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Technical Assistance for Assessment of Türkiye's Potential on Transition to Circular Economy

EuropeAid/140562/IH/SER/TR

Deposit Studies in Türkiye

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Activity 3.2.4. Training on Integrated Waste Management in Circular Economy
October 10-11, 2024 Ankara



TÜRKİYE CUMHURİYETİ
ÇEVRE, ŞEHİRCİLİK VE
İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

TÜÇA
TÜRKİYE ÇEVRE AJANSI

Deposit Management System Studies in Türkiye

11.10.2024



100
TÜRKİYE CUMHURİYETİNİN YÜZÜNCÜ YILI





Turkish Environment Agency (TÜÇA);

Established **with the Law No. 7261 on the Establishment of the Turkish Environment Agency and Amendments to Certain Laws** published in the Official Gazette dated 30/12/2020 and numbered 31350.

It is a public institution related to the Ministry, having legal personality and subject to the provisions of private law, except for the matters specified in this Law, in order to fulfil the duties assigned by this Law.

The purpose of this Law is to establish the Environment Agency of Türkiye **in order to prevent environmental pollution and to contribute to the protection, improvement and development of green areas, to increase resource efficiency in line with the circular economy and zero waste approach, and to carry out activities for the establishment, operation, monitoring and supervision of a national deposit management system.**



Environmental Law No. 2872;

Deposit:

Additional Article 12- (Additional: 29/11/2018-7153/8 Art.)

In order to prevent environmental pollution, the Ministry shall make the application of deposits for the packages and products to be determined by the Ministry compulsory as of 1/1/2022. Accordingly, the sales points that sell the products covered by the deposit are obliged to participate in the deposit application collection system.

The procedures and principles for the implementation of the deposit system and the guarantees and fees related to the system shall be determined by a regulation to be issued by the Ministry.

(Additional paragraph: 24/12/2020-7261/19 Art.) Producers, importers and marketers of products subject to compulsory deposit application and wholesale or retail sales units offering the products covered by the deposit to consumers/users; must fulfil their administrative, financial and technical obligations for the establishment, operation and monitoring of the deposit system.



Turkish Environment Agency Law No. 7261;

Activities of the agency

ARTICLE 4 – (1) The activities of the Agency in line with the environmental strategies and policies determined by the Ministry are as follows:

- a) To establish, have established, operate or have operated the deposit management system; to ensure that the relevant parties are included in the deposit management system and to determine their obligations and to receive and return the deposit fees, charges and guarantees determined by the Ministry.

- b) To implement the necessary administrative regulations and measures, including authorisation and approval procedures for the establishment, implementation and monitoring of the deposit management system infrastructure for the products that are compulsorily subjected to deposit application by the Ministry, and to carry out the necessary controls.

- c) To carry out activities for the improvement of the environment.

- ç) To contribute to the establishment and implementation of a zero waste management system.

- d) To contribute to the recovery of recoverable products to the national economy after their use and to contribute to the activities related to the management of recoverable wastes.



Regulation on the Control of Packaging Wastes (O.G. Date: 26.06.2021/31523;

Duties and powers of the agency

ARTICLE 8 – (1) The Agency, as **the deposit system manager** in line with the policies and strategies determined by the Ministry, is responsible and authorised to regulate and ensure the management of administrative, financial and technical issues related to the establishment and operation of the deposit management system; determining all stakeholders involved in the system and their obligations; permission, approval and authorisation procedures; ensuring the monitoring and control of the system.

(2) Based on the voluntary agreements made within the scope of the Ministry's **extended producer responsibility** policies and plans, the Agency may ensure that packaging producers, suppliers and marketers fulfil their responsibilities and obligations, support them and take over these responsibilities and obligations.

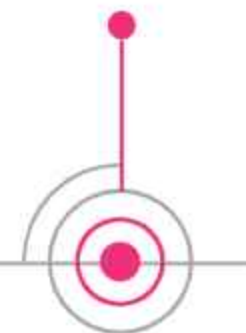
WORK CARRIED OUT (2021-2024)



Workshops

December 2021/TOBB Deposit Workshops

December 2022/TÜÇA Project Workshops



2021-2022

Deposit Information Management System (DBYS) Infrastructure and Development Studies

Mandatory Deposit Management System Practices and Principles 2022

- Cooperation protocol with the Mint-May 22
- DMS-marked packaging starts to be placed on the market - June 23
- Development and improvement activities of DBYS-2024



2022-2024

Technical Support Projects

- February 2022/DMS Final Setup and Estimated Cost
- May 2022/Return Point and Verification Facility Requirements
- August 2022/Field Operations Processes



2022

2023-2024



Pilot implementations

- June 2022/Ministry Main Service Building
- June 2022/Kızılcahamam Municipality
- 2024/Planning process for the dissemination of pilot implementations in provincial and district centres to be determined

Plans for Deposit Site Management System (DSYS)

Determination of the implementation model for field operations

- Consultation with relevant institutions and organisations
- Field operation setup within the scope of EPR



2023-2024

2023-2024



Transition to Deposit Contribution Fee Application

November 2023/Within the framework of the amendment of GEKAP Procedures and Principles, GEKAP declaration and payment transactions were commissioned through the system.



- The types, volumes and product classes of the packages included in the Mandatory Deposit System were determined,
- The Deposit Information Management System (DBYS) was defined and the Agency authorised the General Directorate of Mint and Stamp Printing House to design, commission, operate and provide support-maintenance services for this system.
- Deposit Site Management System (DSYS) and DSYS Operator are defined.
- The Deposit Site Implementation Plan (DESUP), in which the works to be carried out for the DSYS are planned and scheduled, prepared and submitted by the DSYS Operator within the periods and processes determined by the Agency and approved by the Agency, is defined.
- Principles regarding the use of barcodes within the scope of the system and the use of the DYS logo and principles regarding the physical requirements of the packages within the scope of the system have been determined.
- The duties, authorities and obligations of the Ministry and Provincial Directorate, Agency, DBYS Operator, DSYS Operator, Marketers and Points of Sale have been determined.
- It was stated that the criteria to be met by the packages included in the scope of the mandatory deposit management system and the approval procedures of the packages meeting the criteria will be carried out by the Mint through DBYS.
- Principles and minimum criteria regarding the return points, machinery and equipment and verification facilities to be used within the scope of the system have been determined.
- The financial elements of the system are expressed and general financial considerations are stated.

PACKAGING AND PRODUCT CLASSES IN SCOPE



Product/ Packaging	1st Class	2nd Class	3rd Class	4th Class
Beverage / Food 0,1- 3 Lt; <ul style="list-style-type: none"> • PET bottle • GLASS bottle • ALUMINUM bottle/can • HDPE • COMPOSITE • Other 	<ul style="list-style-type: none"> • Soft drinks (coke, flavoured and/or fruit drinks, flavoured and/or fruit natural mineral drinks, flavoured water, tonic, other soft drinks etc.) • Drinking water and spring water • Natural mineral waters • Alcoholic and non-alcoholic beers, including aromatised ones • Malt drinks • Energy drinks • Sports drinks 	<ul style="list-style-type: none"> • Fruit juices/nectars with a fruit content of 50% or less 	<ul style="list-style-type: none"> • Fruit juices / nectars with a fruit content above 50% • Milk and drinkable dairy products 	<ul style="list-style-type: none"> • Wines, alcoholic beverages obtained by distillation and stilling • Other/unspecified drinks • Other unspecified liquid foods

Procedures and Principles The Transition Process



Packaged products within the scope must be registered in DBYS.

For the marketers of **1st class products to be placed on the market in 1st, 2nd and 3rd class packages;**

- **as of 1/1/2023 date** It is mandatory for them to start the registration process via DBYS.
- **Registered packaged products** shall be placed on the market **as of 1/8/2023**.
- **As of 1/1/2024**, it is forbidden to place packages that have **not been registered through DBYS** on the market.

The period for the sale/delivery of existing products in the market to consumers at the points of sale is the shelf life of these products.

For 2nd, 3rd and 4th class products, **the transition dates** regarding the registration procedures and their placement in the market with deposit **shall be separately regulated and published by the Agency.**

Two Stage Management System Setup



DEPOSIT INFORMATION MANAGEMENT SYSTEM DBYS

A. Deposit Information System

B. Product Printing and Tracking Operation

DYS marked packaging / label production and packaging registration procedures

C. Mobile Application and E-wallet Application

D. Support Desk Services

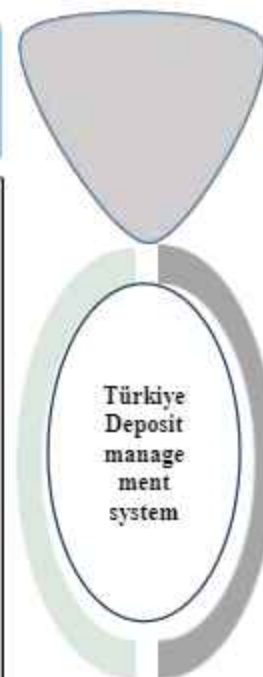
E. Machine/Equipment Production/Supply

DIM Reader and control and verification equipment to be used in packaging/label production facilities and hand-held control equipment to be used in the field and at manual return points, and verification and counting lines to be used in the verification facility

F. Machine/Equipment Registration and DBYS Integration

Data Obtained from DBS (October 2024)

Registered Launcher	527 units (Market Share 90%)
Registered Product	6,171
Registered Printing Office	171
Authorized Printing House	65
Produced DYS Marked Product	24,789,801,434



DEPOSIT FIELD MANAGEMENT SYSTEM DSYS

A. Infrastructure

A1. Supply/ Procurement of DIMs belonging to the system

A2. Supply / Procurement of Equipment for Verification Facilities

A3. Supply/Procurement of Terminals and Other Equipment

B. Operation

B1. Installation and Operation of Return Points

Equipment and space supply + Electricity, internet and personnel supply

B2. Collection and transport operations

Staff, vehicle and transfer centres

B3. Processing and recovery

Verification plant and packaging recovery facilities

DEPOSIT INFORMATION MANAGEMENT SYSTEM



The Deposit Information Management System **web page** has been put into use and work is ongoing to improve its content.

The **Packaging Approval Centre** within the Mint was opened for use for packaging/label registration procedures and registration procedures were initiated.

Criteria for the design and application of the **DYS Mark**, including the **DYS logo** and **barcode**, have been published.

Label/Package Manufacturers to print the **DYS Mark** have been authorised.

Support Desk service has been put into use.

DYS Marked Fire and Waste Management Procedure has been published.

DYS marked packages started to be available in the market as of June 2023.

• **Launcher and Supplier** • **Package/Label Manufacturer** • **Packaging Approval Centre** • **DIM (Deposit Return Machines) Manufacturer** • **Administrator modules** have been put into use.

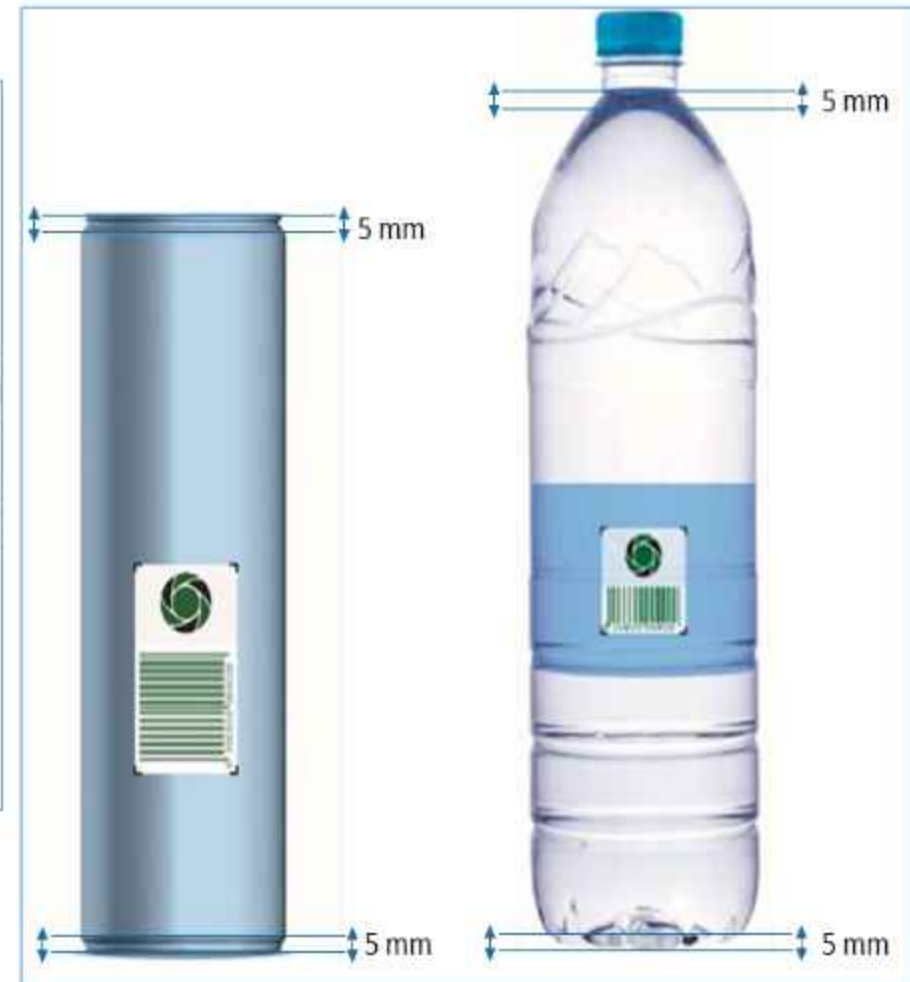
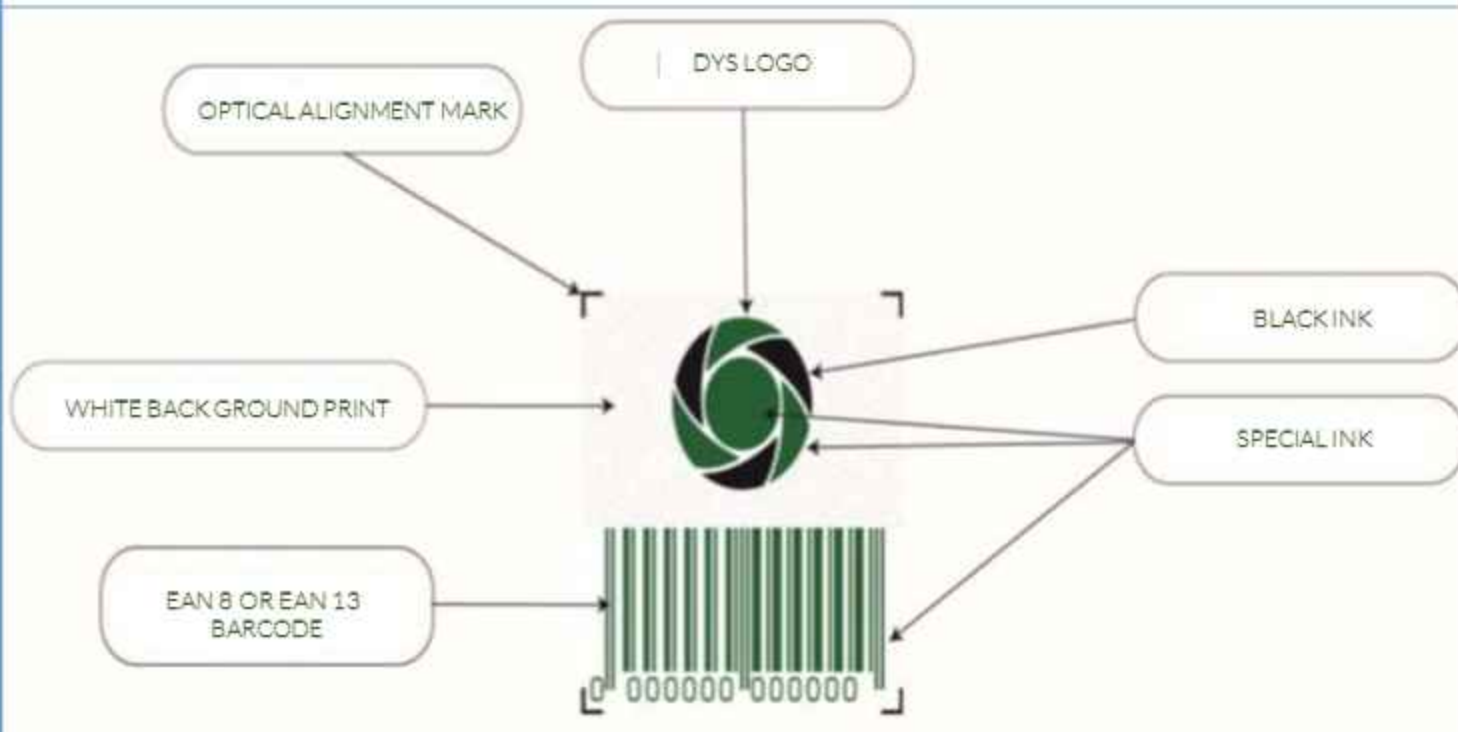
• **Equipment** has been developed to **check and verify the** **DYS marking**.

• Criteria for **DIMs** and **DIM producers** were determined and guidelines were published.

• **Deposit Mobile Application** has been developed.

• **E-Wallet** infrastructure was created and integrated into the **Mobile Application**.

DYS LOGO TO BE USED WITHIN THE SCOPE OF THE SYSTEM AND ITS PLACEMENT

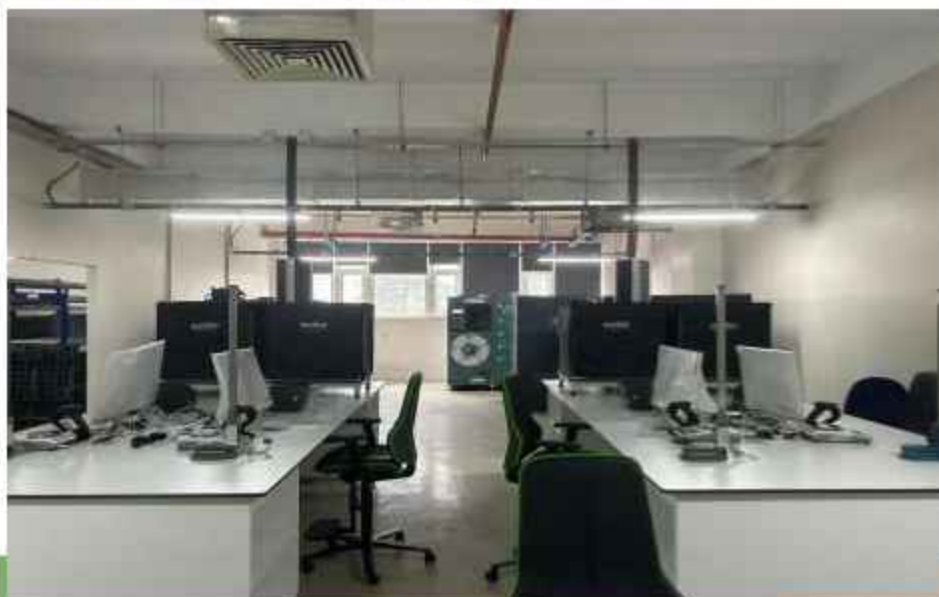




Packaging Approval Center and Applications

The Packaging Approval Centre was established and commissioned within the building of the Mint in Cevizli, Istanbul.

- Packaging design arrangement
- Packaging Technical and Physical inspection
- Archiving and storage operations are being performed.



Depozito Bilgi Yönetim Sistemi
Ambalaj Onay Merkezi Prosedürü



5. KARGO KABUL VE KONTROL MASASI

Fiziki muayene için numune talebi gerçekleştirilen ürünlerin, piyasaya sürülen taraftından Darphane' nin belirlediği koşullarda ve Darphane' nin belirttiği ambalaj onay merkezi yerleşkesine gönderimi sağlanmalıdır. Gönderilen numunelerin zarar görmeyecek şekilde paketlenmesi ve DBYS portalı üzerinden verilen başvuru numarasının paket içerisinde ya da üzerinde belirtilmesi gerekmektedir. Piyasaya sürülen, birden fazla yapmış olduğu başvuruyu aynı anda göndermesi durumunda karşılıklı olmaması adına numunelerin ayrıştırılarak tanımlanmasından sorumludur.

Belirtilen koşullarda gönderilen numuneler, başvuru numarası DBYS portalı üzerinden doğrulama yapıldıktan sonra kargo kabul ve kontrol masasına alınacaktır. Kargo kabul ve kontrol masasında yapılan ön inceleme sonucunda numuneler fiziksel muayene süreci için muayene istasyonlarına aktarılacaktır.

6. FİZİKSEL MUAYENE

Teknik muayene sürecinde incelenen kargoların muayene istasyonlarında kontrolleri yapıldıktan sonra fiziksel muayene sonuçları DBYS portalına aktarılacaktır.

Numunenin fiziksel ölçümlerinde aşağıdaki cihazlar kullanılacaktır;



Şekil 3 Ölçü ağırlık



Şekil 4 Hassas Teraz



Designed Verification and Control Equipment

Control and verification equipment to be used in **packaging/labelling production facilities**.

- Special ink control,
- Verifiability check of the DYS Mark,
- Checking whether the product barcode is registered in DBYS



Şekil 1 Masaüstü Kontrol ve Doğrulama Donanımı

It is a control and verification equipment that can be used **in packaging / label production facilities, during field applications or at manual return points**.



Şekil 2 El Tipi Kontrol ve Doğrulama Donanımı



Manual Return Points

- Handheld terminal and mobile application testing process has been completed in order to see the working principle of the **manual collection system**.

Only Logo and barcode data are verified by reading with special optical reader equipment.

Bottle shape and material type are determined by visual inspection.

Accepted bottles are stored without being crushed/broken and sent to the Verification Facilities (to be checked again and to be crushed/broken).

A permanent staff is required.



Designed Verification and Control Equipment

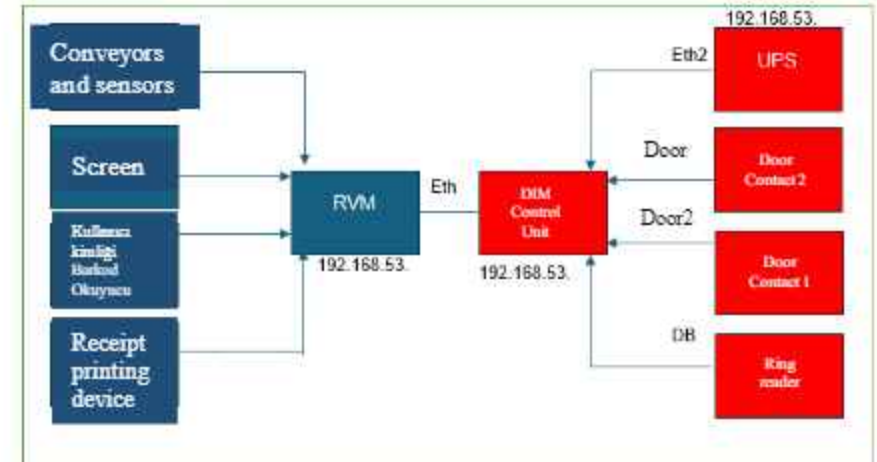


The control and verification equipment to be used in Deposit Return Machines and Verification Facilities.

- Special ink control,
- Verifiability check of the DYS Mark,
- Checking whether the product barcode is registered in DBYS
- If the products are suitable, they are accepted into the unit,
- Refusal of the return if the products are not suitable



DMDB Control Unit Components ■
RVM Control Unit Components ■



Vending Machine - Deposit Return Machine (DIM)



- Have an online connection,
- Designed as a closed monolithic structure,
- Optical readers that can recognise and process visual, physical and barcode data in a way that allows comparison with the data in the system database and allows verification,
- Approved / Registered machine that passes the test and inspection procedures of the Manager (TÜÇA), including the re-acceptance of the processed product to the system,
- Guarantee of technical support in operation, maintenance and use,





To operate the system centrally and under the control of TŪÇA-Mint;

- **Mandatory Deposit Management System Deposit Return Machine Specifications Manual**
- **Deposit Return Machine Registration Guide**
- **Deposit Management System DIM Manufacturers Authorisation Guide**
- **Relevant additional documents on the standards of manufacture and use of the equipment** prepared and shared on our dbys.gov.tr website.

A total of **29 DIM Producers** have registered to the system and **13** companies (**RVM Systems, ACO Recycling, GDS Recycling, EcoVend, Revego, Timtaş, Optimum, DSS, Frozen-REDEPOSIT, Sürtaş, AKE Çevre, Smartup, Timtaş, Tomra**) have received Pre-Authorisation.

In order to complete the registration and authorisation processes, the relevant screens have been made ready on dbys.gov.tr DIM Producer Module.

As a result of country-specific research and development activities of the machinery and equipment to be used in the Deposit Site Management System (DSYS) process within the scope of activities for the establishment, operation, monitoring and supervision of the deposit management system on a national scale;

1. The security elements of the system shall be developed within the scope of the domestic project and the supervision shall be ensured by the public authority,
2. Increasing domestic production by encouraging domestic production of DSYS equipment,
3. Reduction of annual DSYS costs,
4. Developing domestic machinery and equipment capacity by creating a competitive environment,
5. Pioneering green and digital transformation on a national scale, ensuring the export of technology to other countries through a national deposit system to be carried out with a centralised management system among relevant stakeholders

are targeted.

DEPOSIT SITE MANAGEMENT SYSTEM SETUP



1

Return Points

Establishing and operating Return Points



2

Collection, Transportation

Collecting and transporting empty packaging accumulated at Return Points



3

Transfer Centers

To establish and operate transfer centres to be used when it is necessary to temporarily store the collected deposit empty packages



4

Verification Facilities

To establish and operate verification facilities for the verification of deposit empty packaging returned for verification



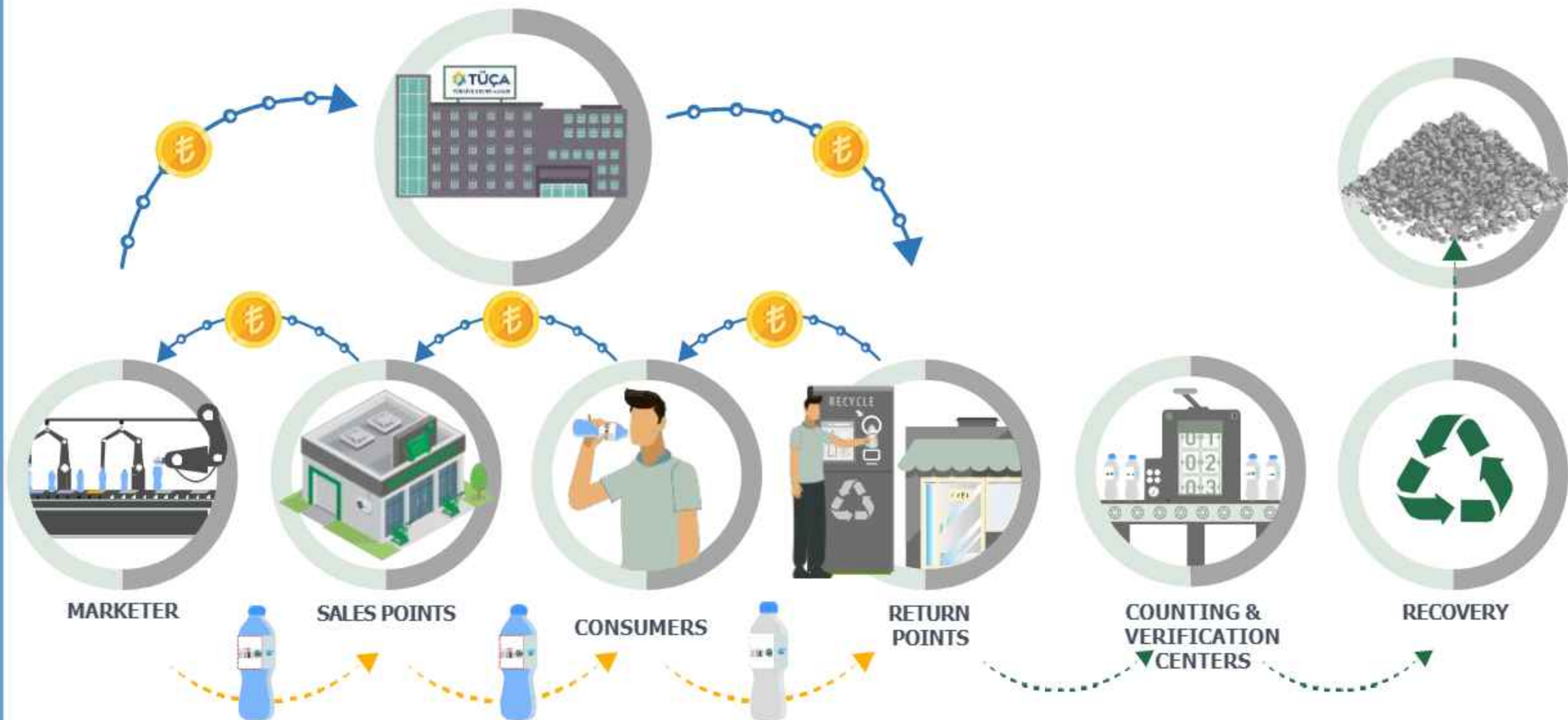
5

Recovery

To ensure that empty packaging is delivered to the recycling facilities registered in DBYS after the empty packaging is cleared of deposit fees

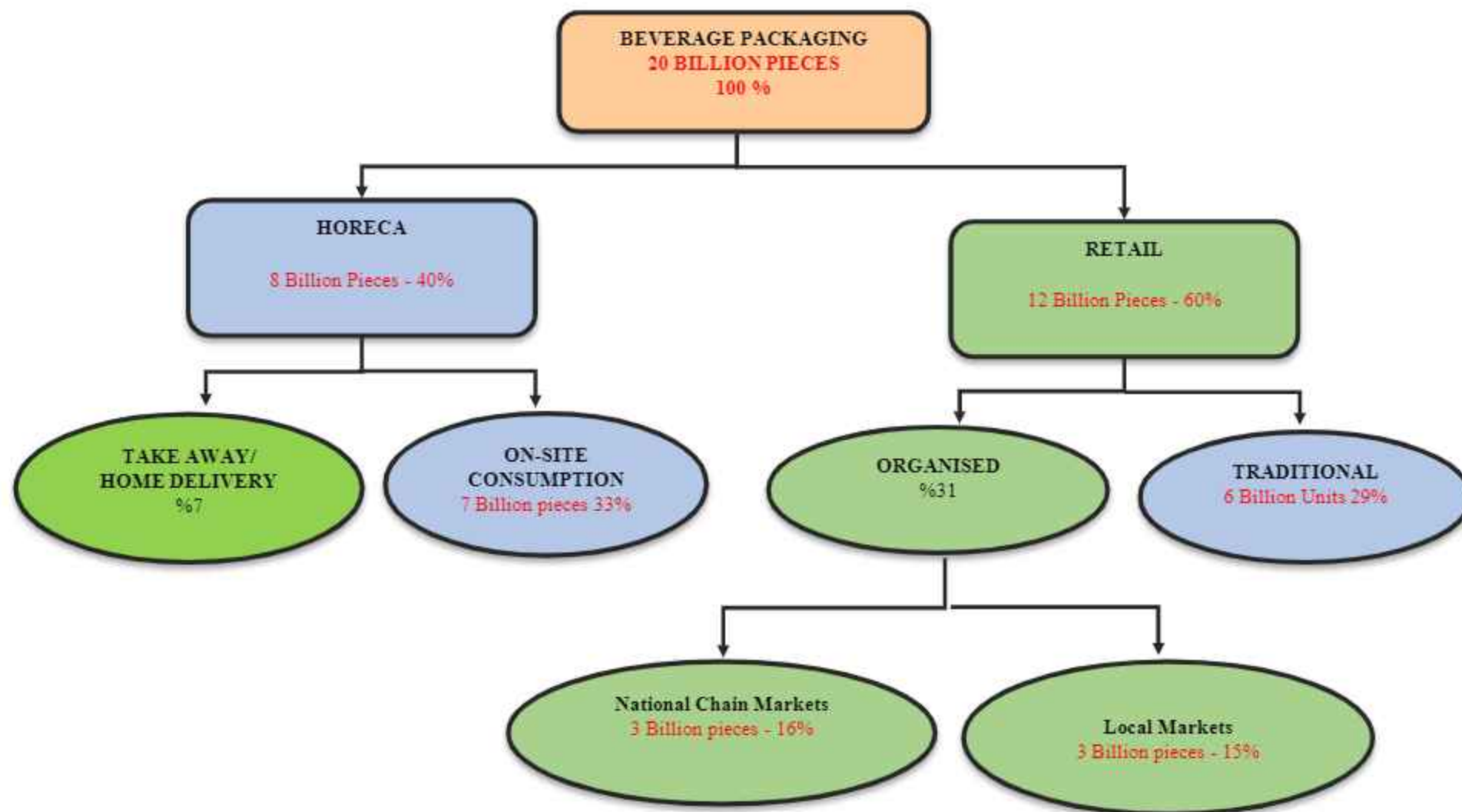


MANDATORY DEPOSIT MANAGEMENT SYSTEM FLOW CHART





Deposit Field Operations and Implementation Planning



Deposit Field Operations and Implementation Planning



Türkiye Local Administrations

Number of Provinces	81	
Number of Districts	973	
	Metropolitan District Municipalities with ≥ 250.000 population	94
	Metropolitan District Municipalities with > 250.000 population	425
	Non-metropolitan Provincial Centre District Municipalities	51
	Municipalities other than Metropolitan Provincial Central District Municipalities	403
Number of Municipalities	1.392	
Number of Neighbourhoods	50.488	
Distribution of Number of Neighbourhoods	Population 0-1,000	38.468
	Population 1,001-2,000	4.325
	Population 2,001-5,000	3.499
	Population 5,001-10,000	2.010
	Population 10,001-20,000	1.439
	Population 20,001-50,000	691
	Population 50,000 and above	56

TÜRKİYE PUBLIC SPACES (SABS)		Registered Facilities
FUEL STATIONS and RECREATIONAL FACILITIES		10,967
SHOPPING MALLS		328
EDUCATIONAL INSTITUTIONS AND DORMITORIES	NURSERY AND DAY CARE CENTERS	28
	SCHOOL PARENTS' ASSOCIATIONS	986
	KINDERGARTENS	3,061
	PRIMARY SCHOOLS	13,427
	SECONDARY SCHOOLS	10,556
	HIGH SCHOOLS	7,570
	VOCATIONAL SCHOOLS	370
	UNIVERSITIES	408
	DORMITORIES	1,098
	OTHER	6,446
HEALTH CARE CENTRES	HOSPITALS	1,311
	HEALTH CENT. + ORAL AND DENTAL HEALTH CENT. + FAMILY HEALTH CENT. + LABORATORIES	4,431
AIRPORTS		61
ACCOMODATION FACILITIES - HOTELS (Teachers' accomodation centres not included)	100 ROOM AND ABOVE CAPACITY	1,145
	CAPACITY BETWEEN 50-99 ROOMS	238
	CAPACITY UNDER 50 ROOMS	0
PORT and MARINA	HARBOUR	138
	DOCKS	16
	MARINA	30
ORGANIZED INDUSTRIAL ZONE		559
TRAIN and BUS TERMINAL		116

Deposit Field Operations and Implementation Planning



- In 2025, it is planned to establish at least 2000 DIM infrastructure to establish the Depotizo Management System and switch to the national system gradually.
- 5 thousand manual return points in 2025,
- From the beginning of 2025 Transition applications will be initiated in Municipalities, National Gardens and Universities.
- Dissemination will be ensured through pilot applications at provincial level,
- Areas over 400 m² such as chain markets, shopping centres, hotels, restaurants and cafeterias will be included in the application.
- It is aimed to reach 30 thousand within 3 years

WORLD PRACTICES / ON-SITE INVESTIGATIONS



Germany	Denmark	Lithuania	Romania
<p>Population 83.2 million</p>	<p>Population 5.8 million</p>	<p>Population 2.8 million</p>	<p>Population 19.2 million</p>
<p>Number of Packages: 20.4 billion pieces/year</p>	<p>Number of Packages: 2 billion pcs/year</p>	<p>Number of Packages: 0.8 billion pcs/year</p>	<p>Number of Packages: 0.8 billion pcs/year</p>
<p>Deposit Fee € 0,25</p>	<p>Deposit Fee € 0,13- 0,20- 0,30</p>	<p>Deposit Fee € 0,10</p>	<p>Deposit Fee € 0,10</p>
<p>Number of Return Points 130,000</p>	<p>Number of Return Points 3.000 (12 <i>Public Return Centres</i>)</p>	<p>Number of Return Points 2700</p>	<p>Number of Return Points 3000</p>
<p>Return Method 90% Automatic, 10% Manuel</p>	<p>Return Method 95% Automatic, 5% Manual</p>	<p>Return Method 91% Automatic, 9% Manual</p>	<p>Return Method Automatic (The process is ongoing)</p>
<p>System Operator Marketers and Retailers: Deutsche Pfandsystem GmbH (DPG)</p>	<p>System Operator Retailers and Brewers: Dansk Retursystem A/S</p>	<p>System Operator Lithuanian Association, Association of Breweries, Association of Lithuanian Commercial Enterprises and Lithuanian Association of Natural Mineral Water Producers: (USAD)</p>	<p>System Operator (RETURO)</p> <ul style="list-style-type: none"> ✓ Association of Romanian Brewers ✓ Association of Soft Drinks Manufacturers ✓ Retailers Association ✓ Ministry of Environment (20%)
<p>Establishment of Return Points Retailers</p>	<p>Establishment of Return Points Retailers</p>	<p>Establishment of Return Points Retailers and HOREKA</p>	<p>Establishment of Return Points Retailers</p>
<p>Transport/Collection Supervisor Authorised-Licensed Enterprises</p>	<p>Transport/Collection Supervisor System Operator</p>	<p>Transport/Collection Supervisor System Operator</p>	<p>Transport/Collection Supervisor System Operator</p>



- Discussions were held with the relevant **sector associations** for alternative applications for the field operations of the Deposit Management System.
- The relevant companies (**Chain Markets and Producers**) were interviewed for the realisation of the operations of the Deposit Field Management System.
- Discussions were held with the **relevant institutions** regarding the administrative structure of the Deposit Field Management System operations.



DETERMINING THE METHOD OF FIELD OPERATIONS

As a result of SECTOR-TOBB-TESK negotiations;

- ✓ Based on the principle of Producer Responsibility,
- ✓ Including the Public Authority for transparency,
- ✓ Professional organisations representing producers and sales points are stakeholders of the system,

It was agreed to implement such a business model.

This Business Model in which producers and Points of Sale actually participate;

- ✓ will be beneficial in spreading the application effectively throughout the country,
- ✓ will make significant contributions in terms of reducing costs and access to scrap-based raw materials
- ✓ will give great support to all other waste management systems, including zero waste practices,

consensus has emerged on the above issues.

E-WALLET Application

(Protocol with Real Estate Participation Bank)



- On 16 November 2023 for the operation of the Deposit Management System banking infrastructure by Real Estate Participation Bank
 - E-Wallet infrastructure,
 - DYS collection and pay transactions,
 - Digital applications such as card payment systems and/or electronic payment servicesprotocol has been signed for these subjects.
- DYS Mobile Application and E-Wallet infrastructure has been prepared and made ready for use.



PILOT APPLICATIONS-KIZILCAHAMAM/ANKARA

**ENTRANCE TO SOĞUKSU
NATIONAL PARK**



ZERO WASTE GARDEN



MARTYRS' PARK



CUMHURİYET SQUARE



KIZILCAHAMAM MUNICIPALITY



ENTRANCE TO MİLET PARK





PILOT APPLICATIONS-MINISTRY BUILDING/ANKARA



EXAMPLES OF RETURN POINTS Public Return Centers



Where can it be installed?

- Airport
- Bus station
- Metro/Train Stations
- Ports and Marinas
- City squares,
- Universities and schools with campuses,
- Millet Gardens
- City Hospitals
- Shopping Malls and Parking Lots
- Stadiums and Sports Halls



EXAMPLES OF VERIFICATION FACILITIES



THE BENEFITS OF THE SYSTEM Country Goals



ENVIRONMENTAL

- Reduction in environmental pollution
- Reduction of carbon emissions
- Increasing the economic life of sanitary landfill sites

SOCIAL

- Additional employment and economic support
- Making the participation of citizens in the recycling system visible
- Increasing environmental awareness
- Changing consumer habits

ECONOMIC

- More efficient and sustainable recovery system
- Recycled materials with high economic value
- Cost reduction in environmental services of municipalities
- Reduction in the need for primary raw materials and reduction in raw material imports

GLOBAL

- Compliance with the circular economy concept
- Supporting Türkiye's participation in global sustainable development action



Target

- 120 Million Euro annual approximate recovery income,
- 250 million euros in raw material savings,
- 50 million Euro reduction in waste imports,
- 100 million Euro savings in transport, waste disposal and electricity for local authorities.
- An annual national economic gain of approximately 520 million Euros will be achieved.

Thanks for listening.

Turkish Environment Agency

2024



This project is co-funded by the European Union and the Republic of Türkiye

Thanks for your attention.



Türkiye Döngüsel Ekonomi

IPACevre



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Türkiye Döngüsel Ekonomi

IPA Çevre/Environment TÜRKİYE



Türkiye Döngüsel Ekonomi

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