Law is to determine the necessary policies and regulations for the development and support of the agricultural sector and rural areas in line with development plans and strategies.

## Scope

ARTICLE 2 - This Law covers the determination of the purpose, scope, and subjects of agricultural policies; definition of the purpose and principles of agricultural support policies and basic support programs; determination of market regulations, financing, and administrative structuring for the implementation of these programs; making legal and administrative arrangements regarding priority research and development programs in the agricultural sector, and the implementation principles and procedures thereof.

## The objectives of agricultural policies

ARTICLE 4 - The objectives of agricultural policies are to develop agricultural production in line with domestic and external demand, protect and develop natural and biological resources, increase productivity, strengthen food security and safety, develop producer organizations, strengthen agricultural markets, and raise the welfare level in the agricultural sector through rural development.

## Principles of agricultural policies

ARTICLE 5 - The principles of agricultural policies are as follows:

- a) Holistic approach in agricultural production and development.
- b) Compliance with international commitments.
- c) Use of support tools that do not disrupt market mechanisms.
- ç) Organization and institutionalization.
- d) Increasing the role of the private sector.
- e) Sustainability, human health, and environmental sensitivity.
- f) Decentralization.
- g) Participation.
- ğ) Transparency and informing.

## Priorities of agricultural policies

ARTICLE 6 - The priorities of agricultural policies are as follows:

- a) Increasing productivity, product diversity, quality, and competitiveness in agricultural production.
- b) Ensuring adequate and reliable food supply.
- c) Development of infrastructure of agricultural enterprises.
- ç) Dissemination of information and appropriate technologies in agricultural activities.
- d) Development of input and product markets in agriculture and ensuring production-market integration.
- e) Directing agricultural production towards agriculture-industry integration.

- f) Making regulations regarding the meeting of credit and financing needs in the agricultural sector.
- g) Taking support and guidance measures.
- ğ) Development of risk management mechanisms against natural disasters and animal diseases.
- h) Socio-economic development of rural life.
- ı) Development of producer organization.
- i) Establishment and use of agricultural information systems.
- j) Aggregation, preparation of land use plans, and establishment of large-scale agricultural enterprises.
- k) Development and rational use of land and water resources.
- l) Making administrative and legal arrangements foreseen by common market regulations, which can meet the needs arising from the European Union accession process.

### **III.2.6. Law No. 5403 on Soil Conservation and Land Use**

#### **Purpose**

Article 1 - The purpose of this Law is to determine the procedures and principles that will ensure the planned use of agricultural land and sufficient income agricultural land in accordance with the principle of environmentally sustainable development, as well as the protection, development, classification of soil, and agricultural land.

#### **Scope**

Article 2 - This Law covers the procedures and principles regarding the prevention of soil degradation, determination of the minimum sizes of agricultural land and sufficient income agricultural land, prevention of their fragmentation, preparation of land use plans, evaluation of the social, economic, and environmental dimensions in the protection and development process with participatory methods, prevention of unauthorized and incorrect uses, and establishment of methods to ensure protection.

#### **Definitions**

Article 3 - In this Law;

- o) Soil conservation projects: Projects covering physical, cultural, and plant measures to prevent the natural or human-induced disappearance, deterioration, or damage of soil and to ensure its continuous productivity,

r) Soil degradation: The decrease or loss of the economic and ecological functions of the land as a result of changes in its characteristics due to natural or artificial effects.

#### Conservation of Soil

Article 9 - Soil conservation and prevention of soil losses resulting from natural and artificial events are ensured by implementing land use plans, agricultural land use plans, and projects, and soil conservation projects in all kinds of ventures and investment processes requiring land use.

#### Monitoring and Prevention of Soil Pollution

Article 16 - Provincial authorities take necessary measures to monitor and eliminate negative effects polluting and deteriorating the soil arising from agricultural or non-agricultural activities.

#### Incentive

Article 18 - Priority is given to producers who invest in project-based investments in soil conservation, improvement of production capacity, land reclamation, and in activities related to the appropriate use of land in terms of ability. Their investments are supported by the Ministry's opportunities.

### III.2.7. Organic Farming Law No. 5262

#### Purpose

Article 1 - The purpose of this Law is to determine the procedures and principles necessary to develop the production of organic products and inputs to provide consumers with reliable, quality products.

#### Scope

Article 2 - This Law covers the fulfillment of control and certification services regarding organic farming activities and the procedures and principles of supervision by the Ministry, as well as the authority, duties, and responsibilities.

#### Definitions

Article 3 - In this Law;

a) Ministry: Ministry of Agriculture and Forestry,

b) Organic farming activities: The production or cultivation of organic products or inputs using soil, water, plants, animals, and natural resources, harvesting, cutting, processing, sorting, packaging, labeling, preservation, storage, transportation, marketing, import, export, and other processes until the product or input reaches the consumer,

r) Organic input: Material used in organic farming activities.

#### Organic Farming Activities

Article 7 - The procedures and principles regarding organic farming activities are determined by regulations issued by the Ministry.

#### Advertisement and Promotion of Organic Products and Inputs

Article 8 - Labels and logos of organic products and inputs are used only for organic products and inputs.

### **III.2.8. Forestry Law No. 6831**

The Forestry Law aims to ensure the protection, improvement, expansion, and sustainable use of forests. Under Forest Permits, activities including energy, wastewater, solid waste disposal, and regular storage facilities can be carried out or established on State forests for public benefit upon payment by the Ministry of Environment and Forestry. When the permit expires, it passes to the use of the General Directorate of Forestry without charge.

### **III.2.9. Law No. 5326 on Misdemeanors**

#### Non-Compliance with Orders

Article 32 - (1) A person who acts contrary to an order lawfully given by competent authorities for judicial proceedings or for the purpose of protecting public safety, public order, or public health is subject to an administrative fine of one hundred Turkish Liras. The authority issuing the order decides on this fine.

(2) This article can only be applied in cases explicitly provided for in the relevant law.

(3) References made to Article 526 of the Turkish Penal Code No. 765 dated 1/3/1926 in other laws are deemed to be made to this article.

## 8.2 Regulations - Communiqués - Circulars

### 8.2.1 Environmental Regulations

#### **8.2.1.1 Environmental Impact Assessment Regulation11**

Environmental Impact Assessment (EIA) is a process that determines the effects of projects developed or planned to be developed on the environment and supports the decision-making process. Within the scope of the EIA, the potential impacts of a project or development on the environment and possible solutions to adverse effects are evaluated.

#### **8.2.1.2 Environmental Permit and License Regulation12**

The purpose of this regulation is to regulate the principles to be followed in the process of obtaining permits and licenses required under the Environmental Law. This regulation covers the requirements related to permits and licenses required by the Environmental Law for relevant activities and facilities.

#### **8.2.1.3 Strategic Environmental Assessment Regulation13**

The Strategic Environmental Assessment Regulation was published in the Official Gazette dated 08/04/2017 and numbered 30032. The regulation was prepared in accordance with the European Union legislation, taking into account the Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programs on the environment and establishes a framework for plans/programs subject to Strategic Environmental Assessment prepared for sectors such as waste management, fisheries, energy, coastal management, spatial planning, forestry, industry, water management, agriculture, telecommunications, tourism, and transportation listed in Appendices 1 and 2 of the Environmental Impact Assessment Regulation published in the Official Gazette dated 25/11/2014 and numbered 29186, to be subjected to Strategic Environmental Assessment, commissioned, monitored, and provided with training on administrative and technical procedures and principles. The dates of implementation under Temporary Article 2 for plans/programs subject to SEA in the fisheries and forestry sectors will begin on 1/1/2020.

#### **8.2.1.4 Environmental Permit and License Regulation14**

Purpose

The purpose of this Regulation is to regulate the procedures and principles to be followed in the process of obtaining environmental permits and licenses in accordance with the Environmental Law No. 2872.

Scope

This Regulation covers all procedures and transactions related to permits and licenses required by Law No. 2872 for activities and facilities listed in Appendices 1 and 2 of this Regulation.

#### Definitions

**Environmental Permit:** Permit required under the Environmental Law, including at least one of the following: air emissions, environmental noise, wastewater discharge, and deep-sea discharge.

**Environmental Permit Certificate:** Document to be given to businesses in accordance with the relevant legislation to protect receiving environments.

**Environmental Permit and License Certificate:** Document covering environmental permits and licenses issued within the scope of this Regulation.

**Environmental License:** Technical competence regarding the issues specified in Annex-3C.

**Environmental Management Unit:** A unit that evaluates the compliance of the activities of facilities subject to inspection according to the Environmental Law and regulations enacted based on this Law, assesses whether the measures taken are effectively implemented, arranges annual on-site inspection programs within the facility, and is granted a qualification certificate by the Ministry.

**Emission:** The direct or indirect release of solid, liquid, or gaseous waste materials, vibration, heat, or noise from enterprises into the air, water, or soil.

**Provincial Directorate compliance letter:** In case it is determined as a result of on-site inspection conducted by the Provincial Directorate that the physical conditions specified in the legislation applicable to businesses are met, and considering the lists in the Waste Management Regulation published in the Official Gazette dated 12/7/2019 and numbered 30829, if it is determined that there is a Zero Waste Basic Level Document or exemption, within two months at the latest from the application date, a document valid for one year and prepared through the e-permit system is issued.

**Facility:** The entirety of the units related to the processes carried out from emission to disposal, excluding transportation, for processes involving emissions to the receiving environment and/or processing of wastes.

#### Validity and Renewal of Environmental Permit or Environmental Permit and License Certificate

The validity and renewal of the environmental permit or environmental permit and license certificate are regulated in Article 11.

In the case of changes in the business name and/or tax number of the enterprise, within 90 calendar days following the change in the trade registry, an application is made with the trade registry change, EIA Certificate, capacity report, and commitment letter stating compliance with the environmental permit and license conditions stated in the existing certificate. Waste processing facilities additionally submit a guarantee letter and business establishment and operation permit.

#### Cancellation of Temporary Activity Certificate

In case the application is not made within the periods specified in the first and third paragraphs of Article 9, or the application is not made despite the completion of the deficiencies, or the application is not approved, the temporary activity certificate is canceled. For waste processing facilities whose only activity is waste processing and cannot operate due to the inability to accept waste within the validity period of the temporary activity certificate, the temporary activity certificate is canceled once. These businesses are not required to pay the document fee specified in the third paragraph of Article 9 in the new application they will make. If a business that has multiple license subjects does not accept waste related to any license subject, requests to remove waste related to the license subject, or the application is not approved, the license related to that license subject is removed from the environmental permit and license evaluation process by the authorized authority during the environmental permit and license evaluation process.

## 8.2 Regulations - Communiqués - Circulars

### 8.2.1 Environmental Regulations

#### 8.2.1.1 Environmental Impact Assessment Regulation<sup>11</sup>

Environmental Impact Assessment (EIA) is a process that determines the effects of projects developed or planned to be developed on the environment and supports the decision-making process. Within the scope of the EIA, the potential impacts of a project or development on the environment and possible solutions to adverse effects are evaluated.

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The purpose of this regulation is to regulate the principles to be followed in the process of obtaining permits and licenses required under the Environmental Law. This regulation covers the requirements related to permits and licenses required by the Environmental Law for relevant activities and facilities.



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### 8.2.1.4 Environmental Permit and License Regulation<sup>14</sup>

#### Purpose

The purpose of this Regulation is to regulate the procedures and principles to be followed in the process of obtaining environmental permits and licenses in accordance with the Environmental Law No. 2872.

#### Scope

This Regulation covers all procedures and transactions related to permits and licenses required by Law No. 2872 for activities and facilities listed in Appendices 1 and 2 of this Regulation.

#### Definitions

**Environmental Permit:** Permit required under the Environmental Law, including at least one of the following: air emissions, environmental noise, wastewater discharge, and deep-sea discharge.

**Environmental Permit Certificate:** Document to be given to businesses in accordance with the relevant legislation to protect receiving environments.

**Environmental Permit and License Certificate:** Document covering environmental permits and licenses issued within the scope of this Regulation.

Environmental License: Technical competence regarding the issues specified in Annex-3C.

Environmental Management Unit: A unit that evaluates the compliance of the activities of facilities subject to inspection according to the Environmental Law and regulations enacted based on this Law, assesses whether the measures taken are effectively implemented, arranges annual on-site inspection programs within the facility, and is granted a qualification certificate by the Ministry.

Emission: The direct or indirect release of solid, liquid, or gaseous waste materials, vibration, heat, or noise from enterprises into the air, water, or soil.

Provincial Directorate compliance letter: In case it is determined as a result of on-site inspection conducted by the Provincial Directorate that the physical conditions specified in the legislation applicable to businesses are met, and considering the lists in the Waste Management Regulation published in the Official Gazette dated 12/7/2019 and numbered 30829, if it is determined that there is a Zero Waste Basic Level Document or exemption, within two months at the latest from the application date, a document valid for one year and prepared through the e-permit system is issued.

Facility: The entirety of the units related to the processes carried out from emission to disposal, excluding transportation, for processes involving emissions to the receiving environment and/or processing of wastes.

Validity and Renewal of Environmental Permit or Environmental Permit and License Certificate

The validity and renewal of the environmental permit or environmental permit and license certificate are regulated in Article 11.

In the case of changes in the business name and/or tax number of the enterprise, within 90 calendar days following the change in the trade registry, an application is made with the trade registry change, EIA Certificate, capacity report, and commitment letter stating compliance with the environmental permit and license conditions stated in the existing certificate. Waste processing facilities additionally submit a guarantee letter and business establishment and operation permit.

Cancellation of Temporary Activity Certificate

In case the application is not made within the periods specified in the first and third paragraphs of Article 9, or the application is not made despite the completion of the deficiencies, or the application is not approved, the temporary activity certificate is canceled.

For waste processing facilities whose only activity is waste processing and cannot operate due to the inability to accept waste within the validity period of the temporary activity certificate, the temporary activity certificate is canceled once. These businesses are not required to pay the document fee specified in the third paragraph of Article 9 in the new application they will make. If a business that has multiple license subjects does not accept waste related to any license subject, requests to remove waste related to the license subject, or the application is not approved, the license related to that license subject is removed from the environmental permit and license evaluation process by the authorized authority during the environmental permit and license evaluation process.

#### Environmental Auditing Regulation

##### Purpose

Article 1 - (1) The purpose of this Regulation is to regulate the procedures and principles regarding audits to be conducted on facilities or activities for the protection of the environment under the Environmental Law No. 2872, the qualifications of the personnel to conduct the audit, the determination of violations, and the implementation of administrative sanctions.

##### Scope

Article 2 - (1) This Regulation covers the procedures and principles regarding audits to be conducted under the Environmental Law No. 2872 and related legislation in all land areas within the borders of the Republic of Turkey, in the seas within the sovereignty areas of the country, and in the maritime jurisdiction areas subject to jurisdiction, as well as in natural or artificial lakes and dam lakes, rivers, and related waters, including all free and exclusive economic zones within the country's sovereign territories, and the actions and transactions to be carried out,

#### Environmental Noise Assessment and Management Regulation<sup>16</sup>

##### Purpose

Article 1 - (1) The purpose of this Regulation is to ensure that necessary measures are taken to protect the peace and tranquility of individuals and their physical and mental health as a result of exposure to environmental noise and to gradually implement the use of assessment methods for determining exposure levels to environmental noise, the preparation of noise maps, acoustic reports, and environmental noise level assessment reports, and to inform the public about environmental noise and its effects. Based on the results of noise maps, acoustic reports, and environmental noise level assessment reports, action plans for noise prevention

and reduction shall be prepared and the procedures and principles for their implementation shall be determined.

#### **8.2.4. AIR QUALITY ASSESSMENT AND MANAGEMENT REGULATION<sup>17</sup>**

##### Purpose

Article 1 - (1) The purpose of this Regulation is to define and establish air quality goals to prevent or reduce the harmful effects of air pollution on the environment and human health, evaluate air quality based on defined methods and criteria, maintain the current status of good air quality, and improve it in other cases, collect sufficient information related to air quality and ensure public awareness through warning thresholds.

##### Scope

Article 2 - (1) This Regulation covers air quality standards and the assessment of air quality, the establishment of "regions" and "sub-regions," and the necessary measures to be taken to ensure good air quality in all regions.

(2) This Regulation does not apply to indoor environments of workplaces covered by occupational health and safety legislation.

Target value: The level to be reached at the end of the anticipated period to avoid or reduce the long-term harmful effects on the environment and/or human health.

Pollutant: Any substance released into the outdoor air as a result of human activities, directly or indirectly, that may have harmful effects on the environment and/or human health.

Limit value: The level scientifically determined to be reached within the anticipated period to avoid or reduce the harmful effects on the environment and/or human health, which should not be exceeded once reached.

Volatile Organic Compounds (VOC): All organic compounds other than methane originating from anthropogenic and biogenic sources that can react with nitrogen oxides in sunlight to form photochemical oxidants.

Warning threshold: The level at which there is a risk to human health due to short-term exposure without delay, and urgent measures will be taken by the relevant authority.

Long-term goal: The level to be reached in the long term in places where suitable measures cannot be achieved effectively to protect the environment and human health.

## **8.2.5. REGULATION ON THE CONTROL OF ODOROUS EMISSIONS**

### Purpose

Article 1 - (1) The purpose of this Regulation is to regulate the administrative and technical procedures and principles for controlling and reducing emissions that cause odor.

### Scope

Article 2 - (1) This Regulation covers the activities and facilities listed in Annex-1 and Annex-2 of the Regulation on Permits and Licenses Required under the Environmental Law published in the Official Gazette dated 29/4/2009 and numbered 27214;

- a) Within the scope of environmental impact assessment legislation,
- b) Within the scope of environmental inspection legislation,
- c) Within the scope of complaint evaluation,

including procedures and sanctions related to the identification and resolution of odor problems.

(2) This Regulation does not apply to indoor workplace air covered by occupational health and safety legislation.

### Obligations of operators establishing and operating facilities generating odor emissions

Article 6 - (1) Operators conducting activities causing odor emissions must, during the establishment and operation of these activities:

- a) Preventing odor formation by reducing the harmful effects of the operation on the public and the environment by applying the best available production or treatment techniques,
- b) Taking odor prevention measures required by this Regulation,
- c) Taking odor prevention measures/additional measures required by this Regulation in case of complaints,
- d) Ensuring that the odor emission limit values specified in this Regulation are not exceeded,
- e) When requested by the competent authorities, having odor emissions measured in accordance with the procedures and principles specified in this Regulation, is mandatory.

### Provisions for facilities generating odor emissions

Article 7 - (1) Compliance with the principles specified in this article is required for the facilities listed below:

- a) Slaughterhouses:

...

- b) Poultry houses and stables:

...

c) Facilities where animal fats are melted:

...

d) Facilities producing gelatin, hide glue, leather glue, or bone glue; facilities producing animal feed or fertilizer, or technical oils from slaughterhouse by-products such as bones, animal hair, feathers, horns, hooves, or blood; facilities storing untreated animal hair or bones and facilities disposing of animal carcasses, or facilities where animal carcass or animal product parts are collected or stored for disposal:

...

e) Facilities for drying manure (dung):

...

f) In landfills:

A daily cover layer is placed over the waste stored in sanitary landfill facilities.

Gas collection systems are installed in all sanitary landfill facilities accepting biodegradable waste, which are then used directly or processed for energy production. If it is not economically feasible to use the collected landfill gas for energy production, it is burned in flare stacks.

MADDE 8 - (1) Businesses causing odor are required to take odor prevention measures/additional measures if necessary. Techniques that businesses can take for odor prevention are provided in Annex-1 of this Regulation. In addition to the odor prevention techniques listed in Annex-1, businesses may use appropriate techniques for their operations. These techniques must be approved by the Ministry.

(2) Businesses mentioned in Article 7 are required to comply with the provisions and principles stated in Article 7, and if they are still subject to complaints, they must take additional odor prevention measures.

## **SECTION 8.3: REGULATIONS REGARDING WASTE**

### **8.3.1. ZERO WASTE REGULATION**

Within the scope of the regulation, principles are determined for the establishment, dissemination, development, financing, monitoring, and certification of the zero waste management system.

#### Objective

ARTICLE 1 - (1) The purpose of this Regulation is to establish, disseminate, develop, monitor, finance, and certify the zero waste management system aimed at protecting the environment, human health, and all resources in waste management processes in line with the principles of effective management of raw materials and natural resources and sustainable development.

#### Scope

ARTICLE 2 - (1) This Regulation covers the principles regarding the establishment, monitoring, and issuance of zero waste certificates for those who want to establish the zero waste management system on a voluntary basis for local authorities and other places defined in Annex-1.

(2) Waste listed in Annex-4 of the Waste Management Regulation published in the Official Gazette dated 2/4/2015 and numbered 29314 generated in places where the zero waste management system is established is within the scope of this system. However, until criteria for process wastes generated by industrial facilities, except those similar to domestic wastes in terms of content or structure, are determined by the Ministry, they shall not be evaluated within the scope of the zero waste certificate defined in this Regulation.

#### Definitions

ARTICLE 4 - (1) In this Regulation;

a) Waste: Any substance or material disposed of or to be disposed of by the producer or the natural or legal person who physically possesses it into the environment or is obliged to dispose of it,

- b) Waste reduction: Reduction of waste quantity through measures taken according to environmental criteria, basic conditions, and features in line with prevention activities planned in production, consumption, and service processes,
- c) Waste collection center: Centers where separately collected wastes are deposited for recycling and/or disposal purposes,
- d) Waste treatment facility: Facilities recovering and/or disposing of wastes in accordance with the activities listed in Annex-2/A and Annex-2/B of the Waste Management Regulation, excluding pre-treatment and intermediate storage facilities including transfer stations,
- e) Waste producer: Any real or legal person causing waste generation as a result of their activities, and/or any real or legal person performing any preprocessing, mixing, or other operations that will cause a change in the composition or structure of the waste,
- f) Ministry: Ministry of Environment and Urbanization,
- g) Buildings and premises: Structures containing independent residences, commercial or service units, and autonomous settlements containing individual structures with open or closed social facilities,
- h) Collection equipment: Equipment such as bins, containers, etc., in which wastes are collected according to their types,
- i) Biodegradable waste: Garden and park wastes biologically degradable, food and kitchen wastes originating from homes, offices, restaurants, retail outlets, canteens, food preparation, and food processing facilities,
- j) Environmental license: License covering temporary activity certificate/environmental permit and license certificate regulated in the Environmental Permit and License Regulation published in the Official Gazette dated 10/9/2014 and numbered 29115,
- k) Temporary storage: Safe waiting of wastes by the waste producer before being delivered to processing facilities,



- l) Temporary storage area: Area defined in Article 13 of the Waste Management Regulation,
- m) Provincial directorate: Provincial Directorate of Environment and Urbanization,
- n) Provincial Zero Waste Management System Plan: Plan containing the principles of the zero waste management system to be implemented by local administrations in the provincial borders prepared by the Provincial Environmental Council and whose format is determined by the Ministry,
- o) Source separation: Separate collection of wastes at the point of generation,
- p) City Council: Council defined by the City Council Regulation published in the Official Gazette dated 8/10/2006 and numbered 26313,
- r) Prevention: Measures to be taken before a substance or material becomes waste to minimize harmful substances in product production, reduce the amount of waste, reduce harmful substances in product production, and minimize the adverse effects of the produced waste on the environment and human health,
- s) Zero waste: An approach aiming to protect the environment, human health, and all resources by preventing/reducing waste generation in production, consumption, and service processes, prioritizing reuse, collecting generated wastes separately at the source, and reducing the amount of waste to be disposed of by providing recycling and/or recovery,
- ş) Zero waste certificate: Document determined by the Ministry, given to local administrations establishing zero waste management systems and those who establish the zero waste management system based on voluntary basis, with defined qualifications,
- t) Zero waste certificate holder: Places to which zero waste certificates are issued,
- u) Zero Waste Information System: Online system established by the Ministry to record, document, monitor, and ensure the traceability of wastes managed within the scope of the zero waste management system,

ü) Zero Waste Coordination Board: Board convened under the chairmanship of the Ministry representative to evaluate, direct, disseminate, and develop the studies and practices carried out in accordance with this Regulation,

v) Zero waste management system: Management system created taking into account the benefits and costs, including all processes from waste generation prevention to waste reduction, separate collection at the source, temporary storage, separate collection, transportation, and processing of wastes,

y) Strategic plan: Plan defined in the Public Financial Management and Control Law numbered 5018 dated 24/12/2003 that local administrations must prepare,

z) Hazardous waste: Wastes with one or more hazardous properties listed in Annex-3/A of the Waste Management Regulation, marked with an asterisk (\*) next to the six-digit waste code in Annex-4 of the same Regulation, and subject to special provisions in terms of collection, collection, transportation, and processing,

aa) Non-hazardous waste: Wastes that do not exhibit hazardous properties, indicated by an asterisk (\*) in the waste list in Annex-4 of the Waste Management Regulation,

bb) Collection: Transportation of wastes from the places where they are collected to waste processing facilities,

cc) Collection point: Places where collection equipment is placed for the separate collection of wastes,

çç) Reuse: Any process where products or non-waste components are used for the same purpose as designed,

dd) (Additional: RG-9/10/2021-31623) Agency: Turkish Environment Agency,

ee) (Additional: RG-9/10/2021-31623) Mobile waste collection center: Portable facility used to provide service to different locations within certain periods and capable of being moved when necessary, consisting of multiple collection equipment for separately collecting

different types of wastes and/or waste collection vehicles used in connection with the waste collection center,

ff) (Additional: RG-9/10/2021-31623) Sales point: Places defined in paragraph (y) of Article 4 of the Regulation on the Control of Packaging Waste published in the Official Gazette dated 26/6/2021 and numbered 31523

Article 5 - (1) In order to efficiently use resources in production, consumption, and service processes:

- a) Prevention of waste generation, taking into account the principles provided in Annex-2,
- b) Reduction of waste generation in cases where prevention of waste generation is not possible,
- c) Evaluation of reuse opportunities for products and materials,

are essential.

(2) (Amended: RG-9/10/2021-31623) It is essential to collect wastes in at least dual bins and take necessary measures to prevent environmental and human health hazards during temporary storage, following the explanations provided in Annex-5 according to the types of generated wastes.

(3) Wastes collected separately should be collected without mixing, and recycling/recovery should be prioritized. If not possible, final disposal should be ensured without causing environmental pollution.

(4) It is essential to prioritize the approach of utilizing wastes for material or energy recovery to contribute to the economy and reduce the amount of waste sent to landfills.

(5) Principles of efficiency, sustainability, and public participation are fundamental for the administrative, financial, and technical aspects of the zero waste management system.

(6) It is essential to create awareness and consciousness, encourage environmentally friendly attitudes, behaviors, and activities, and support the development, dissemination, and effective implementation of the zero waste management system through cooperation among

relevant institutions and organizations under the coordination of the Ministry and provincial directorate.

(7) The Zero Waste Information System is used for activities within the scope of the zero waste management system and for the information and documents required for these activities. Information and documents that military units and military institutions are obliged to report to the Zero Waste Information System can be reported to the Ministry in writing by the Ministry of National Defense, the Ministry of Interior, and the General Staff.

(8) Local administrations, places defined in Annex-1, and those who voluntarily establish the zero waste management system must establish, operate, develop, and monitor the zero waste management system in accordance with the criteria defined in this Regulation.

(9) It is essential for those who establish the zero waste management system within the scope of this Regulation to ensure that wastes are collected separately at the source and delivered to waste treatment facilities in accordance with the legislation issued pursuant to Law No. 2872.

(10) Individuals and legal entities located in places where the zero waste management system is established must collect their wastes in accordance with the criteria of the zero waste management system they are part of.

(11) (Amended: RG-9/10/2021-31623) Waste medicines generated from households are collected at places where medicines are sold and other collection points designated as collection points in the Provincial Zero Waste Management System Plan and waste collection centers. Waste medicine collection equipment is provided by places where medicines are sold and collection points. The management of waste medicines generated from households is provided by local administrations.

(12) (Amended: RG-9/10/2021-31623) It is essential to separate and collect wastes according to their types at the source within the scope of the zero waste management system and to collect separately without mixing the wastes collected at the source.

(13) (Amended: RG-9/10/2021-31623) Wastes collected within the scope of the zero waste management system are processed at waste treatment facilities that have obtained temporary activity permits/environmental licenses from the Ministry.

(14) (Amended: RG-9/10/2021-31623) It is essential to establish waste collection centers where household wastes and similar commercial and institutional wastes collected separately at the source are left for recycling or disposal.

#### Duties and Powers of the Ministry

##### Article 6 - (1) The Ministry:

a) Prepares/ensures the preparation, updating, dissemination, and publication of the Zero Waste Management Action Plan containing plans, programs, policies, and targets related to the zero waste management system at national and local levels,

b) Determines/designates the design and planning criteria, evaluation criteria, and implementation principles of the zero waste management system in terms of administrative, financial, and technical aspects, and prepares/ensures the preparation of guidance documents on this matter,

c) Determines the programs and policies for the development, improvement, and dissemination of the zero waste management system, organizes/trains awareness-raising activities, and prepares/ensures the preparation of guidance documents on these issues,

ç) Ensures cooperation and coordination for the implementation of this Regulation, establishes monitoring and inspection infrastructure, and takes necessary administrative measures,

d) Prepares/ensures the preparation of the Zero Waste Information System, creates and publishes performance indicators,

e) Researches, monitors, and implements national and international policies regarding the applicability of policies related to the zero waste management system,

f) Determines the support and incentive elements for the zero waste management system and the procedures and principles for implementation,

g) Determines the procedures and principles regarding the establishment and operation of the Zero Waste Coordination Board,

ğ) Determines the criteria for the evaluation of process wastes generated by industrial enterprises within the scope of the zero waste certificate,

h) Determines waste prevention policies, monitors and evaluates the implementation of waste prevention measures,

i) Determines the format of the Provincial Zero Waste Management System Plan,

i) (Added: RG-9/10/2021-31623) Determines the principles regarding the establishment and operation of waste collection centers,

and is responsible and authorized.

(2) The Ministry may delegate some of the authorities specified in the first paragraph to provincial directorates, with the limitation of their scope.

(3) (Amended: RG-9/10/2021-31623) The Ministry may delegate to the Agency and/or evaluation institutions or organizations the tasks and powers regarding the evaluation of zero waste certificate applications of provincial directorates and the issuance/cancellation of zero waste certificates. The procedures and principles for the implementation of this provision are determined by the Ministry.

(4) The Ministry determines the principles regarding the integration and coordination of zero waste management systems and the activities to be carried out in local environmental councils in provinces for the preparation of Provincial Zero Waste Management System Plan.

(5) (Added: RG-9/10/2021-31623) The Ministry determines the procedures and principles for the activities to be carried out by the Agency within the scope of this Regulation in

accordance with Law No. 7261 and relevant legislation and ensures their announcement on the Agency's website.

#### Provincial Directorates' Duties, Powers, and Obligations

Article 7 - (1) Provincial directorates:

- a) Ensure cooperation and coordination for the implementation of this Regulation within the scope of their authority in accordance with the procedures determined by the Ministry, carry out monitoring and inspection activities,
- b) Ensure local-scale coordination in the implementation of the zero waste management system, monitor and provide technical support during the process,
- c) Use the zero waste information system, provide support for the use of local-scale users,
- ç) Monitor and supervise the activities of those who transition to the zero waste management system and those who are obliged to transition, apply Article 21 in case of non-compliance, and inform the Ministry,
- d) Coordinate the organization of local-scale training and information activities for the zero waste management system, contribute to and participate in these activities,
- e) Prepare the agenda of the local environmental council for the preparation of the Provincial Zero Waste Management System Plan and provide technical support,
- f) Ensure the registration and declaration of data in the zero waste information system and follow up on the declarations,
- g) Evaluate zero waste certificate applications, issue zero waste certificates via the zero waste information system for those found suitable, and cancel them when necessary,
- ğ) (Added: RG-9/10/2021-31623) Issue approval letters for waste collection centers, inform the relevant municipality, and register the approved waste collection centers in the Ministry's online program,

are responsible and authorized.

#### Duties, Powers, and Obligations of Provincial Administrative Authorities

Article 8 - (1) The highest local administrative authority:

a) Ensures the preparation of the Provincial Zero Waste Management System Plan by the commission to be appointed by the Local Environmental Board, revises it if necessary, and ensures its adoption in the local environmental council,

b) Ensures the establishment, implementation, and cooperation of the zero waste management system by local administrations in line with the Provincial Zero Waste Management System Plan within the provincial boundaries,

c) Convenes the local environmental council to determine the actions to be taken for monitoring the implemented zero waste management system and improving identified shortcomings. Programs are prepared by the local environmental council for the implementation of decisions and measures at the provincial level and are implemented within the specified periods.

#### Duties, Powers, and Obligations of Local Administrations

Article 9 - (1) Metropolitan municipalities:

a) Ensure the alignment of the metropolitan integrated waste management plan with the Provincial Zero Waste Management System Plan,

b) Improve and disseminate the practices of the zero waste management system conducted by district municipalities and ensure cooperation and coordination for the zero waste management system,

are obliged.



(2) Metropolitan district municipalities, provincial, district, town municipalities, municipal unions, and provincial administrations:

a) Comply with the general principles specified in this Regulation in all their activities,

b) Encourage the public to separate and collect their wastes,

c) Engage in activities that encourage waste prevention by preventing waste,

ç) Develop and disseminate infrastructure for the separate collection of wastes collected separately at the source,

d) Manage the wastes collected at waste collection centers and waste medicines generated from households,

e) Ensure/maximize the evaluation of collected wastes primarily for material recycling and other recovery possibilities,

f) Consider landfilling as the last resort for the final disposal of wastes that cannot be recycled/recovered,

g) Include the entire process, including monitoring practices, related to the zero waste management system in the urban council agenda,

ğ) Determine and reflect on their strategic plans and budgets the programs and policies for integrating existing waste management services into the zero waste management system, including the transition process to the zero waste management system,

h) Integrate existing waste management services into this system by complying with the implementation schedule defined in Annex-1 and considering local applications based on social and economic conditions within their authority,

ı) Perform necessary tasks and procedures in accordance with the guidance prepared by the Ministry for the establishment, operation, and monitoring of the zero waste management

system, determine and apply full-cost-based tariffs for the system, and announce them to the public,

i) Publicize the established zero waste management system to residences and ensure the collection of wastes according to the system established,

j) Conduct awareness and training activities to increase awareness and disseminate the zero waste management system, contribute to and participate in activities organized within this scope,

k) Evaluate waste management activities of individuals collecting waste without being affiliated with any business within the municipality's boundaries and submit proposals to municipal councils for local-scale applications, considering social and economic conditions,

l) Register in the Zero Waste Information System and record the information and documents required for their activities within the scope of this Regulation,

m) (Amended: RG-9/10/2021-31623) Report monthly information regarding the wastes collected within the scope of the zero waste management system through the zero waste information system by the fifteenth day of the following month and complete the data controls for the previous year by the end of March each year, and retain the basis information and documents for reporting.

(3) (Amended: RG-9/10/2021-31623) In order to establish the zero waste management system and ensure its sustainability, at least 2 environmental engineers or environmental officers shall be employed in local administrations with populations exceeding 50,000, at least 1 environmental engineer or environmental officer shall be employed in local administrations with populations between 20,000 and 50,000. In local administrations with populations below 20,000, an environmental engineer or environmental officer shall be employed and/or environmental consulting services shall be obtained. At least 1 environmental engineer or environmental officer shall be employed in municipal unions and provincial administrations.

(4) If membership in associations established for waste management purposes or benefiting from the services of other local administrations is required, the obligations imposed by this

Regulation are fulfilled by the association or the local administration from which services are received within the framework of the association's statute.

(5) (Added: RG-9/10/2021-31623) Local administrations are obliged to establish/appoint waste collection centers in accordance with the criteria determined by the Ministry, operate/manage them.

### **Zero Waste Management System Obligations for Buildings and Facilities**

Article 10 - (1) Buildings and facilities implementing the zero waste management system:

a) Comply with the general principles specified in this Regulation in all their activities,

b) Encourage all individuals and organizations within their jurisdiction to separate and collect their wastes by type,

c) Work to prevent waste generation/reduction by preventing waste,

ç) (Amended: RG-9/10/2021-31623) Establish infrastructure for the separate collection and temporary storage of wastes collected separately at the source without mixing them, and provide necessary collection equipment such as bins and containers,

d) Comply with the implementation schedule defined in Annex-1 for the establishment and implementation of the zero waste management system,

e) Perform necessary tasks and procedures in accordance with the guidance prepared by the Ministry for the establishment, operation, and monitoring of the zero waste management system, and integrate existing waste management services into this system,

f) Determine and reflect on their relevant instructions the programs and policies for integrating existing waste management services into the zero waste management system, including the transition process to the zero waste management system,

g) Ensure that the entire process, including monitoring practices, related to the implementation of practices from the design stage of the zero waste management system, is carried out in an integrated and coordinated manner with the participation of all individuals and organizations within their jurisdiction,

ğ) Publicize the established zero waste management system to all individuals and organizations within their jurisdiction and ensure the collection of wastes according to the established system,

h) Conduct awareness and training activities to increase awareness and disseminate the zero waste management system, and contribute to and participate in activities organized within this scope,

i) Register in the Zero Waste Information System and record the information and documents required for their activities within the scope of this Regulation,

i) (Amended: RG-9/10/2021-31623) Report monthly information regarding the wastes collected within the scope of the zero waste management system through the zero waste information system by the fifteenth day of the following month and complete the data controls for the previous year by the end of March each year, and retain the basis information and documents for reporting.

(2) (Amended: RG-9/10/2021-31623) Those obligated to establish the zero waste management system and those who voluntarily want to establish the system can obtain consultancy services from environmental consultancy firms authorized by the Ministry for the establishment and development of the zero waste management system.

(3) The relevant administrations' full-cost-based tariffs are adhered to for the procurement of services for waste collection, transportation, and processing.

(4) (Amended: RG-9/10/2021-31623) Buildings and facilities are obliged to obtain a zero waste certificate according to the implementation schedule in Annex-1 by establishing the zero waste management system. Those who obtain a zero waste certificate under this Regulation shall provide the wastes separated at the source according to their types for

recovery to the collection system of the local authorities or to the waste treatment facilities that have received temporary activity permits/environmental licenses from the Ministry.

(5) Places with platinum zero waste certificates submit sustainability reports of the zero waste management system, including their activities, practices, innovations introduced by the system, achieved gains, and future goals, to the authorized authority issuing the zero waste certificate by the end of the second year following the issuance of the platinum certificate. These reports are updated every two years according to developments.

#### Obligations of Industrial Zones and Airports/Terminals

Article 11 - (1) In addition to the obligations specified in Article 10, industrial zone managements and airport/terminal operators:

a) Ensure necessary coordination and cooperation for the planning, establishment, implementation, and monitoring of the zero waste management system within their boundaries,

b) Plan for the integration of existing waste management services into the zero waste management system, including the transition process to the zero waste management system, and ensure compliance with this plan by all institutions, organizations, and businesses within their boundaries.

(2) When establishing waste collection and transportation systems within their jurisdictions, industrial zones and airports shall follow the guidelines prepared by the Ministry.

#### Obligation to Establish the Zero Waste Management System

Article 12 - (1) Buildings and facilities listed in Annex-1 must implement the zero waste management system according to the implementation schedule and start operating. Places that start their activities after the specified date shall transition to the zero waste management system within one year from the start of their activities.

(2) Local administrations shall transition to the zero waste management system according to the implementation schedule specified in Annex-1.

(3) Those obligated to establish the zero waste management system may, if they wish, implement the system by meeting the zero waste management system criteria before the dates specified in the implementation schedule in Annex-1.

(4) In places such as shopping centers, business centers, terminals with common management, a transition plan to the zero waste management system covering all buildings and facilities is prepared. According to the planning made, the zero waste management system is implemented simultaneously under the coordination of management, covering all institutions, organizations, and businesses within the area. All institutions, organizations, and businesses must be included in this plan.

(5) Institutions, organizations, and businesses without common management but located within the same building or facility can jointly act on the establishment of the zero waste management system.

(6) (Added: RG-9/10/2021-31623) Local administrations to which buildings and facilities not listed in Annex-1 are affiliated are obliged to establish the zero waste management system in accordance with the zero waste management system of the affiliated local administration.

(7) (Added: RG-9/10/2021-31623) Site, apartment, and villa-type detached residences not listed in the implementation schedule in Annex-1 are obliged to have one container or similar collection equipment in a volume suitable for the recoverable waste amount specified in Annex-5 for the separate collection of recoverable paper, glass, metal, and plastic wastes from other wastes by the fifteenth day of the month following the month in which the waste is collected. Collaboration with the municipality can be made for the procurement and maintenance of the collection equipment, and/or joint action can be taken with other buildings or facilities.

Article 13 - (1) Local administrations shall ensure compliance with the criteria specified in Annex-3/A for the establishment of the zero waste management system, while buildings and campuses shall comply with the criteria specified in Annex-3/B.

(2) The roadmap to be followed for the establishment of the system is outlined below:

a) Determination of the Working Team: Responsible individual(s) or teams are formed to follow the process from the establishment to the implementation and monitoring of the zero waste management system.

b) Planning: Planning is carried out for the effective structuring of the zero waste management system to be implemented before implementation. Within this scope:

Current Situation Analysis: An analysis of the current situation is conducted regarding the source, type, quantity of all wastes, waste accumulation, collection and transportation methods, temporary storage areas, and locations where wastes are delivered.

Needs Analysis: The equipment needed for separate collection of waste and temporary storage areas for separately collected wastes are determined.

c) Training/Awareness Activities and Implementation: Training/awareness activities are conducted to increase awareness, and the system is implemented.

ç) Monitoring, Record Keeping, and Improvement Activities: Monitoring studies are conducted at regular intervals on the implementation. Measures are taken for deficiencies, and updates are made if necessary. Outputs related to the implementation, such as separately collected waste quantities and achieved gains, are recorded.

Collection, Transportation, and Specifications of Collection Equipment for Wastes

Article 14 - (1) Within the scope of the zero waste management system; recoverable paper, glass, metal, and plastic wastes of non-hazardous nature generated from homes or from commercial, industrial businesses, and institutions with similar content or structure are collected separately and in separate collection equipment from other wastes and are collected separately. Paper, glass, metal, and plastic wastes can be collected in a single equipment or separately according to material types.

(2) Waste batteries, vegetable oils, waste electrical and electronic equipment, and other recoverable wastes, waste medicines, and large-volume wastes are collected in accordance with the local authority's collection plan and delivered to the authorized administration or to the collection points, waste collection centers, and/or waste treatment facilities established for these wastes.

(3) In the collection equipment to be used, the color of the equipment or labels:

a) When paper, glass, metal, and plastic wastes are collected together, blue color is used, and dark gray color is used for other wastes.

b) When separate collection is made according to material types, blue color is used for paper wastes, yellow for plastic wastes, green for glass wastes, and light gray for metal wastes.

c) In places where biodegradable wastes are intensively generated such as tea kitchens, cafeterias, places where food preparation or service is performed, and similar places, brown color is used when these wastes are collected separately.

ç) (Amended: RG-9/10/2021-31623) White color is used for the collection equipment to be used for the collection of waste medicines; these equipment are made of stainless steel or high-density plastic material, have lids that can be locked, do not have sharp edges that may cause bags to be damaged or pierced during loading-unloading, are easy to load, and are designed in a way that prevents retrieval after waste is placed inside, and they bear the phrase "Waste Medicine" on them.

(4) Collection activities in residences and public areas carried out by local administrations comply with the following within the framework of EK-5:

a) Blue color is used for recoverable wastes and dark gray color is used for other wastes in the collection equipment to be used for collection from residences.

b) Equipment is placed in at least dual sets on streets, avenues, and public areas, with blue and dark gray colors used in these equipment. Depending on the need, green color is used for equipment to be placed for glass wastes.

c) The types of wastes that can be disposed of in the equipment are indicated with writings and/or shapes on the equipment.

ç) (Added: RG-9/10/2021-31623) A minimum triple collection system is established, including brown for biodegradable wastes, by fulfilling the criteria specified in Annex-4 to obtain silver, gold, or platinum quality zero waste certificate.

(5) Waste collection and transportation activities are carried out in accordance with the explanations provided in EK-5.

(6) Management of other hazardous/non-hazardous wastes and medical wastes is included in the zero waste management system in accordance with the relevant legislation.

(7) (Added: RG-9/10/2021-31623) Zero waste logos are used on collection equipment placed within the scope of the zero waste management system, at waste collection centers, and on collection/transportation vehicles. Additionally, the phrase "Zero Waste Collection Vehicle" is present on collection/transportation vehicles.

(8) (Added: RG-9/10/2021-31623) Chain stores and sales points with a covered sales area of 400 m<sup>2</sup> and above establish collection points in easily visible and accessible locations for the



separate collection of recoverable paper, glass, metal, plastic wastes brought by consumers or in case of sales, for the separate collection of batteries, small electrical appliances, or textile wastes, in accordance with the technical and administrative issues determined by the Ministry regarding the criteria.

(9) (Added: RG-9/10/2021-31623) Waste collection activities to be carried out by local administrations within the scope of the zero waste management system are carried out in accordance with the groupings shown in EK-5 as per the Provincial Zero Waste Management System Plan.

(10) (Added: RG-9/10/2021-31623) Local administrations collaborate with facilities capable of serving their population for the preparation for recycling of mixed paper/cardboard, glass, metal, and plastic wastes collected as mixed in blue collection equipment according to EK-5. Type 1 Collection Separation Facility serves populations of 400,000 and above, Type 2 Collection Separation Facility serves populations between 100,000 and 400,000, and Type 3 Collection Separation Facility serves populations up to 100,000. Local administrations can meet their collection separation facility needs by a single facility capable of serving their total population or by multiple collection separation facilities. In case of preference for multiple collection separation facilities, it is ensured that the population capacities to be served in the designated responsibility areas of these facilities are not exceeded.

(11) (Added: RG-9/10/2021-31623) Waste collection center(s) are established in accordance with the principles determined by the Ministry to increase the effectiveness of waste collection activities to be carried out within the scope of the zero waste management system by local administrations. In this regard;

a) The waste collection center is primarily established on a minimum area of 1000 m<sup>2</sup>. However, if sufficient space cannot be found, multiple waste collection centers can be established each with a minimum area of 300 m<sup>2</sup>. In this case;

In municipalities with a population of up to 100,000, a total of at least 600 m<sup>2</sup>,  
In municipalities with a population between 100,000 and 300,000, a total of at least 1000 m<sup>2</sup>,  
In municipalities with a population of over 300,000, a total of at least 1200 m<sup>2</sup>,  
must be provided for the establishment of waste collection centers. For municipalities with a population of up to 20,000, the establishment of at least one waste collection center with a minimum area of 300 m<sup>2</sup> is sufficient.

b) Mobile waste collection centers are established to create collection points at different locations, taking into account the location of waste collection centers and accessibility for citizens.

c) Waste collection centers can be established by multiple local authorities for joint use upon mutual agreement. However, in this case, it is mandatory to establish mobile waste collection centers in connection with waste collection centers.

ç) Technical and administrative issues regarding waste collection centers are determined by the Ministry.

(12) (Added: RG-9/10/2021-31623) Shopping centers establish mobile waste collection centers in accordance with the technical and administrative criteria determined by the Ministry to create collection points where citizens can bring and leave their waste. Shopping centers with established waste collection centers and sales points with a sales area of 400 m<sup>2</sup> and above are not obliged to create collection points introduced in the eighth paragraph.

Article 15 - (1) Zero waste certificate is arranged at four levels; basic, silver, gold, and platinum.

(2) The criteria for the basic level zero waste certificate are included in Annex-3. Scoring criteria for silver, gold, and platinum zero waste certificates are determined by the Ministry in accordance with Annex-4. Obligation to obtain zero waste certificate

Article 16 - (1) Places listed in Annex-1, which are obliged to establish a zero waste management system, must obtain a basic level zero waste certificate in accordance with the process defined in Article 17. Other places may apply for a basic level certificate if they wish.

(2) From places with a basic level zero waste certificate; provincial municipalities, district municipalities with a population of over fifty thousand, organized industrial zones, shopping centers, airports, ports, accommodation facilities with a capacity of 250 rooms and above, chain stores, and universities are obliged to obtain a silver, gold, or platinum zero waste certificate. Other places with a basic level zero waste certificate may apply for silver, gold, and platinum zero waste certificates if they wish.

(3) Except for sites with 300 or more residences, other residences are evaluated within the municipal zero waste management system; furthermore, zero waste certificates are not issued.

(4) A single zero waste certificate is issued for buildings and premises that house multiple institutions, organizations, and businesses with a common management, covering all institutions, organizations, and businesses within it in accordance with their level. However, institutions, organizations, and businesses within organized industrial zones and airports may also apply for separate individual certificates if they wish.

(5) Institutions, organizations, and businesses located in the same building or premises without a common management, but jointly establishing and operating a zero waste management system, may apply for individual certificates or a single zero waste certificate suitable for their level.

#### Application for Zero Waste Certificate and Evaluation of Application

Article 17 - (1) For a basic level zero waste certificate:

a) The certificate application is made for buildings and premises that establish a zero waste management system in accordance with the criteria specified in Annex-3 and local authorities.

b) Applications are made through the zero waste information system. During the application, it is mandatory to provide the information and documents requested through the zero waste information system regarding the established system. Any written and visual documents requested for this information and documents are uploaded to the zero waste information system by the applicant. Additional information and documents may be requested if deemed necessary.

c) Applications are evaluated by the provincial directorate within thirty calendar days through the zero waste information system. If deemed necessary, on-site inspections are conducted.

ç) In case of any deficiencies in the application, the deficiencies are notified to the applicant by the provincial directorate. It is mandatory to complete the deficiencies and submit them

through the zero waste information system within thirty calendar days from the notification date. Applications with completed deficiencies are evaluated by the provincial directorate within thirty calendar days. If the application is found to be inappropriate or if the deficiencies are not completed and submitted through the zero waste information system within the specified period, the application for the zero waste certificate is rejected.

d) If it is determined as a result of the evaluation of the application by the provincial directorate that the places meet the criteria specified in Annex-3 and there are no deficiencies in any information/document, a basic level zero waste certificate is issued.

(2) After obtaining a basic level zero waste certificate, applications are made with the information and documents based on the scoring criteria determined in accordance with Annex-4 within twenty-four months following the acquisition of the basic level zero waste certificate, within the framework of the procedures and principles determined by the Ministry.

(3) The validity of zero waste certificates is five years. Places obliged to obtain a certificate apply for renewal of the certificate three months before the expiration of the validity period, and the certificate process starts again.

(4) The fee to be paid for the issuance, upgrading, renewal, and updating of zero waste certificates is determined annually by the Ministry.

Non-Compliance with Zero Waste Certificate Principles, Address and Other Change Situations, and Cancellation of Certificate

Article 18 - (1) Those who fail to make the declarations required to be made through the zero waste information system and those determined during inspections not to implement the zero waste management system and ensure the continuity of the certificate are given a period of ninety calendar days for improvement following the application of administrative sanctions foreseen for the acts specified in Articles 18 and/or 21. At the end of the given period;

a) Places where it is determined that the necessary improvement is at a level to ensure the continuity of the current certificate continue the validity of the zero waste certificate.

b) The zero waste certificate of places where it is determined that the necessary improvement is not at a level to ensure the continuity of the current certificate is canceled.

(2) In case of any changes in the information and documents submitted through the zero waste information system, necessary notifications are made through the zero waste information system within thirty calendar days following the change, and the validity of the certificate is maintained. In case of failure to report changes within the specified period, the zero waste certificate is canceled.

(3) In case of changes in the application, these changes are integrated into the zero waste management system without disrupting the current application, necessary notifications are made through the zero waste information system within thirty calendar days following the changes, and the validity of the certificate is maintained. In case of failure to report changes within the specified period, the zero waste certificate is canceled.

(4) In case of relocation of buildings and premises where the zero waste management system is applied, necessary notifications are made within thirty calendar days following the change, and the zero waste certificate is canceled.

(5) Those whose certificates are canceled among those obliged to obtain a certificate must:

a) Apply for a new certificate within one hundred and eighty calendar days following the date of relocation in case of relocation to different buildings and premises,

b) Apply within thirty calendar days following the certificate cancellation date in other certificate cancellation cases.

#### Inspection and Monitoring of Places with Zero Waste Certificates

Article 19 - (1) Places with zero waste certificates are inspected at least once during the validity period of the certificate by provincial directorates.

(2) In the inspections, it is checked whether the places with certificates comply with the certificate principles and criteria specified in this Regulation.

(3) In case of non-compliance detected during the inspection, the provisions specified in Articles 18 and/or 21 are applied.

(4) Compliance of units and institutions affiliated with the Turkish Armed Forces with this Regulation is audited within the framework of the Turkish Armed Forces Environmental Inspection Regulation published in the Official Gazette dated 24/7/2009 and numbered 27298.

#### Zero Waste Coordination Board

ARTICLE 20 - (1) The Zero Waste Coordination Board;

a) (Amended: RG-9/10/2021-31623) Consists of public institutions/organizations designated by the Ministry, agencies, and relevant sector representatives.

b) Meets at least once a year under the agenda determined by the Ministry with the chairmanship of the Ministry's representative. The secretariat services of the Board are conducted by the Ministry. The venue, time, and agenda items of the meeting are communicated to the relevant representatives by the Ministry at least fifteen days before the meeting date.

c) Makes advisory decisions by evaluating the activities and practices carried out in line with this Regulation.

d) Conducts its activities in accordance with the working methods and principles determined by the Ministry.

#### Administrative Sanctions

ARTICLE 21 - (1) In the activities and transactions carried out within the scope of this Regulation, administrative sanctions are imposed by the authorized authorities in case of determination of acts for which administrative sanctions are foreseen in the Law No. 2872, dated 10/7/2004 and numbered 5216 Metropolitan Municipality Law, Law No. 5393 on Municipalities dated 3/7/2005, Law No. 5326 on Misdemeanors dated 30/3/2005, and relevant other legislation.

#### Existing Waste Collection Centers

#### **ADDITIONAL ARTICLE 1 - (Added: RG-9/10/2021-31623)**

(1) Waste collection centers carrying out their activities by obtaining approval letters from the provincial directorate within the scope of the repealed Waste Collection Center Regulation published in the Official Gazette dated 31/12/2014 and numbered 29222 continue their

activities within the scope of the Provincial Zero Waste Management Plan determined by the Ministry in accordance with the procedure and principles.

#### WASTE MANAGEMENT REGULATION 20

The aim is to ensure the management of the process from waste generation to disposal in a manner that does not harm the environment and human health, reduce waste generation, reduce natural resource use along with methods such as recycling, and reduce environmental and human health risks. The principles regarding the production and inspection of products within the scope of the Regulation are also determined within this framework.

#### Purpose

ARTICLE 1 - (1) The purpose of this Regulation is;

- a) To ensure the management of waste from its generation to disposal without harming the environment and human health,
- b) To reduce waste generation, reuse of waste, recycling, recovery, and to reduce natural resource use and ensure waste management through methods such as,
- c) Determining the general principles and procedures related to the production, market surveillance, and inspection of products within the scope of this Regulation, which have certain criteria, basic requirements, and characteristics for the environment and human health.

#### Scope

ARTICLE 2 - (1) This Regulation;

- a) Includes the wastes listed in Annex-4 waste list,
- b) Manages electrical and electronic equipment, packaging, vehicles, batteries, and accumulators within the framework of extended producer responsibility,

(2) The provisions of this Regulation;

- a) Atmospheric emissions,
- b) Radioactive wastes,
- c) Wastewaters,
- ç) Explosives and wastes rendered unusable,
- d) Uncontaminated excavation soil,
- e) Untouched contaminated (in situ) soil,
- f) Animal carcasses, animal manure used for agricultural purposes,
- g) Except for animal by-products sent to incineration, incineration, or landfill facilities together with recycling facilities such as biogas or compost, other animal by-products,

ğ) Other natural and harmless agricultural or forestry materials and substances used in energy production from biomass through agricultural or forestry activities or methods that do not harm the environment and threaten human health,

h) Wastes generated by ships located in Turkey's maritime jurisdictional areas and cargo residues, to waste reception facilities and/or waste reception ships in ports, does not include.

(3) (Amended: RG-23/3/2017-30016) In the identification of wastes resulting from the exploration, extraction, processing, or storage of minerals and construction and demolition wastes, the waste list in Annex-4, the hazardous properties specified in Annex-3/A, and the limit values specified in Annex-3/B are used in determining the hazardousness properties and the waste management of these wastes. The waste treatment methods specified in Annex-2/A and Annex-2/B are used; however, other provisions of this Regulation do not apply.

(4) (Added: RG-23/3/2017-30016) Uncontaminated excavation soil is outside the scope of this article in accordance with the second paragraph of this article. However, the management of excavation soil in a manner that does not harm the environment and human health is carried out in accordance with the Regulation on Control of Excavation Soil, Construction, and Demolition Wastes published in the Official Gazette dated 18/3/2004 and numbered 25406.

d) Waste: Any substance or material thrown away or left behind or required to be disposed of by a natural or legal person who is the producer or physically in possession of the waste,

e) Waste collection center: Centers where waste separated at the source is left for recycling and/or disposal purposes,

f) Waste treatment: Processes including pre-treatment and intermediate storage, including recycling or disposal processes specified in Annex-2/A and Annex-2/B,

g) Waste treatment facility: A facility that recycles and/or disposes of wastes through activities specified in Annex-2/A and Annex-2/B, excluding transfer stations including pre-treatment and intermediate storage facilities,

ğ) Waste list: The list given in Annex-4,

h) Waste holder: A real and/or legal person who is the waste producer or who holds or owns the waste,

i) Transboundary movement of wastes: The movement of wastes from one state to another, including transit, whether by import or export,

i) Source separation: The separate collection of wastes according to their types and characteristics,

j) Waste producer: Any natural or legal person who causes waste generation as a result of activities, institutions, organizations, and enterprises, and/or any natural or legal person who



carries out any pre-treatment, mixing, or other operations that will cause a change in the composition or structure of the waste,

k) Waste management: Activities including prevention of waste generation, reduction at the source, reuse, separation according to characteristics and type, collection, temporary storage, transportation, intermediate storage, recycling, energy recovery including recycling, disposal, monitoring after disposal operations, control, and supervision,

l) Waste management plan: A plan containing short and long-term programs and policies prepared to ensure environmentally friendly waste management,

n) Residual waste: Wastes accepted for treatment at a waste treatment facility that cannot be processed or remain after processing,

o) Municipal wastes: Wastes defined in the 20 coded section of Annex-4 of the Regulation and for which municipalities are responsible, arising from households or similar in content or structure from commercial, industrial, and institutional wastes,

ö) Disposal: Any of the processes listed in Annex-2/A, even if the secondary purpose is energy recovery, which is not considered recycling,

p) Biodegradable waste: Wastes from parks, gardens, households, restaurants, points of sale, food production, and similar facilities that can degrade in an aerobic or anaerobic environment,

r) Bio-drying: The process of drying biodegradable wastes with the heat generated during aerobic decomposition,

s) Bio-methanization: The biological process consisting of multi-step biochemical reactions occurring during the anaerobic decomposition of organic matter,

z) Recycling: Any recycling process where organic materials are processed into products, materials, or substances for their original intended use or other purposes, excluding energy recovery and use as fuel or reprocessing waste for landfilling,

aa) Recovery: Processes listed in Annex-2/B that prepare waste for beneficial use to replace materials used in the market or in a facility,

bb) Excavation soil: Rock and soil material formed as a result of excavation and similar activities during the preparation stage of construction or land development,

cc) Dual collection system: The separate collection of biodegradable waste and recyclable waste in two different bags at homes and separate collection during waste collection,

ee) Polluter Pays Principle: The principle that expenses for preventing, limiting, mitigating, and improving the environment and pollution should be borne by those causing pollution or degradation,

ff) Compost: The product produced by the aerobic or anaerobic decomposition of organic-based waste,

gg) Pre-treatment: One or more physical, thermal, chemical, or biological processes applied to waste to reduce its volume or hazardous characteristics, facilitate its management, or increase its recovery,

ğğ) Prevention: Measures taken before a substance or material becomes waste to reduce the quantity of waste, extend product lifetimes, reduce harmful substances in product manufacturing, and minimize adverse effects on the environment and human health,

jj) Hazardous Waste: Wastes that exhibit one or more of the hazardous properties listed in Annex-3/A and are marked with an asterisk (\*) next to the six-digit waste code in Annex-4,

kk) Non-hazardous Waste: Wastes not marked with an asterisk (\*) in the Annex-4 waste list,

ll) Collection: The process of collecting waste from separate collection points,

mm) Collection-separation facility: A waste processing facility where waste is collected and sorted according to its type,

nn) National Waste Transport Form (NWT): A form used for recording and declaring the transport of waste from its location to a waste treatment facility,

öö) Reuse: Any process where products or non-waste components are used for the same purpose for which they were designed,

pp) Preparation for Reuse: The process of cleaning, repairing, or inspecting waste products or product components without the need for further preprocessing to restore them to their intended form,

rr) Authorized Organization: Associations established by producers, importers, and distributors obligated under the responsibility of producers, importers, and distributors, under the coordination of the Ministry, to fulfill their obligations for the collection, transportation, recovery, recycling, and disposal of waste generated from their products at the end of their useful life, and to cover necessary expenses and conduct educational activities,

ss) (Added: RG-23/3/2017-30016) Waste Transport Vehicle: Vehicles used for the transportation of waste, with technical criteria determined by the Ministry.

### **General Principles**

ARTICLE 5 - (1) The general principles regarding waste management are as follows:

a) The prevention and reduction of waste production and hazardous characteristics of waste;

The development and use of clean technologies that minimize the use of natural resources, Designing and marketing products at stages of production, use, recovery, or disposal in a manner that minimizes harm to the environment and human health,

Establishing a product environmental design approach focused on more durable, reusable, and recyclable products and harmful substances in waste through technologies focusing on waste production and harmful substances in waste,

is essential to prevent and reduce it.

b) In cases where waste production is unavoidable, waste should be reused, recycled, recovered through other processes aimed at obtaining secondary raw materials, used as an energy source, or disposed of. The principles regarding the use of waste as alternative raw materials and additional fuels are determined by the Ministry.

c) The use of recycled products to reduce natural resource and energy consumption is essential.

ç) During the collection, temporary storage, transportation, and processing of waste, methods and processes that will not pose risks to water, air, soil, plants, animals, and humans, cause discomfort through noise, vibration, or odor, prevent adverse effects on the natural environment, and thus do not harm the environment and human health are essential.

d) The Ministry establishes mechanisms to ensure the use of clean production technologies for waste treatment facilities.

e) Different types of waste must be separated and collected without mixing with other waste at their source of generation/production.

f) It is prohibited to collect and separate waste using a method other than the principles determined by the Ministry.

g) Transport licenses must be obtained for vehicles transporting waste types for which licensing is required by legislation. Waste transported without the need for a license must be transported in closed vehicles that do not pollute the environment in terms of appearance, odor, dust, leakage, and similar factors, except for vehicles that have completed their service life. The principles regarding the transportation of waste are determined by the Ministry.

ğ) Individuals and/or legal entities conducting activities specified in Annex-2/A and Annex-2/B, including those established in free zones, are required to obtain a temporary activity certificate/environmental permit and license for non-hazardous waste collection-separation facilities from the provincial directorate in accordance with the Environmental Permit and Licensing Regulation. However, for non-hazardous waste collection-separation facilities, permission must be obtained from the provincial directorate.

h) (Amended: RG-23/3/2017-30016) Waste may be recovered at the place of generation subject to compliance with the conditions specified in subparagraph (c) of the first paragraph of this article. The Ministry is authorized to exempt recovery facilities that recover their own waste, except for energy recovery at their own facilities, from the environmental licensing application. Facilities exempted from environmental licensing by the Ministry must provide information regarding quantity and type in their waste management plans, make necessary notifications through the Environmental Information System, and comply with the provisions of waste management legislation. An application must be made to the Ministry for exemption from environmental licensing, and an evaluation will be made by the Ministry based on waste and facility.

i) (Amended: RG-23/3/2017-30016) Collection, transportation, recovery, and/or disposal of waste shall be carried out within the scope of permits and/or environmental licenses obtained from the Ministry and/or provincial directorate by facilities, producers/authorized organizations, waste carriers authorized/licensed for transportation. It is prohibited for third parties to collect, transport, recover, and/or dispose of waste activities, mix with other substances and wastes, and burn with other substances and fuels, except for vehicles and facilities that have been granted a license condition.

i) Waste must be transported to the nearest and most suitable facility to its place of generation/location and processed using appropriate methods and technologies as quickly as possible.

j) The provisions of the Regulation on Waste Incineration published in the Official Gazette dated 6/10/2010 and numbered 27721 apply to the incineration of waste.

k) The provisions of the Regulation on Landfilling of Waste published in the Official Gazette dated 26/3/2010 and numbered 27533 apply to the disposal of waste by landfilling.

l) (Amended: RG-23/3/2017-30016) Except for physical, chemical, and biological pre-treatment operations in waste treatment facilities, waste shall not be mixed directly with any other substance or waste or diluted.

m) (Amended: RG-23/3/2017-30016) Temporary storage of waste is carried out in accordance with the provisions of Article 13.

- n) Parties responsible for the production and management of waste are obliged to take measures at every stage of waste management to prevent waste from harming the environment and human health.
- o) Individuals and/or legal entities to whom the obligation to prepare a waste management plan is assigned by this Regulation or other legal regulations are obliged to prepare and submit the waste management plan for approval/approval or obtain an appropriate opinion.
- ö) It is prohibited to dump waste into soil, seas, lakes, rivers, and similar receiving environments, directly landfill, and store by polluting the environment.
- p) Management of municipal waste is provided regionally considering climate, population, waste quantity, geographical conditions, and optimum transportation distance, enabling the widest region to benefit.
- r) Municipal waste management aims to reduce the volume of municipal waste, partially achieve energy or material recovery, and ensure final disposal using environmentally compatible physical, chemical, biological, or thermal technologies.
- s) Biodegradable waste is separately collected at its source through dual collection system without mixing with recyclable waste, and a dual collection system is established.
- ş) The collection, transportation, and disposal obligation and management of municipal waste are provided or provided by institutions and organizations defined in the relevant legislation.
- t) Municipalities must obtain the Ministry's approval for the implementation of technologies and projects related to waste treatment facilities to be established and/or established.
- u) (Amended: RG-23/3/2017-30016) Transfer stations can be established at suitable locations by taking environmental precautions not to cause traffic load on the transportation line to ensure the economic transportation of municipal waste. Waste collected at these stations is transported to waste treatment facilities. For transfer stations, places where unloading is done, except for vehicle entry and exit, must be built as closed.

u) (Amended: RG-23/3/2017-30016) In order to ensure the economic transportation of municipal waste, transfer stations may be established at suitable locations with environmental measures taken to avoid traffic load on the transportation line. Waste collected at these stations is transported to waste treatment facilities. It is mandatory for the discharge points of transfer stations, except for vehicle entry and exit, to be constructed closed to prevent environmental pollution from leakage water, odor, dust, noise, and appearance.

ü) Those involved in the collection, transportation, temporary and intermediate storage, recovery, reuse, and disposal of hazardous waste are jointly responsible for the environmental pollution and damage caused by hazardous waste. Those responsible are also subject to compensation liability according to general provisions for damages resulting from these activities. Expenses incurred by public institutions and organizations due to failure of waste management responsible parties to take necessary measures to prevent, mitigate, or reduce environmental damage, or due to direct actions by competent authorities for this purpose, are collected from those responsible for waste management according to the provisions of Law No. 6183 on the Procedure for Collection of Public Receivables.

(2) Waste must not be discharged directly into the sewage system, released directly into the air, burned at low temperatures, or mixed with other wastes.

(3) It is essential that the products covered by this Regulation are placed on the market in a manner that does not harm the environment and human health. Market surveillance and inspection can be carried out within the framework of relevant technical and legal regulations to ensure that consumers are protected from hazardous products and that commercial enterprises comply with legal obligations to market safe and compliant products. Procedures and principles regarding surveillance and inspection of products subject to market surveillance are regulated by the Ministry.

(4) The principles regarding the management of wastes defined in Annex-4 of this Regulation and ship recycling are determined by the Ministry.

(5) Waste shall not be transferred from one intermediate storage facility to another. Waste accepted at such facilities shall be sent to processing, recovery, and/or disposal facilities within the specified period.

(6) Except for intermediate storage and collection-separation facilities, facilities with environmental licenses for pre-processing, recovery, and/or disposal may not send waste accepted by them to another facility without processing to a different facility without the approval of the Ministry.

(7) Parties responsible for waste management are obliged to provide training to their relevant personnel to reduce the adverse environmental impacts of products and wastes throughout the production-to-disposal process and to manage them safely, to raise awareness in the public, to contribute to the development of sensitivity regarding waste management through social responsibility projects and environmental education projects, to make spot announcements in written and visual media, or to contribute to such efforts.

(8) Waste generated from the activities and maintenance procedures of public institutions and organizations must be sent to facilities that have obtained permits/environmental licenses.

### **Ministry's duties and authorities**

ARTICLE 6 - (1) The Ministry;

- a) Determines programs and policies that ensure the management of waste in harmony with the environment, prepares guidelines, organizes/trains for education, ensures cooperation and coordination for the implementation of this Regulation, and takes necessary administrative measures,
- b) Monitors, controls, and inspects all activities related to the management of waste from generation to disposal, and determines criteria for the environmental release of products under extended producer responsibility domestically,
- c) Ensures national and international coordination in establishing technology and management systems for waste management in harmony with the environment,
- ç) Issues environmental licenses to waste treatment facilities,
- d) Prepares/arranges online notification and declaration programs for extended producer responsibility and waste management and determines the usage principles of the programs,
- e) Conducts international studies on the transboundary movement and disposal of waste, evaluates relevant notifications and transportation documents, approves waste exports,

ensures international information exchange, and informs relevant countries in case of accidents,

f) Prepares or arranges national, regional, and/or local waste management plans and ensures public awareness,

g) Determines the procedures and principles for the preparation, implementation, and monitoring of waste management plans,

ğ) Ensures the evaluation and implementation of submitted waste management plans,

h) Determines the principles of authorization for institutions and organizations, authorizes them, supervises authorized organizations, ensures the application of necessary sanctions in case of non-compliance with this Regulation and authorization principles, and cancels authorization if necessary,

ı) Registers facilities exempt from environmental licenses,

i) Determines the procedures and principles for the use of E-Waste Tracking System (UATF) and the transportation of waste,

j) Determines the procedures and principles regarding the dual collection system and waste collection centers,

k) Evaluates applications for waste with characteristics defined in the first paragraph of Article 19 of this Regulation, which can be considered as by-products,

l) Inspects waste management activities.

(2) The Ministry may delegate its powers mentioned in the first paragraph to provincial directorates when deemed necessary.

Duties and authorities of provincial directorates

ARTICLE 7 - (1) Provincial directorates;

a) Ensure cooperation and coordination for the implementation of this Regulation, conduct inspections,

b) Inform the Ministry about decisions taken in the Local Environmental Board regarding activities within the scope of waste management,

c) Identify producers/waste generators operating within provincial boundaries, ensure their registration and declarations in online notification and declaration applications, and periodically inspect them,



- c) Carry out tasks and transactions related to online applications for waste management,
- d) Control and inspect all activities related to the management of waste from generation to disposal, take necessary legal actions in case of non-compliance, and inform the Ministry,
- e) Permit and inspect temporary storage areas,
- f) Permit and inspect non-hazardous waste collection-separation facilities,
- g) Issue environmental licenses to waste treatment facilities responsible under the Environmental Permit and License Regulation and inspect them,
- ğ) Take necessary legal actions and inform the Ministry in case waste treatment facilities within provincial boundaries do not comply with permit/environmental license conditions,
- h) Issue transportation licenses to companies and vehicles engaged in waste transportation, control their activities based on this license, cancel or renew it, and comply with the UATF procedure,
- ı) Take all necessary emergency measures in case of accidents during the transportation of waste, ensure necessary coordination, and submit accident reports annually by the end of March to the Ministry after evaluating them,
- ı) Ensure that facilities evaluated under the Regulations on Incineration of Waste and Regulations on the Landfilling of Waste are incorporated into the zoning plan,
- j) Evaluate and approve submitted waste management plans and ensure their implementation,
- k) Evaluate the waste declaration form containing the information of the previous year that waste producers are obliged to submit using the Ministry's online applications and ensure that necessary corrections are made,
- l) Organize training activities for the parties responsible under this Regulation,
- m) Evaluate and approve each waste exit from free zones.
- l) It is obliged to organize training activities for the parties responsible under this Regulation.
- m) It is obliged to evaluate and approve each waste exit from free zones.

#### Responsibilities and Duties of Municipalities

ARTICLE 8 – (1) Metropolitan municipalities, metropolitan district municipalities, provincial, district, and township municipalities:

- a) Within the scope of their responsibilities, they are obliged to establish, operate, and obtain environmental licenses for waste treatment facilities, and to manage them,

b) They are obliged to conduct awareness-raising and training activities or contribute to such activities jointly with the parties responsible under this Regulation in the context of waste management,

c) They are obliged to ensure the periodic training of personnel responsible for waste management, undergo health checks, take all necessary measures including prevention of occupational risks, training, and provision of information, ensure the provision of necessary tools and equipment, and carry out efforts to improve and adapt health and safety measures to changing conditions, and take other protective and preventive measures,

ç) They are obliged to keep records of the vehicles used in the transportation of the waste they are responsible for managing, establish vehicle tracking systems, and submit the records to the Ministry and provincial directorate upon request,

d) They are obliged to prevent the transportation and processing of waste by unauthorized persons from the transfer station for waste they are responsible for managing, by taking necessary measures,

e) (Added: RG-23/3/2017-30016) If necessary, they are obliged to establish, operate, and operate transfer stations for municipal waste,

(3) Metropolitan municipalities:

a) They are obliged to comply with the provisions specified in the first paragraph of this Article,

b) They are obliged to coordinate the preparation, submission to the Ministry, and implementation of waste management plans, which include measures to prevent waste generation and waste reduction, together with district municipalities, and take necessary measures in line with this plan,

c) They are obliged to coordinate and support the activities carried out by district municipalities within the scope of this Regulation,

ç) They are obliged to include facilities evaluated within the scope of the Regulation on the Incineration of Wastes and the Regulation on the Landfilling of Wastes in the zoning plan,

d) They are obliged to take necessary measures to prevent the transportation and processing of waste by unauthorized persons from the transfer station for waste they are responsible for managing,

e) (Added: RG-23/3/2017-30016) If necessary, they are obliged to establish, operate, and operate transfer stations for municipal waste,

(4) Provincial, district, and township municipalities:

a) They are obliged to comply with the provisions specified in the first paragraph of this Article,

- b) They are obliged to prepare, submit to the provincial directorate, implement waste management plans, which include measures to prevent waste generation and waste reduction, and take necessary measures in line with this plan,
- c) They are obliged to include facilities evaluated within the scope of the Regulation on the Incineration of Wastes and the Regulation on the Landfilling of Wastes in the zoning plan,
- ç) They are obliged to collect/separate waste at the source and establish dual-collection systems, and submit information and documents regarding the collected waste to the Ministry,
- d) They are obliged to take necessary measures to prevent the collection, transportation, and processing of waste by unauthorized persons for the waste they are responsible for managing,

#### The Obligations of Waste Producers and Waste Owners

##### ARTICLE 9 – (1) Waste producers:

- a) They are obliged to take necessary measures to minimize waste generation,
- b) They are obliged to collect and temporarily store their waste separately,
- c) (Amended: RG-23/3/2017-30016) They are obliged to prepare and submit to the provincial directorate the waste management plan they are required to prepare regarding their produced waste and waste prevention and reduction measures, and obtain approval,
- ç) They are obliged to keep records for their generated waste according to the principles determined by the Ministry, and carry out appropriate packaging and labeling,
- d) They are obliged to store municipal wastes, which they are obliged to collect, transport, and dispose of in accordance with the relevant legislation, in a manner that will not harm the environment and human health, in closed containers at the places where they are generated such as residences and workplaces, and prepare them for collection,
- e) They are obliged to document, through analyses conducted by laboratories authorized by the Ministry, that the wastes they generate do not possess the characteristics indicated in Annex-4 of this Regulation (M) and specified in Annex-3/B and are non-hazardous,
- f) They are obliged to obtain permission from the provincial directorate for temporary storage areas, which require permission in accordance with this Regulation,
- g) They are obliged to send their waste to waste treatment facilities with an environmental license in accordance with the provisions of this Regulation and determined by the Ministry,
- ğ) They are obliged to fill out, approve, print out, and keep for five years a copy of the waste declaration form using online applications prepared by the Ministry starting from January of each year and no later than the end of March, and military units and institutions are obliged to send a report containing information regarding the date and place of the accident, type

and quantity of the waste, cause of the accident, type of waste treatment, and rehabilitation of the accident site to the Ministry within the specified period by the Ministry of National Defense and the General Staff of the Turkish Armed Forces,

h) They are obliged to use UATF for waste for which the use of UATF is mandatory and send them to waste treatment facilities and comply with the relevant procedures and processes,

i) In case the waste treatment facility does not accept the waste, they are obliged to direct the carrier to another facility or ensure that the waste is processed in an appropriate facility by making the carrier return the waste,

i) They are obliged to provide training for their employees responsible for the collection, transportation, and temporary storage of their wastes, take all necessary precautions related to health and safety, and

j) In case of accidents or deliberate spills of waste, they are obliged, depending on the type of waste, to restore the site to its previous state within one month from the occurrence of the incident at the latest, cover all expenses, and

k) (Amended: RG-23/3/2017-30016) They are obliged to inform the provincial directorate within 24 hours in case of accidents or deliberate spills of waste, and submit a report containing information regarding the date and place of the accident, type and quantity of the waste, cause of the accident, type of waste treatment, and rehabilitation of the accident site to the provincial directorate within 30 calendar days at the latest,

l) They are obliged to apply to the Ministry to obtain compliance for wastes that possess the characteristics defined in the first paragraph of Article 19 of this Regulation and can be considered as by-products,

m) They are obliged to cover the expenses incurred for the determination, collection, transportation, and processing of their waste,

(2) Waste owners are obliged to manage their waste in accordance with the provisions specified in this Regulation.

#### Waste Treatment Facilities' Responsibilities

##### ARTICLE 10 – (1) Waste treatment facilities:

a) They are obliged to obtain a temporary activity permit/environmental license document within the scope of the Environmental Permit and Licensing Regulation and comply with the specified conditions,

b) They are obliged to provide training for personnel regarding emergency measures and inform the Ministry and provincial directorate in case of emergency situations,

- c) They are obliged to ensure the health and safety of the personnel working in the risk-bearing sections of the facility, prevent unauthorized access to these sections, and operate each section of the facility according to the work plan,
- d) They are obliged to ensure the management of waste generated as a result of the facility's activities and residual wastes in compliance with the provisions specified in this Regulation,
- e) (Amended: RG-23/3/2017-30016) For wastes for which the use of UATF is mandatory, they are obliged to determine the conformity of the waste to the waste definition specified in UATF upon entry to the facility, sign the waste acceptance form, and send it to the waste producer within thirty days at the latest. In case of disagreement between the waste producer and the facility regarding UATF, if the disagreement cannot be resolved, they are obliged to inform the Ministry of the disagreement within fifteen days. If the facility accepts waste without a waste acceptance form, they are obliged to inform the Ministry and provincial directorate,
- f) They are obliged to register for online programs, prepare mass-balance information containing information about the waste they accept, process, and generate/residual products resulting from waste treatment activities, and make notifications using the online program,
- g) They are obliged to fulfill the obligations given to waste producers regarding residual wastes,
- ğ) Before closure, they are obliged to provide information and commitment regarding the post-closure environmental protection measures to be taken and how all wastes at the facility will be managed,
- h) (Amended: RG-23/3/2017-30016) They are obliged to prepare a closure plan for the facility, apply to the Ministry, obtain approval, and close the facility after obtaining approval indicating the completion of the work within the term specified in the approved closure plan,
- ı) They are obliged to obtain a fire brigade report regarding fire safety measures from the municipality they are affiliated with,
- (2) Facilities falling within the scope of the Regulation on the Incineration of Wastes and the Regulation on the Landfilling of Wastes are obliged to submit their operating plans to the Ministry and obtain appropriate opinions. In case of changes, the operating plans are renewed and submitted to the Ministry.
- (3) Bio-drying, compost, and bio-methanization facilities:
- a) They are obliged to comply with the provisions specified in subparagraphs (a), (b), (c), (ç), (d), (f), (g), (ğ), and (h) of the first paragraph of this Article,
- b) (Abolished: RG-23/3/2017-30016)

- c) They are obliged to take all preventive measures to minimize odor, dust, leachate, gas, and similar adverse effects that may arise from the facility,
- ç) They are obliged to establish necessary systems to control that the wastes accepted and processed comply with the specified criteria,
- d) They are obliged to submit their operating plan to the Ministry, obtain approval, and submit a revised operating plan to the Ministry within 1 month in case of any changes in the plan,
- e) They are obliged to collect, process, and utilize gases that may arise from the facility during the operation process, including greenhouse gases, in a manner that does not harm the environment and human health,
- f) (Abolished: RG-23/3/2017-30016)
- g) They are obliged to dispose of non-compliant wastes accepted by the facility and non-usable products exiting the facility in accordance with the relevant legislation.

#### Waste List and Identification of Waste in the List

ARTICLE 11 – (1) The list of wastes covered by this Regulation is provided in Annex-4. Wastes marked (\*) in the waste list are hazardous wastes. Hazardous wastes are wastes that have one or more of the characteristics listed in Annex-3/A. Wastes marked (A) in the waste list fall into the hazardous waste class regardless of the concentration of hazardous waste specified in Annex-3/B. The hazardous properties of wastes marked (M) must be determined. In the studies to be conducted for this purpose, evaluations related to the characteristics of H3-H8 and H10 and H11 listed in Annex-3/A are made based on the concentration values specified in Annex-3/B.

(2) Wastes listed in the waste list are identified in their entirety with six-digit waste codes and related two-digit and four-digit section codes.

(3) In all studies related to wastes, it is mandatory to use the six-digit waste code corresponding to the definition of the waste.

(4) Guides for determining the waste list and the hazardous properties of wastes are prepared by the Ministry.

(5) Material safety data sheets, process inputs and information, analysis studies based on concentration values specified in Annex-3 /B, and analysis studies conducted by laboratories accredited by the Ministry for Annex-3/B are used in all studies conducted to determine the hazardous properties of wastes. If deemed necessary by the Ministry, analyses based on concentration values specified in Annex-3/B may be conducted by the waste producer or waste generator. Analysis studies are carried out by laboratories accredited by the Ministry for Annex-3/B.

(6) The results of the analysis studies conducted to determine the hazardous properties of wastes are valid for a period of five years if there are no changes in the production process, raw materials, or additives. However, in cases deemed necessary by the Ministry, the analysis study is renewed. If there is a change in the production process, raw materials, or additives, the analysis is renewed within three months from the date of the change.

#### Determining the Waste Code in the Waste List

ARTICLE 12 – (1) The waste producer is responsible for determining the waste code in accordance with the waste code determination hierarchy and waste code explanations provided in Annex-1.

(2) Waste codes ending in 99 with six digits cannot be used without the approval of the Ministry. It is mandatory to document whether the wastes ending in 99 are hazardous based on the analysis conducted using the concentration values specified in Annex-3/B.

(3) (Amended: RG-23/3/2017-30016) For wastes with a waste code ending in 99, if there is no suitable facility with an environmental license for waste treatment, and the waste can be processed in facilities licensed for waste treatment from a similar sector and suitable for processing in their process, the waste can be processed with the approval of the Ministry after obtaining approval from the Ministry. The waste treatment facility applies to the Ministry upon the request of the waste producer for the acceptance of the waste at the facility. If it is determined as hazardous as a result of the study, the licensed transportation company applying for the waste to be transported also applies to the Ministry upon the request of the waste producer.

#### Temporary Storage

Article 13 – (1) Wastes are temporarily stored at the place of their generation in accordance with the criteria determined according to their types.

(2) Hazardous or non-hazardous waste designation, waste code, the quantity of waste stored, and the storage date are indicated on the waste temporarily stored by classifying it according to its properties.

(3) (Amended: RG-23/3/2017-30016) Wastes are temporarily stored in a manner that prevents them from reacting with each other. Except for medical wastes, hazardous wastes are temporarily stored in the temporary storage area for a maximum of 6 months, while non-hazardous wastes are stored for a maximum of 1 year.

(4) (Amended: RG-23/3/2017-30016) The temporary storage of wastes is carried out within the boundaries of the facility/organization where the waste is generated. Except for medical wastes and packaging wastes, if it is determined by the provincial directorate that there is no suitable place within the boundaries of the facility/organization, temporary storage can be carried out safely in an area approved by the provincial directorate within the boundaries of the province owned by the producer. Temporary storage permission is obtained for this area regardless of the quantity. There is no requirement for licensed vehicles for the transportation of wastes to the temporary storage area. The provisions of the Regulation on the Control of Medical Wastes published in the Official Gazette dated 22/7/2005 and numbered 25883 apply to the temporary storage of medical wastes.

(5) (Amended: RG-23/3/2017-30016) Waste producers who generate less than a thousand kilograms of hazardous waste per month are exempt from temporary storage permits for the areas/containers where they temporarily store their hazardous wastes. Waste producers generating a thousand kilograms or more of hazardous waste per month obtain temporary storage permits from the provincial directorate for the areas/containers where they temporarily store their hazardous wastes. The permit for the temporary storage area/container is granted indefinitely. If there is a change in the temporary storage area, the temporary storage permit is renewed.

(6) (Amended: RG-23/3/2017-30016) Municipal waste collection equipment/containers and temporary storage areas/containers for packaging waste, non-hazardous waste, and medical waste are exempt from temporary storage permits.

(7) (Amended: RG-23/3/2017-30016) Hazardous substances and hazardous waste compulsory financial liability insurance is obtained in accordance with the provisions of Article 16 without considering the quantity for hazardous waste temporary storage areas/containers.

(8) (Added: RG-23/3/2017-30016) The principles regarding temporary storage areas are determined by the Ministry.



#### Preparation of the National Waste Management Plan

Article 14 – (1) The Ministry is authorized and responsible for preparing national waste management plans for a period of 5 years. These plans cover:

- a) Waste management structure and waste legislation,
- b) Current situation analysis of waste management,
- c) Economic and managerial planning, covering medium and long-term objectives.

#### Notification and Record-Keeping Obligation

Article 15 – (1) Producers, market participants, waste generators, holders of PCB and PCT-containing equipment, waste carriers, and waste treatment facilities are obliged to keep chronological records, make notifications by registering on the online systems determined by the Ministry, provide information, and keep the records for at least five years to submit them for examination and inspection by the Ministry and/or provincial directorate. Records of military units and military institutions are reported to the Ministry in writing by the Ministry of National Defense and the General Staff.

(2) Records should include information on waste type and its code number as specified in Annex-4, the quantity of waste, the source of waste, the facility to which the waste was sent, the method of transportation of the waste, and the processes to which the waste is subjected according to the methods specified in Annex-2/A and Annex-2/B and information related to products covered by extended producer responsibility.

(3) If deemed necessary by the Ministry, the relevant parties have their notifications and documentation reviewed by independent audit firms and submit the review report to the Ministry.

#### Financial Liability Insurance Obligation

Article 16 – (1) Those engaged in activities related to the collection, transportation, intermediate storage, recovery, reuse, disposal, and temporary storage of hazardous wastes, regardless of quantity, are obliged to obtain hazardous waste financial liability insurance against damages they may cause to third parties due to accidents arising from their activities. Institutions, establishments, and businesses that do not comply with the obligation to obtain insurance are not granted permits and licenses for these activities.

(2) For those already engaged in the activities mentioned in the first paragraph of this article, if there is an insurance policy covering hazardous wastes in addition to the activities specified in the Tariff and Directive on Compulsory Liability Insurances to be Obtained for Hazardous Substances published in the Official Gazette dated 9/5/2010 and numbered 27576, there is no need to additionally obtain financial liability insurance.

#### Coverage of Waste Management Costs

Article 17 – (1) According to the "polluter pays" principle, the expenses arising from waste management are covered by individuals and/or legal entities responsible for extended producer responsibility and/or waste management.

#### Extended Producer Responsibility

Article 18 – (1) Necessary measures are taken by the producer starting from the design of products to reduce their negative impact on the environment, prevent waste, reuse waste after it becomes waste, and support its safe recycling or recovery.

(2) Extended producer responsibility includes electrical and electronic equipment, packaging, vehicles, batteries, and accumulator products. The producer and/or distributor of these products:

- a) Covers the management and associated costs of products returned to the producer and/or considered waste at the end of their useful life.
- b) Fulfills their obligations by choosing one or more of the methods determined by the Ministry.
- c) Ensures the achievement of collection, reuse, recycling, or recovery targets.

(3) The principles regarding products under extended producer responsibility and the management of their wastes are determined by the Ministry.

#### By-Product

Article 19 – (1) Materials or substances produced during the production process, but whose main purpose is not their production, will be considered by-products if:

- a) Produced as an integral part of the production process and included in the capacity report as a product/by-product,
- b) There is continuous demand for future use,
- c) It can be directly used in a process and does not undergo any other processes except physical ones where it is produced,
- d) Compliance with the standards of the substance it will replace is documented, or if used as a raw material, it does not compromise the product standard,
- e) Measures are taken to ensure that it does not harm the environment and human health during its use.

(2) An application is made to the Ministry to obtain suitability for wastes that may be considered as by-products according to the characteristics specified in the first paragraph of this article. The information and documents required for applications regarding wastes considered as by-products are determined by the Ministry.

### **Preparation for Reuse**

Article 20 – (1) Waste will not be considered as waste until the end of its useful life if it is designed to be used for the same purpose by undergoing only physical processes within the scope of activities for preparing for reuse.

(2) Preparation for reuse activities are carried out in waste treatment facilities with environmental licenses, except for collection-separation and intermediate storage activities.

(3) Individuals and legal entities providing maintenance and repair services for products such as repair shops and services are not included in the scope of preparation for reuse.

### **Obligations of Authorized Organizations and Authorization**

Article 21 – (1) An authorized organization is obliged to:

- a) Apply to the Ministry for authorization according to the procedures and principles determined by the Ministry,
- b) Fulfill obligations on behalf of its members,
- c) Submit progress reports of the activities carried out, the plan for the following year, and the annual budget to the Ministry by the end of March each year.

(2) The authorized organization must ensure the representation share determined by the Ministry according to the type of products released to the domestic market.

(3) The authorization period is ten years. For the renewal of authorization, the authorized organization applies to the Ministry six months before the end of the authorization period.

(4) The Ministry supervises the authorized organization, monitors and publishes indicators related to its collection and recovery targets. In addition, the authorized organization is audited by an independent audit firm every two years, and audit reports are submitted to the Ministry.

(5) In case the authorized organization fails to provide the representation share and/or fulfill any of its obligations, the Ministry issues a warning and gives a maximum period of one year to re-establish the representation share and/or fulfill the obligations. The Ministry notifies or announces this situation to the members of the authorized organization.

(6) If the conditions for re-authorization are not regained and/or the obligations are not fulfilled at the end of the period specified in the fifth paragraph of this article, the Ministry revokes the authorization, and the obligations are fulfilled by the members of the authorized organization.

### **Import of Wastes**

Article 22 – (1) (Amended: RG-23/3/2017-30016) The entry of hazardous wastes into the Republic of Turkey Customs Zone, including free zones, is prohibited. The import of certain non-hazardous wastes subject to control may be permitted. The principles regarding these permits are determined by regulations to be published by the Ministry of Economy in line with the opinion of the Ministry.

(2) If there is no suitable facility in the free zone or if the wastes are not delivered to these facilities by the waste-producing company, upon the request of the waste producer, upon the approval of the provincial directorate by the free zone administration presidency, customs and customs protection directorate, operator or zone founder and operator, and waste producer representatives, these wastes are removed from the zone. Information and documents specified below will be submitted to the Free Zone Commission.

- a) Document indicating that the wastes are produced as a result of a production and/or consumption activity in the free zone,
- b) Type and quantity of waste resulting from the activity,
- c) Permit document obtained from the provincial directorate for waste collection-separation facilities or temporary activity permit/environmental permit and license document for waste treatment facilities for the facility that will accept the wastes according to the type of waste,
- d) Contract stating that the wastes will be sent to the facilities mentioned in sub-paragraph (c) of this paragraph,
- e) Other information and documents requested by the provincial directorate.

(3) The entry into our country of used tires in carcass form for recycling purposes under the Inward Processing Regime is not subject to the provisions of this article and is only subject to enterprises licensed by the Ministry for recycling.

#### **Export and Transit of Waste**

Article 23– (1) Hazardous wastes:

- a) If there are no facilities in our country with the necessary technical capacity for the recovery/disposal of wastes,
  - b) Provided that the competent authority of the importer and transit state accepts the said wastes,
  - c) Completion of export-related tasks and procedures,
- can only be exported to EU and/or OECD member countries and Liechtenstein. The pre-notification form (notification) in Annex-5/A and the international waste transport (movement document) form in Annex-5/B are used for the export of hazardous wastes.

(2) Non-hazardous wastes:

- a) For export to EU and/or OECD member countries and Liechtenstein, no document is issued by the Ministry; information is provided to the Ministry before the export process begins and recorded.
- b) For export to countries other than EU and/or OECD member countries and Liechtenstein, approval is obtained from the competent authority of the respective country, and an application is made to the Ministry. Export transactions cannot be carried out without approval from the Ministry.

(3) The principles regarding the export and transit passage of wastes are determined by the Ministry.

#### Compliance with European Union Legislation

Article 24 – (1) This Regulation has been prepared in accordance with the framework of compliance with the legislation of the European Union, taking into account Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and Commission Decision 2000/532/EC of 3 May 2000 establishing a list of waste.

#### Administrative Sanctions

Article 25 – (1) Penalties stipulated in the Environmental Law No. 2872 are applied to those who act contrary to the provisions of this Regulation.

#### References

Article 26 – (1) References made to the Regulation on the Control of Solid Wastes published in the Official Gazette dated 14/3/1991 and numbered 20814 and the Regulation on General Principles of Waste Management published in the Official Gazette dated 5/7/2008 and numbered 26927 are considered to be made to this Regulation.

#### 8.3.4. Regulation on General Principles of Waste Pre-treatment and Recovery Facilities

##### Purpose

Article 1 – (1) The purpose of this Regulation is to determine the procedures and principles regarding the technical criteria of waste pre-treatment and recovery facilities operating for the processing of wastes and the minimum requirements to be met by these facilities.

##### Scope

Article 2 – (1) This Regulation covers;

- a) Collection and separation facilities,
- b) Other pre-processing facilities,
- c) Scrap metal processing facilities,
- ç) Facilities conducting reuse preparation activities,
- d) Non-hazardous waste recovery facilities,
- e) Hazardous waste recovery facilities,

which process the wastes listed in the waste list in Annex-4 of the Regulation on Waste Management published in the Official Gazette dated 2/4/2015 and numbered 29314, and whose administrative and technical criteria are not regulated in other legislation.

(2) This Regulation does not cover waste processing facilities whose administrative and technical criteria are regulated in other legislation. However, the provisions of Article 12 regarding the closure procedures apply to waste processing facilities engaged in pre-treatment, interim storage, recovery, or disposal activities for which there is no contrary provision in the relevant legislation.

#### Definitions

Article 4 – (1) In this Regulation;

- a) Waste processing: One or more of the recycling or disposal processes listed in Annex-2/A and Annex-2/B of the Regulation on Waste Management published in the Official Gazette dated 2/4/2015 and numbered 29314, including pre-treatment processes and interim storage,
- b) Waste processing facility: A facility that recovers and/or disposes of wastes through the processes listed in Annex-2/A and Annex-2/B of the Regulation on Waste Management, excluding transfer stations, except for pre-treatment and interim storage facilities,
- c) Waste reception unit: The unit consisting of the areas required for the acceptance procedures of the wastes to be processed in the waste processing facility and for their retention until they are subjected to processing,
- ç) Interim storage facility: A facility where wastes are safely stored until they reach sufficient capacity before being transported to pre-treatment, recovery, or disposal facilities,
- d) Segregated waste stock area: The areas where the segregated wastes are kept until they are sent to waste processing facilities or, in the case of other pre-processing activities, until the wastes obtained after processing are kept until they are sent to waste processing facilities,
- e) Ministry: The Ministry of Environment, Urbanization, and Climate Change,
- f) Residual waste: Wastes that cannot be processed or remain after processing from the wastes accepted for processing at the waste processing facility,
- g) Environmental license: A license covering the temporary activity certificate/environmental permit and license issued within the scope of the Regulation on Environmental Permit and License published in the Official Gazette dated 10/9/2014 and numbered 29115,

- ğ) Pilot production: The study conducted at the waste processing facility to demonstrate compliance with the eighth paragraph of Article 13 and the process competency,
- h) Recovery facility: A waste processing facility involved in preparing wastes for reuse to replace materials used in the market or at a facility and carrying out any of the processes listed in Annex-2/B,
- i) Scrap metal processing facility: A waste processing facility engaged in activities to improve the quality of wastes listed in Annex-2 by shredding/reducing their sizes,
- i) Provincial Directorate: The Provincial Directorate of Environment, Urbanization, and Climate Change,
- j) Closure plan: The plan containing information on the possible adverse environmental impacts after closure, how control and monitoring activities will be carried out, and how all wastes in the facility will be managed, prepared upon the request of the facility owner and upon the approval of the provincial directorate or by decision of the Ministry/provincial directorate to close the waste processing facility,
- k) Mass-balance declaration: The declaration made using the Ministry's online system regarding the wastes accepted and processed at the waste processing facility, the residual wastes, and the products generated/produced as a result of waste processing activities,
- l) Pre-treatment: One or more physical, thermal, chemical, or biological processes applied to wastes to reduce their volume or hazardous characteristics, facilitate their management, or increase their recovery,
- m) Collection and separation facility: A waste processing facility where separation processes are carried out for wastes listed in Annex-1 to classify them by type,
- n) Consistency control: The control by the waste carrier during waste transportation operations and by the waste processing facility during unloading, ensuring the accuracy of the information regarding the waste producer, the quantity of the waste, the waste code, the waste processing facility, and confirming that the waste matches the declared waste,
- o) Reuse preparation: Cleaning, repairing, or inspecting waste products or components without the need for further pre-treatment to prepare them in their designed form for reuse.

#### General Principles

Article 5 - (1) Persons, institutions, and organizations responsible for waste management are jointly responsible at every stage of waste management. They are responsible for taking measures to prevent waste from harming the environment and human health, reducing, stopping, and remedying the environmental damage caused by these activities.



(2) The primary aim is to recycle wastes to contribute to the economy and reduce the amount of waste going to final disposal.

(3) Relevant legislation is applied to the use or management of products/materials obtained from waste processing, segregated wastes, residual wastes, and/or non-recoverable products.

(4) Wastes that cannot be sent to collection and separation facilities because they are not listed in Annex-1 are sent to waste processing facilities performing interim storage, recovery, or disposal activities in compliance with the relevant legislation.

(5) Non-recyclable wastes cannot be accepted by waste processing facilities covered by this Regulation; these wastes are disposed of by one of the methods listed in Annex-2/A of the Waste Management Regulation.

(6) Waste processing facilities must have a valid business opening and operation permit obtained from the relevant authorities. Temporary activity certificates issued according to the Regulation on Environmental Permit and License are considered as environmental permits and licenses in business opening and operation permit applications.

(7) The Ministry is authorized to request pilot production during the evaluation process of temporary activity certificates for waste processing facilities to demonstrate process competency and to submit the result report prepared by the relevant institutions and/or organizations after pilot production.

#### Duties and Powers of the Ministry

Article 6 - (1) The Ministry is responsible and authorized to:

- a) Determine programs and policies ensuring environmentally compatible waste management,
- b) Take necessary administrative measures for the implementation of this Regulation, ensuring national and international cooperation and coordination,
- c) Issue environmental licenses to waste processing facilities covered by this Regulation according to the Regulation on Environmental Permit and License and to inspect these facilities,

- ç) Ensure monitoring and control of the activities of waste processing facilities, carry out monitoring of online applications used by waste processing facilities, and carry out related processes and procedures,
- d) Evaluate and approve closure plans for waste processing facilities, conduct on-site inspections and assessments at the facilities,
- e) Issue environmental licenses to waste processing facilities responsible for licensing according to the Regulation on Environmental Permit and License,
- g) Monitor and supervise compliance with all activities within the scope of this Regulation,
- h) Monitor and ensure the proper management of wastes at waste processing facilities, and verify the consistency and conformity of the waste management,
- i) Monitor the compliance of all activities within the scope of this Regulation,
- j) Ensure registration of waste processing facilities in the Ministry's online programs, submit notifications and declarations according to their activities, and simultaneously complete mass-balance declarations containing information on accepted, processed wastes, residual wastes, and products/materials resulting from waste processing activities, and approve them,
- k) Submit the required guarantee to the Ministry, according to the procedures and principles determined, to prevent or remediate possible environmental pollution during the operation or after the operation of the facility and for the management of wastes in the facility,
- l) Obtain Compulsory Financial Liability Insurance for Hazardous Substances and Hazardous Waste,
- m) Submit business opening and operation permits in environmental permit and license applications after the temporary activity certificate stage,
- n) Carry out pilot production as requested by the Ministry according to the reported principles and submit the result report of the pilot production to the Ministry.

(2) Wastes accepted by waste processing facilities must be processed within one year from the date of acceptance. However, this period may be extended with the approval of the Ministry in compulsory situations.

(3) The amount of waste that can be kept instantaneously in the waste reception units of waste processing facilities cannot exceed the annual waste consumption amount specified in the capacity report. If a capacity report cannot be prepared, the annual waste consumption amount specified in other documents obtained from competent authorities is considered. Facilities that have obtained documents indicating exemption from the capacity report

submit their annual waste consumption amounts to the Ministry by presenting corporate academic reports in the environmental license application.

#### General Conditions to be Provided by Pre-treatment and Recycling Facilities

Article 9 - (1) The following general conditions are provided in waste processing facilities within the scope of this Regulation:

- a) Except for completely enclosed areas, the surroundings of the areas other than the enclosed areas are enclosed with permanent construction materials such as concrete, brick, block, stone masonry, or similar materials to ensure the security of the facility and prevent unauthorized entry of personnel other than staff. In facilities surrounded by materials other than those specified, permanent support such as concrete posts, iron railings, and steel structures may be provided to enhance the structural integrity.
- b) The facilities include waste reception units, where the control, weighing, and recording of waste at the entrance to the facility are carried out, and where the waste is held for processing, as well as areas for waste processing activities, temporary storage, segregated waste storage/product storage areas as specified in Article 11 according to the activity, parking, administrative, and technical office sections, independently from each other.
- c) The temporary storage area created for the temporary storage of residual wastes from the facility and other wastes resulting from activities other than waste processing activities complies with the conditions specified in Article 13 of the Waste Management Regulation.
- ç) The floor of the areas where processing activities take place and areas in contact with waste is made of impermeable concrete and non-combustible materials to ensure impermeability. Suitable slopes are provided on the floor to collect any leakage that may occur due to waste and create a separate collection mechanism to prevent contact or leakage of any leakage that may occur from waste with groundwater, sewage, or surface water.
- d) Rainwater, washing, and similar wastewater generated in the facilities are collected separately.
- e) All necessary preventive measures are taken against pollutants such as noise, dust, and odor in the facilities, as defined in the relevant legislation.
- f) In facilities accepting metal waste, radiation measurement devices approved for technical suitability by the Turkish Energy, Nuclear and Mineral Research Institute are used for radiation control, and personnel with training certificates approved by the relevant institution for device usage are employed.
- g) All equipment in the facilities is registered as company property, and these equipment are shown in the capacity report of waste processing facilities or in other documents obtained

from competent authorities in cases where a capacity report cannot be prepared. Facilities exempt from the capacity report requirement are not required to show the equipment in these reports.

ğ) In the environmental license application of the facilities, a technical compliance report prepared in the format determined by the Ministry, along with a process flowchart and process summary, is submitted for the selected waste processing process to ensure that the requested waste codes are suitable for processing. If deemed necessary by the Ministry, additional equipment information and/or documents may be requested from the facilities.

h) The facilities have a data recording system where information about the waste accepted, processed, and removed from the facility is recorded electronically. Documents related to the information entered into the data recording system are kept for at least five years.

i) (Amended: RG-27/1/2022-31732) Camera recording system is established at the entrance and exit points of the facilities, providing remote access to these points, allowing tracking of waste accepted and removed from the facility with a scale compatible with the capacity. Records obtained are kept for at least thirty days.

i) (Amended: RG-27/1/2022-31732) If the facilities are located in controlled areas such as industrial zones, industrial estates, and similar management areas, the requirement for the surroundings to be permanently surrounded by construction materials as stipulated in paragraph (a) is not required. If there is a radiation control system at the entrances with qualified personnel (f), and if there is a scale for the purpose of providing services to the facilities at the entrances or within the facilities, the requirement for having a scale as stipulated in (i) is not required.

j) In waste processing facilities performing pre-treatment activities on waste, if hazardous and non-hazardous wastes are processed together in the same machines and equipment in the same process, the resulting wastes are managed as hazardous waste.

k) After the pre-treatment activities required according to the recycling process, if the wastes processed in recycling facilities are recycled or disposed of in environmentally licensed facilities.

l) In recycling facilities, if the pre-treatment applied after the recycling process results in wastes that are recycled in the same facility, the pre-treatment applied is considered within the scope of the recycling activity.

(2) Compliance with the obligations introduced by the Regulation on Control of Water Pollution published in the Official Gazette dated 31/12/2004 and numbered 25687 is mandatory in waste processing facilities.

(3) Compliance with the obligations introduced by the Regulation on Fire Protection of Buildings published in the Official Gazette dated 27/11/2007 and numbered 2007/12937 is mandatory in waste processing facilities.

(4) (Amended: RG-27/1/2022-31732) In integrated facilities with more than one waste processing facility owned by the same enterprise at the same address, the following requirements are requested from the facilities in the first paragraph: scales, radiation measurement devices, temporary storage areas, parking lots, administrative, and technical office sections can be used collectively.

(5) If there is/when national workplace and process qualification standard(s) for the activities of the facilities, compliance with these standards may be requested by the Ministry from the facilities. Procedures and principles regarding the implementation of this provision are determined by the Ministry.

(6) The best available techniques are adopted in the selection of technology for the installation, operation, and maintenance processes of the facilities. The principles regarding the best available techniques for waste processing facilities are determined by the Ministry.

(7) The Ministry and/or provincial directorate are authorized to request information or documents from waste processing facilities regarding the matters specified in this Article and/or additionally.

Article 10 - (1) A waste reception unit is established for the acceptance procedures of the wastes to be processed at the facility and for their retention until they are subjected to processing. This unit may consist of units in a single area or may be established in separate areas within the facility, depending on the nature of the facility and the wastes to be processed. Necessary measures are taken in waste reception units to ensure the security of the environment and human health, and to prevent any harm until the wastes are accepted and processed in the facility, including consistency control, weighing, and recording of wastes at the entrance to the facility and in waste reception units where the wastes are retained until processed.

(2) The following conditions are provided in the waste reception unit:

a) The areas where the wastes will be retained are covered on at least three sides with permanent construction materials as specified in paragraph (a) of the first paragraph of Article 9 in a manner that will withstand the effects of meteorological events. In waste reception areas, the wastes are impermeable from all directions, protected and closed against the effects of meteorological events. When stored in tanks, containers, IBC tanks, and similar equipment, it is not required for these equipment to be additionally covered.

- b) It is not required to establish a covered area as specified in paragraph (a) for the areas where only metal wastes will be retained from the wastes specified in Annex-1 and Annex-2.
  - c) The floor is made of impermeable concrete and non-combustible materials to ensure impermeability. Suitable slopes are provided on the floor to collect any leakage that may occur due to waste and create a separate collection mechanism to prevent contact or leakage of any leakage that may occur from waste with groundwater, sewage, or surface water. These liquids cannot be discharged into the receiving environment.
  - d) Necessary measures are taken for the drainage of rainwater and surface water, and oil retainers connected to drainage channels are provided.
  - e) Absorbent materials suitable for the type of waste are kept for spills or leaks.
  - f) Waste reception areas are divided into compartments with sufficient number and capacity according to the properties of the wastes and retention periods to ensure the efficient processing of the wastes. When creating these compartments, physical, chemical, and biological processes to be applied to the waste are taken into account, and the wastes are collected in a manner that will not react with each other. Separation of wastes in waste reception areas can be achieved by placing panels between them or by using containers, tanks, and similar equipment suitable for the properties of the waste. The code of the waste retained in each compartment/container is specified.
- (3) Additional measures requested by the Ministry/provincial directorate are taken for the waste reception unit.

#### Segregated Waste Stock Area and Product Stock Area

Article 11 - (1) In segregated waste stock areas where paper, plastic, glass, metal, and similar segregated wastes separated in collection and sorting facilities, or wastes obtained after other pre-processing activities in waste treatment facilities are retained until they are sent to waste treatment facilities, following conditions are mandatory:

- a) The conditions specified in subparagraphs (a), (b), (c), and (d) of the second paragraph of Article 10 must be met.
- b) Segregated wastes are retained in suitable areas, compartments/containers, and similar, with waste codes specified.
- c) Additional measures requested by the Ministry/provincial directorate are taken if deemed necessary.

(2) Product stock areas where the products obtained in the facilities are retained before sale are established in a separate area/separate section from other waste treatment activities. The conditions specified in the first paragraph of this article are not required in product stock areas.

## Waste Treatment Facility Closure

Article 12 - (1) A waste treatment facility cannot be closed without obtaining closure plan approval from the provincial directorate and without conducting the necessary environmental impact assessments, controls, and monitoring processes after closure.

(2) In the event that the owner of the waste treatment facility wishes to close it and/or if the Ministry/provincial directorate decides to close it, a closure plan prepared in accordance with the format provided in Annex-3 is submitted to the provincial directorate by the facility owner and approval is obtained.

(3) A site inspection is conducted by the provincial directorate within the scope of the submitted closure plan. In case of any deficiencies in the closure plan, the identified deficiencies are completed within the period determined by the provincial directorate and re-submitted for approval. If there are no deficiencies or they have been rectified, the closure plan is approved by the provincial directorate.

(4) Waste management at the facility is ensured according to the approved closure plan. After the wastes are sent to waste treatment facilities in accordance with the approved closure plan and online mass-balance notifications are completed, an application is made to the provincial directorate and an on-site inspection is conducted by the provincial directorate.

(5) After confirming that the wastes have been sent from the facility, the environmental license of the facility is revoked by the Ministry/provincial directorate.

(6) Operations related to the closure plan approved for the facility site, building, and machinery/equipment are initiated.

(7) During and after the cleaning, dismantling, and demolition works of the facility during the closure process, on-site inspections are carried out by the provincial directorate, and the completion of the closure process is reported to the Ministry.

## Special Requirements for Pre-treatment and Recycling Facilities

Article 13 - (1) Suitable wastes from those listed in Annex-1 according to the scope of activities and/or paper, cardboard, glass, plastic, and metal wastes collected together according to Annex-5 of the Zero Waste Regulation published in the Official Gazette dated 12/7/2019 and numbered 30829 are accepted in collection and separation facilities. In these facilities, physical processes such as crushing/shredding, compression, blending, sorting, etc., may be applied to the wastes for sending them to recycling facilities. In addition to the conditions specified in the third section of this Regulation, the following conditions are required in collection and separation facilities:

- a) Units and necessary equipment where separation, sorting, crushing/shredding, compression, screening equipment, and similar physical processes are carried out according to the scope of activities and operations applied to the wastes accepted in the facility are provided.
- b) The total area of collection and separation facilities must be at least 1000 m<sup>2</sup>. The requirement of m<sup>2</sup> does not apply to collection and separation facilities that accept wastes from only one category of metal, paper-cardboard, plastic, glass, wood, and textile categories listed in Annex-1, and those located in organized industrial zones, industrial sites, and similar management areas.
- c) Platform separation band is mandatory in collection and separation facilities that accept mixed packaging wastes and/or paper, cardboard, glass, plastic, and metal wastes collected together according to Annex-5 of the Zero Waste Regulation, which has the capacity to meet the capacity. The separation of these wastes is only carried out on the platform separation band. For wastes to be separated according to the type of material, separation slots are provided at certain intervals on the edges of the separation band, and containers or waste compartments feeding the press line that can be easily moved within the facility are provided under these slots for the collection of wastes separated by type.
- d) There is no type distinction for collection and separation facilities that do not accept mixed packaging wastes and/or paper, cardboard, glass, plastic, and metal wastes collected together according to Annex-5 of the Zero Waste Regulation.

(2) In scrap metal processing facilities operating to shred/reduce the size of metal scraps to improve their quality and accepting the wastes listed in Annex-2, the following conditions are required in addition to those specified in the third section of this Regulation:

- a) Mechanical crushers/shredders/grinders and/or cutting and pressing equipment are provided.
- b) Oil retainers connected to drainage channels are provided.
- c) Absorbent materials and oil solvents are provided to clean surfaces contaminated with oil.
- d) In case they want to process vehicles with the code 16 01 06 in Annex-2, which do not contain liquid or hazardous substances and have reached the end of their life, the conditions specified in the Regulation on Control of End-of-Life Vehicles published in the Official Gazette dated 30/12/2009 and numbered 27448 must be met.

(3) In addition to the conditions specified in the third section of this Regulation, the following conditions are required in pre-treatment or recycling facilities accepting construction and



demolition wastes in the 17th section of the waste list in Annex-4 of the Waste Management Regulation and bulky wastes with the code 20 03 07, which are not listed in Annex-1 and Annex-2:

a) (Amended: OG-27/1/2022-31732) Depending on the type of waste, equipment for separation, size reduction/shredding, screening processes, conveyor belt systems, and necessary equipment for the treatment aimed at eliminating the hazardous properties of the waste are provided.

b) Additional measures are taken against dust emission, noise, and vibration.

(4) It is essential to recover mining wastes listed under subheadings 01 03 and 01 04 in the waste list provided in Annex-4 of the Waste Management Regulation using the best available techniques suitable for mineral processing methods. Waste processing facilities that recover mining wastes submit a corporate academic report containing evaluations by university departments of mining engineering, metallurgy and materials engineering, and/or chemical engineering to the Ministry, in addition to the conditions specified in the third section of this Regulation, during the application for environmental license, regarding the suitability of the waste codes subject to the application for recycling in the selected waste processing process.

(5) Prior to subjecting wastes to recycling or disposal processes, additional equipment/unit, information, and/or documents may be requested by the Ministry in waste processing facilities performing physical-chemical processes such as distillation, evaporation, adsorption, solvent extraction, desorption, solidification, stabilization, neutralization, and similar processes to ensure stabilization of the waste and/or reduce its hazardous properties, in addition to the conditions specified in the third section of this Regulation.

(6) Equipment necessary for the storage of fluorinated greenhouse gases harmful to the ozone layer or causing greenhouse effects, if engaged in their transportation and storage activities, are installed in the facilities to ensure that the gas inside the containers used for this purpose is drawn and stored until properly disposed of.

(7) In waste processing facilities conducting preparation for reuse activities, additional equipment necessary for cleaning, repair, control, and similar physical processes for preparing waste products or product components for reuse in the same way they were designed, in addition to the conditions specified in the third section of this Regulation, are provided.

- (8) For products/materials obtained as a result of recycling in facilities, it is required to:
- a) During the environmental license stage, submit documents regarding the conformity of the product to standards and sales, along with material safety data sheets, and indicate the products obtained in the capacity report as products.
  - b) In case the material obtained as a result of recycling does not have a standard as a product; during the environmental license stage, document that there is a continuous demand for the use of the material and that the material is a raw material required in the production process of an economically valuable product by the commitment of the applicant and demonstrate that the product obtained from the production with this material does not compromise its standard.
  - c) If the product quality is lost or there is no demand for the use of the material, manage these materials as waste.

(9) Additional conditions, technical criteria, and licensing-related matters that waste processing facilities must comply with, considering the best available techniques, their activities, processes, and the materials obtained from these processes, may be determined separately by the Ministry.

#### Administrative Sanction

Article 14 - (1) Those acting contrary to the provisions of this Regulation shall be subject to the sanctions stipulated in the Environmental Law.

#### Existing Licensed Non-Hazardous Waste Collection and Separation Facilities

TRANSITIONAL ARTICLE 1 - (1) Non-hazardous waste collection and separation facilities operating by obtaining a permit document from the provincial directorate before the entry into force of this Regulation may continue their activities until the end of their existing permit periods.

(2) Existing licensed non-hazardous waste collection and separation facilities:

- a) Not accepting waste codes other than those listed in Annex-1 to their facilities from 1/1/2022 onwards,
- b) In case of the presence of waste with a different code than those listed in Annex-1 in their facilities, sending all of these wastes to environmentally licensed waste processing facilities within at most one year from the date of entry into force of this Regulation, provided that the existing permit period is not exceeded,

are obliged.

(3) For existing licensed non-hazardous waste collection and separation facilities that cannot comply with the conditions specified in this Regulation or the periods given in this article, a closure plan is submitted within the framework of Article 12, and the procedures are carried out, and the permit document is canceled.

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TRANSITIONAL ARTICLE 2 - (1) Waste processing facilities covered by this Regulation that have obtained an environmental license before the entry into force of this Regulation may continue their activities until the end of the validity period of their existing environmental licenses.

Existing construction and demolition waste recycling facilities

TRANSITIONAL ARTICLE 3 - (1) Construction and demolition waste recycling facilities operating by obtaining permission from the relevant authority before the entry into force of this Regulation are obliged to comply with the conditions specified in this Regulation within one year and to obtain an environmental license within the framework of the provisions of the Environmental Permit and License Regulation. Existing facilities that cannot comply with the conditions specified in this Regulation or the periods given in this article cannot continue their activities. Closure plans are submitted for these facilities within the framework of Article 12, and the procedures are carried out, and the permit is canceled.

Provisional guarantee

TRANSITIONAL ARTICLE 4 - (1) Paragraph (g) of the first paragraph of Article 8, the procedure and principles regarding the guarantee, and the amount of the guarantee are not applied until determined by the Ministry.

## **REGULATION ON THE LANDFILLING OF WASTES<sup>23</sup>**

This Regulation covers the technical principles related to landfill sites, the acceptance of wastes into landfill sites, the procedures and principles related to the landfilling of wastes, the measures to be taken, the inspections to be carried out, and the responsibilities to be followed. It is stated that the amount of biodegradable waste to be disposed of within 5 years

from the entry into force of this Regulation will be reduced to 75% by weight of the total biodegradable waste generated in 2005, to 50% within 8 years, and to 35% within 15 years (Transitional Article 1). With this Regulation, the scope of the Waste Control Regulation has been partially narrowed.

23 Published in the Official Gazette dated 26/03/2010 and numbered 27533.

According to the European Union environmental directive, it will be prohibited for member countries to send their organic wastes to landfills from 2020 onwards. Therefore, many large biogas plants are being built in European Union countries as they are considered suitable alternative methods for the treatment of organic wastes. In Turkey, based on the study conducted in 2005, annual targets were set to reduce the amount of organic wastes to be disposed of. However, these targets could not be achieved in the specified years. The Regulation on the Landfilling of Wastes has come into force in the following process.

The purpose of the Regulation is to minimize the adverse effects of leakage waters and landfill gases that may occur during the landfilling and disposal process of wastes by landfilling, to prevent environmental pollution by reducing the effects on soil, air, groundwater, and surface waters to a minimum, and to determine the technical and administrative issues and general rules to be complied with in the rehabilitation, closure, and post-closure maintenance processes of existing landfill sites.

### **Scope**

ARTICLE 2 - (1) This Regulation covers the technical principles related to landfill sites, the acceptance of wastes into landfill sites, the procedures and principles related to the landfilling of wastes, the measures to be taken, the inspections to be carried out, and the responsibilities to be followed.

(2) However;

a) In the application of raw sludge, stabilized treatment sludge, and compost for fertilization or soil improvement purposes in the third section of the Soil Pollution Control Regulation published in the Official Gazette dated 31/5/2005 and numbered 25831,

b) In the use of inert wastes for land reclamation, restoration, or filling purposes and for construction purposes in landfill sites,

c) In the filling of harmless qualified sludges from surface waters, including hazardous qualified sludges extracted when water channels are opened, into the places where they are extracted,

ç) In landfill sites that have the characteristic of being the only regulated landfill site used for the disposal of harmless and inert wastes found only on the island where it serves, with the condition that records showing the types and quantities of wastes stored in this facility are kept and these records are submitted to the Ministry annually, and have a total capacity of not exceeding 15000 tons or the amount of waste stored does not exceed 1000 tons/year,

d) In regulated landfill sites used for the disposal of harmless and inert wastes found only in isolated settlements, with the condition that records showing the types and quantities of wastes stored in this facility are kept and these records are submitted to the Ministry annually,

e) In underground storage areas,

f) In the disposal of inert wastes resulting from quarrying activities and the exploration, extraction, and processing of mineral resources,

(Changed phrase: OG-26/12/2019-30990) Except for the provisions of the Waste Management Regulation published in the Official Gazette dated 2/4/2015 and numbered 29314, provided that they do not conflict with this Regulation.

(3) The provisions regarding the landfilling of wastes in the Municipal Law numbered 5393 dated 3/7/2005 are reserved.

#### Definitions

ARTICLE 4 - (1) In this Regulation;

- a) Alarm level: The difference between the groundwater quality before the start of landfilling and the groundwater quality while the landfilling continues at the discharge point,
- b) (Amended: OG-26/12/2019-30990) Waste: All substances or materials defined in Article 4 of the Waste Management Regulation,
- c) (Amended: OG-26/12/2019-30990) Ministry: Ministry of Environment and Urbanization,
- ç) (Amended: OG-26/12/2019-30990) Municipal waste: Waste classified as non-hazardous in Annex 4 of the Waste Management Regulation and originating from households or having similar content or structure,
- d) Biodegradable waste: Waste such as food, garden waste, paper, and cardboard that can decompose in anaerobic or aerobic conditions,
- e) Landfill gas: Gas generated from deposited wastes,
- f) Landfill site (LFS): Areas where wastes are disposed of underground or aboveground according to specific technical standards, except for facilities where wastes are temporarily stored for recycling, pretreatment, or disposal for less than three years for recycling or pretreatment purposes and facilities where wastes are temporarily stored for disposal for less than one year,
- g) Leachate: The solution obtained by leaching in the laboratory,
- ğ) Cell: Units where measures are taken to prevent contact between wastes in cases where it is appropriate to store different types of wastes in the same batch,
- h) (Amended: OG-26/12/2019-30990) Provincial directorate: Provincial Directorate of Environment and Urbanization,
- i) Inert waste: Wastes that do not undergo significant physical, chemical, or biological changes, do not dissolve, burn, react physically or chemically, do not biodegrade, or affect the environment or human life in a manner that would be harmful, and have insignificant total permeability and ecotoxicity, especially those that do not pose a risk of surface water and groundwater pollution,
- i) Operator: The municipality, natural or legal person responsible for the facility from the preparation of the landfill site to the post-closure maintenance process,
- j) Isolated settlement: Settlement units with a population of more than 500 and where at most five people live per square kilometer, or settlement units with a population of at least 250 people per square kilometer and where the distance to the nearest settlement is at least 50 kilometers, or settlement units where access by road is difficult for a significant part of the year due to weather conditions,
- k) Law: Environmental Law,

- l) (Amended: OG-26/12/2019-30990) License: Environmental license issued in accordance with the Environmental Permit and License Regulation published in the Official Gazette dated 10/9/2014 and numbered 29115 for landfill sites,
- m) Batch: Sections of the landfill site with a defined final filling volume and infrastructure built in accordance with the provisions of this Regulation,
- n) Pretreatment: One or more physical, thermal, chemical, or biological treatments applied to waste to reduce its volume or hazardous properties, facilitate its management, or increase its recovery during waste storage operations,
- o) Leaching: The process of transferring components from solid materials such as soil, contaminated soil, sludge, sediment, compost, waste, or construction materials to the water phase through physical, chemical, or biological processes,
- ö) Owner: The producer of the waste or the natural or legal person who physically holds the waste,
- p) Liquid waste: Wastes exhibiting fluid properties, including wastewater but excluding treatment sludge,
- r) Leachate: The liquid resulting from the percolation of stored wastes and originating from the landfill site,
- s) (Amended: OG-26/12/2019-30990) Hazardous waste: Wastes carrying one or more hazardous characteristics listed in Annex 3/A of the Waste Management Regulation, or wastes marked with an asterisk (\*) next to the six-digit waste code in Annex-4 of the same Regulation,
- ş) Non-hazardous waste: Wastes not falling within the definition of hazardous waste,
- t) Facility owner: Natural or legal person who owns the landfill site and may also be the operator of the facility,
- u) Underground storage: Permanent storage of wastes in deep geological voids such as salt or potassium mines.

#### Classification of landfill sites

#### ARTICLE 5 - (Amended: OG-26/12/2019-30990)

(1) Landfill sites are classified as Class I, II, and III according to the limit values specified in Annex-2 of this Regulation. Municipal wastes are disposed of in Class II landfill sites.

(2) Except for liquid wastes, additional procedures specified in Annex-6 are applied to storage facilities where only the thermal power plant ashes, process wastes, and similar wastes generated within the facility and not accepting external waste are disposed of in a liquid form.

General measures to be taken in landfill sites

ARTICLE 6 - (1) To minimize the adverse effects that may arise from the landfill site, the facility is equipped to prevent;

- a) Dispersion of odors and dust to the environment,
- b) Dispersion of wastes such as paper, plastic bags, and thin plastic due to wind effects,
- c) Noise and traffic density,
- ç) Breeding of birds, pests, insects, and other animals in the area and transmission of pathogens to the environment,
- d) Formation of stratification and aerosols in the air due to landfill gas,
- e) Probability of fire.

(2) During the operation phase, wastes accepted into the storage facility are stored at a security level that will not compromise the structural integrity of the site and will not cause sliding and collapse on internal and external slopes. It is ensured that the ground stability does not damage the impermeable layer.

(3) During waste storage operations, lot slope angles and waste cell slope angles are made maximum 1/3 to ensure slope stability and easy maneuverability of vehicles and machinery. Passages of vehicles bringing waste are planned not to damage the drainage system. Principles regarding slope angles are determined by the Ministry.

In areas where production is carried out by open pit mining, and where areas abandoned or depleted according to the Mining Law and Mining Regulation, or areas where mining reserves are exhausted and need to be made compatible with the environment, if a Class III landfill site is to be constructed based on the appropriate opinions of the General Directorate of Mining Affairs, the Governorship, Provincial Special Administration, and relevant institutions/organizations according to the ownership; in the implementation projects, the slope condition is not required on the contacting surfaces of the waste provided that it is evaluated according to the geotechnical survey report including step width, step height, slope, and overall slope angle stability analysis.

Control of water and leachate management for soil and water protection in sanitary landfills



ARTICLE 7 - (1) The selection and design of the sanitary landfill site are made to prevent soil, surface water, and groundwater contamination, and the provisions specified in Article 16 are applied. For the post-closure stage, the structure specified in Article 17 is established to ensure this protection.

(2) Considering the characteristics of the area and meteorological conditions for Class I and Class II sanitary landfill sites;

- a) Preventing the entry of surface waters caused by precipitation into the landfill area,
- b) Minimizing the entry of rainwater into the leachate collection system,
- c) Preventing surface waters and/or groundwater from contacting stored waste,
- ç) Collecting contaminated waters and leachate,
- d) Taking measures to treat collected contaminated waters and leachate to comply with discharge standards in accordance with the Regulation on Control of Water Pollution published in the Official Gazette dated 31/12/2004.

(3) In sanitary landfill facilities where municipal wastes are deposited, practices for leachate management may be permitted by the Ministry on a case-by-case basis for each sanitary landfill facility, taking into account the climate conditions and meteorological characteristics of the region where the facility will be established, as follows:

- a) Leachate is collected in balancing ponds through the drainage system and returned to the landfill area for a period determined by the Ministry.
- b) When necessary based on measurements, observations, or modeling during the operation of the sanitary landfill site, leachate is treated to comply with discharge standards in accordance with the Regulation on Control of Water Pollution.

(4) For Class III sanitary landfill sites, the provisions of this article do not apply provided that measures are taken to prevent adverse effects caused by rainfall and surface waters on the site, such as flooding or inundation. However, if deemed necessary by the Ministry, measures are taken for the control and monitoring of groundwater and systems specified in the second paragraph of this article are installed.

#### Gas management in sanitary landfills

ARTICLE 8 - (1) Measures specified in Article 17 are taken to control the accumulation and collection of gases generated in the landfill site. The collection, treatment, and utilization of gases in the landfill site are carried out in a manner that does not pose harm to the environment and human health.

(2) Gases generated in all sanitary landfill facilities accepting biodegradable wastes are collected and used directly or after treatment for energy generation. If it is not economical to use the collected landfill gas for energy generation, it is burned in landfill gas flares.

Wastes not accepted and waste processing in sanitary landfills

ARTICLE 9 - (1) It is essential to reduce the amount of biodegradable waste to be disposed of in sanitary landfill facilities. The Ministry takes necessary measures regarding this matter.

(2) The following wastes are not accepted in sanitary landfill facilities:

a) Liquid wastes,

b) Wastes defined in Annex III A of the Waste Management Regulation; explosive, corrosive, oxidizing, highly flammable and combustible wastes,

c) Medical wastes originating from medical and veterinary institutions defined as infectious in Annex III A of the Waste Management Regulation and not subjected to any pretreatment,

ç) Unidentified or new chemical substances resulting from research and development or educational activities showing any of the characteristics listed in Annex III A of the Waste Management Regulation, the effects of which are unknown on humans or the environment,

d) Used tires covered by the Regulation on Control of End-of-Life Tires published in the Official Gazette dated 25/11/2006,

e) Other wastes that do not meet the acceptance criteria given in Annex 2.

(3) Wastes are not diluted or mixed to meet acceptance criteria.

Acceptance of wastes in sanitary landfills according to their classes

ARTICLE 10 - (1) Except for wastes that do not provide practical benefit after processing in line with the objectives of this Regulation and inert wastes that cannot be technically processed and evaluated, wastes are not accepted in sanitary landfills without preprocessing.

(2) In the acceptance of waste in sanitary landfills, criteria listed in Annex 1 are used for determining in which class of landfill the waste will be disposed, using sampling and analysis methods.

(3) In the acceptance of waste in sanitary landfills, analyses listed in Annex 2 are conducted to determine in which class of landfill the waste will be disposed. Annex 2 analyses are valid for five years. If there is a change in the process of waste generation, raw materials, or additives, the analysis is renewed within one month.

(4) Non-hazardous wastes meeting the criteria given for Class II sanitary landfills in Annex 2 can be stored in a separate cell in the lot where municipal wastes are stored in a manner that will not react.

(5) Only inert wastes are disposed of in Class III sanitary landfills.

#### License application

ARTICLE 11 - (1) It is mandatory to obtain a license from the Ministry upon obtaining a permit or license from the municipality where the sanitary landfill facility is located for sanitary landfill facilities. For this purpose;

a) Individuals and legal entities intending to establish a sanitary landfill facility are obliged to submit a report to the Ministry demonstrating that the facility they will establish can meet the requirements specified in this Regulation and other legal and technical regulations, including financial feasibility and compliance with the waste management plan specified in the Waste Management Regulation, and to obtain the Ministry's approval.

b) The construction of the facility whose environmental impact assessment process has been completed positively and whose application project has been approved by the Ministry is completed by being monitored in accordance with the construction, application project, and technical specifications in the manner determined by the Ministry.

c) The facility approved by the Ministry during the construction period applies for a temporary activity permit according to the provisions of the Environmental Permit and Licensing Regulation with the Sanitary Landfill Facility Project Approval Certificate and submits monitoring reports and closure plans to the Ministry within the temporary activity permit period. License application is evaluated based on closure plans and monitoring reports. The principles regarding the installation of the facility, closure plan, and monitoring reports are determined by the Ministry.

#### Granting of licenses to sanitary landfills

ARTICLE 12 - (1) If the monitoring reports of the facility, for which a permit has been issued by the municipality, are evaluated and found to be suitable within the temporary activity permit period, a license is issued by the Ministry. The procedures for the duration, renewal, transfer, suspension, and cancellation of the license are carried out in accordance with the provisions of the Environmental Permit and Licensing Regulation.

#### Operating conditions

ARTICLE 13 - (1) The following operating conditions must be met to obtain a license:

a) Field officers operating the sanitary landfill facility must have a field management and operation certificate issued by the Ministry. Periodic in-service training for the operators and personnel of the sanitary landfill facility is provided by the operator.

- b) The operator is responsible for taking measures to prevent accidents and reduce the effects of possible accidents in the facility.
- c) The operator is responsible for establishing a system for operating conditions described in the fifth section of this Regulation and monitoring and control procedures described in the sixth section.
- ç) The owner or operator of a Class I sanitary landfill facility is obliged to obtain liability insurance against possible damages to third parties during the construction, operation, closure, and post-closure maintenance of the facility, ensuring compliance with the provisions of this Regulation.

(2) Operators of sanitary landfill facilities that have obtained a license are responsible for reporting to the Ministry within the periods specified in the license, not exceeding one year, the reports containing information and documents regarding the measurements and analysis results related to the facility operated in accordance with the legislation.

(3) For facilities where municipal wastes are regularly deposited, the reporting specified in the second paragraph is also made to the municipality where the facility is located at specified intervals.

#### Contents of the license certificate

ARTICLE 14 - (1) (Amended phrase: Official Gazette Date: 26/12/2019-30990) The following information is included in the license certificate to be issued for sanitary landfills in accordance with the Waste Management Regulation:

- a) List of wastes permitted to be stored in the sanitary landfill facility according to the waste codes specified in Annex-4 of the Waste Management Regulation,
- b) Lot number, surface area of the sanitary landfill facility, approximate amount of waste to be stored in each lot, and approximate total amount of waste to be stored in the facility,
- c) Conditions for site preparation, waste storage operations, control and monitoring conditions, closure and post-closure maintenance procedures, including monitoring conditions,
- ç) Types, quantities, and sources of stored wastes; operations performed based on control and monitoring conditions, and information about the operation, to be reported to the Ministry at intervals not exceeding one year.

#### Site selection

ARTICLE 15 - (1) The distance of the boundaries of the sanitary landfill facility from residential areas must be at least one kilometer for Class I sanitary landfill facilities and at least two hundred fifty meters for Class II and III sanitary landfill facilities.

(2) Additionally, in the site selection of the sanitary landfill facility;

- a) Whether the sanitary landfill facility affects air transportation safety,
  - b) Distance to protected areas such as forest areas, afforestation areas, wildlife, and vegetation conservation areas,
  - c) Status of underground and surface water resources and protection zones, groundwater levels, and directions of groundwater flow in the region,
  - ç) Topographic, geological, geomorphological, geotechnical, and hydrogeological condition of the site,
  - d) Risk of flooding, landslides, avalanches, erosion, and high earthquake risk,
  - e) Dominant wind direction and precipitation status,
  - f) Status of natural or cultural heritage
- are taken into consideration.

(3) There are no fuel, gas, and drinking-water pipelines or high-voltage lines in the field.

(4) After the completion of the environmental impact assessment process, the selected area is incorporated into relevant plans.

#### Formation of landfill base

ARTICLE 16 - (1) (Amended phrase: Official Gazette Date: 26/12/2019-30990) A impermeable layer is formed on the base and side surfaces of the sanitary landfill facility to prevent the infiltration of leachate into groundwater. The physical, chemical, mechanical, and hydraulic properties of the impermeable layer must be such as to prevent the potential risks posed by the landfill facility to soil and groundwater. Impermeable materials must comply with the technical specifications of the Turkish Standards Institute standards.

(2) (Amended phrase: Official Gazette Date: 26/12/2019-30990) Depending on the classes of sanitary landfill facilities, the minimum permeability and thickness properties of the landfill base must be as follows:

- a) Class I sanitary landfill facility: Clay or clay group impermeable layer with  $K \leq 1.0 \times 10^{-9}$  m/s and at least 5 m thickness,
- b) Class II sanitary landfill facility: Clay or clay group impermeable layer with  $K \leq 1.0 \times 10^{-9}$  m/s and at least 1 m thickness,
- c) Class III sanitary landfill facility: Clay or clay group impermeable layer with  $K \leq 1.0 \times 10^{-7}$  m/s and at least 1 m thickness.

(3) (Amended phrase: Official Gazette Date: 26/12/2019-30990) If the geological impermeable layer cannot naturally meet the conditions given in the second paragraph, the impermeable layer is formed as follows:

- a) For Class I sanitary landfill facility: Clay or clay group minerals compressed in at least four layers with a permeability of  $K \leq 1.0 \times 10^{-9}$  m/s and a total thickness of at least 1 m,
- b) For Class II sanitary landfill facility: Clay or clay group minerals compressed in at least two layers with a permeability of  $K \leq 1.0 \times 10^{-9}$  m/s and a total thickness of at least 50 cm,
- c) For Class III sanitary landfill facility: Clay or clay group minerals compressed in at least two layers with a permeability of  $K \leq 1.0 \times 10^{-7}$  m/s and a total thickness of at least 50 cm, ensuring homogeneous permeability values across the layer and reinforced using geomembrane in Class I and II sanitary landfill facilities.

(4) In addition to the natural impermeable layer, a leachate collection and drainage system is constructed in sanitary landfill facilities to prevent potential risks posed by leachate to soil and groundwater, with the following technical specifications:

- a) In Class I and II sanitary landfill facilities, the geological impermeable layer is created with artificial impermeable material. Compliance of artificial impermeable materials with adequate technical specifications is documented and reported to the Ministry according to the standards listed in Annex-3 or, if not possible, international standards.
- b) Protective cover material is used to protect the artificial impermeable layer.
- c) A drainage layer with a minimum thickness of 0.5 meters and a permeability of at least  $K \geq 1.0 \times 10^{-4}$  m/s is applied on top of the artificial impermeable layer in Class I and II sanitary landfill facilities.
- ç) Drainage pipes are located within the drainage layer. The pipe diameter is wide enough to allow for inspections and cleanings. Adequate number of drainage pipes, main collectors, and vents made of leakage-resistant material are present in the landfill base. The leachate collection and drainage system end with a leachate collection pool. The leachate collection pool is designed and constructed to prevent any adverse effects considering the meteorological conditions of the site and the water content of the stored wastes.
- d) The longitudinal slope of the landfill base cannot be less than 3%.

(5) The provisions of the fourth paragraph are not applicable for Class III sanitary landfill facilities, provided that measures are taken to prevent adverse effects from rainfall and surface waters in these areas. However, if deemed necessary by the Ministry, necessary measures are taken for the control and monitoring of groundwater and a system is established in accordance with the fourth paragraph.

#### Formation of landfill top cover

ARTICLE 17 - (1) Before the formation of the top cover in the landfill area after the waste storage process is completely finished, the area is leveled with normal excavation soil cover. Before starting the closure process, it is determined that the stored waste mass has settled sufficiently to prevent the risk of waste or structure sliding and settling.

(2) According to the classes of sanitary landfill facilities, the top cover of the landfill area is formed to meet the following minimum requirements to prevent the formation of leachate and collect gases that will occur during the closure process due to rainfall characteristics of the region:

a) Only for Class II sanitary landfill facilities where gas formation is expected; a gas drainage layer is constructed to prevent potential risks posed by landfill gases.

b) Application of artificial impermeable layer is mandatory in Class I sanitary landfill facilities.

c) The mineral impermeable layer is applied in at least two layers with a minimum thickness of 25 cm. The drainage layer must be at least 50 cm thick and have a permeability of at least  $K \geq 1.0 \times 10^{-4}$  m/s.

ç) The top cover soil must be at least 50 cm thick, depending on the type of plant to be grown, in order to enable plants to be grown later.

(3) III. Although these provisions do not apply to class 1 regular landfill facilities, it is mandatory to cover and green the area after the waste storage process is completely completed in these areas.

#### Article 18 – General Rules for Waste Acceptance Procedures

(1) A three-stage control is conducted for the acceptance of waste at sanitary landfill facilities.

(2) Before the acceptance of waste into the landfill facility, information showing the structure and all characteristics of the waste to be sent to the facility is collected from the source where the waste is generated, and the basic properties of the waste are defined and characterized. Defining the basic properties determines the frequency of tests to be performed.

(3) The basic properties of the waste are determined by compliance tests, which are determined by testing whether the waste complies with the waste acceptance criteria given

in Annex-2 for all landfill facility classes, and the appropriate landfill facility meeting the limit values is notified to the waste generator by the operator.

(4) Verification tests are conducted at the facility to confirm that the waste shipped to the facility is the same as the declared waste and complies with the appropriate landfill facility.

(5) The operator is obliged to keep records of information showing the structure and basic properties of the waste for at least five years.

(6) Vehicles bringing waste to the sanitary landfill facility are checked by the facility operator to ensure compliance with the waste type, as registered by the Ministry under the Waste Management Regulation or having a transport license. Vehicles without a transport license or not registered by the Ministry are not accepted into the facility and the situation is urgently reported to the provincial directorate.

(7) The provisions of the Regulation on the Transportation of Waste on Roads are applied for the acceptance of wastes listed in Annex-4 of the Waste Management Regulation into sanitary landfill facilities.

(8) The operator is obliged, in accordance with the Waste Management Regulation, to keep records regarding the properties and quantity of the stored waste. The records must include information such as the source of the waste, quantity, shipment date, and carrier information. Additionally, for facilities accepting municipal waste, information regarding the municipality or local authority union to which the waste is accepted must be included.

(9) Hazardous wastes in Class I sanitary landfill facilities are stored taking into account their acidic and basic properties to prevent unwanted reactions and are identified with the coordinates of the point where the wastes are stored.

(10) The information and documents described in the eighth and ninth paragraphs are submitted to the Ministry at the reporting intervals specified in the license document given to the facility. The Ministry has the right to use this information for statistical purposes.

(11) Following the completion of each waste shipment, the operator issues a written receipt for the waste accepted into the facility.



(12) The operator is obliged to report the wastes not accepted into the facility to the provincial directorate within 24 hours.

(13) The provincial directorate is responsible for monitoring that the wastes not accepted into the facility are managed in accordance with the relevant legislation.

#### Article 19 – Information and Documents regarding the Definition and Characterization of Waste's Basic Properties

(1) The waste owner is obliged to provide the following information and documents to the operator of the sanitary landfill facility before the shipment of waste:

- a) Source of the waste,
- b) Information about the production process of the waste, including raw material and product specifications,
- c) Waste code given in Annex-4 of the Waste Management Regulation,
- ç) Information on the hazardous properties specified in Annex-3 of the Waste Management Regulation for wastes marked with (M) in Annex-4 of the Waste Management Regulation,
- d) Data on the composition and leaching characteristics of the waste,
- e) Information about the appearance of the waste, such as odor, color, consistency, density, and physical properties,
- f) Analyses performed in accordance with the waste acceptance criteria given for all landfill facility classes in Annex-2,
- g) Critical parameters to be considered in the compliance test,
- ğ) Parameters that are easy and quickly to be determined for control by the operator of the test results,
- h) Information that the waste is not within the scope of wastes not accepted into the storage areas specified in the third paragraph of Article 9 of this Regulation,
- i) Information on the pre-treatment to be applied to the waste according to the above information; a reasoned explanation in case of no pre-treatment,
- i) A report obtained from laboratories authorized by the Ministry within the scope of the Regulation on Environmental Measurement and Analysis Laboratories Competence published in the Official Gazette dated 25/12/2013 and numbered 28862 or university departments relevant to the waste to be analyzed and capable of making the relevant analyzes.

(2) The waste owner is responsible for the accuracy of all information and documents regarding the basic properties.

(3) Test methods and procedures described in Annex-1 are applied for the definition and characterization of the basic properties of waste.

#### Article 20 – Cases Where Tests are Not Required for the Definition and Characterization of the Basic Properties of Waste

(1) In the definition and characterization of the basic properties;

a) Wastes listed under the heading "Wastes that can be accepted without testing for Class III landfill facilities" in Annex-2,

b) Municipal wastes, provided that Article 9 is complied with, no testing is required.

#### Article 21 – Compliance Test

(1) After determining the basic properties of a waste, the landfill class to which this waste will be accepted is determined. A compliance test is conducted to determine whether the test results obtained for the definition and characterization of the basic properties of the waste comply with the acceptance criteria specified in Annex-2. This test is conducted by the operator before the waste arrives at the facility for the purpose of verification.

(2) The operator ensures the conduct of the compliance test within the frequency and scope determined based on the results of the tests conducted for the definition and characterization of the basic properties, with a minimum of once a year. Records of test results are kept for at least five years.

(3) The compliance test includes the leaching test, as a part of the definition and characterization of the basic properties. For this purpose, the methods specified in Annex-1 are used. Samples are kept for at least one month.

(4) The relevant parameters to be tested in the compliance test are determined during the definition and characterization of the basic properties stage and only these parameters are checked.

(5) Additional measures to be taken at the landfill facility, if necessary, are communicated to the operator by the waste owner.

(6) Compliance tests are not conducted for wastes for which the application of tests for the definition and characterization of the basic properties is not required.

(7) Compliance tests are not required in sanitary landfill facilities that dispose of only their own waste generated by their operations. However, the analysis specified in Annex-2 must be carried out.

### **Control and Monitoring Procedures**

ARTICLE 23 - (1) The facility operator is responsible for establishing and implementing monitoring systems to ensure that:

- a) Wastes are accepted and disposed of in accordance with the criteria specified in Annex-2 for the storage facility class,
- b) The sanitary landfill facility operates in accordance with the operating plan,
- c) The landfill gas and leachate management system constructed in the sanitary landfill facility functions as designed,
- ç) The license conditions for the sanitary landfill facility are fully met.

(2) The operator is obliged to monitor meteorological data in order to take necessary measures to prevent adverse effects due to leakage and rainfall waters. For this purpose, the data listed in Annex-4 are monitored at the frequency specified during operation and after closure. These data are also used in calculations related to leakage water formation.

(3) The operator conducts a status assessment of the site and landfill body every year during operation and after closure, and submits it to the Ministry. In the status assessment, all information to be collected and stored during the operational stage, such as the surface area, volume of waste stored, composition of wastes, storage methods, and storage duration, is used. Settlements in the landfill body are determined after closure.

Control and Monitoring Procedures for Groundwater Protection

ARTICLE 24 - (1) Measurements are made at least at one point in the source of groundwater and at least at two points in the discharge point to determine the effects of the waste to be deposited on the groundwater. Sampling is done at least at three points before the operation of the storage facility to create reference values for future samples to be taken. Sampling points are determined during the environmental impact assessment process.

(2) The groundwater level is measured every six months. Special hydrogeological conditions may require measurements to be taken at more frequent intervals.

(3) The frequency of groundwater quality monitoring, sample collection, analysis, and parameters to be analyzed are determined and implemented in accordance with the relevant legislation. Additional analysis may be requested by the Ministry depending on the composition of the leakage water.

(4) Significant changes in groundwater quality may be observed after the storage facility is put into operation or closed. The first alarm level is determined before the operation of the facility to detect whether the alarm level has been exceeded or not. Observations made to check whether the alarm level has been exceeded for each well are recorded in a table showing control rules and water levels. The table is kept until the post-closure monitoring process is completed.

#### Control and Monitoring Procedures for Leakage Water and Gas Control

ARTICLE 25 - (1) Sampling from leakage water and, if present, surface waters is carried out at representative points. Sampling is done according to ISO 5667-1 Sampling Technology General Principles from the discharge point of the leakage water from the storage area determined in the operating plan, and analyses are conducted. The frequency of sample collection is determined in the operating plan.

(2) Sampling frequencies and the parameters to be measured must be included in the license document.

(3) Surface water monitoring is conducted at least at two separate points, one at the source and the other at the discharge, taking into account the flow direction. The frequency of sampling, analysis, and parameters to be analyzed for monitoring surface water quality are determined and implemented in accordance with the relevant legislation.

(4) Analyses listed in Annex-5 are conducted at specified frequencies for monitoring landfill gas and leakage water.

#### **Operating Stage Control and Monitoring Process**

ARTICLE 26 - (1) The operator prepares and implements a control and monitoring plan during the operation stage of the sanitary landfill facility, as specified in Articles 23, 24, and 25.

(2) During control and monitoring activities, if any condition that may adversely affect the environment is detected, the operator must report this condition to the provincial directorate within 24 hours. The operator is obliged to comply with the decisions to be made by the Ministry regarding the elimination of adverse effects and to bear the expenses arising from these measures.

(3) The operator submits the activities carried out and the analyses conducted in accordance with the control and monitoring plan to the Ministry according to Article 13.

(4) Quality control of analytical procedures and/or analysis is carried out by laboratories authorized by the Ministry within the scope of the Environmental Measurement and Analysis Laboratories Competence Regulation.

### **Long-Term Environmental Safety**

ARTICLE 27 - (1) Areas where Class I and Class II sanitary landfill facilities are located are monitored and supervised for at least thirty years after the service life of the facility is completed. The monitoring period is specified in the license conditions.

#### **Closure and Post-Closure Maintenance Process**

ARTICLE 28 - (1) The complete or partial closure of the sanitary landfill facility is carried out when the conditions specified in the license are met, or with the request of the operator and the approval of the Ministry, or with a reasoned decision of the Ministry.

(2) Upon completion of the final site inspection by the Ministry and evaluation of all reports submitted by the operator, approval for closure is granted to the operator. This does not alter the operator's responsibilities specified in the license; the operator remains responsible for compliance with the provisions of this Regulation until the closure process of the facility is completed.

(3) After the complete closure of the sanitary landfill facility, the owner of the facility is responsible for monitoring, maintenance, and control of the post-closure site for the period specified in the license.

(4) The facility owner informs the Ministry about any adverse environmental effects that may arise during post-closure monitoring and control activities. The facility owner is responsible for implementing measures specified by the Ministry and covering the costs incurred.

(5) During the period specified in the license, the operator is responsible for the analysis of gas and leakage water generated in the sanitary landfill facility and for monitoring the

groundwater regime and quality in the surrounding area in accordance with the conditions specified in Articles 23, 24, and 25.

#### Cost of Waste Disposal

ARTICLE 29 - (1) The fees for waste disposal, including the establishment, operation, financial guarantees, closure, and post-closure maintenance costs of the waste disposal site, are determined in accordance with the provisions of the Waste Management Regulation.

#### **Wastes Requiring Consideration of Special Circumstances**

ARTICLE 30 - (1) Gypsum-based wastes can be stored in lots or cells where biodegradable wastes are not accepted in Class II waste disposal facilities. Wastes to be co-disposed with gypsum-based wastes must meet the limit values specified in Annex-2 for hazardous wastes accepted in Class II sanitary landfill facilities in terms of Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) parameters.

(2) Asbestos-containing construction wastes and other asbestos wastes can be stored in Class II disposal facilities without testing. In disposal facilities accepting asbestos-containing construction wastes and other asbestos wastes;

a) Wastes must contain no hazardous substances other than asbestos, including asbestos fibers bound with a binder or packaged in plastic,

b) Asbestos-containing construction wastes and other asbestos wastes must be stored in a separate cell from other wastes and kept under control,

c) Before each compaction operation and daily, the cell containing the stored wastes must be covered with suitable material to prevent the dispersion of asbestos fibers,

ç) If the wastes are not packaged, they must be regularly moistened,

d) After closure, the top of the disposal facility and cells must be covered with the final cover,

e) No drilling or similar work that may cause the dispersion of asbestos fibers shall be carried out in the disposal facility or cells,

f) After closure, a plan including the coordinates showing the exact location of the disposal facility and the cell where asbestos fibers are stored must be prepared,

g) Necessary measures must be taken after closure of the disposal facility to prevent human contact with asbestos for potential land use.

#### Rehabilitation of Inappropriate Dumping Sites

ARTICLE 31 - (1) The procedures for the rehabilitation of dumping sites that do not meet the technical criteria specified in the relevant legislation before the entry into force of this Regulation are determined by regulations to be issued by the Ministry.

## **Administrative Sanctions**

ARTICLE 32 - (1) Those who act in violation of this Regulation shall be subject to the relevant provisions of the Environmental Law.

Existing Facilities for the Storage of Waste from Power Plants

ADDITIONAL ARTICLE 1 - (Added: RG-19/3/2021-31428)

(1) For areas where waste generated from power plants covered by provisional Article 8 of Law No. 6446 is stored; an institutional academic report is prepared by the operators and submitted to the Ministry, covering site-specific evaluations for seismicity, stability, environmental pollution, and dusting, improvement works to be carried out in the area, environmental measures to be taken, and the requirements to be followed in the operation of the storage area, in accordance with the format specified in Annex-7.

(2) The institutional academic report is prepared by faculty members of universities' departments of environmental and civil engineering and signed by the university rectorate or faculty dean.

(3) In facilities where temporary Activity Permit or Environmental Permit and License Certificate are available and the storage process is allowed based on the institutional academic report, storage can continue in compliance with the provisions specified in the sixth section of this Regulation, provided that the final filling elevation and coordinates specified in the report are not exceeded, and the improvement works and environmental measures indicated in the report are implemented.

(4) Facilities where the continuation of the storage process is not deemed appropriate based on the institutional academic report shall be closed in accordance with Article 28, additional measures are taken for wet storage areas as specified in Annex-6, and new sanitary landfill facilities are established. The closure and monitoring of the site after closure are carried out in accordance with the provisions of this Regulation.

Reduction of Biodegradable Waste

TEMPORARY ARTICLE 1 - (Amended: RG-26/12/2019-30990)

(1) It is essential to ensure the recovery of municipal waste in line with the zero waste management system using environmentally compatible physical, chemical, biological, or thermal technologies. Pre-treatment facilities and capacities where these technologies are used shall be established to allow for the recovery of at least 60% by weight of the municipal waste collected by 2035.

Revision of Implementation Projects

TEMPORARY ARTICLE 2 - (Amended with its title: RG-26/12/2019-30990)

(1) Implementation projects approved by the Ministry before the publication of this Regulation but for which construction tenders have not been held and/or construction of facilities/lots has not commenced shall be revised in accordance with this Regulation and resubmitted to the Ministry, and new lot constructions shall be carried out within the framework of this Regulation.

(2) Closure plans approved by the Ministry before the publication of this Regulation but not initiated/applied shall be revised in accordance with this Regulation and resubmitted to the Ministry, and closure processes shall be carried out within the framework of this Regulation.

Sanitary Landfilling of Sludge

TEMPORARY ARTICLE 4 - (Amended: RG-26/12/2019-30990)

(1) Sludges classified as non-hazardous in Annex-4 of the Waste Management Regulation may be stored in a separate lot in a Class II sanitary landfill facility until 1/1/2025, provided that they meet all other parameters specified in Annex-2, no limit value increase is applied, they contain at least 50% dry matter by weight, and odor is mitigated.

(2) In addition to the first paragraph of this article, the following limit values must also be met:

a) For sludges, the maximum Total Organic Carbon (TOC) value of 250,000 mg/kg is accepted until 1/1/2025, without any additional limit value increase, as stated under the Inert Waste Acceptance Criteria III in Annex-2 of the Waste Acceptance Criteria.

b) For sludges, the maximum Total Organic Carbon (TOC) value of 250,000 mg/kg is accepted until 1/1/2025, without any additional limit value increase, as stated under the Non-reactive and Stable Hazardous Waste Acceptance Criteria II in Annex-2 of the Waste Acceptance Criteria.

Implementation Process in Existing Facilities

TEMPORARY ARTICLE 5 - (Added: RG-19/3/2021-31428)

(1) Operators of facilities covered by the additional 1st article of this Regulation, where Temporary Activity Permit or Environmental Permit and License Certificate have been issued, shall have their permits revoked if the institutional academic report is not submitted within three months from the date of publication of this article, or if the improvement works indicated in the report are not carried out, or if environmental measures are not taken.

**8.3.5. WASTE INCINERATION REGULATION<sup>23</sup>**

Purpose



ARTICLE 1 - (1) The purpose of this Regulation is to prevent and limit the adverse effects of waste incineration on the environment, particularly pollution resulting from emissions in air, soil, surface waters, and groundwater, and the risks to human health, through feasible methods.

#### Scope

ARTICLE 2 - (1) This Regulation covers the minimum requirements for waste incineration and co-incineration facilities. However, the following facilities incinerating or co-incinerating the listed wastes are excluded from the scope of this Regulation:

- a) Plant residues from agriculture and forestry,
- b) Plant residues from the food industry incinerated within the facility for heat recovery purposes,
- c) Fibrous vegetable or organic wastes from raw paper pulp and paper production where heat recovery is performed,
- ç) (Amended: RG-7/4/2017-30031) Wood waste excluding wood waste containing halogenated organic compounds or heavy metals resulting from the application of wood preservatives or coatings and wood waste resulting from construction and demolition activities,
- d) Cork stoppers used in glass bottles, etc.,
- e) Radioactive waste,
- f) (Amended: RG-7/4/2017-30031) Animal carcasses,
- g) Wastes generated from exploration and operation of petroleum and gas resources and incinerated within the facility.

(2) In addition, pilot facilities used for research, development, and testing purposes to improve the incineration process and treating less than 50 tons of waste annually are excluded from the scope of this Regulation.

#### Definitions

ARTICLE 4 - (1) In this Regulation;

- a) (Amended: RG-7/4/2017-30031) Waste: Any substance or material discarded, abandoned, or required to be disposed of by its producer or holder, defined by six-digit waste codes in Annex-4 of the Waste Management Regulation,
- b) (Amended: RG-7/4/2017-30031) Ministry: Ministry of Environment and Urbanization,
- c) (Amended: RG-7/4/2017-30031) Co-incineration facility: Any facility including all units comprising waste reception unit, temporary storage unit, pre-treatment unit, waste feeding and air supply systems, boiler, flue gas treatment units, units for temporary storage of residues generated from incineration, and units for treating waste waters within the facility,

- chimneys, measurement devices and systems used to control incineration processes, record incineration conditions, and monitor emissions, covering all units present in the co-incineration facility, (however, if the co-incineration process aims not for product or energy production but for thermal treatment of waste, it is considered as an incineration facility),
- ç) Dioxins and furans: All polychlorinated dibenzo-p-dioxins and dibenzofurans listed in Annex-1,
- d) Emission: The dispersion of substances, vibrations, heat, or noise from individual or diffuse sources into the air, water, or soil, directly or indirectly,
- e) Emission limit values: Mass, concentration, and/or level of an emission expressed in specific parameters that should not be exceeded at specified intervals,
- f) Operator: Natural or legal person operating or controlling the facility or the person granted economic competence for conducting technical activities,
- g) Residue: Any liquid or solid substance resulting from incineration or co-incineration processes, flue gas or waste water treatment within incineration or co-incineration facilities, as defined as waste in Article 3 of the Regulation on General Principles of Waste Management; including bottom ash, slag, fly ash, and boiler ash from incinerators, solid reaction products from gas treatment, sludge from wastewater treatment, used catalysts, or used activated carbon,
- ğ) Mixed municipal waste: Waste generated from households as well as commercial, industrial, and institutional waste similar to household waste in structure and composition, excluding wastes listed under codes 20 01 and 20 02 in Annex-4 of the Regulation on General Principles of Waste Management,
- h) License: A written decision issued by the Ministry allowing operation in compliance with the requirements of this Regulation, subjecting operation to specific conditions, or covering one or more facilities or specific parts of a facility operated by the same operator,
- ı) Existing incineration or co-incineration facility: Incineration or co-incineration facilities in operation at the date this Regulation enters into force and holding a license or having submitted a complete license application file for an incineration or co-incineration facility,
- ii) Nominal capacity: The sum of the calculated incineration capacities per hour of the furnaces forming the incineration facility based on the calorific value of the waste burned,
- j) Hazardous waste: Defined in Article 4 of the Regulation on Control of Hazardous Wastes published in the Official Gazette dated 14/3/2005 and numbered 25755,

Excluding waste with a content of less than 0.005% of polychlorinated aromatic hydrocarbons (such as polychlorinated biphenyls (PCBs) or pentachlorophenols (PCP)),

Including components listed in Annex-4 of the same Regulation but falling below the threshold concentrations given in Annex-3/B of the Regulation on General Principles of Waste Management,

Having a net calorific value equal to or greater than 50 MJ per kilogram,

Any liquid waste that is combustible and results directly from the combustion of waste oils as defined in Article 4 of the Regulation on Control of Waste Oils, which does not cause emissions other than those emitted from burning gas oil or emissions from burning gas oil to have a higher emission concentration than emissions from burning gas oil,

k) Incineration facility: Any facility comprising all units including waste reception unit, temporary storage unit, pre-treatment unit, waste feeding and air supply systems, boiler, flue gas treatment systems, units for temporary storage of residues generated from incineration, units for treating waste waters within the facility, chimney, measurement devices and systems used to control incineration processes, and to monitor and record incineration conditions, covering all units present in the facility for thermal disposal of waste including systems for recovering the heat generated from incineration, or not, such as incineration, pyrolysis, gasification, or plasma processes.

#### General Rules

ARTICLE 5 - (1) Before subjecting waste to incineration or co-incineration, it is determined whether the waste is hazardous waste and whether radioactive substances are present in the waste. The same emission limit values are applied for the incineration or co-incineration of hazardous and non-hazardous waste.

(2) It is essential to recover heat produced during incineration and co-incineration processes in the most suitable way, such as converting it into electrical energy, using it in the production process, or for district heating.

(3) Incineration and co-incineration facilities must have waste reception units, laboratories, temporary storage areas, and waste feeding systems to comply with the operating conditions specified in Article 10. The obligation to establish a laboratory may not be required only in facilities incinerating medical waste, subject to the Ministry's approval. All operations carried out in these units are recorded. Additionally, facilities where waste is incinerated are designed and operated to ensure complete combustion.

(4) Emergency response and intervention plans are prepared for accidents that may occur due to waste incineration, and a sufficient number of trained personnel and equipment are kept available.

(5) Transport of waste is carried out by individuals and organizations licensed for this purpose according to Article 10 of the Regulation on General Principles of Waste Management, using vehicles suitable for the nature of the waste. The use of National Waste Transport Forms is mandatory during transportation.

(6) The separate collection of slag and flue gas particles from facilities and their environmentally sensitive disposal is mandatory in licensed facilities according to Article 9 of the Regulation on General Principles of Waste Management.

(7) The following points are considered in the evaluation of a license application submitted to the Ministry for an incineration or co-incineration facility:

a) The facility is designed, equipped, and operated according to the types and categories of waste to be disposed of by incineration.

b) Priority is given to the most favorable recovery of heat generated during incineration or co-incineration processes, such as conversion to electrical energy, use in the production process, or for district heating.

c) The quantity of residues is minimized, their potential harm to the environment is reduced to a minimum, and recycling is carried out where appropriate.

ç) Residues that cannot be prevented, reduced, or recycled in incineration or co-incineration facilities are disposed of according to Annex 2-A of the Regulation on General Principles of Waste Management.

(8) Proposed measurement techniques for chimney gas emissions must comply with Annex-3 for gas emissions and the first and second paragraphs of Annex-3 for water pollutants.

(9) To obtain a license for an incineration or co-incineration facility, compliance with the provisions of the Regulation on Water Pollution Control published in the Official Gazette dated 31/12/2004 and numbered 25687, the Regulation on Control of Pollution Caused by Dangerous Substances in Water and Environment published in the Official Gazette dated 26/11/2005 and numbered 26005 (76/464/EEC), the Regulation on Control of Soil Pollution and Pollution from Point Sources published in the Official Gazette dated 8/6/2010 and numbered 27605, and the Regulation on Control of Industrial Air Pollution published in the Official Gazette dated 3/7/2009 and numbered 27277, in addition to the provisions specified below, is mandatory.

a) The facility operator lists the categories of waste to be incinerated, their emissions parameters when incinerated, and the quantities of waste incinerated in a clear manner. This list also includes waste categories and codes specified in the waste catalog regulated by Annex II-A of the Regulation on General Principles of Waste Management and information on the quantity of waste.

- b) The total incineration or co-incineration capacity of the facility is specified. Additionally, hazardous waste is not incinerated in municipal waste incineration facilities.
- c) Sampling and measurement techniques used to fulfill the periodic measurement obligation for each air and water pollutant parameter are specified. Theoretical calculations are also made for each parameter.
- ç) For waste incineration or co-incineration, the minimum and maximum mass flow rates, as well as the lowest and highest calorific values, and the maximum content of pollutants such as PCBs, PCPs, chlorine, fluorine, sulfur, heavy metals, are specified.

#### Permission for Site Selection for Incineration Facilities

ARTICLE 6 - (1) Individuals and legal entities wishing to establish incineration facilities must obtain permission from the highest local administrative authority with the decision of the Local Environmental Board and the favorable opinion of the Ministry, within the framework of relevant legislation, for the site chosen for the incineration facility and include it in the zoning plan.

(2) In inspections where it is determined that the facility is not operated in compliance with the license, the provisions of the Regulation on Environmental Permits and Licenses published in the Official Gazette dated 10/9/2014 and numbered 29115 are not fulfilled, regular measurements are not made or recorded, legal action is taken against the operator.

#### Provisions on Obtaining a License

ARTICLE 7 - (1) Incineration or co-incineration facilities are obliged to obtain a license from the Ministry. Individuals and legal entities intending to establish or operate incineration or co-incineration facilities apply for and obtain a license in accordance with the provisions of the Regulation on Environmental Permits and Licenses. Following the positive outcome report of the trial incineration under the Temporary Activity Certificate issued in accordance with the Regulation on Environmental Permits and Licenses, the facility continues its waste reception and activities.

#### Trial Incineration

ARTICLE 8 - (1) Within the period of the temporary activity certificate issued in accordance with the provisions of the Regulation on Environmental Permits and Licenses, trial incineration is carried out. Before obtaining a license, the operator of a waste incineration facility is obliged to conduct trial incineration for a period of three months with a continuous measurement device to analyze the waste to be incinerated in the facility, and to demonstrate that it meets the emission and wastewater standards depending on the waste feeding rate.

(2) In accordance with the approved trial incineration plan by the Ministry, trial incineration is carried out under the supervision of representatives from the Ministry and/or the Provincial Directorate of Environment and Urbanization for a period of three months to demonstrate compliance with the standards and principles specified in this Regulation. At the end of the trial incineration, a report is prepared and sent to the Ministry for approval. For incineration facilities where disposal of waste with different characteristics will be carried out, measurements must be made under the most unfavorable conditions, considering parameters such as the highest chlorine content and ash component, and the lowest combustion heat. Trial incineration is conducted for a period determined by the Ministry, not less than one week, in incineration facilities that will only incinerate a single type of waste.

(3) Trial incineration is mandatory for waste planned to be incinerated in a co-incineration facility. The facility operator prepares a trial incineration plan in accordance with Annex-7 and submits it for approval by the Ministry. The trial waste incineration plan in Annex-7 specifies the waste menu explicitly. Measurements must be made under the most unfavorable conditions, considering parameters such as the highest chlorine content component and the lowest combustion heat, representing each parameter included in their mass flows, according to internationally standardized methods. Flue gas emission measurements must be taken before waste feeding, after waste feeding begins, and two full days after waste feeding begins. After the trial incineration conducted under the approved plan under the supervision of Ministry and/or Provincial Directorate of Environment and Urbanization officials, a trial incineration report is prepared and submitted for evaluation by the Ministry. If the report is found suitable by the Ministry, the licensing process continues.

(4) Before starting trial incineration, the facility operator prepares a trial incineration plan and submits it to the Ministry for approval. Trial incineration cannot be started without the approval of the trial incineration plan by the Ministry.

(5) In the case of capacity increase in licensed incineration or co-incineration facilities, a new trial incineration plan must be prepared, and the conditions specified in the third and fourth paragraphs must be repeated. Except for facilities incinerating a single type of waste, if there is a desire to incinerate waste other than the permitted waste in licensed incineration or co-incineration facilities, the Ministry decides whether trial incineration will be conducted, taking into account the trial incineration results conducted in the operation, the types and quantities of waste used in the trial incinerations, periodic measurement reports, and operating conditions. In cases where trial incineration is required, incineration facilities conduct trial incinerations within a period determined by the Ministry, not less than one week, and co-incineration facilities conduct trial incinerations under the conditions specified

in the third paragraph of Article 5, and evaluations are made within the scope of Article 11 of the Regulation on Environmental Permits and Licenses.

#### Delivery and Acceptance of Waste

ARTICLE 9 - (1) The operator of an incineration or co-incineration facility is obliged to prevent or reduce pollution sources that may directly affect the environment, such as air, soil, surface and groundwater pollution, odor, and noise, and pose risks to human health, especially from the moment the waste enters the facility. To this end, necessary precautions are taken. These precautions ensure the following conditions:

- a) Before accepting the waste into the incineration or co-incineration facility, the operator determines the mass of each waste category according to the waste list regulated by Annex-II B of the Regulation on General Principles of Waste Management.
- b) Before accepting hazardous waste into the incineration or co-incineration facility, the operator confirms that it complies with the permit conditions specified in the fifth paragraph of Article 5 of this Regulation and obtains information about the waste. This information includes:

Administrative information and documents specified in Article 7 regarding the production process,

Information on the physical state and chemical composition of the waste necessary to evaluate its suitability for the planned incineration process,

Hazardous properties of the waste and measures to be taken during the preparation of the waste menu,

Results of radioactivity measurements conducted by the Turkish Atomic Energy Authority or companies accredited by the Authority.

(2) Before accepting hazardous waste into the incineration or co-incineration facility, the following procedures must be carried out by the operator:

- a) Verification of transportation methods and forms, waste declaration form, and other documents required by the Regulation on Control of Hazardous Wastes,
- b) Sampling of waste samples representing the waste before accepting them into the incineration facility, except for wastes that are not suitable for sampling, such as medical wastes, and keeping these samples for at least six months after the incineration process.

(3) Industrial facilities and businesses that co-incinerate the waste generated in their own facilities are exempted from the waste acceptance provisions in the first paragraph if they document to the Ministry that the provisions regarding the operation specified in this Regulation are fulfilled.

(4) The characteristics and contents of the waste incinerated in co-incineration facilities are regulated by a Communiqué to be issued by the Ministry.

### **Operating Conditions**

ARTICLE 10 - (1) Incineration facilities are operated to reach a combustion level where the total organic carbon (TOC) content of slag and bottom ash is less than 3% or the loss during ignition is less than 5% of the dry weight of the material. If necessary, appropriate techniques are used for the pre-treatment of waste.

(2) Incineration facilities are required to ensure that the gas generated from the process remains in the secondary combustion chamber at a temperature of at least 850°C for a minimum of two seconds. Accordingly, the secondary combustion chamber equipped with backup burners ensures that its burners are automatically activated.

(3) Each line of the incineration facility is equipped with at least one backup burner. If the temperature of the combustion gases drops below 850°C or, if applicable, 1100°C after the injection of combustion air, this burner automatically activates. This burner is also used during startup and shutdown activities and throughout the period when unburned waste is present in the combustion chamber to maintain a temperature of 850°C or, for halogenated compounds, 1100°C.

(4) It is prohibited for the backup burner to be fed with fuels that would cause higher emissions than those resulting from the combustion of natural gas when the temperature drops below 850°C or, if applicable, 1100°C during startup or shutdown or when the temperature of the combustion gases drops below 850°C or, if applicable, 1100°C.

(5) Co-incineration facilities are designed, equipped, constructed, and operated to allow controlled and homogeneous combustion gas from co-incineration to rise to a temperature of at least 850°C for a minimum of two seconds under the most unfavorable conditions. If hazardous wastes containing more than 1% halogenated organic substances are co-incinerated, the temperature must be raised to 1100°C.

(6) Incineration and co-incineration facilities have an automatic system to prevent waste feeding under the following conditions:

- a) Initially, until a minimum temperature of 850°C or 1100°C is reached as appropriate,
- b) When the minimum temperature of 850°C and 1100°C cannot be maintained due to the situation,



- c) In case any pollutant parameter exceeds the emission limit value due to reasons such as malfunction or breakdown of the treatment devices during continuous measurements required by this Regulation,
- (7) Changes in operating conditions are designed so as not to result in residues containing higher amounts of organic pollutants than the residues expected under the conditions specified in the first paragraph.
- (8) The Ministry grants exemptions to facilities, such as those in the paper industry, if they co-incinerate their waste in existing bark boilers at the waste generation site, provided that the conditions of this Regulation are met. However, the facility must comply with the provisions regarding emission limit values for TOC and carbon monoxide (CO) specified in Annex-5.
- (9) Incineration and co-incineration facilities are designed, equipped, constructed, and operated in a manner that does not cause air pollution according to the Regulation on Control of Industrial Air Pollution at ground level and have a chimney height determined in accordance with the Regulation on Control of Industrial Air Pollution considering the rated thermal power of the facility.
- (10) Medical wastes are directly fed to the furnace via automatic feeding without being mixed primarily with other waste categories.
- (11) The management of the incineration or co-incineration facility is under the control of a competent individual capable of managing the facility.

#### **Emission Limit Values for Flue Gas**

- ARTICLE 11 - (1) Incineration facilities are designed, equipped, constructed, and operated in such a way that air emission limit values specified in Annex-5 are not exceeded for flue gas emissions.
- (2) Co-incineration facilities are designed, equipped, constructed, and operated in such a way that flue gas emissions do not exceed the emission limit values specified in Annex-2. If a co-incineration facility supplies 40% or less of the rated thermal power from hazardous waste, the emission limit values specified in Annex-2 are applied. If the facility supplies more than 40% of the rated thermal power from hazardous waste, it is considered an incineration facility. However, the 40% limit does not apply to facilities using biomass as solid fuel.
- (3) Measurement results documenting compliance with emission limit values of the facility are standardized according to the conditions specified in Article 15.
- (4) In the case of incinerating untreated and mixed municipal wastes together, the limit values are determined according to Annex-5.

(5) Regardless of the type and quantity of waste incinerated, the concentration of dioxins and furans emitted from the flue gas must not exceed the limit value of 0.1 ng/Nm<sup>3</sup> TE (toxicity equivalent).

(6) Dust emissions from the incineration of hazardous and medical wastes must not exceed 10 mg/Nm<sup>3</sup>, 0.05 mg/Nm<sup>3</sup> for the incineration of hazardous wastes, and 0.08 mg/m<sup>3</sup> for the incineration of municipal wastes.

(7) If it is documented through emission measurements that the exceedance of SO<sub>2</sub> and TOC emission concentration limits in co-incineration facilities is due to the fuel used rather than waste incineration, exemptions are granted by the Ministry at the facility level. In this case, separate emission measurements are made for fuel and fuel+waste feeding situations for the purpose of comparing emissions.

Discharge of waste waters from the cleaning of flue gases

ARTICLE 12 - (1) (Amended: RG-7/4/2017-30031) Waste waters resulting from the cleaning of flue gases shall not exceed the limit values given in Annex-4 as discharge criteria to the receiving environment. When waste waters resulting from the cleaning of flue gases are treated together with other waste waters originating from the location of the facility, the operator shall conduct the measurements regulated in Article 15. The discharge of waste waters resulting from the cleaning of flue gases and waste waters originating from incineration or co-incineration facilities is subject to the environmental permit on waste water discharge within the framework of the Regulation on Environmental Permit and License.

(2) A storage facility is established by the operator for the storage of waste waters from incineration or co-incineration facilities, and waste waters resulting from the cleaning of flue gases are discharged to the other waste water pipelines or lines in the facility after the treatment process is completed, and these waters are also tested before discharge, additionally; compliance with the limit values specified in Annex-4 at the point where the final discharge is made is checked and recorded.

(3) If waste waters from the cleaning of flue gases containing the pollutants specified in Annex-4 are to be treated in a treatment facility serving only this type of waste water or incineration plant, the following shall apply:

a) The limit values in Annex-4 are applied at the point where the waste waters leave the treatment plant.

b) If this treatment facility is designed only for the treatment of waste waters originating from incineration or all waste waters from the facility, the waste water from the flue gas cleaning process complies with the limit values specified in Annex-4, and the pollution levels that may occur in the waste water resulting from the cleaning of flue gases during the final discharge are determined according to Article 15.

c) For this purpose, in waste waters resulting from flue gas cleaning processes; pollutant concentrations are recorded by applying appropriate mass balance after treatment in other waste water pipelines or lines in the facility.

(4) It is prohibited to dilute waste waters under any circumstances in order to comply with the emission limit values specified in Annex-4. The discharge permit; provides emission limit values for the pollutants mentioned in Annex-4; determines the operating control parameters for pH, temperature, and flow rate for waste water, and takes into account the first paragraph of Article 13.

(5) The design of incineration and co-incineration facilities, including intermediate storage areas for waste, is constructed to prevent unauthorized or accidental spread of pollutants to soil, surface, and groundwater. Storage capacity is provided for contaminated rainwater or contaminated water resulting from fire extinguishing activities, and the sizing ensures that these types of waters are tested and treated before discharge.

## **Residues**

ARTICLE 13 - (1) The quantities and harms of residues resulting from the operation of incineration or co-incineration facilities are minimized. Where appropriate, residues are recycled either inside or outside the facility.

(2) Since burning halogen-containing waste will produce hazardous flue gas residues, the quantities and harms of these residues are minimized by designing the process accordingly.

(3) The transportation and interim storage of flue gas ash, boiler ash, dry residues from flue gas treatment, and dust in powder form are carried out with a closed system to prevent dispersion into the environment.

(4) Standard reference methods (SRM) to be used to determine the physical and chemical properties of incineration residues for removal or recycling of residues originating from incineration or co-incineration facilities are determined by the Ministry. However, methods that operate on the basis of tested reference materials and have the same properties can be used only after they are approved. These tests cover the total solubility and solubility of heavy metals.

### **Inspection and Monitoring**

ARTICLE 14 - (1) A suitable measurement system is established and appropriate techniques are used to monitor the parameters, conditions, and mass concentrations in the incineration or co-incineration process.

(2) Measurement conditions are specified in the license issued by the Ministry based on the results of the trial incineration.

(3) A continuous monitoring system is established and operated for emissions and pollutant parameters emitted to the air and water as a result of burning waste, and its operation is monitored by annual surveillance tests. Calibration of this system is performed according to the Quality Assurance standard of TS EN 14181 Stationary Source Emissions - Automatic Measurement Systems.

(4) Sampling or measurement points are determined during the trial incineration by accredited measurement organizations.

(5) Periodic measurements of pollutant parameters emitted to air or water are carried out in accordance with the 1st and 2nd paragraphs of Annex-3.

(6) Licensed facilities submit to the Ministry monthly mass balance tables containing information such as the type and quantity of waste accepted by the facility, from whom it was obtained, the amount of use, and, if residual waste is generated, where it will be

disposed of, as well as analysis results performed by laboratories authorized by the Ministry and national waste transport forms and invoices obtained from the person or organization supplying the waste.

(7) Incineration and co-incineration facilities establish the necessary system to monitor the emission values of flue gases and wastewater by the Ministry and, if necessary, by the public.

### **Measurement Conditions**

ARTICLE 15 - (1) Measurements related to air pollutants in waste incineration and co-incineration plants are conducted in accordance with Annex-3:

- a) Emission limit values specified in Annex-5 for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), total dust, total organic carbon (TOC), hydrochloric acid (HCl), hydrogen fluoride (HF), sulfur dioxide (SO<sub>2</sub>) determined by continuous measurement devices are met.
- b) In continuous measurements of operating pollution parameters, measurements are made inside the combustion chamber determined by the authorized organization during the trial incineration, based on temperature, oxygen concentration, pressure, flue gas temperature, and water vapor content at another sampling point.
- c) For the control and verification of continuous measurements, measurements of NO<sub>x</sub>, CO, total dust, TOC, HCl, HF, SO<sub>2</sub> are conducted at least four times a year, and measurements of heavy metals, polycyclic aromatic hydrocarbons, dioxins, and furans are conducted at least twice a year; measurements of dioxins and furans are conducted at least once every three months for the first 12 months from the start of operation.
- ç) For incineration facilities where disposal of waste with different characteristics will be carried out, measurements must be made during the trial incineration based on optimum conditions such as high chlorine and ash content, lowest combustion temperature.
- d) If gas treatment units proving that emission limit values for HCl are not exceeded are used, exemption can be granted from continuous measurement of HF. In this case, HF emission is subject to the periodic measurements foreseen in subparagraph (c).
- e) Continuous measurement of water vapor content is not necessary if the sampled flue gas emissions are dried before analysis.
- f) If the operator proves that emissions of HCl, HF, and SO<sub>2</sub> from the incineration or co-incineration facility will not exceed the specified emission limit values under any conditions,

the Ministry may allow periodic measurements as specified in subparagraph (c) instead of continuous measurement.

g) Periodic measurements of heavy metal concentrations must be conducted twice a year. However, if emissions from incineration or co-incineration are below 50% of the emission limit values specified in Annex-2 or Annex-5, these measurements can be conducted once every two years, and for dioxins and furans, the emission measurements conducted twice a year can be reduced to once a year.

ğ) For incineration or co-incineration where non-hazardous waste with specific characteristics that cannot be recycled is separated, if it consists of combustible parts; the incineration of these wastes must comply with the relevant waste management plans specified in Article 8 of the Regulation on General Principles of Waste Management.

h) If it is proven by the facility that emissions of heavy metals, dioxins, and furans are below the emission limit values specified in Annex-2 and Annex-5 under all conditions, the Ministry may allow these emissions.

(2) The results of measurements made to certify compliance with emission limit values are standardized according to the formula mentioned in Annex-6 under the following conditions and for oxygen:

a) For incineration facilities, at 273 K flue gas temperature, 101.3 kPa pressure, and 11% oxygen on a dry basis,

b) For flue gas resulting from the incineration of waste oil as defined in the Regulation on Control of Waste Oils, at 273 K temperature, 101.3 kPa pressure, and 3% oxygen on a dry basis,

c) In the case of co-incineration, the measurement results are calculated based on the total oxygen content as in Annex-2.

(3) In cases where pollutant emissions from hazardous waste incineration or co-incineration facilities are controlled by flue gas treatment, the provisions specified in the second paragraph of Article 11 apply. The standardization of oxygen content is only carried out if the oxygen content measured during the same period exceeds the relevant standard oxygen content for the respective pollutant.

(4) Measurements for emissions in flue gas and determination of mass flow rates represent the entirety and allow for the comparison of emission measurement results with each other

in at least three consecutive times, and sampling and measurements for dioxins and furans are conducted using the method specified in TS ISO 1948-1,2,3. In addition, reference measurement methods used for sampling and analyzing pollutants, including dioxins and furans, are first carried out in accordance with CEN (European Union Standards), and if not possible, according to other internationally accepted standards or national standards.

(5) The facility records and submits to the Ministry all measurement results to monitor compliance with the emission limit values prescribed in this Regulation and the permitted operating conditions. The following conditions must be met for the application of this article:

- a) If none of the daily average values exceed any of the emission limit values specified in Annex-5 (a) or Annex-2,
- b) If 97% of the daily average values taken throughout the year do not exceed the emission limit value specified in Annex-5,
- c) If none of the half-hourly average emission values exceed any of the emission limit values specified in column A of Annex-5 (b), or if 97% of the half-hourly average values taken throughout the year do not exceed any of the emission limit values specified in column B of Annex-5 (b),
- ç) If none of the average values during the sampling period for heavy metals and dioxins and furans exceed any of the emission limit values specified in Annex-5 (c) and (d) or Annex-2,
- d) (Amended: RG-7/4/2017-30031) If it meets the conditions specified in the second paragraph of Annex-5 (d) or Annex-2, it is deemed to comply with the emission values of emissions originating from industrial facilities.

(6) Half-hourly and ten-minute average values are determined within the effective operating time by subtracting the value of the safety interval specified in the third paragraph of Annex-3 from the measured values. However, except for the starting and shutting down stages if no waste is burned in the facility.

(7) For the purpose of obtaining a valid daily average value, up to five half-hourly average values are not counted within any day due to the failure or maintenance of the continuous measurement system. Due to the failure or maintenance of the continuous measurement system, up to ten full days within one year are not counted as daily average values.

(8) Average values during the sampling period and the periodic measurements of HF, HCl, and SO<sub>2</sub> are determined in accordance with the license conditions and the conditions specified in Annex-3.

(9) At the final point where wastewaters are discharged:

- a) pH, temperature, and flow rate measurements are made continuously,
- b) Measurements of total suspended solids are made daily using in-situ sampling,
- c) Representative sampling of pollutant substances specified in Article 9 of this Regulation is made at intervals proportional to the 24-hour flow rate, at least once a month, for heavy metals connected to Annex-4, and once every six months for dioxins and furans, but at least once every three months for the first 12 months of operation.
- d) Measurements of dioxins and furans are carried out at least every six months, but at least every three months for the first 12 months of the operation.

(10) Monitoring of pollutant masses in treated wastewater, along with the frequency of measurements, is included in the license conditions. However:

- a) If 95% and 100% of the measured values of total suspended solids do not exceed the relevant emission limit values specified in Annex-4,
- b) If the emission limit values specified in Annex-4 are not exceeded by more than 5% of the samples obtained if there are more than twenty samples taken annually for heavy metals or for any one of them,
- c) For dioxins and furans, if the measurements conducted twice a year do not exceed the emission limit values specified in Annex-4,

the Ministry accepts compliance with the emission limit values for water.

(11) If the measurements taken indicate that the emission limit values specified for air and water, which must be complied with according to the provisions of this Regulation, are exceeded, the Ministry must be notified immediately.

(12) All measurements to be made in the facility in accordance with the provisions of this Regulation are carried out by private or public institutions and organizations that have accredited or authorized laboratories by the Ministry. The Ministry may request measurements/analyses more frequently. The analysis costs are covered by the facility owner.



## **Unusual Operating Conditions**

ARTICLE 16 - (1) The Ministry specifies the maximum permitted time for any interruptions, failures, or malfunctions occurring in treatment or measurement devices that cannot be technically prevented in the license document. The Ministry has the authority to reduce or suspend operational activities until normal operation resumes in such cases.

(2) In the event of exceeding emission limit values, the incineration or co-incineration facility or incineration line cannot continue to burn waste continuously for more than four hours under any circumstances. The total operating time in such situations must be less than sixty hours within one year. The sixty-hour period applies to all lines connected to a single flue gas cleaning device in the facility. The total particulate matter content in emissions to the air from the incineration facility under any circumstances cannot exceed the average of 150 mg/m<sup>3</sup> for a half-hour, and the air emission limit values for CO and TOC must not be exceeded, and all other conditions specified in Article 11 must be complied with.

## **Access to Information and Public Participation**

ARTICLE 17 - (1) The license document issued for incineration and co-incineration facilities, license conditions, and subsequent updates are made accessible to the public on the Ministry's website.

## **Sanctions**

ARTICLE 18 - (1) Administrative sanctions are imposed on facilities that violate this Regulation in accordance with Articles 15, 20, and 23 of Law No. 2872 on Environment.

## **Existing Incineration and Co-incineration Facilities**

TEMPORARY ARTICLE 1 - (1) Existing incineration and co-incineration facilities operated on the date of publication of this Regulation continue their activities in accordance with the existing valid license conditions. However, these facilities must take necessary measures to

comply with the other conditions specified in the Regulation, except for the parameter-based exemptions provided in the annexes of this Regulation, by 31/12/2012 at the latest.

#### **8.4. REGULATIONS REGARDING WATER, SOIL, AGRICULTURE, AND COMPOST**

##### **8.4.1. REGULATION ON SOIL POLLUTION AND CONTROL**

The first legal restriction on composting of solid waste in Turkey was determined in the Regulation on Control of Solid Wastes published in the Official Gazette dated 14.03.1991 with the number 20814. Afterward, the Regulation on Soil Pollution Control was published in the Official Gazette dated 10.12.2001 with the number 24609, and later on, the Regulation on Amendment of the Regulation on Control of Solid Wastes was published in the Official Gazette dated 25.04.2002 with the number 24736, with additions to the Regulation, some provisions of the former (Regulation on Control of Solid Wastes) were subject to the provisions of the latter (Regulation on Soil Pollution Control).

In Article 14 of the Regulation on Soil Pollution Control, the conditions necessary for the use of compost in soil are specified. According to Article 14;

Compost must have an organic matter content of at least 35% of dry matter,

The moisture content of compost put on the market must not exceed 50%,

The total weight of selectable materials such as glass, slag, metal, plastic, rubber, and leather in the compost put on the market must not exceed 2%,

Analyses of compost produced for heavy metal contents, in terms of lead, cadmium, chromium, copper, nickel, mercury, and zinc, must be conducted at least every six months,

The soil where compost will be used must be documented every twelve months in the Soil Analysis Certificate in Annex II-A,

Soil and compost samples must be taken in accordance with the proper method and technique and must be representative of the entire mass,

If the heavy metal contents in the soil exceed the values specified in Annex I-A(a) as a result of soil analyses, compost must not be used in that soil,

If compost is applied to the soil annually based on a 10-year average, the burden on the soil in terms of heavy metals must not exceed the values given in Annex I-C, etc.

While Article 37 of the Regulation on Control of Solid Wastes linked the heavy metal analysis of the soil to be performed on plots larger than one hectare; this statement, in the Regulation on Soil Pollution Control, did not subject the heavy metal analyses to such a condition in

Article 10, and it was determined that these analyses should be performed on land of all sizes.

Limitation on heavy metal load of soil in the Solid Waste Control Regulation; While this statement is valid if compost is applied to the land repeatedly, the heavy metal load of the soil has been corrected in the Soil Pollution Control Regulation as applying compost to the land every year for a 10-year period, and the application period has been tied to a certain period.

Heavy metal limit values in the Solid Waste Control Regulation have been rearranged in the Soil Pollution Control Regulation. While heavy metal limit values in soil are stated as a single value in KAKY, in the later published TKKY, these values are arranged according to two different situations, depending on whether the pH of the soil is greater than 6 or less than 6. Tables 3.24 and 3.25 show the limit values of heavy metals in TKKY and KAKY.

#### **8.4.2. SOIL POLLUTION CONTROL AND REGULATION ON POINT SOURCE POLLUTED AREAS**

On June 8, 2010, the Regulation on Soil Pollution Control and Regulation on Point Source Polluted Areas was published in the Official Gazette numbered 27605. This regulation aims to prevent soil pollution and identify potential pollutant sources. It is prohibited to directly discharge any kind of waste that could pollute the soil, and they must be stored according to the methods specified in the Environmental Law.

##### **Purpose**

ARTICLE 1 - (1) The purpose of this Regulation is to prevent soil pollution as the receiving environment, identify areas and sectors where pollution exists or is likely to occur, determine the principles of cleaning up and monitoring polluted soils and areas in line with sustainable development goals.

##### **Scope**

ARTICLE 2 - (1) This Regulation covers the technical and administrative procedures and principles related to preventing soil pollution, identifying areas and sectors where pollution exists or is likely to occur, recording them, cleaning up polluted soils and areas, and monitoring them.

## Definitions

ARTICLE 4 - (1) In this Regulation;

a) Intervention: Taking measures to eliminate the source causing pollution, reduce its effects, prevent further spread in gas, water, or non-water soluble liquid phases, or take measures to reduce the risk level for pollution control or removal purposes.

b) Waste: Any substance falling into the classes specified in Annex-1 of the Regulation on General Principles of Waste Management published in the Official Gazette dated 5/7/2008 and numbered 26927, generated or disposed of into the environment as a result of any activity.

## General Principles

ARTICLE 5 - (1) Compliance with the principles determined by this Regulation is mandatory for preventing soil pollution.

a) Provincial authorities identify polluted and potentially polluted areas in accordance with the provisions of this Regulation, determine the measures to be taken, and ensure their implementation.

b) Concerned parties, in areas where there is a risk of pollution, and polluters in polluted areas are obliged to cover expenses such as stopping pollution, determining the extent of pollution, and conducting necessary works to mitigate its effects, in accordance with Article 8 of the Environmental Law.

c) Measures to prevent and remedy soil pollution from agricultural activities are determined by the Ministry and the Ministry of Agriculture and Rural Affairs coordinately. The measures determined are implemented by provincial authorities.

ç) The principles for the implementation of this Regulation regarding military facilities are determined separately by the Ministry and the Ministry of National Defense in coordination with the General Staff Presidency.

## Principles

ARTICLE 6 - (1) The principles for preventing and remedying soil pollution are as follows:

- a) Prevention of soil pollution at its source is essential.
  
- b) Any activity involving the direct or indirect discharge or storage of any waste or residue that could harm the soil in a manner contrary to the standards and methods specified in the Environmental Law and relevant legislation is prohibited.
  
- c) Contaminated soil cannot be mixed with clean soil.
  
- ç) Measures to prevent soil pollution are taken in activities or facilities where hazardous substances are used, stored, or produced, or in facilities where waste is generated, disposed of, or recycled, taking into account the possibility of accidents.

### **8.4.3. REGULATION ON ORGANIC, MINERAL, AND MICROBIAL FERTILIZERS USED IN AGRICULTURE**

This regulation, published in the Official Gazette numbered 30341 on February 23, 2018, aims to promote and define the use of organic, mineral, and microbial fertilizers to improve the physical, chemical, and biological structure of soils, enhance productivity in crop production, protect human health, and prevent environmental pollution. It also establishes procedures and principles for the import, export, production, supply to the market, and registration of these products, as well as determining analysis methods related to them.

#### Definitions

**Microbial fertilizer:** Products containing live microorganisms that play a role in providing the substances necessary for plant growth, increasing the efficiency of plant nutrients, and/or improving soil conditions.

**Organic nitrogen:** Nitrogen bound to organic structures in plant or animal-derived products through covalent (organic) bonds, excluding organically produced nitrogen by chemical methods.

Organic fertilizer: Products derived from vegetable and/or animal waste and/or by-products containing plant nutrients in organic compounds, which improve the physical, chemical, and biological properties of the soil, thereby enhancing the availability of plant nutrients.

Organomineral fertilizer: Products obtained by mixing or reacting organic content and/or organic fertilizer(s) with one or more primary, secondary, or micronutrients.

Organic carbon: The expression of organic matter in terms of carbon.

Organic matter: The content lost by the dry burning of organic fertilizers or found by calculating the organic carbon content of organomineral fertilizers.

Individuals or legal entities engaged in the production or importation of products covered by this Regulation for marketing purposes are obliged to obtain a license to document their activities.

Furthermore, individuals or legal entities engaged in the production or importation of products covered by this Regulation for marketing purposes must obtain a registration certificate for each product before placing it on the market.

#### Certification of Products Evaluated within the Scope of Organic Agriculture

Products not covered by this Regulation but listed in Annex-1 of the Regulation on the Principles and Implementation of Organic Agriculture are evaluated by the Authorized Commission and certified according to the principles of this Regulation, provided that they meet the requirements of the Regulation on the Principles and Implementation of Organic Agriculture.

This regulation aims to prevent soil and land degradation, classify agricultural lands, develop them, allow non-agricultural use in compulsory cases, determine and protect soils and high agricultural production capacity large plains, prepare and implement soil conservation plans and projects, determine erosion-sensitive areas, establish soil conservation boards, and determine the procedures and principles to ensure planned land use in accordance with the principle of environmentally prioritized sustainable development.

#### **8.4.7. REGULATION ON THE PRODUCTION, IMPORT, AND MARKETING OF ORGANIC, ORGANOMINERAL FERTILIZERS, SOIL CONDITIONERS, MICROBIAL, ENZYME-CONTAINING, AND OTHER PRODUCTS USED IN AGRICULTURE**

This regulation, published in the Official Gazette numbered 27601 on June 4, 2010, has an impact on the direct use of poultry manure and other potential manures that can be used as fertilizers. Some restrictions regarding heavy metal and microorganism levels have come into effect alongside this regulation. If the manure meets the specified values, it can be used directly.

The Regulation on Organic, Mineral, and Microbial Fertilizers Used in Agriculture defines, classifies, and sets standards for organic fertilizers, compost, and similar products. According to this regulation:

Organic fertilizer refers to products derived from vegetable and/or animal waste and/or by-products containing plant nutrients in organic compounds, which improve the physical, chemical, and biological properties of the soil, thereby enhancing the availability of plant nutrients.

Compost is a product classified as a soil conditioner obtained from the aerobic and anaerobic decomposition of organic waste of domestic origin. It cannot contain more than 2% of the total weight of selectable materials such as glass, slag, metal, plastic, rubber, or leather. Additionally, a separate category is defined in the regulation for soil conditioner fertilizers obtained by mixing compost with organic fertilizers.

This regulation aims to regulate and standardize the production, importation, and marketing of these products to ensure their quality and safety in agricultural practices.

#### **8.4.8. REGULATION ON THE PROTECTION OF WATER AGAINST AGRICULTURAL SOURCED NITRATE POLLUTION**

The Regulation on the Protection of Water against Agricultural Sourced Nitrate Pollution was published in the Official Gazette numbered 25377 on February 18, 2004. This regulation includes administrative requirements necessary for the protection, control, and identification of pollution originating from nitrogen and its derivatives in groundwater, surface water, and soil.

The purpose of the enacted regulation is to detect, reduce, and prevent pollution caused by agricultural nitrates in water. Within the framework of the regulation, areas that are sources of pollution for surface and groundwater, which contain more than 50 mg/l of nitrate and can be used or are used for drinking water purposes, or are susceptible to eutrophication if

preventive measures are not taken, will be designated as Sensitive Areas. Action plans, especially including fertilizer management measures, will be developed and implemented for each zone.

For nitrogen pollution to be identified, the necessary physical and environmental characteristics of soil and water have been determined by the Ministry of Food, Agriculture, and Livestock, the Ministry of Environment and Urbanization, the Ministry of Health, and the Ministry of Energy and Natural Resources. According to these criteria, all surface and groundwater that can be used or are used for drinking water purposes should not contain more than 50 mg/l of nitrate. Additionally, natural freshwater lakes, other freshwater sources, estuaries, coastal waters, and seawater should not be eutrophic.

#### **8.4.9. NOTICE ON THE PREVENTION OF STUBBLE BURNING**

The Notice on the Prevention of Stubble Burning, numbered 1998/26 and published in the Official Gazette on December 16, 1998, prohibits the burning of stubble throughout Turkey. This measure aims to prevent adverse effects on the environment, public health, public order, public safety, and public goods caused by stubble burning.

**Purpose:** The purpose of this Notice is to regulate procedures related to stubble burning to prevent adverse effects such as the death of beneficial microorganisms in agricultural soils, soil erosion, loss of yield, damage to trees, shrubs, and above-ground living organisms in the environment, pollution of the air, prevention of the death of wildlife fed by stubble residues, disruption of the natural balance, and prevention of damage to energy transmission and communication lines on the land.

**Scope:** This Notice covers activities aimed at creating awareness for the prevention of stubble burning. It includes the dissemination of information and warnings to producers about the harmful effects of stubble burning, as well as legal procedures to be taken against those who do not comply with the ban on stubble burning.

**Definitions**



Article 4 - In this Notice:

Ministry: Refers to the Ministry of Agriculture and Forestry.

Provincial Directorate: Refers to the Provincial Directorates of the Ministry of Agriculture and Forestry.

District Directorate: Refers to the District Directorates of the Ministry of Agriculture and Forestry.

Environmental Directorate: Refers to the Provincial Directorates of the Ministry of Environment and Urbanization.

Muhtarlık: Refers to the village administration.

Local Authorities: Refers to municipalities.

Grains: Refers to cool-season grains such as wheat, barley, rye, oats, and warm-season grains such as rice and corn.

Stubble: Refers to the leftover straw and stalks on the soil after harvesting grains.

Natural Balance: Refers to the spontaneous and mutually beneficial interaction between living and non-living entities.

Microorganism: Refers to bacteria, viruses, fungi, and other microscopic organisms living in the soil.

Prevention of Stubble Burning

Article 5 - Stubble burning after grain harvest is prohibited throughout Turkey to prevent adverse effects on the environment, public health, public order, public safety, and public goods. This ban will be announced in advance to all muhtarlıks by Provincial and District Directorates.

Authority of Inspection

Article 6 - Provincial and District Directorates, Environmental Directorates, environmental NGOs, muhtarlıks, village and rural guards, and local authorities are responsible for preventing stubble burning. These authorities conduct inspections through authorized personnel.

#### Procedures during Inspections

Article 7 - Organizations and individuals assigned to inspections report those who violate the ban on stubble burning to the governorships or district governorships or file a criminal complaint with the Public Prosecutors' Offices.

#### Education and Inspection Timing

Article 8 - Issues related to the adverse effects and prevention of stubble burning are included in farmer training programs conducted by Provincial and District Directorates throughout the year. Inspections conducted by Provincial and District Directorates are carried out by teams formed within a program from June to December.

#### Enactment

Article 9 - This Notice enters into force on the date of its publication.

#### Execution

Article 10 - The provisions of this Notice are executed by the Minister of Agriculture and Forestry.

#### Examples from Governorship Circulars and Notices

##### Within the Borders of Kirklareli Province

##### Governorship Notice Regarding the Prevention of Stubble Fires in 2022

Notice Number:

2022/02

Purpose:

Article 1 - The purpose of this notice is to take necessary measures to protect the biological, chemical, and physical structure of the soil, as well as the environment, in order to sustain the productivity of the soil in natural balance, considering the damage that stubble burning can cause to the soil and the environment after harvesting cereals. It aims to determine alternative measures to prevent stubble burning, educate technical personnel and farmers, and ensure public sensitivity towards stubble fires.

Scope:

Article 2 - This notice covers the procedures and principles related to the prevention of stubble burning and the implementation of control services within the administrative boundaries of our province to achieve the above-mentioned purpose.

Legal Basis:

Article 3 -

a) According to Article 7, paragraph 2, sub-item "d" of the Ministry of Agriculture and Forestry's Field Organization Duties Regulation dated 08.07.2011 and numbered B.12.0.HKM.0.02.144/MEV-2008-236/88, the duty of the Provincial Directorate of Agriculture and Forestry includes conducting measures to prevent product loss and activities harmful to the ecological system within the framework of legislation.

b) Legal basis for punitive measures: According to Article (c) of Annex-1 of the Environmental Law No. 2872 (Annex: 26/4/2006-5491/23rd article), "Stubble burning, destruction of meadows and pastures, and any activity that may cause erosion are prohibited. However, controlled stubble burning may be permitted under the action plan prepared by the Governorships and under the responsibility of the Governorships." In accordance with this explanation, "controlled stubble burning may be permitted with the permission of the Governor in regions where second crops are planted," this provision will not be applied in our province, and stubble burning, including controlled stubble burning, will not be allowed under any circumstances. Penal sanctions under the relevant provisions of the Environmental Law No. 2872 will be applied to those who burn stubble.

General Provisions and Responsibilities of Combine Harvester Owners Regarding the Prevention of Stubble Burning;

Article 4 -

1- All necessary safety measures will be taken on-site and on time by the relevant parties to prevent the risk of fire and to avoid harming the crop and the environment.

2- Drivers with operator certificates will perform cutting from the most suitable height that will not allow stubble burning, taking into account the field and crop conditions and the terrain.

3- In wheat fields adjacent to forests, crop owners and muhtars will ensure the creation of a 5-10 meter-wide plowed strip free of combustible materials (stubble) after harvest, and they will prevent stubble, grass, and brush burning in forest and forest-edge fields; Muhtars will report those who act to the contrary to the Gendarmerie Command or the Forest Management Directorate.

- 4- Requests for educational personnel from other Public Institutions and Organizations and Chamber of Agriculture Presidencies to make measures taken against stubble burning more effective will be promptly fulfilled by the Provincial Directorate of Agriculture and Forestry.
  - 5- Training activities will be conducted by the Provincial Directorate of Agriculture and Forestry on the damages caused by stubble burning, and decisions and notices based on Article 66 of Law No. 5442 will be announced to the public by the District Governorships to raise awareness about stubble burning. The ban on stubble burning will be announced by Neighborhood Muhtarlıks, and those who do not comply with the bans will be subject to the relevant provisions of the Environmental Law No. 2872 by the Provincial Directorate of Environment and Urbanization and the relevant penalties under Law No. 6831 by the Forest Management Directorates.
  - 6- All vehicles operating in rural areas, including combine harvesters, will be required to have fire extinguishers, and this requirement will be announced to the relevant parties by the Provincial and District Directorates of Agriculture and Forestry and the Muhtarlıks.
  - 7- Education on stubble fires will be provided to students in all schools by the Provincial Directorate of National Education. Technical personnel who have received training on the subject from the Provincial/District Directorates of Agriculture and Forestry will be appointed to provide training to students in schools upon request from the Provincial/District Directorates of National Education.
  - 8- Sermons on the prevention of stubble fires will be read in mosques by the Directorate of Religious Affairs.
  - 9- In accordance with Law No. 6831 on Forests, except for designated accommodation areas in state forests, it is prohibited to stay overnight, light any kind of fire other than designated areas, and burn stubble or similar vegetation. Monitoring of this matter will be carried out by Neighborhood Muhtarlığı, Forest Management Directorate, relevant Municipality Presidency, Gendarmerie Command, and Police Directorate.
  - 10- Control officers will warn the public, Neighborhood and Village Muhtarlıks about stubble burning bans and field cleanings, and the necessity to be careful when making fires, staying overnight, and camping in forest areas outside of forest picnic areas. Requests for educational personnel from other Public Institutions and Organizations and Chamber of Agriculture Presidencies to make measures taken against stubble burning more effective will be promptly fulfilled by the Provincial Directorate of Agriculture and Forestry.
- Responsibilities of Public Institutions and Organizations Regarding the Prevention of Stubble Burning

Article 5 - Provincial Directorate of Agriculture and Forestry and Chamber of Agriculture Presidencies: -Stubble fires will be extensively covered in farmer training programs, and their damages will be thoroughly explained. -Efforts will be made to raise awareness about environmental sensitivity by involving local government resources and contributions from civil society organizations in educational outreach efforts. -Public awareness will be raised through the preparation of posters and brochures.

Article 6 - Highways Branch Directorate: -Stubble fires pollute the air and sometimes reduce visibility on highways, leading to traffic accidents and loss of life and property. The Highways Branch Directorate will clear the grass on road embankments and remove combustible materials, and warning signs about the dangers of stubble fires will be installed along the road edges.

Article 7 - Provincial Gendarmerie Command and Provincial Police Directorate: -The control and patrol duty will be increased before, during, and after harvest. In the event of a fire, and if necessary, assistance will be provided for the transportation of living and non-living beings affected by the fire. -Despite the measures and warnings, those who cause stubble fires will be reported to the Provincial Directorate of Environment and Urbanization with all records and evidence related to the fire for legal action.

Article 8 - Provincial Directorate of National Education: -To better understand the harmful effects of stubble fires, education on stubble fires and their damages will be included in the education curriculum.

Article 9- The Regional Directorate of Forestry/Forest Management Directorates and Offices: - Farmers in settlements where stubble burning is prohibited according to the relevant articles of the Forest Law will be informed about the forest fires that may occur as a result of stubble burning. Technical personnel from the Provincial/District Directorates of Agriculture and Forestry will also participate in this informative meeting. Fire announcements will be made before, during, and after harvest, and inspections will be increased to take legal action against those who cause fires. - Urgent intervention teams will be formed to respond to reports, and contributions from local government resources and civil society organizations will be solicited to promote environmental awareness. Graded strips will be opened with graders between agricultural areas sensitive to fires and forest areas to prevent fires. - Despite the measures and announcements, if stubble burning causes a forest fire within a distance of 4 km from the forest area, punitive measures will be taken in accordance with the relevant provisions of Forest Law No. 6831. In this case, all records and evidence related to the fire will be sent to the Provincial Directorate of Environment and Urbanization for legal action.

Article 10- Municipalities: - Municipalities will announce this circular issued by our Provincial Administration to inform the public and relevant parties, and they will ensure the intervention of fire departments to extinguish stubble fires within the municipal boundaries.

Article 11- Village and Neighborhood Muhtarlıks: - Village and Neighborhood Muhtarlıks will announce this circular issued by our Provincial Administration to inform the public and relevant parties. They will identify those responsible for stubble fires as soon as possible and promptly inform the relevant authorities.

Article 12- Provincial Directorate of Environment and Urbanization: - Fire announcements will be made before, during, and after harvest, and inspections will be increased to take legal action against those who cause fires. Coordination will be maintained with relevant institutions for efforts to prevent stubble fires. Punitive measures will be taken against those who burn stubble in accordance with the provisions of Environmental Law No. 2872.

Circular of the Governorship Regarding the Implementation of Combine Harvester Control Services within the Borders of Kırklareli Province in the Year 2022

Circular No: 2022 / 01

Purpose and Scope

Article 1- This circular covers the procedures and principles regarding the operation, use, implementation, and inspection of combine harvesters within the administrative boundaries of Kırklareli Province to ensure the timely and technically appropriate harvesting of field crops (wheat, barley, soybeans, rice, corn, sunflower, oats, rye, chickpeas, peas, etc.) with minimum product loss, thus preventing the loss of national wealth and minimizing crop losses and damages incurred during harvesting with combine harvesters, preventing the provision of untrained and unequipped combine harvester services, and maintaining public order and security.

Legal Basis

Article 2- This Circular, aimed at preventing the provision of untrained and unequipped combine harvester services and ensuring public order and security, has been prepared based on the Ministry of Agriculture and Forestry's Practice Directive on the Execution of Control Services in Harvesting with Combine Harvesters and Articles 32 and 40 of Law No. 5326 on Misdemeanors.

Responsibilities of Combine Harvester Owners and Operators

Article 3- In the 2022 harvesting season within the borders of Kırklareli Province, combine harvester owners and operators must comply with the following:

- a) Those without a "G class (Combine Harvester) Driver's License" or "Combine Harvester Operator Certificate" will not be allowed to work as combine harvester operators and will not be employed by combine harvester owners.
- b) Combine harvester owners and operators will not exceed a 1.5% product loss rate during harvesting conducted within Kirklareli Province in 2022. Product loss index values will be considered according to the land conditions.
- c) Necessary measures to intervene in fires caused by combine harvesters or other reasons will be taken by combine harvester owners. Combine harvesters must be equipped with at least two 6-kilogram fire extinguishers with new fillings and fireproof canvas.
- d) Combine harvester owners and operators must present their identification when requested by authorized inspectors.

#### Notification

Article 4- Product owners during harvest will ensure that they or at least one representative are present. Product owners or their representatives will first intervene themselves in the case of excessive product loss during harvest caused by combine harvester operators and then inform the relevant Provincial/District Directorate of Agriculture and Forestry. Product owners will participate in training and dissemination activities organized by the Provincial/District Directorates of Agriculture and Forestry. The basis for determining combine harvester rental fees will be mutual agreement. Contracts with legal validity will be made between the combine harvester owners, who are service providers, and the village headman, municipality, chamber of agriculture president, or farmer protection directorate, acting on behalf of the product owner or owners. Combine harvester harvesting fees will be specified in the contract.

#### Inspections

Article 5- Field inspections during the 2022 combine harvester product harvest will be carried out by technical personnel trained in harvesting techniques and authorized by the Provincial/District Directorates of Agriculture and Forestry.

#### Determination and Implementation of Administrative Sanctions Decision

Article 6- In case one or more of the provisions stated in Article 3 of this circular are violated during inspections, the Administrative Sanctions Decision Report Form, attached to the Practice Directive on the Execution of Control Services in Harvesting with Combine Harvesters, will be completed by authorized inspectors holding the "Authorized Controller Certificate" and submitted for approval to the Provincial Administrative Authority.

#### Sanctions

Article 7- Those who do not comply with Article 3 of this circular, provided their actions do not constitute another offense, will be subject to administrative sanctions in accordance with Articles 32 and 40 of Law No. 5326 on Misdemeanors, aimed at preventing the provision of untrained and unequipped combine harvester services and ensuring public order and security. If necessary, law enforcement intervention by law enforcement authorities will be provided upon the request of the authorized controller against those who oppose or cause difficulties.

#### Implementation of Sanctions

Article 8- Combine harvester owners and operators who act contrary to Article 3 (a) of this circular will be subject to administrative fines separately for each violated action in accordance with the first paragraph of Article 32 of Law No. 5326 on Misdemeanors. If the combine harvester operator is also the owner of the combine harvester, a single administrative fine will be imposed for each violated action. Combine harvester users/operators who act contrary to Article 3 (b) of this circular will be subject to administrative fines in accordance with the first paragraph of Article 32 of Law No. 5326 on Misdemeanors. Combine harvester owners who act contrary to Article 3 (c) of this circular will be subject to administrative fines in accordance with the first paragraph of Article 32 of Law No. 5326 on Misdemeanors. Combine harvester owners and operators who act contrary to Article 3 (d) of this circular will be subject to administrative fines in accordance with the first paragraph of Article 40 of Law No. 5326 on Misdemeanors.

Article 9- The implementation of administrative fines will be carried out by notifying the concerned parties or their addresses in accordance with the procedure after completing the Administrative Sanctions Decision Report Form and obtaining approval from the Provincial Administrative Authority.

#### Implementation of the Circular

Article 10 This decision is valid for the year 2022, and the Provincial Directorate of Agriculture and Forestry, District Governorates, Municipalities, Provincial Gendarmerie Command, Provincial Police Department, Village Headmen, and other relevant institutions and organizations are responsible for the implementation and follow-up of the implementation.

Article 11- In accordance with Law No. 2918 on Highways Traffic Law, combine harvester owners must register their combine harvesters with the chambers of agriculture, obtain registration certificates and plates. Therefore, necessary controls will be conducted by traffic police officers and gendarmerie traffic teams on the movement of combine harvesters on highways, and legal action will be taken by police and gendarmerie traffic officers against



combine harvester owners who have not completed registration procedures or obtained plates.

#### Announcement

Article 12-- This decision will be announced to the public by the District Governorates, Municipalities, and Village Headmen through public vehicles to inform the relevant parties.

#### Amendment to the Compost Regulation

ARTICLE 1 - The first paragraph of Article 1 of the Compost Regulation published in the Official Gazette dated 5/3/2015 and numbered 29286 has been amended as follows.

"(c) Management of products obtained from compost facilities,"

ARTICLE 2 - The second paragraph of Article 2 of the same Regulation has been amended as follows.

"(c) Managing animal by-products covered by the Regulation on Unused Animal By-Products Intended for Human Consumption, published in the Official Gazette dated 24/12/2011 and numbered 28152, excluding animal waste sent to compost facilities for processing,"

ARTICLE 3 - The first paragraphs of subparagraphs (c) and (ç) of Article 3 of the same Regulation have been amended as follows.

"c) Articles 97 and 103 of the Presidential Decree No. 1 published in the Official Gazette dated 10/7/2018,

ç) Regulation on Waste Management published in the Official Gazette dated 2/4/2015,"

ARTICLE 4 - The first paragraphs of subparagraphs (a), (b), (d), and (f) of Article 4 of the same Regulation have been amended as follows.

"a) Waste processing: Processes including pre-processing and interim storage, recycling or disposal operations listed in Annex-2/A and Annex-2/B of the Waste Management Regulation,

b) Waste processing facility: Facility recovering and/or disposing of waste in compliance with activities listed in Annex-2/A and Annex-2/B of the Waste Management Regulation, excluding transfer stations including pre-processing and interim storage facilities,"

"d) Biodegradable waste: Waste originating from parks, gardens, houses, restaurants, points of sale, food production, and similar facilities that can degrade in aerobic or anaerobic environments,"

"f) Recycling: Processes listed in Annex-2/B of the Waste Management Regulation,"

ARTICLE 5 - The first paragraphs of subparagraphs (b), (g), and (h) of Article 5 of the same Regulation have been amended as follows.

"b) Waste is transported in a closed manner to prevent environmental pollution in terms of appearance, odor, dust, leakage, and similar factors."

"g) A feasibility report prepared in accordance with the format in Annex-4 for planned compost facilities is submitted to the Ministry for approval, and then the environmental impact assessment process is completed."

"h) Compost facilities obtain environmental permits and licenses in accordance with the Regulation on Environmental Permit and License."

ARTICLE 6 - The second subparagraph of Article 8 of the same Regulation has been abolished.

ARTICLE 7 - The first subparagraph of Article 9 of the same Regulation has been amended, and the following subparagraph has been added to the same paragraph.

"e) After completing its lifespan, the facility ceases to accept waste and operates in accordance with the procedures and processes outlined in Article 10 of the Waste Management Regulation,"

"ğ) The operator registers and reports facility-related information to the Ministry through online programs and obtains approval."

ARTICLE 8 - The sixth paragraph of Article 10 of the same Regulation has been amended as follows.

"(6) Waste reception units are constructed with three sides closed except for vehicle entry and exit to protect against rainfall. The base of the waste reception unit is made of C30/37 concrete and non-flammable material with a thickness of at least 30 cm to ensure impermeability. A separate collection mechanism is developed on the base to prevent waste from coming into contact with sewage or surface water. The ground is appropriately sloped to collect leakage water that may occur in the waste reception area."

ARTICLE 9 - The third, fourth, and fifth paragraphs of Article 11 of the same Regulation have been amended as follows.

"(3) Closed or pile compost facilities are established and operated to clean volatile compounds, pollutants resulting from decomposition, microorganisms, allergens, emissions to be released into the environment, and odors.

(4) Except for compost facilities planned by local authorities for processing municipal waste, worm-type compost systems, mushroom production compost systems, and garden-type compost systems/machines where all kinds of waste are processed at the source are exempt from the provisions of this Regulation. However, a leakage control system is installed in compost systems other than garden-type compost systems.

(5) If animal waste is processed as raw material in the facility, the provisions of the Regulation on Unused Animal By-Products Intended for Human Consumption regarding hygienization shall apply."

ARTICLE 10 - Article 12 of the same Regulation has been amended as follows.

"ARTICLE 12 - (1) In determining the properties of products obtained from the processing of biodegradable waste;

a) Characteristics of the fed raw material,

b) Complying with compost facility process conditions,

is observed.

(2) In the use of the product obtained as a result of processes carried out in the compost facility, the criteria specified in the Regulation on Organic, Mineral, and Microbial Fertilizers Used in Agriculture, published in the Official Gazette dated 23/2/2018 and numbered 30341, are met."

ARTICLE 11 - Article 13 of the same Regulation has been amended as follows.

"ARTICLE 13 - (1) In the marketing of compost covered by this Regulation, the provisions of the Regulation on Organic, Mineral, and Microbial Fertilizers Used in Agriculture shall apply."

ARTICLE 12 - The provisional first article of the same Regulation has been abolished.

## **8.6 INCENTIVE RELATED REGULATIONS**

### **8.6.1. SUPPORT FOR AGRICULTURE-BASED ECONOMIC INVESTMENTS WITHIN THE RURAL DEVELOPMENT INVESTMENT SUPPORT PROGRAM REGULATION**

Liquid fertilizer is generally discharged into the water environment in Turkey's agricultural legislation. However, there is no specific understanding regarding the use of liquid fertilizer in agriculture. In some cases, solid animal manure is used as fertilizer, but generally, manure is spread on vacant lands or burned, especially in small towns, to meet heating needs. There is no specific regulation regarding animal waste within the legal framework. Regulations related to animal waste have somehow been kept separate from all other regulations. However, previously, the Regulation on the Implementation and Principles of Organic Agriculture included provisions for the management of animal waste. Unfortunately, even in this regulation, there was no mention of whether animal waste could be used in organic farming, and generally, methods of controlling animal waste were not addressed. So far, no regulations have been issued regarding the storage and use of liquid manure. Therefore, under current conditions, the use of liquid manure in agriculture is not possible, and the existing methods of use and storage of liquid manure cause significant environmental problems. From this perspective, it is important to have a sustainable waste management system to close the nitrogen cycle. Furthermore, existing regulations and laws are not suitable for the use of

digestate, the solid end product from biogas plants. Regarding the regulation of solid manure, until the cancellation of the organic farming regulation in 2004, applications for solid manure were possible. For organic vegetable production, the total organic manure use should not exceed 170 kg/N/ha/year. Standards were in place to ensure impermeability for manure storage areas. However, digestate storage is not regulated in this regulation.

## **PROBLEMS**

After harvest, ensuring that the seeder plants the next crop in the desired manner, saving fuel, and preparing a better seed bed are frequently seen reasons for stubble burning. This erroneous practice is often preferred by our producers not only to eliminate weeds and pests but also to prevent the clogging of the seeder eyes with stubble stalks.

Although farmers collect the residues after harvest, they resort to stubble burning to clean the field, facilitate plowing, and get rid of weed seeds. Stubble burning has serious adverse effects on the soil. Foremost among these is the destruction of all living organisms in the soil, primarily microorganisms. Despite many efforts, ranging from farmer education to legal regulations, stubble burning cannot be completely eliminated. There are sanctions under the Environmental Law No. 2872, the Provincial Administration Law No. 5442, and the Administrative Offences Law No. 5326, Article 32 (Contrary Behavior to Orders) for those who do not comply with the stubble burning ban. Furthermore, Article 5 of the Soil Law No. 5488 includes provisions on sustainability, human health, and environmental sensitivity.

The provision in Article 5 of the Regulation No. 1998/26 on the Prevention of Stubble Burning published in the Official Gazette dated December 16, 1998, states, "Burning stubble after grain harvest is prohibited by the Governorships throughout Turkey in order to prevent the adverse effects on the environment and public health, public order, safety, and well-being of the public, and on public properties, by being announced in advance to all district administrations by the Provincial and District Directorates."

Despite all these legal regulations, stubble burning continues. Stubble burning must be abandoned due to its harm to the soil and sustainability, the risk of fire, and its legal penalties. Farmers who burn stubble generally believe that the residues after harvest hinder their crop cultivation.

The benefits that farmers will gain from stubble burning remain very small compared to the damage it causes to the soil and the environment. Especially in soils with very low organic matter and highly susceptible to erosion, stubble burning also harms sustainable agriculture. Biomass that could be reintroduced to the soil as organic matter is wasted through this practice.

Soil is one of the most important factors in agricultural production. While soilless farming practices have been implemented in recent years, they are far from feeding the world's population. Therefore, the main production area is still the soil. Soil is a living entity, covering the surface of the earth in a thin layer, consisting of a mixture of rocks and various decomposition products of organic matter, hosting a wide range of organisms both within and on it, providing a habitat and a source of nutrients for plants, and containing certain proportions of water and air. It is actually a living organism. Soils develop on the parent material as a result of various natural factors affecting the breakdown and decomposition of rocks, minerals, and organic matter found in the uppermost layer of the earth's crust. Soil is the source of life. Plants grow in the soil and with the soil, then they provide food directly or indirectly for all living beings on earth. Soil quality is of utmost importance for the cultivation of crops. Desired physical, chemical, and biological properties of soil are desired in agriculture. However, as important as soil having the desired properties, it is also important that this situation is sustainable. Soil protection and maintaining its productivity are of great importance. Under normal conditions, good soil for agriculture consists of approximately 5% organic matter, 45% inorganic matter, 25% air, and 25% water. Organic matter is one of the most important factors in soil fertility and sustainability. When the importance of organic matter for soil is considered, it is clear that organic matter contents must be improved in terms of sustainability, and organic matter is an indispensable parameter for soil fertility.

Organic matter improves soil physical properties by:

Balancing the soil's water retention capacity

Balancing the soil's aeration capacity

Facilitating the soil's easy warming

Reducing the formation of a crust layer and cracking of the soil

Reducing soil erosion

Organic matter corrects soil chemical properties by:

Helping to convert plant nutrients that are not useful in the soil into useful ones, facilitating plant nutrition

Keeping the soil's pH value balanced

Increasing the soil's nutrient retention capacity and reducing nutrient leaching in the soil

Preventing toxicity by buffering the soil

Helping to reduce soil salinity

Organic matter decomposes in the soil, releasing nutrients into the soil to aid plant nutrition.

Promoting root development in the soil

Organic matter increases soil microbiological activity by:

Providing energy and nutrients for soil organisms (microorganisms) through incompletely decomposed organic matter

Assisting in increasing the population of microorganisms in the soil

Showing positive stimulating effects on the development of the plant's root system with the organic compounds (humic and fulvic acids) it releases into the environment during the decomposition of organic matter in the soil.

Since the ultimate goal of agriculture is to provide a good plant yield and quality, it is necessary to examine the effects of organic matter on plant physiology, development, and yield to emphasize its importance in agriculture. These effects occur in two ways. Since plants grow on the soil, the effect of organic matter on soil properties is indirect for the plant. The direct effect is the effect of organic matter being taken up by the plant's body.

#### Indirect Effects

When considering the indirect effects, that is, the effects of organic matter on the physical, chemical, and biological properties of the soil, it can be seen that an effect on one of these three groups of properties will also affect the others indirectly. For example, an increase in the soil's heat capacity will lead to a change in chemical properties or an increase in biological activity with the provision of aerobic conditions. Therefore, an effect on soil properties forms a combination. These effects can be examined separately. The effect of organic matter on the physical properties of the soil is observed in terms of structure, air, water, heat capacity, and consistency or texture.

In order for the soil to have a good structure, it is necessary to have aggregates and these aggregates must be especially resistant to water. Organic matter is the most important factor in increasing aggregate formation and stability. Especially, the presence of a large amount of organic matter in granular structure units shows that the same matter plays an important role in their formation. Materials given to the soil in the form of plant and animal residues and organic fertilizers can be both aggregate-forming and increasing the stability of these aggregates before microbial activity, and after being broken down by microorganisms, they can exhibit the same property after new organic compounds are formed. Especially materials such as sugar and cellulose can exhibit this effect after microbial decomposition. However, since organic materials will be completely decomposed after microbial activity, it should not be thought that they will continuously provide organic matter to the soil and form aggregates once enough organic matter is provided to the soil; instead, organic matter should always be added. Organic matter, which provides great stability initially, loses its effect if its decomposed part is not compensated.

Earthworms living in the soil create quite stable cot aggregates. The presence of numerous earthworms in soils rich in organic matter indicates that organic matter is an important factor in the formation of cot aggregates.

The effect of organic matter on the soil's air, water, and heat capacity is important. Organic matter has a water retention capacity 3-5 times its own weight. The retention of excess water also increases the volume of voids. Thus, in light soils, hygroscopicity and voids containing useful water increase. In heavy soils, on the other hand, the increase in voids containing more air begins. Both the total porosity and air voids in the soil can be almost doubled by water retained by organic matter.

The water retained by organic matter is bound at a force that plants can absorb more easily. In clayey soils, organic matter loosens the soil, allowing excess water to seep into the lower layers. However, in sandy soils, the situation is completely different. In these soils, the function of organic matter increases useful water. In other words, it prevents water from seeping into the lower layers. Useful water is the difference between the amount of water contained in the soil at field capacity and the amount of water the soil contains at permanent wilting point. By adding 1-2% organic matter to pure silica sand, the amount of useful water available to plants can be doubled.

The newly formed humic substances in the soil, especially those rich in organic matter, have a dark color that extends to black, which enables them to absorb sunlight better and thus allows the soils they are in to warm up faster and better. Soils rich in organic matter warm up early in spring, extending the vegetation period there.

Consistency, one of the physical properties of the soil, is especially important in determining the time of soil tillage. The amount of water contained in the soil when it exhibits plasticity varies according to the soil's texture and organic matter content. There are two plastic limits: at the lower plastic limit, it is possible to give the soil a round pencil shape, while at the upper plastic limit, the soil is in a condition to flow due to the effect of gravity. A heavy soil containing organic matter enters a workable condition with more water compared to a soil with the same amount of clay but without organic matter. In other words, of two soils with the same texture, the one containing organic matter requires more water to adhere to the tillage tools compared to the one without organic matter. After a heavy rain, soils rich in organic matter can be worked earlier and come to a suitable condition.

Organic matter is an essential substance for soil organisms, especially microorganisms. While improving the physical properties of the soil and providing an optimal living environment for organisms, it also serves as a food and energy source for them. With very few exceptions, the carbon source of soil microorganisms is organic matter. There is a close relationship between the composition and quantity of organic matter and the type and activity of organisms present in the soil. The presence of sufficient organic matter in the soil encourages the development of saprophytic organisms, thus preventing the transition to parasitic nutrition.

After harvest, the plant residues remaining on the field surface hold the soil in place and prevent fertile soil on sloping land from being lost due to water and wind erosion. Leaving stubble in the soil prevents intense rainfall from hitting the soil, reduces surface runoff speed, allows water to infiltrate the soil, but all these benefits are lost when stubble is burned. Due to stubble burning, the organic matter of the soil is destroyed, and the significant biological, physical, and chemical properties of the soil are damaged.

During stubble fires, temperatures reaching 250°C occur at depths of 0-5 cm, destroying organic matter, one of the most important elements for productivity.



The water retention capacity of the soil increases with the presence of organic matter. Considering the problems experienced in agricultural irrigation, this issue is quite important. Another point is that due to stubble fires, neighboring fields' crops and forests can be destroyed, and many living beings suffer significant damage directly and indirectly, along with the soil.

Farmers who want to get better yields from soils whose productivity has decreased resort to more soil tillage and chemical use. Therefore, both economic and environmental problems arise due to stubble burning.

Although there are direct and indirect effects of stubble burning, one of the most important consequences of this unconscious event is the significant damage to many living beings along with the soil. However, due to the activities of these unseen organisms in the soil, organic matter is broken down, decomposed, and transformed into a form called humus. This is one of the soil structures that increase productivity in agricultural production. Especially in fields left fallow until the next sowing, stubble naturally decays and mixes with the soil during the period between harvests, so there is no need to burn it.

#### The Long Decomposition Time of Stubble

The long decomposition time of stubble is perceived as a problem by our producers. The most important factors affecting the decomposition time of stubble stems are the soil's moisture content, temperature, and the C/N (Carbon/Nitrogen) ratio of the stubble. The higher the soil's moisture content and temperature, and the lower the C/N ratio, the faster the decomposition or decay of the stubble occurs. This ratio can be lowered by applying nitrogenous fertilizers to the stubble.

#### In summary: Consequences of Burning Agricultural Residues

Burning agricultural residues causes serious pollution of soil and water on both local and regional scales.

Burning agricultural residues leads to a range of air pollution:

Ammonia (NH<sub>3</sub>),

Nitrogen oxides (NO<sub>x</sub>),

Non-methane volatile organic compounds (NMVOC),

Sulfur dioxide (SO<sub>2</sub>),

Carbon monoxide (CO), and

Black carbon (BC), including solid particulate matter (PM).

Burning residues result in emissions of heavy metals (HM) and dioxins. Nutrient loss - repeated stubble burning can reduce soil productivity.

Low-intensity fires, when used for stubble clearing, can have an immediate, direct impact on the hydraulic properties of the soil.

Health effects:

Some pollutants released during the burning of agricultural residues have toxicological properties and potential carcinogenic effects.

Particulate matter released during burning can trigger asthma and worsen bronchial attacks when inhaled.

Burning agricultural residues also has adverse effects on the health of milk-producing and other animals.

The only way to reduce this emission source is to effectively stop the activity, which is why the practice of burning agricultural residues in open areas has largely been banned within the EU, with some small exceptions. The alternative adopted in many countries is to plow agricultural residues or use them for heat and energy production.

#### Basic Purpose and Objectives

The prevention of stubble burning, which our farmers frequently resort to, aims to prevent damage to the organic matter and soil life of our soils, raise awareness among our farmers about environmentally friendly stubble management and practices for sustainable agriculture, educate them, and create the necessary legal infrastructure for stubble management.

#### Options

Materials such as animal manure, compost material, post-harvest plant residues, peat, humic acid and derivatives (Humate), animal residues (blood, bone, hoof, horn, fish, meat meal, etc.), seaweed and products are used to increase the organic matter content of the soil.

Among these sources, post-harvest residues and stubble are the most important. Because other sources are not readily available in the soil and need to be applied to the soil. However, post-harvest residues naturally remain in the soil after harvest. The important thing here is

the management of these residues. In order to preserve soil organic matter and ensure soil fertility sustainability, it is necessary to leave 20-25% of post-harvest residues in the soil. Of course, this figure may vary according to the crop species grown, the region's climate conditions (temperature and rainfall), the current state of the soil, and specific conditions such as diseases and pests. For example, in areas where cotton is grown, it is recommended to collect cotton stalks after harvest to control pink and green worm pests, which are important pests of cotton. In agricultural production, the parts left in the soil after machine harvesting are considered stubble, while the parts separated from the plant by cutting are evaluated as residues. Even if residues in the field (stalks) are collected due to some obligations like in cotton, it is sufficient to plow the stubble left in the soil after harvest to mix it with the soil. This way, both pests are controlled and the sustainability of organic matter in the soil is ensured.

Post-harvest residues are being utilized in different ways and almost all of them are collected from the field. Post-harvest residues are used for animal feeding, plant nutrition, animal bedding, fuel and energy production, and as raw materials in industry.

**Leaving in the Field:** It is recommended in scientific studies to leave 20-30% of stubble, which is rich in organic matter, in the field to enrich the soil's organic matter content.

**Animal Feeding:** The residues of many crops grown in agriculture are used for animal feeding. In our country, especially due to the inadequacy of concentrated feed and quality roughage in animal feeding, farmers use the residues of legumes and cereals as animal feed due to reasons such as habits and being more economical. For example, after harvesting wheat in our country, almost all of the remaining stalks are made into straw or hay for animal feeding. The same applies to barley, chickpeas, lentils, and other products.

**Plant Nutrition:** Post-harvest residues can be used for plant nutrition purposes. Especially when the cellulose content is low, post-harvest residues with high green content or water content can be used directly for plant nutrition by mixing them into the soil, as well as being used for composting. This usage is desirable for the sustainability of organic matter content.

**Use as Animal Bedding:** Some agricultural product residues, which are not used as animal feed and do not decompose quickly when left in the soil, can be collected from the field and used as animal bedding. For example, residues such as rice husks and hazelnut shells are widely used as animal bedding. Especially rice husks are a sought-after bedding material for poultry.

Use for Fuel and Energy: Some agricultural product residues can be traditionally used as fuel for cooking or heating purposes. Materials such as sunflower, tobacco, pruning residues, etc., can be used as fuel by producers. In recent years, with the widespread use of biomass power plants, materials such as cotton, sunflower, corn stalks, and residues left after cutting in forest areas are burned in biomass power plants to produce steam and electricity.

Use as Raw Material in Industry: Agricultural residues with high cellulose content, especially, can be used as raw materials in industry.

There doesn't seem to be a problem with collecting agricultural residues for use in the above-mentioned ways. Because leaving the roots and stems left on the soil after harvest in the soil is considered sufficient for the sustainability of organic matter. However, the problem here arises from stubble burning. Even if farmers have collected post-harvest residues, they resort to stubble burning to dispose of the remaining stubble to clean the field, facilitate tillage, and get rid of weed seeds, among other reasons. Stubble burning has serious consequences for the soil. The destruction of all living organisms in the soil, especially microorganisms, comes first among these consequences. Despite many efforts from farmer education to legal regulations, stubble burning cannot be completely prevented.

#### Impact Analysis Results of Each Option

This text focuses on the management of stubble resulting from agricultural activities and sustainable agricultural practices. The main goal is to preserve the organic matter and vitality of the soil by encouraging farmers to avoid stubble burning. In line with this goal, the aim is to raise awareness among farmers about environmentally friendly stubble management and practices through education. Additionally, creating the necessary legal framework to support this process is also among the objectives.

In the options section, a wide range of materials that can be used to increase the organic matter content of the soil are mentioned, and it is emphasized that post-harvest residues, especially stubble, play an important role in this process. It is stated that leaving stubble in the soil after agricultural production and managing it properly are critical for soil fertility and sustainability.

The text presents various methods for utilizing post-harvest residues, including leaving them in the field, animal feeding, plant nutrition, use as animal bedding, use for fuel and energy, and use as raw material in industry. The practical applicability and benefits of each method are briefly explained.

Finally, it is stated that although stubble burning is carried out with the intention of disposing of residues such as roots and stems left in the field after harvest, this practice has serious

negative effects on both the soil and the environment. Therefore, it is emphasized that comprehensive solution strategies, from farmer education to legal regulations, are important. Those who burn stubble believe they are doing the right thing. Indeed, from the perspective of farmers who burn stubble, it may seem correct, but when acted upon with knowledge of scientific facts, it will be seen how harmful stubble burning is. Stubborn resistance to this issue stems from the desire to eliminate the time required for stalks and roots to naturally integrate into the soil and become humus, due to structural changes in agriculture that have occurred in the last 50-60 years, such as mechanized farming and the elimination of fallow land due to the desire to obtain a second crop. Therefore, keeping the stubble and roots in the soil after harvest, allowing them to decompose naturally and become humus, is crucial for soil fertility and sustainability. Despite the positive characteristics of utilizing agricultural residues, stubble burning has many negative effects on both the soil and the environment. When stubble is burned, the organic matter in the soil disappears, and the high heat and CO<sub>2</sub> gas produced by stubble burning accelerate global warming. It is stated that stubble burning has no positive effect on any parameter and should not be recommended to farmers due to its negative effects on root development and soil carbon content in some cases. Therefore, it is necessary to inform farmers about this issue and recommend the most suitable mechanization system for evaluating plant residues left in the field without burning them, according to the opportunities available to the farmer. Neither farmers who do not burn stubble and want to use it as straw nor combine owners have sufficient information about management issues such as cutting stalks left in the field during harvest, shredding them for evaluation, spreading wastes homogeneously on the field surface, crop losses due to improper cutting, energy and power consumption, and machine capacity. Therefore, especially in direct seeding practices based on waste management, the desired developments are not achieved.

Although some prohibitive provisions have been mentioned to prevent or reduce stubble burning, it is not possible to say that these prohibitions have deterrent and effective results. Therefore, it is preferable to conduct studies to reduce the harms of stubble burning and provide necessary training to farmers, in addition to prohibition and punishment options. In addition to prohibition and punishment options, it is necessary to envisage incentive mechanisms for the use of technologies that will allow farmers to evaluate stubble in ways other than burning.

Leaving in the Field

Positive Effects:

Increases soil organic matter, thereby enhancing soil vitality and productivity.

Reduces erosion risk as the soil adheres better and retains water with more organic matter.

Increases carbon sequestration, helping to absorb CO<sub>2</sub> from the atmosphere and store it in the soil.

Negative Effects:

There may be a risk of increased diseases and pests if the residues come from diseased plants.

Leaving excessive amounts of stubble may sometimes make agricultural activities difficult (such as planting, tillage).

Animal Feeding

Positive Effects:

Increases the economic value of stubble, which is utilized as a source of animal feed.

Reduction in feed costs can be achieved, thereby lowering agricultural production costs.

Negative Effects:

When mismanaged, low-nutrient stubble can have adverse effects on animal health.

If the quality of crop residues is not considered, nutritional deficiencies or health problems may arise.

Plant Nutrition

Positive Effects:

Increases the quantity and quality of organic matter in the soil.

When used as compost, it can reduce the need for chemical fertilizers, thereby reducing costs and minimizing environmental damage.

Negative Effects:

Improper composting conditions can lead to an increase in diseases and pests.

Use as Animal Bedding

Positive Effects:

Converts waste products into an economic value.

Ensures more hygienic animal shelters.

Negative Effects:

Improper use can lead to the spread of harmful bacteria and diseases.

Use for Fuel and Energy

Positive Effects:

Considered a renewable energy source, reducing dependence on fossil fuels.

Use as biomass in energy production provides a carbon-neutral fuel alternative.

Negative Effects:

The process of collecting stubble and converting it to energy may require additional costs and energy consumption.

Inadequate biomass production facilities in certain areas may limit the feasibility of this method.

#### Use as Raw Material in Industry

##### Positive Effects:

Supports the production of environmentally friendly products through the utilization of agricultural residues.

Contributes to the development of innovative practices in waste management and recycling.

##### Negative Effects:

Inadequate production processes and industrial infrastructure may restrict this method.

There may be environmental pollution risks during certain industrial processes.

Considering both the positive and potential negative effects, it is important to carefully select and implement stubble management options according to specific situations and conditions.

#### PREFERRED OPTION

It is preferred that 20-30% of the stubble be left in the field, while the remaining portion is collected from the soil using modern agricultural machinery and reintroduced to the economy for use as animal bedding, animal feed, or industrial raw material. Stubble burning must be strictly prevented.

#### IMPLEMENTATION PLAN

##### Training of Technical Personnel and Farmers:

- a) Technical personnel of Provincial Directorates undergo in-service training on stubble management for sustainable crop management.
- b) The planning of these trainings is carried out by the provincial director.
- c) Technical staff training can be conducted at each provincial directorate, jointly organized regionally by provinces, or centrally by the ministry to cover all provincial directorates.
- ç) Trained technical personnel provide farmers with training on the subject at least once a year. These trainings are conducted with the approval of the provincial director.
- d) Farmer trainings are conducted in suitable venues determined by provincial directorates or the provincial directorate itself.
- e) These trainings, held at least once a year, are scheduled at a time that ensures maximum farmer participation, considering the farmers' work schedule.
- f) Participants in the training receive a certificate of attendance.

## Stubble Management

- a) Agricultural residues generated after crop production are encouraged to be utilized as animal feed, compost, biomass for bio-pellets, bio-briquettes, fuel for biomass power plants, etc.
- b) The decision on how the biomass will be utilized is made jointly by farmers and technical personnel.
- c) Harvesting should be done from at least 10 cm or higher above the soil to preserve organic matter. If harvesting is done shorter than 10 cm, both the farmer and the combine operator are jointly responsible.
- ç) Stubble management plans are regularly obtained from farmers each year to prevent stubble removal or burning (with relevant evidence documents).
- d) To ensure sustainability as stated in the law, stubble should be mixed into the soil to preserve and increase soil organic matter.
- e) In cases where stubble burning may be necessary for reasons such as disease and pest control, stubble burning may be permitted upon evaluation by technical personnel, approval by the provincial director, and permission from the governor.
- f) In case permission is granted for stubble burning, the reason for the permit, the authorized area, the stubble type(s), and the permitted dates are clearly stated and announced locally.
- g) If permission is granted for stubble burning, farmers must take all necessary precautions for personal safety and to prevent the fire from spreading beyond the field.

## Sanctions and Incentives

- a) Farmers who attend the trainings provided by provincial directorates and document, with soil analysis reports, that they have not burned stubble and have preserved soil organic matter and productivity by mixing stubble into the soil, will receive a 50% increase in all state agricultural production support payments. The necessary resources for the support payments to be increased by 50% are provided by the Agricultural Sector Information System (BÜGEM).
- b) If harvesting is done shorter than 10 cm, farmers and combine operators are warned by recording a statement during the first offense. If repeated within the same calendar year, the farmer is penalized by a 50% deduction from agricultural support payments for that calendar year. The combine operator's operator license is suspended for a period of 1 (one) month.
- c) Farmers who burn stubble without authorization, as documented by law enforcement or ministry teams, are deprived of all state support payments for a period of 1 (one) year from



the date of the report. In case of repetition in the same or subsequent calendar year, the deprivation period from support payments may be extended up to 3 (three) years.

#### Key Stakeholders:

The stakeholders that need to be considered in the regulatory impact analysis report for the regulation practice of not burning stubble include:

**Farmers and Agricultural Enterprises:** Key stakeholders as they are directly affected by the stubble burning practice and will implement alternative methods.

**Ministry of Agriculture and Related Government Agencies:** Policymakers and regulatory authorities responsible for sustainable agriculture and environmental regulations.

**Environmental Protection Agencies:** Government agencies or NGOs working on air quality, soil conservation, and environmental health issues.

**Local Governments:** Local authorities such as municipalities and district administrations play a significant role in environmental management and public health.

**Research Institutions and Universities:** Provide scientific knowledge and solution proposals by conducting research on alternatives to stubble burning.

**Agricultural Advisory Services:** Assist farmers in adopting sustainable farming practices by providing technical support and consultancy.

**Civil Society Organizations (CSOs):** CSOs active in environmental protection and sustainability play an important role in raising public awareness and policy development.

**Rural Development Agencies:** Government or international organizations supporting rural development play a crucial role in financing and supporting sustainable agricultural practices.

**Public and Communities:** Local communities affected by stubble burning and general public health are important stakeholders in policy and practice on this issue.

**Agriculture and Environment-Focused Media:** Plays an important role in informing the public and creating awareness on agriculture and environmental issues.

Effective communication and collaboration among these stakeholders can ensure successful implementation of alternative stubble management methods.

#### Main Activities:

Development of sustainable agricultural waste management solutions

Digital marketing and awareness campaigns

Farmer training sessions and workshops

#### Value Propositions:

Transforming farm waste into valuable resources

Reducing ecological footprint and preserving soil health

Providing farmers with alternative income opportunities

Customer Relationships:

Continuous education and support

Encouraging community-based approaches and active participation

Continuous improvement based on customer feedback

Communication Channels:

Social media and digital marketing platforms

Collaborations through local and national agricultural chambers

Sustainable agriculture and environmental fairs

Key Resources:

Digital marketing and educational materials

Sustainable waste management technologies

Expert team and trainers

Revenue Streams:

Revenue from service and solution sales

Government and international funds

Revenue from training programs and seminars

Cost Structure:

Research and development costs

Costs of education and awareness programs

Marketing and operational costs

Customer Segments:

Environmentally conscious farmers

Agricultural enterprises and cooperatives

Government and environmental organizations

This business model focuses on more sustainable management of agricultural waste, showing its potential to play a significant role in combating environmental issues and creating value.

Effective digital marketing strategies to reach your target audience are crucial for promoting and adopting sustainable practices.

## MONITORING AND EVALUATION

As a result of burning stubble, both soil and the natural ecosystem are disrupted. This eliminates the benefits that crop residues would provide to the soil and also leads to various

environmental disasters. Direct incorporation of crop residues into the soil after harvest improves soil properties and has a positive effect on soil biological activity. As a result, soil structure and quality improve, leading to increased soil productivity.

The smooth operation of direct seeding machines depends on the even and uniform distribution of stubble residues on the field surface. If proper chopping and spreading are not achieved, problems such as clogging of seeding units, poor seed placement, inadequate germination, and low herbicide efficacy may occur. The most suitable distribution uniformity can be achieved with stalk choppers or straw choppers attached to combine harvesters or tractor-mounted stalk choppers.

Especially with the development of mechanized agriculture, structural changes in agriculture, and an increase in second crop production, fallow periods have decreased. Therefore, the time required for crop residues such as stalks and roots to mix with the soil naturally or decompose into humus is not awaited. Keeping the stubble height high in areas where harvesting is mostly done with combine harvesters makes all areas where this equipment is used potential danger zones.

On the other hand, the sole cause of stubble fires is not only the willingness of farmers but also factors such as sparks generated by machinery, unattended picnic fires, cigarette butts, and so on. Worldwide, post-harvest management of residual wheat straw is done in various ways. In studies examining the management of stubble residues after grain harvest, the most commonly used methods can be listed as follows:

**Distribution of stubble on the soil surface:** Stubble residue is chopped and distributed on the field surface using separate stalk choppers or stubble chopping and spreading systems attached to combine harvesters during harvesting. These systems are highly efficient in terms of both fuel consumption and more homogeneous distribution of stubble. These systems, widely used in developed countries, have also begun to be used in Turkey in recent years.

**Making straw from stubble:** Stubble residues accumulated in the field after harvest are collected using straw-making machines to produce straw. This straw is then used as animal feed. Straw-making machines have been replaced by straw-making systems attached to combine harvesters that work simultaneously with the combine harvester in recent years.

Baling stubble: Collecting stubble and baling it requires time and effort. This delays the next planting of the crop. Collecting stubble immediately after harvest with a baler and using it directly with the direct seeding machine provides a convenient environment both in terms of time and economy.

Burial of stubble: Burial of stubble into the soil with implements such as plows that work by turning the soil. However, if the necessary time and moisture for the stubble to decompose are not available, problems such as clogging of the planting machine feet may occur during the operation of the planting machine.

There is no statistical data on the imposition of penalties as foreseen by the legislation for burning stubble. Therefore, firstly, a separate information system mechanism should be established for monitoring this and evaluating it through this system. Thanks to this information system, it should be determined which provinces adopted this practice to what extent, and training should be intensified in these regions.

## CONCLUSION

Sensitive agricultural technologies can be used for purposes other than burning stubble. For example;

Stubble chopper mounted on the combine harvester: In the study, the stubble chopper straw making unit is mounted on the rear output of the combine harvester,

Stubble chopper attached to the tractor: A stubble chopper attached to the tractor is used to chop the stubble left in the field after combine harvester harvesting and spread it on the field surface,

Baling machine: The baling machine used in the study operates at the 3rd gear level of the tractor and at 540 rpm tail shaft speed,

Direct seeding machine: Different machines are used for each stubble management system created, and new methods can be tried by monitoring the use of technologies such as direct seeding machines used for direct lentil sowing for fields with different stubble amounts created in the field with different machines.

Precision Agriculture Technologies should be emphasized for their benefits in reducing input use in agriculture, thereby protecting the environment and natural resources and enabling sustainable agricultural practices.

Farmers should be educated about the harms of burning stubble. Looking at developed countries, farmers have been informed about the harms of burning stubble and alternative methods have been implemented. In addition, a sufficient number of expert personnel should be trained to promote the widespread use of precision farming technology systems.

Efforts should be made for the use of precision agriculture technologies in large landowners and government-owned enterprises. The use of precision agriculture technology systems in grain production should be encouraged. State support mechanisms should be provided for the use of these technologies for the purpose of encouragement.

Furthermore, scientific incentives should be provided to increase scientific research on stubble and its utilization. Thanks to these scientific incentives, the studies produced should be shared with the public.

As mentioned above, although administrative fines are provided in both the Environmental Law and other legal regulations concerning the burning of stubble, the lack of any legislation provision for an incentive mechanism or alternative utilization of stubble is a significant deficiency.

In addition, collecting the scattered regulations in the legislation under one text and regulating the issue in a separate legislation instead of directing the implementation by the Governorship with Circulars will have positive effects in terms of preventing stubble burning and utilizing stubble in a different way.

#### **SENIOR MANAGEMENT ASSURANCE STATEMENT**

Dear Stakeholders,

In line with our commitment to sustainable agriculture and environmental protection policies, we are aware of the environmental damages caused by the burning of stubble arising as part of our agricultural activities. This practice not only harms soil fertility but also contributes significantly to greenhouse gas emissions and air pollution, affecting our air quality. Our organization acknowledges that such practices are not in line with our long-term sustainability goals.

In this context, we have prepared a comprehensive Regulatory Impact Analysis report to adopt alternative sustainable management techniques to stubble burning practices. Our report includes assessments of environmental, economic, and social impacts as well as the feasibility of not burning stubble. Our work indicates that the implementation of alternative methods has the potential to protect the environment and improve the quality of our agricultural lands.

As an organization, we believe that transitioning from stubble burning to alternatives is not only a legal requirement but also a social responsibility. This change reflects our responsibility to the environment and society. Alongside the environmental benefits to be gained, we aim to have a positive impact on our long-term agricultural sustainability through our detailed planning and approaches to this practice.

The regulatory impact analysis we conducted represents a significant step in identifying best practices and strategies by encouraging comprehensive consultation processes among our management team and all relevant stakeholders. Throughout this process, we have adopted an inclusive and participatory approach that takes into account the needs of our farmers, communities, and environment.

In line with this report and its findings, we are committed to updating our policies and practices regarding stubble management to take concrete steps towards reducing our environmental impact. As a responsible organization, we reaffirm our determination to make fundamental changes for a sustainable future and look forward to the support of all our stakeholders on this journey.

Best regards,

[Senior Management Name]

[Senior Management Position]

[Date]

ANNEXES (INFORMATION RELATED TO THE CONSULTATION PROCESS, TABLES AND FIGURES, DATA, INDICATORS, STATISTICS, ETC.)