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Developments in Zero Waste Management System

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CONTENT...

-  **Zero Waste Journey**
-  **Zero Waste Management System Establishment**
-  **Separate Collection Models**
-  **Collection Optimisation**
-  **Examples of Good Practice**

Zero Waste Journey (2017-2024)





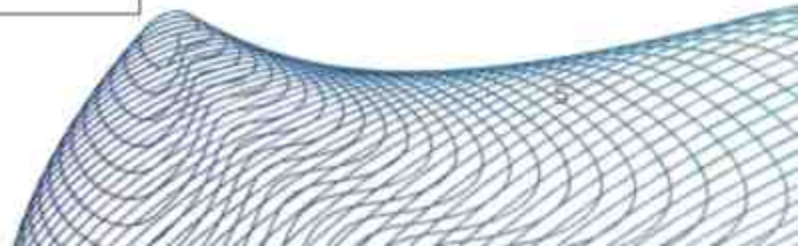
Circular-April 4, 2024

From Buildings and Settlements and Local Administrations;

- Who does not establish a zero waste management system
- Who did install but did not receive the zero waste certificate
- Those who do not effectively implement the zero waste management system despite having a zero waste certificate

- Deficiencies related to Zero Waste system will be eliminated
- Necessary inspection and follow-up will be carried out meticulously

Administrative sanctions will be imposed on those who refrain from fulfilling their obligations





Co-operation Efforts

TOBB

Ministry of National Education

Ministry of National Defense

**Co-
operation
Efforts**

Ministry of Youth and Sports

Ministry of Family and Social Services

Ministry of Culture and Tourism

Action Plans

2021-2023

National Youth Employment Strategy and Action Plan

Youth Center
Young People in Local Administrations

2024-2028

Women's Empowerment Strategy Document and Action Plan

Training for women

2024-2028

Vision Document and Action Plan for the Protection and Strengthening of the Family

Zero waste awareness

2024-2023

National Smart Cities Strategy and Action Plan

Development and dissemination of zero waste project with smart city applications

2021-2023

New Economic Program

Increasing the recovery rate by making zero waste practices widespread throughout the country

2023-2025

Medium and Long-Term Program

Dissemination of zero waste, including household

2020

Türkiye's National Strategy Document and Action Plan on Prevention, Reduction and Management of Food Losses and Wastage
National Smart Cities Strategy and Action Plan

2024-2030

Climate Change Mitigation Strategy and Action Plan (CCMSAP)New Economy Programme

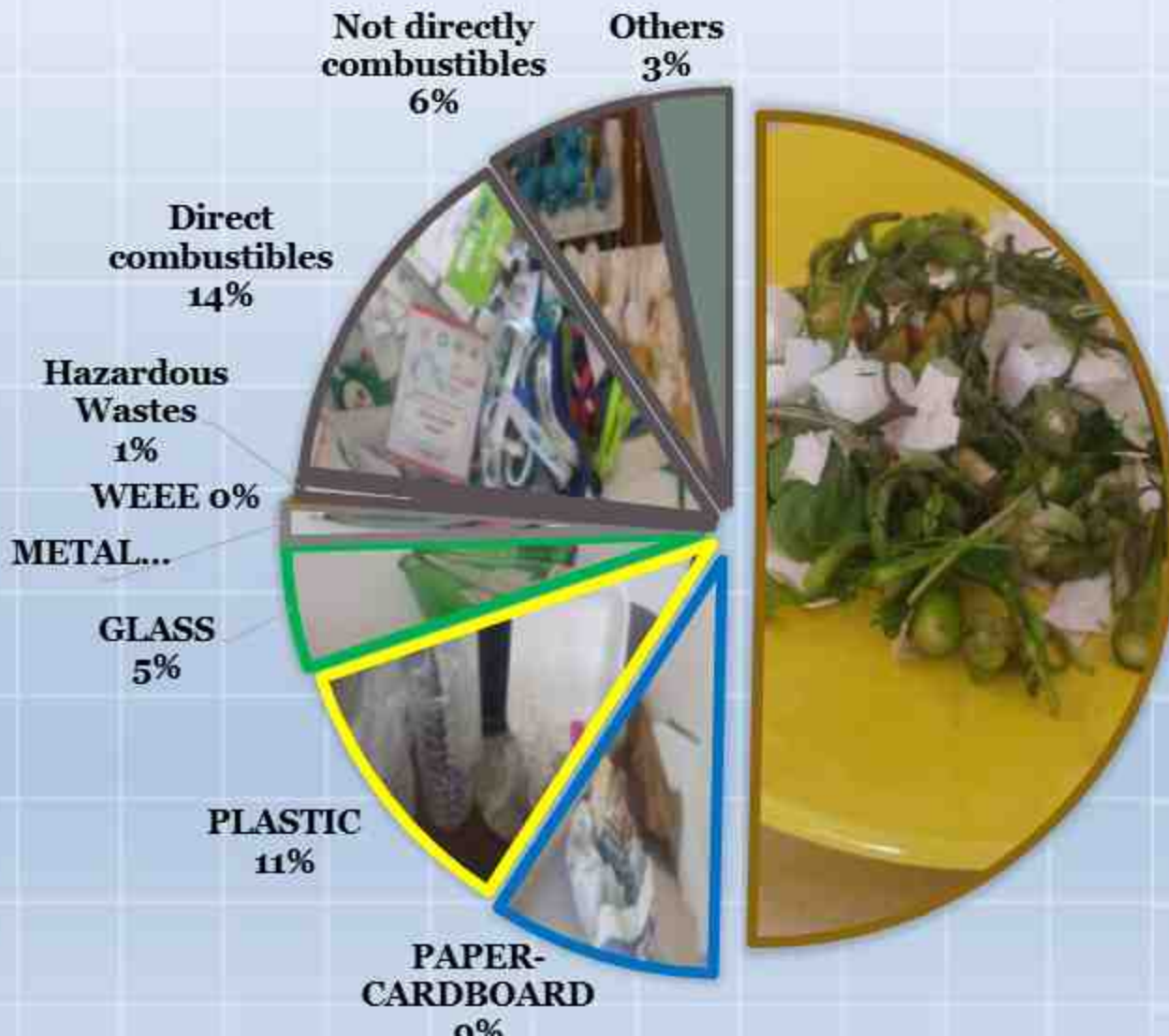
Increasing social awareness within the scope of zero waste applications

2021

TIM Sustainability Action Plan

Dissemination of sectoral trainings on zero waste and recycling

Waste Characterization (2023)

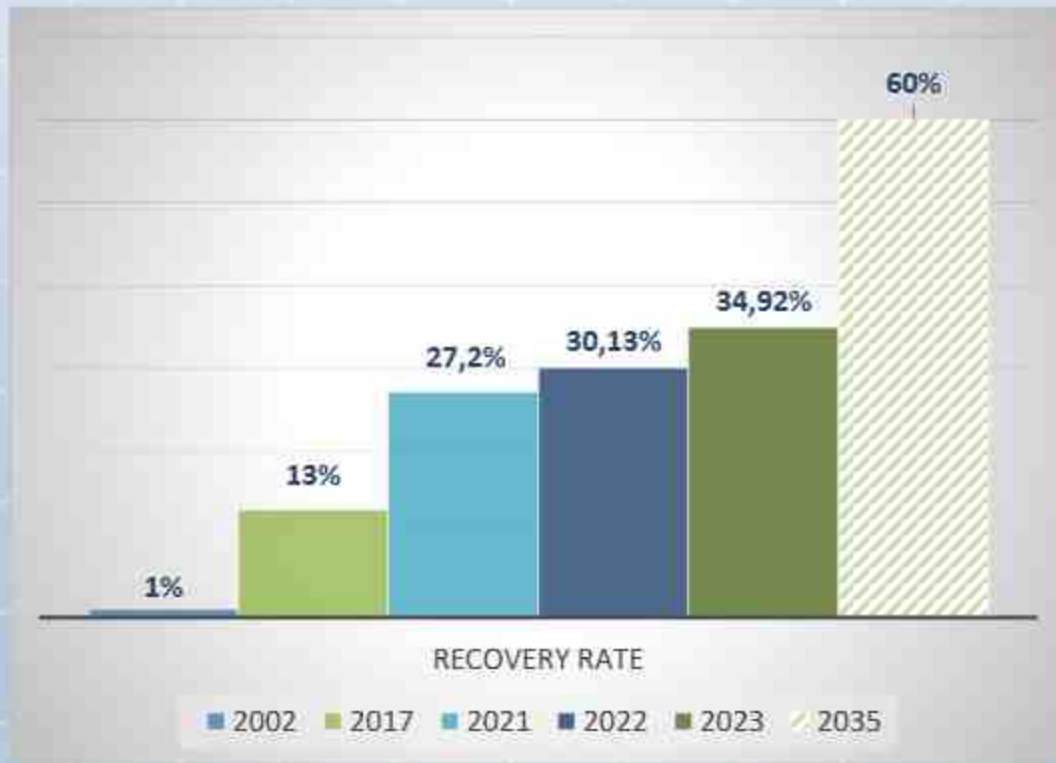


In Our Country **41.3 Million** tonnes of waste are generated.

About 75% of the generated waste is recoverable waste.

BIOWASTE
50%

Achievements (2017-2023)



59.9 million tonnes of waste was recovered in the period 2017-2023.



185 billion ₺ was brought into the economy.





Achievements (2017-2023)

190,000

buildings and campuses

have zero waste management systems



22 million persons

Have been given zero waste training



Zero Waste Management System Target Activities



Law Offices,
Consulting, Association



Airports, ports



Cargo Companies



Train and Bus
Stations



Accommodation Facilities



Local Administrations



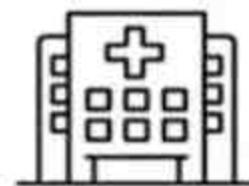
Industrial Facilities



Cafes and Restaurants



Housing complexes



Health Institutions



Fuel Stations



Shopping Centres



Chain Supermarkets



Educational Institutions



Public Institutions



more than 50 employees

We Build Zero Waste Management System in Buildings

Establishment of the Working Team

Making a plan
Determination of the current situation

Providing training

Needs analysis
Establishment of the Dual System

Management of wastes outside the Dual System

Management of biodegradable waste

Registration to zero waste information system
Making monthly notifications

Obtaining zero waste certificate
Obtaining permits and licences

Establishment of temporary storage area



We are Building Zero Waste Cities



We are building a Zero Waste Management System

1-Formation of the Working Team

Establishment of Civic Amenity Site
Establishment of a mobile waste reception centre

2-Making a plan
Determination of the current situation
Conducting a needs analysis

4-Providing education,
Providing training for each target audience

6-Monitoring
Ensuring effective management by document recipients, performance indicators

3-System Setup
Establishment of Dual System, Management of wastes outside Dual System
Management of biodegradable wastes

5-Document Process
Registration to zero waste information system

7-Dissemination of good practices



Improving Zero Waste

1

Legal Regulations

System installation
Duties and responsibilities



2

Planning

Strategic plan and budget by city or building
Provincial zero waste plan revision
Targets and indicators
Commitments



3

Establishment of the Infrastructure

Prevention, Collection
Separation
Recycling
System management
5W1H



4

R&D and Incentive

Technology and innovation
Monitoring mechanism
Incentive
Ecomodulation
Outcomes



5

Raising Awareness

Training and awareness raising activities
Cooperation
Good practices
Social responsibility
City Council Agenda



Separate Collection System?





Separate Accumulation

***Environmental Law**

It is essential to prevent or minimise the generation of wastes and their damages, to recover wastes and to collect recoverable wastes separately at source.

***Waste Management Regulation:**

It is essential that different types of wastes are classified and collected separately at the source/place of generation without mixing with other wastes.

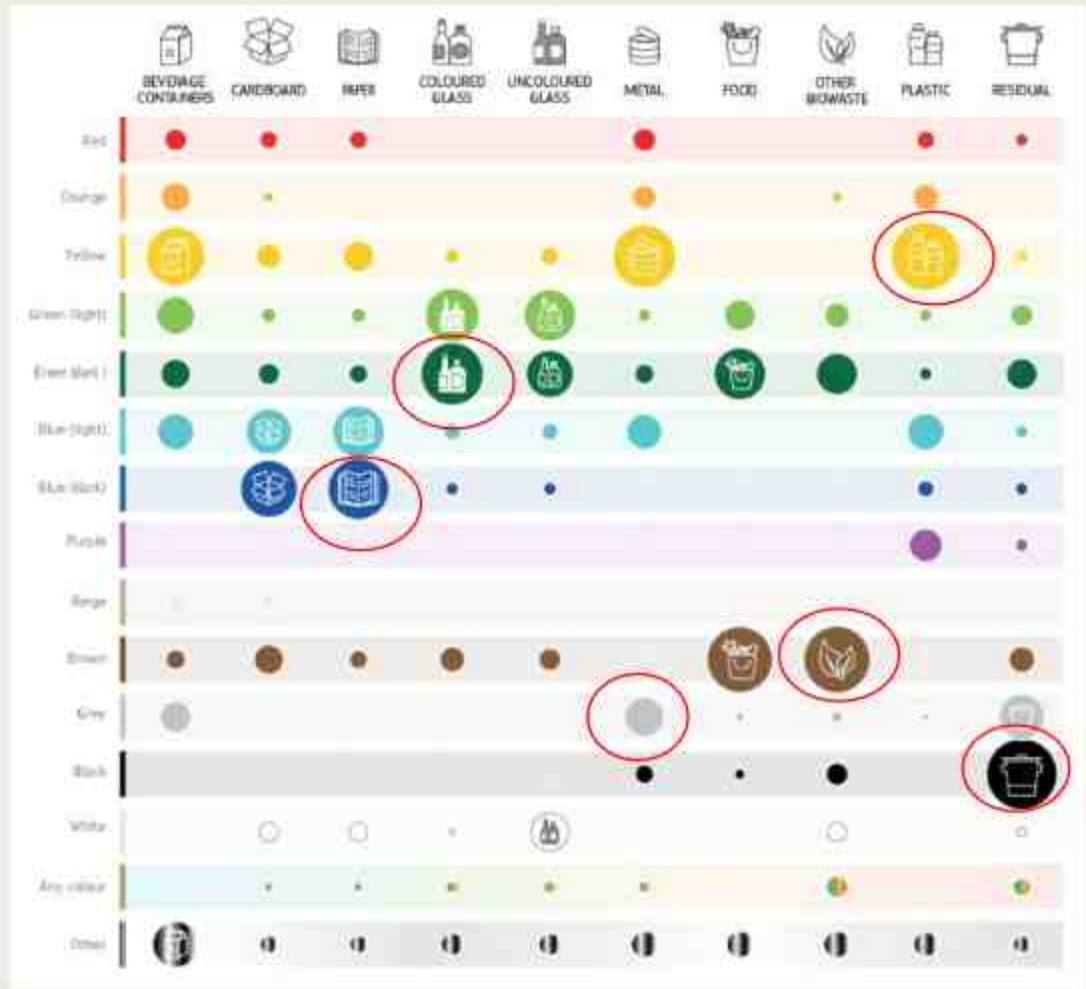
***Zero Waste Management Regulation:**

At least dual accumulation of wastes according to their types

Colour Scales

Throughout the European Union; the colours of the accumulation equipment used for different types of waste materials were determined.

PICTOGRAM determination studies are ongoing.





Colour Scales



Recoverable waste

Plastic, paper, glass, metal



Other Wastes



Paper



Plastic



Metal



Glass



Biodegradable



Textile



Electronic waste



Pharmaceuticals



Waste Vegetable Oil



Composite



Battery



Toner Cartridge



Paint can



Waste oil



Chemical packaging



Voluminous waste

Separate Accumulation

Dual system

Wastes outside the Dual System

Triple system


Depending on the waste type
Single



Dual system?



“ New Buildings



In order for new buildings to obtain occupancy permits, during the building licence phase; it is ensured that the parcel boundaries are made available for the **determination of dual accumulation equipment for the collection of other wastes and recyclable wastes and for the installation before the construction is completed.**

“ The System in Residences

Housing complexes over 300 dwellings are obliged to obtain a "Zero Waste Certificate".

Other housing complexes and apartment and single-family houses must have one container or similar collection equipment for recyclable paper, glass, metal, plastic wastes.



Biodegradable wastes from tea shops, cafeterias, food preparation or catering and similar places

Biodegradable wastes generated in wholesale markets and bazaars

Biodegradable wastes at the Qualified Document stage

Triple System?



**Accumulation by
Type of Waste?**

Equipment Specific to the Type of Waste



Glass



PET Bottle



Textile

Equipment Specific to the Type of Waste



Waste
Pharmaceutical

a



Waste Vegetable
Oil



Electronic

Equipment Specific to the Type of Waste



Packaging for
agricultural control



Packaging Wastes

Visual Pollution



Equipment should be designed to increase awareness

Measures are taken to prevent visual pollution caused by equipment designs.

Placed at a single collection point instead of in separate areas

Wind and weather conditions must be taken into account

Mobile WRC may be preferred





Separate
Accumulation

Separate
Collection
Points

Considerations at Separate Collection Points



Accessibility

Easily accessible, densely populated regions, centres, easy to use



Infrastructure

Collection points, bins, containers, efficient collection, tracking system, mobile applications, smart containers, collection optimisation, incentive mechanism



Visibility

They should be clear and easily recognisable, in harmony with the environment, with containers marked with waste-specific signs,



Education and Information

Signposts, information boards, training programmes, awareness materials



Safety and Hygiene

Theft, environmental health, hygiene, vandalism, regular maintenance and cleaning required



Capacity and Monitoring

Sufficient volume of equipment, frequency of collection, type and amount of waste generated in the region should be determined, effective monitoring system required

Separate Collection Points

Civic
Amenity
Site

Zero
Waste
Point

Recyclabl
e Waste
Transfer
Centre

Mobile
Waste
Reception
Centre

Sale Point

Mobile
Collection
Vehicles

Paints, chemicals, fluorescents, batteries, waste electrical and electronic equipment, waste pharmaceuticals, bulky wastes, used cooking oils, construction demolition wastes, etc.
Collected separately outside the dual system and taken to waste collection centres/collection points.

Wastes outside the Dual System?



Civic Amenity Site

Waste reception centre(s) shall be established by local administrations.

Repair, maintenance, renovation, second-hand product display area can be established



64 types of waste fractions accepted to CASs



Paper



Metal



Glass



Textile



Wood



Hazardous
Waste



Plastic



Waste Vegetable Oil



Mixed
Packaging



Electronic
waste



Waste
Battery



Construction
demolition



Fluorescent
lamp



Voluminous
waste



Waste
Pharmaceuticals



EoL tyres



1 TAT (Non-hazardous Waste Collection and Sorting) Facility

An integrated facility



2 Civic Amenity Sites

Citizens' waste is being brought in



3 Zero Waste Training

Training center
Mock-up of logos



Zeytinburnu Municipality



1 Civic Amenity Site

Citizens bring their waste
Road coloured according
to waste type



2 Good Practices

Compost
Rain harvest
Rooftop agriculture



3 Awareness Raising Activities

Bug hotel
Utilisation of defective
mosaics
School Education



1 TAT (Non-hazardous Waste Collection and Sorting) Facility

An integrated facility



2 Civic Amenity Sites

Citizens' waste is being brought in



3 Zero Waste Training

Training center



Not Good Examples



1 Junkyard

No security measures
No signs



2 Rubbish

The city's garbage waste is
being stored



3 Out of Town

A remote area

Mobile Waste Reception Centre

Placed for the accumulation of different types of waste
Established by municipalities and shopping centres



Wastes to be brought to Mobile Waste Reception Centres



Paper



Metal



Glass



Textile



Wood



Plastic



Waste
Vegetable
Oil



Mixed
Packaging



Electronic
waste



Waste
Battery



Fluorescent
lamp

Zero Waste Point

Used for incentive purposes.

A point system is applied in return for the waste delivered.

According to the score, products such as basketballs, headphones, pens, dishwashing detergents are distributed



Zero Waste Mobile Vehicle

Used for incentive purposes.

It is located in certain
neighbourhoods on certain days
and times.

Score card system is applied.



Zero Waste Grocery Store, Bank

Used for incentive purposes.

Purchases are made in return for the waste delivered.



Zero Waste Bus

Used both for collecting recyclable waste from neighbourhoods and for training students.

An incentive system is applied to those who bring their waste.



BAFRA
AJANS



Collection Point

Chain Market, places with more than 400m2 sales area
paper, glass, metal, plastic wastes of non-hazardous nature brought by consumers and batteries, small household electrical appliances or textile wastes in case of sale





Waste Pharmaceutical Collection Point

It is collected in places where medicines are sold and in places specified in the provincial zero waste management plan.





Recyclable Waste Transfer Centre

Established by local administrations centres where non-hazardous recyclable paper/cardboard, glass, metal, plastic, composite, textile wastes are collected before being delivered to waste processing facilities



Separate
Collection
Points

Separate
Accumulation

Separate
Collection
Models

***Municipal Law No. 5393:**

Municipalities

To carry out and have carried out all services related to the collection, transport, sorting, recovery, disposal and landfilling of solid wastes"

*** Metropolitan Municipality Law No. 5216**

Metropolitan District Municipalities *«collecting solid wastes and transporting them to the transfer station»*

Metropolitan Municipalities *«To perform services related to the recycling, landfilling and disposal of solid wastes and excavations,*

***2872 Environmental Law**

«Except for domestic wastes, institutions or organisations carrying out waste transport and/or collection works must obtain a licence from the Ministry. Institutions and organisations carrying out the transport and collection of domestic waste shall be registered by the Ministry.»

***Principles and Procedures on the Establishment and Operation of Waste Collection Centres and Zero Waste Practices**

Separate Collection Models in Residential Buildings



Door to Door

Bag collection from the point where recyclable waste is generated,



Containerised Collection

Collection of recyclable waste from dual placed containers in public areas,



Alternating Collection

Collection of wastes on different days with the same container and vehicle



Hybrid Model

Implementation of more than one model according to the structure of the neighbourhoods

“ System Optimisation



COLLECTION MODEL

- Is it suitable for the area?
- Dual system (dual door-to-door, Collection Day Model and Proportional Distribution)
- The necessity to change the model,



EQUIPMENT CAPACITY

- Number of equipment, lack of capacity or excess,
- Design problems
- Periodic maintenance and repair of equipment.



EQUIPMENT LOCATION ANALYSIS

- Need for equipment relocation
- Citizen's equipment demands, needs analysis. Have green areas been taken into consideration?
- Have all regions been reached

“ System Optimisation



COLLECTION OPTIMISATION

- Wastes should be collected separately without mixing
- Stability should be ensured in the collection
- Collection days must be observed
- Route optimization should be ensured
- Attention should be paid to the waste occupancy
- Logistical support should be provided for large volumes,



MONITORING

- Citizen behaviour; is collection and monitoring done?
- Has the monitoring period been set up?
- Has the tracking system, mobile applications, smart containers, collection optimization been provided?
- Has the collection efficiency been increased?
- Have the goals been achieved?
- Have the indicators been monitored?

Separate
Collection
Points

Separate
Accumulation

Biodegradable Waste
Management

Separate
Collection
Models



Food Rescue

*Food Banking

*Delivery of surplus products to those in need

Bringing rescued food together with those in need





Food Rescue



1 Prevention

Rescue of what can be used

Volunteer support

Food Banking

From Soil to Soil



2 Separate Accumulation

Separate collection of biodegradable wastes without mixing with other wastes



3 Compost

Recovery

Management of Public Market and Market Place Wastes



Compost from Biodegradable Waste



Shredding of pruning waste





Laying Out





Mixing





Irrigation





Screening



Separate
Collection Points

Separate
Accumulation

Educational
Awareness
Raising
Studies

Biodegradable
Waste
Management

Separate
Collection
Models



1 Zero Waste Garden

Waste Delivery,
Cafe
Exchange point
Education and
Awareness Raising
Space



2 Deposit Return Points

Located at different points
in the city



3 Zero Waste Supermarkets

Sale of unpackaged
products



Dissemination of Good Practices



1 Zero Waste Village

Canik Municipality,
Playgrounds,
artworks from
waste



2 Second Hand Market

Selçuklu Municipality



3 Waste-Free Kitchen

Erasmus
Students



Incentive System



1 Deposit

Implemented in pilot points.



2 Card system

Applied at vending or delivery points, collection vehicles.



3 Point system

Gifts are received in return for points.



Waste Prevention



1 Spoon holder

Reusable spoon holder



2 Sugar Bowl

Instead of a packaged
sugar bowl



3 Reusable products

Events



Improving Zero Waste

**Separate
accumulation
efficiency**

**What are
the
drawbacks**

**Public
participation**

**What is the
recovery
rate**

**Needs
analysis**

- Inventory development
- The amount of waste collected
- Performance enhancing activities
- Unreachable points
- Characterization circular
- Characterisation
- Comparison of before and after characterisation



Zero waste management system is announced

- Waste prevention approach
- Types of waste to be deposited separately,
- Accumulation equipment and places where waste will be deposited,
- Collection method and days/hours according to waste types,
- Collection routes,
- Civic amenity sites and their locations
- Mobile waste reception center program
- Incentive system
- Tracking and monitoring system
- Awareness raising activities
- Good practices



SABS data entry

Data Entry into the Zero Waste Information System

CAS Information

Collected textiles

Waste Vegetable Oil

Biodegradable waste

Training provided





Thank You



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Thanks for your attention.



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