REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE
GENERAL DIRECTORATE OF ENVIRONMENTAL MANAGEMENT

UNDP

ZERO WASTE MANAGEMENT SYSTEM IMPLEMENTATION GUIDELINE

LOCAL AUTHORITIES

ZERO WASTE


LAÇİVERT

PREFACE

The amount of waste has been increasing gradually in our country as a result of population growth, increased purchasing power, and technological developments from past to present. This increase necessitates sustainable and integrated waste management through a Zero Waste Management approach.

Direct disposal of waste without applying recycling and/or recovery processes results in loss of both material and energy resources. Based on its multifaceted relations with technical, economic, and social disciplines, sustainable waste management entails zero waste management in the framework of integrated waste management hierarchy with a focus on waste prevention, reduction, reuse, recycling, and recovery.

To ensure the protection and improvement of our natural resources and ecosystems, and the creation of a healthy and liveable environment for the current and next generations within the scope of the responsibilities of our Ministry to generate plans, develop policies, and set targets regarding the zero waste management system, 11 implementation guidelines have been prepared with due regard to the sustainability principles, international norms and national priorities in order to include various stages such as waste prevention, waste minimization at source, sorting by types, collection, transportation, temporary storage, reuse, and recovery. The guidelines are as the following: Guideline for Local Administrations, Guideline for Organized Industrial Zones and Industrial Facilities, Guideline for Airports and Terminals, Guideline for Shopping Malls, Business Centres, Commercial Enterprises and Plazas, Guideline for Educational Institutions and Dormitories, Guideline for Healthcare Organizations, Guideline for Tourism Facilities, Guideline for Rural Areas, Guideline for Institutions and Organizations, Guideline for Households and Housing Estates, and Zero Waste Blue Guideline.

Zero Waste Implementation Guideline has been developed to determine design and planning criteria, assessment factors, and implementing principles of the Zero Waste management system in terms of administrative, financial, and technical aspects as well as to lead target audiences for the development, improvement, and promotion of the Zero Waste management system.

The Zero Waste approach should be implemented with utmost care and precision based on a common objective and language set by the relevant stakeholders in order to realize high-quality practices, prevent waste generation, and ensure cost-efficiency.

Prepared in line with the purposes of making sure that the principles of zero waste approach is understood, establishing the baseline, ensuring the progressive promotion and sustainability of the system, and drawing a roadmap for zero waste management aimed at all the related stakeholders, I wish that the Guideline will be auspicious to all relevant parties, and our country.

I also take this opportunity to thank all the institutions, organizations, and our staff that contributed to the development of this Guideline.

Murat KURUM
Minister of the Environment, Urbanization and Climate Change

İÇİNDEKİLER

GUIDELINE FOR THE IMPLEMENTATION OF THE ZERO WASTE SYSTEM AT LOCAL AUTHORITIES

This guideline covers general information, activities and plannings as well as principles on monitoring and improvement with regard to zero waste management (ZWM). In Türkiye, ZWM is realized mainly in 2 branches: Local authorities, and buildings-premises. Responsibilities of each implementer are presented below. Provincial ZWM plans are prepared and implemented by a commission designated by the Local Environmental Board under the coordination of the Governorship. ZWM plans require implementers to carry out the necessary activities in accordance with the recommendations given in this guideline, to accomplish waste prevention, reduction and separate collection through the completion of essential infrastructure works, and to provide the acquired data in the Zero Waste Information system.

Table 1. Responsibility distributions in ZWM

MINISTRY

Responsibilities:
Determination of Policies and Targets on Waste Prevention and Reduction
Preparation of Implementation Guideline
Preparation of Zero Waste Management Action Plan
Monitoring, Supervision, Zero Waste Information System

PROVINCIAL DIRECTORATE

Responsibilities:
Preparation of Provincial Zero Waste Management System Plan*
Monitoring, Supervising, Coordination
Declaration and Data Tracking
Issuing Zero Waste Certificates

LOCAL AUTHORITIES

Metropolitan District Municipalities
Provincial, District, and Town Municipalities (outside the Metropolitan Municipality)
Unions of Municipalities
Special Provincial Administrations

Responsibilities:
Waste Prevention and Reduction,
Establishment of Zero Waste Management System
Operating and Monitoring of the System
Registration to and Data Entry in the Zero Waste Information System

BUILDINGS AND PREMISES

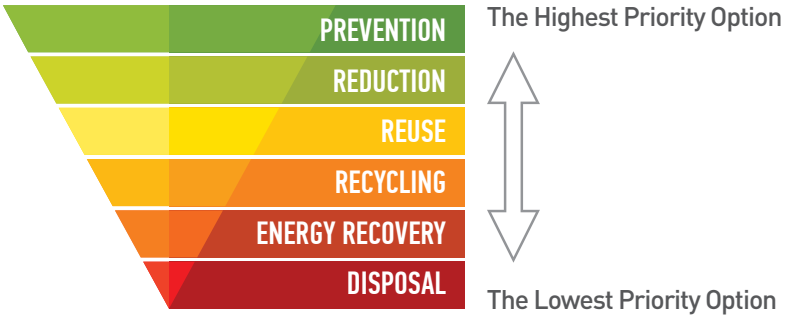
Public Institutions and Organizations
OIZs and Industrial Facilities
Airports, Terminal, Ports
SMs, Business Centres, and Commercial Plazas
Educational Institutions and Dormitories
Healthcare Organizations
Accommodation Facilities
Households and Housing Estates
Fuel Stations and Service Areas
Chain Markets and Retailers

** To provide local environmental boards with agenda and technical support in the preparation of Provincial Zero Waste Management System Plan*

WHAT IS ZERO WASTE?

"Zero Waste", which ecological design criteria lay the foundation of, is a waste management philosophy that covers waste prevention and reduction,, more effective use of resources, , separate collection of waste at source, and waste recovery as well as it is an approach that considers lifecycle of waste in order to ensure cultural, economic, and social development.

Table 2. Waste management hierarchy



In ZWM, it is essential to reuse products, extend their economic lifetime, avoid or reduce use of hazardous substances in production, and manufacture recyclable products.

Waste management hierarchy (Table 2) lays the foundation of ZWM system. Accordingly, waste prevention, waste reduction, and waste reuse are among the steps of ZWM system. Waste that cannot be reused or recycled must be utilized through material or energy recovery applications. Establishment of ZWM system is also important in order to reduce the costs that will be required for environmental pollution treatment facilities.

To achieve a successful management model, ZWM system should be planned in design phase of any living arrangements such as housing estates, buildings, neighbourhoods, streets, public squares, schools, plazas, shopping malls (SMs), airports, OIZs and industrial facilities, market places, educational, and healthcare, and tourism facilities.

It is ideal for buildings and living arrangements to be constructed in compliance with ZWM by preparing plans in design phase. If it is impossible to achieve the ideal, one can get the result by following the implementation steps, which consist of 4 (Table 3), to establish ZWM system.

Table 3. Implementation steps of ZWM system

1. DESIGNATION OF A WORKING TEAM

A working team should be organized by designating people who will be responsible for process management starting from establishment of the system to its implementation and control.

To ensure the system's sustainability:

1. Provincial municipalities and local authorities with a population of 50,000 will have at least 2 environmental engineers or environmental specialists,
2. Local authorities with a population of 20,000 to 50,000 will have at least 1 environmental engineer or environmental specialist,
3. Local authorities with a population of less than 20,000 will either employ an environmental engineer or environmental specialist or receive environmental consultancy services.
4. Unions of local authorities and special provincial administrations will employ at least one environmental engineer or environmental specialist

Zero waste team should undertake the following main tasks for a successful implementation.

- Specify what needs to be realized in order to prevent and reduce waste,
- Supply the necessary equipment/units for waste separation and transportation, and ensure the waste delivery to be done to the licenced facilities,
- Inform and train the support staff,
- Record all the activities carried out, and report their environmental, social, and economic impacts along with the related data to authorized people and/or departments,
- Organize awareness-raising activities, such as introductory films, events, etc., to increase the success of the ZWM system.

2. PLANNING

Planning is the most significant step for an effective waste management. At this step, a baseline analysis will be carried out; principles with respect to waste prevention and reduction will be determined, and needs will be analysed.

2.1. Baseline Assessment:

The main purpose of baseline assessment is to identify waste types, and in what quantity and frequency they are generated, the results of which will shape further planning practices. Baseline assessment specifies the following data:

Regarding places:

- Number of streets and main streets
- Number of public institutions/organizations
- Number of household and commercial areas (markets, shops)
- Public squares rest and service facilities to be determined,
- Mobile population (based on daily/weekly/seasonal assessments)

Regarding waste stream(s):

- Source and quantity,
- Types and characteristics,
- Reasons of generation[1],
- Competences of the personnel in both quantity and quality,
- Waste collection system of recipient municipalities/recycling facilities

Table 4 presents the waste types that would be generated in areas under the responsibility of Local Authorities. Please add to the table if you think there are any extra types of waste and areas.

Table 4. Units that generate/may generate waste

Units	Waste types
Homes/Households (Single-Storey Building, Multi-Storey Building, Apartment Block, Housing Estate)	Kitchen waste, food waste, park/garden waste, hazardous waste from houses, drug waste, packaging waste, specific waste (waste batteries, waste vegetable oil, waste electrical and electronic equipment, etc.), bulky waste, construction and demolition waste and other waste
Commercial Building / Premises (Shop, Restaurant, Supermarket, Office Building, Hotel, etc.)	Kitchen waste, food waste, park/garden waste, hazardous waste from houses, drug waste, packaging waste, specific waste (waste batteries, waste vegetable oil, waste electrical and electronic equipment, etc.), bulky waste, construction and demolition waste and other waste
Institutions/Organizations (Universities, Schools, Hospital, Prisons, Public Buildings)	Kitchen waste, food waste, park/garden waste, hazardous waste from houses, drug waste, medical waste, packaging waste, specific waste (waste batteries, waste vegetable oil, waste electrical and electronic equipment, laboratory waste, etc.), bulky waste, construction and demolition waste and other waste
Outdoor/Semi Outdoor Places (Streets, Parks, Playgrounds, Picnic Areas, Recreation Areas, Market Places, etc.)	Kitchen waste, garden waste such as grass, leaves, tree, bush, etc., packaging waste, specific waste (waste vegetable oil), bulky waste, construction and demolition waste and other waste
Industrial Facilities (Individual Industrial Enterprises)	Except for process waste, kitchen waste, garden waste, packaging waste, special waste (waste battery, waste batteries, waste vegetable oil, waste electrical and electronic equipment, etc.) bulky waste, contaminated packaging, waste oils, end-of-life tires, contaminated waste and other waste
Tourism Facilities	Paper, plastics, glass, metal waste, biodegradable waste, food waste, tea/coffee residues, waste vegetable oil, end-of-life electrical and electronic equipment, waste batteries, contaminated packaging (e.g., packaging of chemicals, pressurized vessels), toner-cartridge, lighting equipment, oil filters of generators, dust filters of air conditioner/ ventilator, bulk waste, construction and demolition waste, napkins, wet wipes, grass, leaves, tree, bush, etc.
Health Organizations	Medical waste (such as infected, pathological waste, hypodermic needles), paper, plastics, glass, metal waste, waste chemicals, contaminated packaging (e.g., packaging of chemicals, pressurized vessels), waste batteries, end-of-life electrical and electronic equipment, such as computers, telephones, lamps, etc., bulky waste, construction and demolition waste, biodegradable waste, napkins, wet wipes, toner-cartridge, dust filters of air conditioner/ ventilator, oil filters of generators, park/garden waste, etc
Other Facilities within the Municipal Boundaries	

1 It is important identify sources and causes of waste generation so that feasible options for waste prevention and reduction can be applied.

At certain intervals, the quantity of generated waste, at each unit, should be measured and recorded (Table 5) to see the general picture.

Table 5. Generated waste by type and quantity (kg)

	Paper	Metal	Plastics	Glass	Bio-degradable	Waste vegetable oil	Battery	Toner, cartridge	E-waste	Medical Waste
Homes/Households										
Administrative Buildings, Offices, Meeting Rooms										
Healthcare Organization (Hospital, Primary Care Clinic, etc.)										
Coffee House / Eating House / Wedding-Ceremony Hall / Dining Halls										
Workplaces (Grocery Store, Market, Butcher, Hardware Store, Gas Station, Agricultural Enterprises, Tailor, Hairdresser, etc.)										
Vehicle Repair Shops										
Parks, Agricultural Areas, Recreational Areas, Picnic Areas, etc.										
Other units										

On the purpose of ensuring the best use of resources, to take inventory regarding the equipment already in use is also considered very beneficial and effective.

Table 6. Information on the Collection System of the Municipality

		Population	Collection System*		Container		Waste Collection Frequency-Recyclable (trip/week)	Waste Collection Frequency-Other waste (trip/week)	Civic Amenity Centre		Mobile Civic Amenity Centre	Number of Personnel	
			Dual	Multi	Pieces	Unit Capacity (m^3)			Location	# of Centres	# of Centres	Technical	Administrative
Municipality	Neighbourh.												
	Neighbourh.												

There is no universal solution that can be applied everywhere. Furthermore, there may be differences arising out of social factors even between settlements with similar technical characteristics. At this point, informing citizens and ensuring their participation to provide support for the integrated waste management system are among the factors that will bring success in practice.

Taking waste management into consideration with a holistic perspective, it is of great importance to produce solutions starting from places that are waste intensive. As long as a large quantity of waste is turned into the economy, the system becomes more manageable in terms of circularity.

In addition to the recycling and recovery applications, waste characterization studies carried out by local authorities must be integrated into the planning of the zero waste system by considering the most common waste in Türkiye is organic waste (approx. 50.4%), followed by recyclable waste (25%) in mind.

2.2. Waste Prevention and Reduction

Waste prevention and reduction are the most prioritized steps in the integrated waste management hierarchy. Waste prevention can be both qualitative and quantitative; for instance, preferring a product containing no, or less hazardous substances and subsequently reducing its potential to pollute is a type of qualitative waste prevention method with this approach, the hot spots where waste prevention and reduction are possible to be realized will be determined. Following examples and further preventive opportunities may be implemented. Additionally, in order to achieve success, it is encouraged to share the details regarding the implementation process with all the relevant stakeholders through posters and similar advertisement channels, and you can achieve success by delivering training to your employees.

Municipalities should concentrate on waste reduction and prevention efforts in line with the hierarchy of waste management. While it is possible to significantly reduce waste quantities in a short time, it is necessary, for success, to have good planning, engage people through intensive information campaign, and provide incentives.

To prevent waste generation and reduce waste at source, the following exemplary activities may be implemented considering the technical and economic means of a municipality.

Table 7. Examples of waste prevention and reduction practices

Unit	Waste Type	Waste Prevention / Reduction Measures
Homes/Households Single-Storey Building, Multi-Storey Building, Apartment Block, Housing Estate) Institutions/ organizations Commercial Building / Premises (Shop, Restaurant, Supermarket, Office Building, Hotel, etc.)	Paper	• Using digital displays and announcement/advertisement boards rather than leaflets and posters • Making of notifications by local authorities via electronical means rather than printed • Organising book exchange events to make use of unused books • Carrying out training/awareness-raising activities for educational institutions, public institutions, commercial business and housing estates aimed at prevention and reduction of solid waste
	Plastics	• Organizing awareness-raising campaigns for reducing the consumption of packed products • Carrying out awareness-raising campaigns aimed at target audiences to ensure that they opt for reusable products instead of single-use plastic products • Carrying out studies to ensure that citizens opt for reusable bags and mesh/cotton bags rather than plastic bags • Establishing outdoor drinking fountains/water dispensers, to which citizens can easily access, at central points where there is a high population density, organizing activities to encourage citizens to use such equipment, distributing glass bottles/ flasks to citizens to get them adopt the habit of using them, carrying out training/ awareness-raising activities for reducing plastic waste.
	Kitchen waste, Food waste	• Making food donations to ensure that excess food is consumed by people • Ensuring that leftovers is used for the production of animal feed • Carrying out training/awareness-raising studies aimed at target audiences to prevent wastage and reduce food waste • Compost production from food waste separated properly at source
	Bulky waste	• Providing necessary infrastructure for citizens so that they can make use of used goods at repair/refurbishment workshops and exchange areas/second-hand markets • Carrying out training/awareness-raising studies for using such materials
	Construction and demolition waste	• Providing necessary infrastructure for citizens in order for giving end-of-life materials to those who want to take them • Ensuring that materials (wood, glass, frames, etc.) are sorted before demolition
Outdoor/Semi Outdoor Places (Streets, Parks, Playgrounds, Picnic Areas, Recreation Areas, Market Places, etc.)	Garden waste such as grass, leaves, tree, bush,	• Taking measures to reduce formation of weeds, • Pruning trees without being late, • Sewing slow-growing plants that require pruning at the minimum level, and do not require much care, • Ensuring that such living creatures as birds, insects use waste as food source and prevention of environment

To ensure efficiency in the implementation process, citizens, institution/organizations and all relevant stakeholders must be informed in detail about how to reduce and make use of waste according to the sources of generation.

2.3. Needs Analysis

By taking each unit into consideration, all required equipment must be determined, listed, and procured before the implementation. The required equipment for each unit, such data as dimension, volume, number of equipment and the areas where they will be placed should be determined.

Placement of Waste Collection Bins

Waste collection bins must be sufficient for the number of people and waste types and quantity, as well as be placed at easily accessible areas. To ensure user friendly and systematic planning, needs should be analyzed on a household basis and thereafter neighbourhood basis by considering the length of street/ main street, neighbourhoods and households, population and waste potential (based on the amount of waste in day and night in summer and winter house areas), width of roads, the area needed by the collection vehicle to take the waste collection equipment, physical structure and layout of housings, commercial areas, educational and entertainment areas.

Extra collection equipment can be placed depending on the human population in which areas either governed by local authorities or public institutions and organizations, hotels, restaurants, educational institutions, parks, gardens, sports complexes, terminals, and so on.

The following points should be taken into account when opting for a collection equipment in which waste is sorted by types:

1. Locations must be determined for citizens to easily dispose of their waste.
2. Areas, including those at the side of parks, or other potential points in similar public areas must be determined for citizens to dispose of their waste. Such areas/points must be wide enough and not hinder vehicular and pedestrian traffic.
3. Recycle bins (for glass, packaging, and textile) they must be placed in the same area so that citizens can understand that area is specifically determined.
4. Since recycling bins with various colours in the working area will result in visual pollution and confusion, recycle bins must be coloured and labelled according to their types as specified below. Current recycle bins must also be labelled and coloured. Opening of recycling bins must be designed at a width allowing an efficient use.
5. Recycle bins must be designed to prevent environmental pollution that may result from liquid leaking.
6. Since recycle bins will be damaged by external factors in time, their physical endurance are prioritized in supply process, taking their reparability into consideration.
7. Determination of recycling bins replacement should be arranged and updated by considering other collection bins nearby.
8. If there is no recycle bin present, mobile civic amenity centres that include five different waste types in bins with a capacity of 500 - 1000 lt must be placed.
9. Mobile civic amenity centres must be placed on appropriate routes in such regions as public squares, marketplaces, housing estates, and schools with a high population density for their functional use.
10. Collection bins of waste vegetable oil must have an opening wide enough to take oil in a 2.5 lt pet bottle and, if it will be drained into the bin, there must be a section at which empty packaging can be left.

When placing recycle bins in indoor areas, attention must be paid to select points that are close to entry-exit points that allow to easily taking bins. Indoor recycle bins must be designed so that waste thrown into them can be easily taken with no need for a plastic bag.

In the case that it is planned to use underground equipment, it should be taken into account that a larger area is required for the collection vehicles to operate systematically (discharging the container to the vehicle by lifting the container with a crane) and that the containers have a larger capacity compared to other containers. Such equipment should be applied in housing estates, on wide-paved roads, and in newly established settlements rather than in places with narrow streets and sidewalks.

It is not necessary to place waste collection bins at so many areas within the building because some types of waste (packaging that contains hazardous material, cleaning chemicals, etc., toner cartridges, waste electrical and electronic equipment, drug waste, etc.) may be generated in changing quantities. When generated, such waste may be carried directly to the civic amenity centre and collected according to its waste code.

Figure 5. Placement of collection equipment

Determining Collection Equipment

It must be ensured that recyclable waste such as paper, glass, plastics, and metal is collected separately, that is, without mixing with other waste types. The needs for equipment required for recyclable waste, biodegradable waste (organic waste), and other types of waste should be assessed by taking all units into consideration. The number, size, and type of equipment based on the data obtained from the baseline analysis should be decided.

Pursuant to the legislation, there should be at least dual collection bins (for recyclable waste and other waste). Paper, glass, metal, and plastics waste can be collected in a single equipment, or separately by waste type. Used masks, gloves, and other personal hygiene materials that are generated as part of the fight against Covid-19 pandemic, should be collected in grey colored or grey labelled bins separately.

One basic principle of the ZWM approach is to use existing equipment rather than purchasing new equipment. The important point regarding the collection equipment is not that it is old or used or what material it is made of or what colour it is, but that it is labelled in a colour in compliance with the ZWM system. If there is suitable equipment to be used in waste collection, it can be used after being labelled and/or coloured (any used plastic or metal barrel or container).

Biodegradable waste, which can be stabilized when it undergoes through biological treatment processes, includes park and garden waste as well as food and kitchen waste originating from homes, offices, restaurants, sales points, canteens, and food preparation facilities. In areas where biodegradable waste is generated, pedal and lidded collection equipment can be placed to collect it separately.

Following models during the collection of waste can be applied. Please visit https://sifiratik.gov.tr/kutuphane/kurumsal-kimlik to see colours and labels applied to collection equipment.

Table 8. Models for separate collection

Needs analysis should be finalized after filling in the table below regarding collection points and equipment.

Table 8. Assessment of needs for the recycle bins and containers, identification of collection points

Point	Collection system								
	Dual			Triple			Quadruple		
	With / without plastic bag	X litre Fixed / Wheeled	Piec-es	With / without plastic bag	X litre Fixed / Wheeled	Pieces	With / without plastic bag	X litre Fixed / Wheeled	Piec-es
Homes/Households									
Administrative Buildings, Offices, Meeting Rooms									
Healthcare Organization (Hospital, Primary Care Clinic, etc.)									
Coffee House / Eating House / Wedding-Ceremony Hall / Dining Halls									
Workplaces (Grocery Store, Market, Butcher, Hardware Store, Gas Station, Agricultural Enterprises, Tailor, Hairdresser, etc.)									
Vehicle Repair Shops									
Parks, Agricultural Areas, Recre-ational Areas, Picnic Areas, etc.									
Other units									

The size (volume), number and location of waste collection equipment are determined based on the type and amount of waste generated. For recoverable waste, one piece of collection equipment of 400 to 770 lt per 100 to 200 persons is right next to the existing collection equipment. Settled and mobile population sizes (day vs. night, summer vs. winter) should be considered for this approach. For optimizing the volume, count, location of collection equipment, and removal times, it is important to monitor the fill rate and removal frequency for the existing equipment. This will also guide how to conduct a survey with citizens about the collection equipment. It is also possible to optimize waste collection with a mobile tracking and software system.

In general, the volume of waste collection bins used indoor and outdoor areas varies from 3 to 120 litres. Waste collection bins can be covered or uncovered, with or without a pedal, and boxes over 80 litres can be produced with wheels. Waste collection bins are made of metal (stainless steel, aluminium, galvanized sheet), plastic, or wood. When opting for the material, it is important to consider the sustainability of equipment in terms of economic aspects. Existing equipment can also be converted for this purpose. Waste collection bins must be placed at single-family houses, buildings, housing estates, streets, main streets, public squares, and commercial areas to ensure delivery and collection of waste.

Placement of waste collection bins at areas is dependent on needs. Common equipment can be used depending on the amount of waste generated. Likewise, capacities and numbers of transport containers are also directly related to the amount of waste generated. Using resources at a minimum level should be considered a part of ZWM. At wholesale markets and common marketplaces, it is necessary to set up a system* to sort at source and engage in necessary work (e.g. composting) to recover biodegradable waste through separate collection so that measures are taken to prevent food waste and recover food waste.

Civic Amenity Centre

To the Civic Amenity Centres mandatorily established by municipalities, citizens/residents living in areas within the remit of municipality must bring in, in a sorted manner without mixing with other waste, the following items of waste: paper and cardboard, plastics, glass, metal, wood, textiles, electronics and electrical appliances (lighting equipment, television, radio, computer, refrigerator, washing machine, dishwasher, photographic camera), bulk waste (closets, couches, armchairs etc.), end-of-life tyres, vegetative oil, waste medicine, batteries and accumulators and hazardous waste.

Civic Amenity Centres must be set up by municipalities at locations easily accessible by municipalities, publicised to people who should be informed on the activities by preparing brochures, posters and similar materials and by providing written/visual information. Where citizens are unable to transport the waste, logistics services may be provided. Municipalities may also operate mobile Civic Amenity Centres to pick up waste from households in coordination with a waste collection centre to serve certain locations and routes. Mobile Civic Amenity Centres may be placed one per 8,000 to 12,000 persons. Settled and mobile population sizes (day vs. night, summer vs. winter) should be considered for this approach. After collection of a certain amount of waste in Civic Amenity Centres, it should be sent to facilities holding environmental permits and licenses.

Products known popularly as medicines and used therapeutically or for prevention purposes against certain disease become waste when spoiled or expired. Uninformed discharge of waste medicines, pouring them into lavatory sinks directly affect human and environmental health. Therefore, it is critically important to collect, transport, store temporarily and/or for interim, pre-process and dispose of the human medicines that have expired, or are not used, with broken package, spilled or contaminated, and prevent direct or indirect release of such medicines into the receiving medium to harm the environment.

Waste medicines from households will be collected at points of sales of medicines and other collection points and centres designated as collection points in the Provincial Zero Waste Management System Plan. Waste medicine collection equipment is supplied by the points of sales of medicines and collection points. Waste medicines from households will be managed by local authorities.

3. TRAINING/PUBLIC AWARENESS-RAISING ACTIVITIES AND TAKING ACTION

Before the implementation process, it is important to organize training and awareness-raising activities aimed at target citizens with regards to informing the personnel, encouraging them to participate in the process, and getting the highest efficiency. Training and awareness-raising activities should be prioritized for the purpose of increasing awareness concerning waste prevention, reduction, reuse, separation at source, and recycle. Therefore, education and information activities should be given priority. At this stage, type of information event to be organized, the topics of training content, and from whom/where support will be provided in this regard should be planned, and training/awareness-raising program should be developed.

The success and expansion of the zero waste approach depend on citizens' behavioural changes and support of the system, local authorities providing the necessary infrastructure and avoiding undermining the confidence of citizens in the system. In this vein, practices and communications for buying in and expanding the zero waste philosophy should be supported by regular campaigns. Communications through social media and other free venues will increase effectiveness. Local authorities should consider that short videos and visuals (less than 1 minute) are important tools in enhancing outreach and information/awareness-raising for individuals.

Publicity and announcements should be made through visuals, and information/awareness-raising training activities should be organized for citizens.

A mobile communication line must be setup for enhancing service quality and troubleshooting, and incorporated in the mobile applications operated by the Ministry in order to improve the functioning of the zero waste management system, identify the deficiencies and failures of the system, engage citizens actively in the process.

Considering that verbal explanation in training sessions to citizens of all ages may be inadequate, it is recommended that videos should be produced demonstrating a walking tour of facilities, what products are derived from waste and how, materials of questions & answers on recycling should be provided, and contests and prize campaigns should be organized (such as loading points on the smart cards).

Incorporating them of zero waste into neighbourhood council activities, festivities and events for important days, and containing short broadcasts, and visuals in the programmes will boost the awareness-raising for promoting zero waste.

Particularly, explaining the waste prevention practices to the target audience and informing them periodically in this regard are of great importance. For example, ending the use of pet bottles may get a reaction from people at first, but informing them about the amount of plastic waste prevented through this practice will have a positive effect on their recognition of effectiveness of the practice.

Targeted audience may include all residents and tenants in households, commercial areas, and coffee houses as well as all employees, including waste collection and transport staff, etc.

The brochures and posters* to be prepared and the activities to be carried out will allow implementers to ensure that the system is better understood and adopted. Witnessing the environmental, economic and social benefits of the system is a factor that will support participation. For example, recovering of 1 ton

**https://sifiratik.gov.tr/kutuphane/kurumsal-kimlik*

of plastics means a savings equal to 16 barrels of petroleum. Recovering 1 ton of paper from recycling prevents cutting of 17 trees. Waste meter can be accessed at https://sifiratik.gov.tr/sifir-atik/atik-sayaci and be used to calculate the savings achieved after transition to the ZWM system.

Training activities must be carried out by the authorized people who have participated in the training events organized by the Ministry of Environment, Urbanization and Climate Change and/or Provincial Directorates of Environment, Urbanization and Climate Change. Training events must be repeated and not be for one time only.

** https://sifiratik.gov.tr/kutuphane/kurumsal-kimlik*

4. MONITORING, RECORD-KEEPING, AND IMPROVEMENT

The working team monitors the effectiveness of the practice at certain intervals for assessment purposes and determines problematic points, deficiencies or the points to be improved to take measures accordingly.

Providing access to data obtained from the implementation process will ensure a more efficient participation. Those in charge of the ZWM system enter data regarding such as waste types and quantities, and waste collection and transportation information in the Ministry's Online System the information on equipment regarding zero waste management system, types and amounts of waste collected, delivery information, documents for waste delivered.

Monthly data relating to the waste collected is submitted to the Zero Waste Information System by the 15th of the following month. Requirements must be met considering the deadlines for transition to the ZWM System, and those concerned must apply through the zero waste information system to receive a certificate. Zero Waste Certificates are given by the Provincial Directorate of Environment, Urbanization and Climate Change of the relevant province.

Through the high-quality documentation process, sustainability reports are prepared to include the activities carried out within the scope of ZWM system, practices, innovations inspired by the system, achievements, and future objectives.

REPUBLIC OF TÜRKİYE
MINISTRY OF ENVIRONMENT, URBANIZATION AND CLIMATE CHANGE
GENERAL DIRECTORATE OF ENVIRONMENTAL MANAGEMENT

ZERO WASTE

ZERO WASTE MANAGEMENT SYSTEM IMPLEMENTATION GUIDELINE

This Guideline is prepared by the Ministry of Environment, Urbanization and Climate Change with contribution from UNDP and relevant institutions and organizations, Local Authorities and NGOs based on the consultation and design stages completed as part of the Project for Recovery of Solid Waste for Economy, Revision of National Waste Management and Action Plan (2016-2023) and Preparation of National Waste Management Plan (2023-2035).

FSC