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NEXT MED

Gov4GreenMed

Municipal waste management practices and governance models: Insights from the Mediterranean region

Catalogue Output 3.I.I

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EXECUTIVE SUMMARY

The catalogue presents a comparative analysis of **municipal waste management practices and governance models across the Mediterranean region**, developed within the framework of the Gov4GreenMed project.

The document aims to **identify, assess, and systematise high-impact, replicable practices** in solid and organic waste management, with a specific focus on **participatory governance, circular economy approaches, and local-level implementation models**. The analysis covers experiences from Italy, Spain, Tunisia, Jordan, Türkiye, and additional Mediterranean contexts, examining both technical solutions and governance arrangements.

Using a **structured and comparative methodology**, the catalogue evaluates each practice in terms of:

- operational and technical design,
- governance models and stakeholder engagement,
- participation mechanisms (including gender and youth dimensions),
- environmental, social, and economic impacts,
- scalability, replicability, and implementation requirements.



KEY FINDINGS

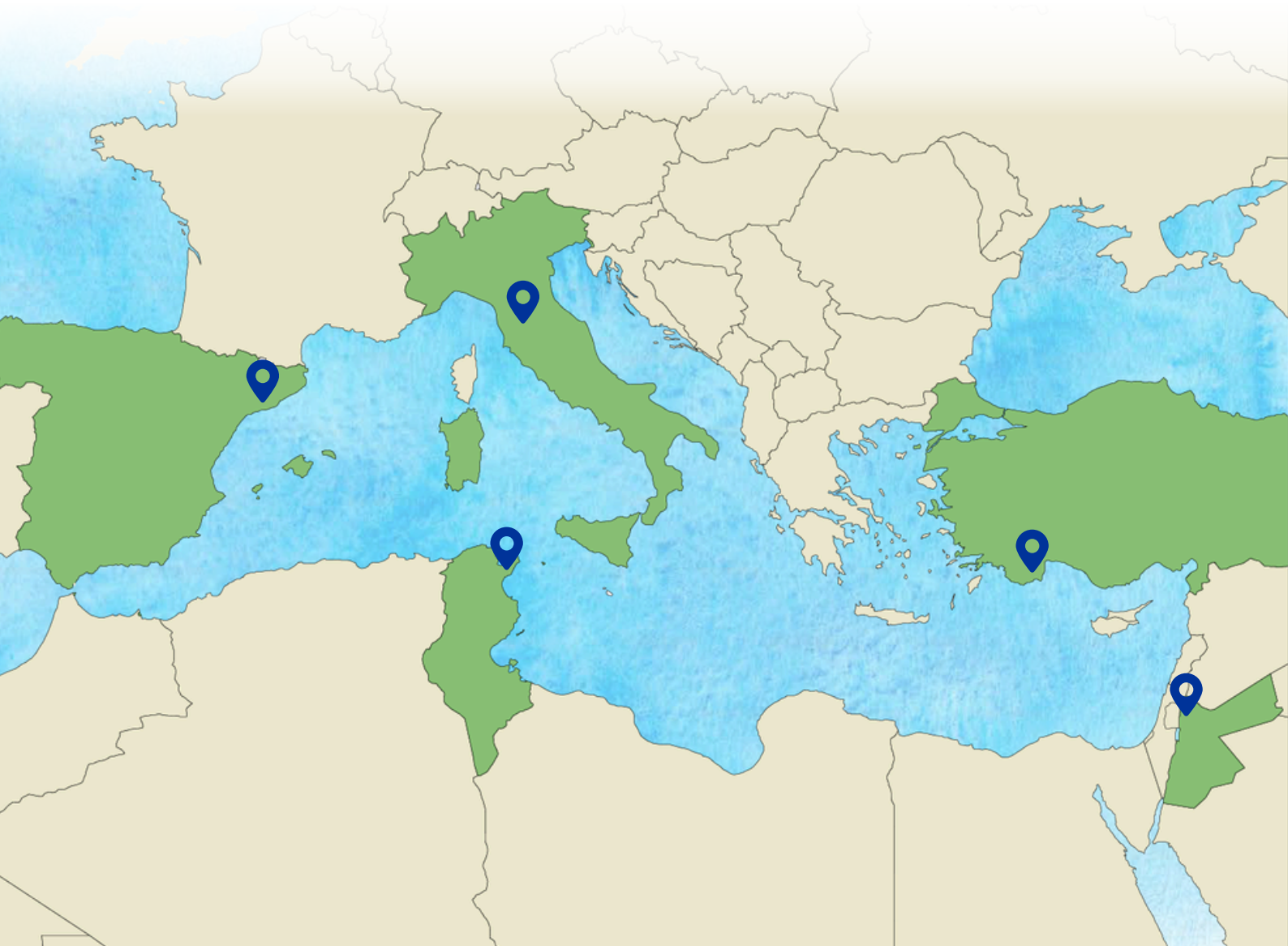
Key findings highlight that **effective waste management in the Mediterranean depends on the integration of three core dimensions:**

1. **Strong local governance frameworks**, often combining public leadership with community and private-sector involvement;
2. **Active citizen and stakeholder participation**, which is the major driver of sustainability and behavioural change;
3. **Context-adapted, low-cost and scalable solutions**, particularly in organic waste management, reuse systems, and decentralised models.

Ultimately, this document provides an **operational knowledge to support pilot actions and inform policy design**, facilitating the **transfer and adaptation of tested practices** across Mediterranean municipalities.

Here below a summary of the pilot action for each area of intervention.

- Scandicci Municipality (Tuscany, Italy)**
Promoting the reconnection between urban and agricultural areas of the municipality of Scandicci through the creation of an “Organic District”, as well as a food and recovery plan
- La Plana Municipality (Catalonia, Spain)**
Reuse circuits for different types of waste—Expansion and consolidation of existing practices through participatory processes
- Nabeul Municipality (Nabeul, Tunisia)**
Development of local policies and cooperation models to promote the prevention and recycling of waste in university canteens and hotels, involving civil society through awareness-raising actions and participatory processes
- Ein al- Basha Municipality (Balqaa, Jordan)**
Composting initiatives for both the commercial sector and individuals
- Finike Municipality (Antalya, Turkey)**
Management of municipal solid waste, with special attention to the use of organic waste to produce organic fertilizers and to raising awareness about environmentally





Please find below a summary table of the best practices collected.

ITALY

- ▶ *Efficient door-to-door waste collection and gradual introduction of a Pay-As-You-Throw (PAYT) system – Sestri Levante*: Integrated waste management at municipal level.
- ▶ *Capannori (Lucca): a Zero Waste municipal model*: Integrated waste management at municipal level and re-use circuits.
- ▶ *Funghi Espresso: Circular valorisation of urban coffee waste for mushroom production – Scandicci (Florence)*: Organic waste/circular bioeconomy, innovative sustainable and circular technologies in private sector.
- ▶ *Integrated food-waste reduction and management in public collective catering services – Calenzano (Florence)*: food waste prevention and management, digitalisation of waste management.
- ▶ *RePoPP – Neighbourhood Porters' Network for Product Prevention and Reuse (Turin)*: Urban food waste reduction/food recovery and redistribution with organic waste sorting education.
- ▶ *Ricibo – Food Recovery and Redistribution Network (Genoa)*: Food waste prevention, recovery and redistribution of food surpluses through a network of CSO.

JORDAN

- ▶ *Composting food waste at household level (Jordan Valley, Mafraq, South of Jordan)*: treatment of organic waste and composting
- ▶ *Solid Waste Management (SWM) and Circular Economy at CSO/Community Level (Irbid)*: innovative, sustainable and circular technologies and small businesses that actively promote gender inclusivity
- ▶ *Organic composting from chicken and cow manure (Al-Hussyniat, Mafraq)*: Treatment of organic waste and composting from animal manure
- ▶ *Design and implementation of municipal reuse circuits (New Deir Allaa)*: Reduce waste generation through the creation of local reuse circuits
- ▶ *SWM and Circular Economy at Individual, MSME and SME Level (Irbid)*: Innovative sustainable and circular technologies

 **SPAIN**

- ▶ *Traperos de Emaús – Integrated reuse, recycling and social inclusion model (Pamplona, Navarra):* Integrated waste management and reuse circuits
- ▶ *Participatory waste management through local, community-based composting. (Tarpuna, Catalonia):* Treatment of organic waste and composting, Green skills and capacity building
- ▶ *Decentralised composting in small and medium towns (Les Masies de Roda):* Organic waste management, with focus on household bio-waste and local composting.
- ▶ *Municipal reuse networks for waste prevention (Córdoba):* Integrated municipal solid waste management, with focus on reuse and preparation for reuse.

 **TUNISIA**

- ▶ *Valorization of green waste through composting (Bizerte):* Treatment of organic waste and composting, green skills and capacity building
- ▶ *Selective Collection Service, (Gammarth, La Marsa):* Integrated waste management, selective collection and recycling
- ▶ *Waste Wise Cities – Municipal integrated waste-management initiatives, (Sousse & Bni Khaled):* Integrated waste management, Treatment of organic waste and composting
- ▶ *Valorization of organic waste through composting and vermicomposting (Mahdia):* Treatment of organic waste and composting, innovative, sustainable and circular technologies
- ▶ *Network of municipalities:* Integrated waste management of municipalities' network

 **TURKEY**

- ▶ *Agricultural use of soil amendment products derived from organic waste treatment processes (Antalya):* Treatment of organic waste and composting, green skills and capacity building
- ▶ *Eco-Friendly Farmer Card Project (Antalya):* Innovative sustainable and circular technologies, digitalisation of waste management
- ▶ *Environmental Education and Innovation Center – Antalya:* Green skills and capacity building



Gov4GreenMed



Gov4GreenMed

In a nutshell

Gov4GreenMed: Inclusive Governance Models for a Greener Transition in the Mediterranean - will design territorial participatory methodologies on municipal solid waste management and food waste policies through five pilot actions in municipalities across Spain, Italy, Türkiye, Jordan and Tunisia.

These initiatives aim to foster effective cooperation between local public authorities and various stakeholders and improve the development of local governance models.

The final aim is to facilitate the implementation of shared public services, improve the quality of life of citizens, and support the green transition of Mediterranean municipalities.



Mission

Municipal waste management is a local issue with wide regional implications across the Mediterranean. Despite progress in collection, treatment, prevention, and recycling, solid and food waste remain critical and unevenly distributed, with EU Mediterranean countries generating nearly twice as much as the southern shore. Per capita waste rose 15% - in Eastern and Southern Mediterranean - between 2010 and 2020 in the region, with total generation expected to reach 135 million tonnes by 2025¹. Additionally, participatory processes are rarely applied to waste management, and both businesses and citizens are not typically actively involved. As a result, environmentally sound management of municipal waste in the Mediterranean suffers from multiple drawbacks and chronic inefficiencies that demand strategic, collaborative solutions.

The project's expected outcomes are the following:

- ▶ Implementation of pilot actions testing participatory governance processes for municipal solid and food waste management in Mancomunitat La Plana (Spain), Ein el-Basha (Jordan), Nabeul (Tunisia), Scandicci (Italy, and Finike (Türkiye).
- ▶ Development of a joint methodology to structure territorially adapted participatory governance supporting the design and implementation of municipal solid and food waste management practices.
- ▶ Promote project results' aimed at integrating participatory governance approaches in municipal solid and food waste management, encouraging the replication of the project's methodology in other territories and institutions.

¹ <https://planbleu.org/en/projects/improving-the-management-of-urban-waste/>



2

**COLLECTION OF WASTE
MANAGEMENT EXPERIENCES
IN TARGET TERRITORIES**



COLLECTION OF WASTE MANAGEMENT EXPERIENCES IN TARGET TERRITORIES

Objectives of the activity

To identify, map and evaluate relevant local-level waste management practices across the Mediterranean region, including those from the ENI CBC Med program.

These mapped experiences have been examined under a comprehensive, comparable and action-oriented framework, enabling the assessment of transferability and the requirements for their adaptation to determined local conditions, risks, costs and actors to be involved.

The analysis has been conducted into practices that have been proven to be:

- impactful, with a measurable or documentable impact;
- based on replicable governance models;
- potentially transferable to the pilot areas.

3

**METHODOLOGY
OF THE ANALYSIS**





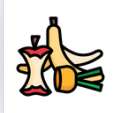

METHODOLOGY OF THE ANALYSIS

Scope definition

	Approach	Examples
Geographical scope	Mediterranean region	Particular attention to be placed on territories that are contextually comparable to the five pilot areas
Level of analysis	Local	Municipalities, supra-municipal entities, municipal utilities, local public-private operators
Type of practices to be analyzed	Concrete operational models and governance arrangements (i.e. <i>how</i> the practice works).	The collected practices should fall under one or more of the following types: → Collection schemes → Separation models → Community-level treatment mechanisms → Participatory governance structures
Thematic areas of practices	Thematic focus or content area (i.e. <i>what</i> the practice addresses)	Guidelines and good practices for successful participatory processes and inclusive governance models. Collected practices should relate to one or more of the following thematic areas: → Integrated municipal waste management → Innovative sustainable and circular technologies → Green skills and capacity building → Digitalisation of the waste management sector → Treatment of organic waste and composting → Food waste prevention → Reuse circuits

Icons

Please find below a legend for the icons used to identify the thematic areas for each practice.

	Integrated municipal waste management		Re-use circuits		Innovative sustainable and circular technologies
	Treatment of organic waste and composting		Food waste prevention		Digitalisation of waste management
	Green skills and capacity building		ENI CBCMED		

Areas of analysis

Local framework analysis

- ▶ Identifying and documenting existing experiences (past or ongoing) relevant to organic and solid waste management through: Systematic desk research, Mediterranean programs, municipal portals, previous ENI CBC Med initiatives, prior institutional work of Project Partners (PPs), including the [MedUrbanTools](#) platform;
- ▶ Focusing on initiatives with replicable elements and relevance to the pilot action developed with the Associated Partner (AP);
- ▶ Limiting analysis to elements directly relevant to pilot implementation: e.g., results, mechanisms, participation models, technical/organizational elements useful for future transferability.

Collection requirements

- ▶ Local practices, relevant national practices existing in the countries of the PPs (via a questionnaire sent to the PPs)
- ▶ High-impact practices from ENI CBC Med (not necessarily present in the pilot territories)
- ▶ European/Mediterranean experiences aligned with the purpose of the project
- ▶ Apply a gender and youth-focused perspective and document how gender roles, female leadership, and youth participation contribute to the initiative's effectiveness, sustainability, and social inclusion, with specific reference to factors that can improve its replicability within pilot projects.

Structure

Each identified practice has been analyzed in terms of:

- ▶ Technical description
- ▶ Governance and stakeholders, including gender analysis (role of women, women experiences, participations of women)
- ▶ Mechanisms for community or citizen participation (includes specific gender and generational analysis to put in evidence how women and youth are involved, at what decision-making level, and in what percentage and role)
- ▶ Benefits and measurable impacts (including a gender analysis of the impacts)
- ▶ Scalability and replicability potential
- ▶ Implementation requirements
- ▶ Lessons learned (including gender and generational analysis)



4

**BEST PRACTICES
OF COUNTRY
PARTNERS**



ITALY

Legal framework analysis

Waste management in Italy is governed by a multi-level legal framework combining European Union law and national legislation.

The principles of the Waste Framework Directive 2008/98/EC² are transposed into Italian law primarily through Legislative Decree No. 152/2006 (Codice dell'Ambiente)³, Part IV, which regulates waste classification, collection, transport, recovery and disposal authorisations, traceability obligations, and sanctions.

Institutional competences are shared as follows: the State defines general principles and minimum environmental standards; Regions adopt waste management plans and authorise major plants; Provinces and Metropolitan Cities oversee certain controls; and Municipalities organise urban waste collection and tariff systems. Strategic planning is guided by the National Waste Prevention Programme and regional waste plans, aligned with EU recycling targets and landfill reduction objectives.

² <https://eur-lex.europa.eu/eli/dir/2008/98/oj/eng>

³ <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2006-04-03;152>



EFFICIENT DOOR-TO-DOOR WASTE COLLECTION AND GRADUAL INTRODUCTION OF A PAY-AS-YOU-THROW (PAYT) SYSTEM – SESTRI LEVANTE

Type of waste: Integrated solid waste management, with focus on organic waste, residual waste, and recyclables.

Brief description of the practice

The Municipality of Sestri Levante has developed an integrated waste management system based on:

- full door-to-door collection,
- user identification and controlled waste disposal,
- progressive introduction of PAYT mechanisms,
- service optimisation during tourist peak seasons,
- systematic data collection to support tariff modulation.

The practice addresses:

- previously low recycling performance,
- strong seasonal fluctuations linked to tourism.

Its technical relevance lies in its adaptability to high-density and tourism-intensive areas.

Monitoring system

Indicators: separate collection rates, per-capita residual waste, service efficiency.

Responsibility: Municipality and waste operator.

Tools: information platforms, municipal help desks, public meetings, and digital channels for user feedback.

Inclusion

- Improved access to information through clear materials, school-based education, targeted communication for elderly residents and small businesses.
- Main barriers: seasonal population changes, language barriers for tourists and temporary workers, initial behavioural resistance.
- Participation is mainly informative/consultative.

Governance and stakeholders

Governance model: public-led, managed by the Municipality with the operational support of the waste management company.

Scale of implementation: municipal.

Actors involved: municipal administration (strategic decisions), technical offices and waste operator (management and operations), residents, businesses (especially tourism sector), schools, and local associations.

Participation:

- phases include context analysis, co-design, formal adoption, implementation, monitoring;
- tools include public meetings, targeted campaigns, school programmes, and support desks.

Gender and generational dimensions: no disaggregated data available; women and youth are engaged indirectly through households, schools, and awareness activities.

IMPACTS



Environmental benefits

- Increased separate collection rates.
- Reduced residual waste.
- Lower environmental pressure in a sensitive coastal area.

Social and economic benefits

- Improved service quality and efficiency.
- Long-term cost control.
- Increased environmental awareness among residents and businesses.
- Better management of tourist-related waste peaks.



CAPANNORI: A ZERO WASTE MUNICIPAL MODEL

Type of waste: Integrated waste management, involving organic waste, solid waste, recycling and reuse.

Brief description of the practice

Capannori was **the first municipality in Italy to adopt a Zero Waste strategy (2007)**.

The practice aims to:

- drastically reduce residual waste,
- minimize landfill dependency,
- promote waste prevention,
- strengthen recycling, composting, and reuse systems.

Main actions include:

- **full door-to-door collection** for all waste fractions,
- instruments for measuring and reducing residual waste,
- home and decentralized composting,
- extensive prevention and reuse initiatives,
- continuous awareness-raising campaigns.

The approach combines **efficient operational systems, economic incentives, and strong citizen engagement**, resulting in **very high recycling rates (over 80%)**.

Governance and stakeholders

Governance model: public-led, with strong community participation.

Implementing bodies: Municipality of Capannori, waste management company, civil society organizations such as the Zero Waste Research Centre.

Stakeholders: municipal authorities (strategic decisions), technical offices and the waste operator (management/operations), citizens, schools, civil society organizations, environmental associations, local businesses.

Participatory process:

- context analysis and mapping,
- participatory diagnosis,
- co-design and formal adoption,
- implementation,
- monitoring and learning.

Participation tools: public consultations, participatory meetings, school programmes, awareness campaigns, incentive schemes.

Monitoring system

The municipality maintains an operational monitoring system based on:

- separate collection rates,
- residual waste per capita,
- environmental and social outcomes,
- service delivery processes and financial performance.

Data are collected by the waste operator and municipal offices and regularly reviewed and communicated. Citizen feedback is collected mainly through public meetings and municipal communication channels.



Inclusion

- Women and youth are involved mainly through schools, community initiatives and awareness campaigns.
- No disaggregated data available.
- Their participation is mostly **informative and consultative**.
- Inclusion mechanisms include targeted awareness actions, accessible meetings, incentives for households, community-based activities.

Constraints: Initial behavioural resistance, limited engagement of vulnerable groups, continuous need for communication and capacity building.

IMPACTS



Environmental benefits

- Significant reduction of residual waste.
- Recycling rates consistently above 80%.
- Increase in composting practices.
- Reduced reliance on landfill.

Social and economic benefits

- Improved service quality and long-term cost efficiency.
- Job creation in recycling and reuse sectors.
- Increased citizen awareness and engagement.


Inclusion impacts

- Stronger community participation.
- Increased involvement of families, schools, women and young people in local environmental initiatives.





FUNGHI ESPRESSO: CIRCULAR VALORISATION OF URBAN COFFEE WASTE FOR MUSHROOM PRODUCTION – SCANDICCI (FLORENCE)

 **Type of waste:** Organic waste; circular bioeconomy.

Brief description of the practice

Funghi Espresso is a **local circular economy initiative** that transforms **used coffee grounds** from cafés and restaurants into a resource for producing edible mushrooms and compost.

The practice addresses the **underutilisation of urban food waste** through:

- source-separated collection of coffee grounds,
- low-tech and low-energy mushroom cultivation,
- composting and vermicomposting of spent substrate,
- short local supply chains and community participation.

The model is **innovative** for its simplicity, replicability, and integration of **waste management, urban agriculture and environmental education**.



Governance and stakeholders

Implementing body: Funghi Espresso (local social enterprise) with cafés, research centres and community partners.

Scale: Local, community-based.

Governance model: Community-led/private initiative with collaborative partnerships.

Actors involved: Funghi Espresso team (strategic/operational roles), cafés and restaurants (suppliers), schools and local communities (education).

Participatory process: Context analysis, co-design with partners, implementation, monitoring and learning.

Participation mechanisms: Collaboration agreements, workshops, training, public events and school programmes.

Monitoring and accountability

Monitoring covers:

- quantities of collected coffee grounds,
- mushroom production output,
- compost generated,
- number of participating cafés and educational events.

Data are collected internally and used to assess environmental and community impact. Citizen feedback is gathered informally during workshops and interactions with participating cafés.

Inclusion

- Women and youth actively involved through training, education and community activities.
- Participation roles mainly **consultative and operational**.
- Inclusion supported by accessible workshops and partnerships with schools and youth groups.

Constraints: Limited scale, dependency on voluntary participation, and limited inclusion of vulnerable groups due to capacity constraints.

IMPACTS



Environmental benefits

- Reduced organic waste disposal.
- Productive reuse of coffee grounds.
- Compost and soil improver production.
- Support to local circular-economy objectives.

Social and economic benefits

- Local green entrepreneurship.
- Skill development in sustainable production.
- Educational benefits and community engagement.


Inclusion impacts

- Enhanced awareness of circular economy.
- New opportunities for youth involvement and sustainable initiatives.





INTEGRATED FOOD-WASTE REDUCTION AND MANAGEMENT IN PUBLIC COLLECTIVE CATERING SERVICES – CALENZANO (FLORENCE)

 **Type of waste:** Food waste prevention and management.

Brief description of the practice

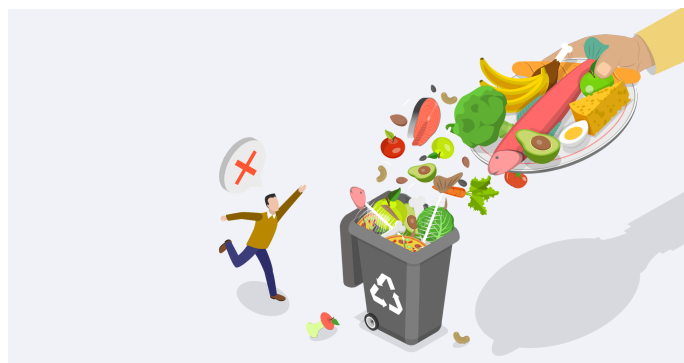
The practice addresses **food waste reduction in school and institutional catering** through:

- prevention at source,
- improved separate collection of organic waste,
- menu and portion optimisation,
- monitoring of leftovers,
- staff training,
- collaborative work with waste operators,
- development of specific technologies (software).

The initiative integrates **behavioural change, operational optimisation, and data collection** to support circular-economy principles. It improves both the environmental performance of the catering service and user awareness.

Qualità & Servizi S.p.A. developed a **specialised software** that measures the two key indicators of food waste in schools: **'unserved food'** – food that has been cooked but not served – and **'plate waste'** – food that has been cooked, served and not eaten.

The software has been installed on tablets, which have in turn been issued to Q&S catering staff in all schools.



Governance and stakeholders

Implementing organisation: Qualità & Servizi S.p.A. (publicly owned catering company).

Scale: municipal / inter-municipal.

Governance model: public-led.

Stakeholders: municipalities, schools, catering staff, waste-management operators, students, families, and occasionally CSOs.

Participation process:

Context analysis → participatory diagnosis → co-design with schools and institutions → implementation → monitoring and learning.

Participation mechanisms: Awareness activities, staff training, collaboration between schools and municipalities, and feedback from users and staff.

Monitoring and accountability

Monitoring is integrated into catering service management and includes:

- quantities of food prepared,
- leftovers and organic waste collected,
- service-delivery performance.

Data is gathered internally by operational and managerial staff; periodic reporting to municipalities ensures oversight.

Feedback mechanisms include meetings with schools, municipal representatives, surveys and informal channels.

Inclusion

- Women are strongly represented in operational and managerial roles (consistent with the sector).
- Youth participate mainly as beneficiaries through school-based programmes.
- Participation by women and youth is mostly **informative or consultative**, with limited involvement in decision-making.

Constraints: Youth and vulnerable groups have limited opportunities for direct involvement; participation is mediated through institutions.



IMPACTS



Environmental benefits

- Reduced food waste at source.
- Improved organic-waste separation and recovery (including composting).
- Reduced landfill disposal.

Social and economic benefits

- Enhanced efficiency of public catering services.
- Cost savings linked to reduced waste generation.
- Increased environmental awareness among students and staff.

Inclusion impacts

- Strengthened cooperation between public institutions and service providers.
- Increased sustainability awareness among youth.



REPOPP – NEIGHBOURHOOD PORTERS' NETWORK FOR PRODUCT PREVENTION AND REUSE (TURIN)

Type of waste: Integrated waste-prevention approach (food surplus + reusable items).

Brief description of the practice

RePoPP is a neighbourhood-scale initiative focused on **waste prevention, food surplus recovery, and redistribution of reusable items**. It operates through:

- decentralized collection points (“portinerie di quartiere”),
- recovery of unsold produce from local markets,
- acceptance of donations from residents,
- redistribution to community members in need.

The initiative reduces waste generation while strengthening neighbourhood solidarity. It requires minimal infrastructure and is based on proximity logistics and community engagement. Monitoring is mainly operational, centered on tracking recovered goods.

Monitoring and accountability

Monitoring focuses on:

- quantities of recovered food and reusable goods,
- operational performance of collection/redistribution activities.

No evidence of standardized KPI frameworks or structured public reporting. Citizen feedback occurs informally through direct local interactions.

Inclusion

- No disaggregated gender/youth data available, but participation is open to all community members.
- Women, young people and vulnerable groups may act as volunteers or beneficiaries.
- Participation appears mainly operational and consultative.

Constraints: Dependence on local engagement; absence of structured representation mechanisms; limited volunteer availability.

Governance and stakeholders

Implementing body: local social cooperative in partnership with the Municipality of Turin and local actors.

Scale: community-based (district level) with municipal collaboration.

Governance model: mixed public–community model.

Stakeholders involved: Municipality, operating cooperative, market vendors, retailers, volunteers, local residents.

Participatory mechanisms: Collaboration agreements with businesses, volunteer involvement, awareness-raising in neighbourhood spaces. No formal co-decision mechanisms documented.

IMPACTS



Environmental benefits

- Reduced food waste and disposal of reusable items (no quantitative data available).

Social and economic benefits

- Strengthened neighbourhood solidarity networks.
- Redistribution supports vulnerable households.
- Potential local job opportunities within the cooperative.

Inclusion impacts

- Improved access to goods for vulnerable groups; enhanced community participation.



RICIBO – FOOD RECOVERY AND REDISTRIBUTION NETWORK (GENOA)

Type of waste: Food-waste prevention and surplus food recovery.

Brief description of the practice

Ricibo is a **non-profit initiative** dedicated to preventing food waste by recovering surplus food from:

- food retailers,
- food business operators,
- local producers.

Recovered products are redistributed to charitable organizations serving vulnerable people.

Key features include:

- structured partnerships with donors and beneficiary organizations,
- organized surplus-collection logistics,
- compliance with national food-safety legislation,
- network-based coordination rather than technological infrastructure.

The initiative contributes both to environmental sustainability and to social support systems.

Monitoring and accountability

Monitoring focuses on:

- quantities of recovered and redistributed food,
- efficiency of logistical flows.

No evidence of a formalized monitoring framework or public reporting system. Feedback occurs through direct interaction among participating organizations.

Inclusion

- No available gender- or age-disaggregated data.
- Women, youth, and vulnerable groups may participate mainly as volunteers or beneficiaries.
- Redistribution activities directly support vulnerable households.

Constraints: Reliance on volunteers, regulatory compliance, logistical challenges.

Governance and stakeholders

Implementing organisation: non-profit association.

Scale: municipal / inter-municipal within Genoa area.

Governance model: community-led, supported by private-sector donors and public institutions.

Stakeholders involved: The association, food donors (retailers, businesses), charitable organizations, volunteers, local institutions.

Participatory mechanisms: Partnership agreements, volunteer involvement, operational coordination. No formal co-decision bodies documented.

IMPACTS



Environmental benefits

- Prevention of food waste disposal; qualitative environmental benefit (no published quantitative data).

Social and economic benefits

- Supports food access for vulnerable groups.
- Strengthens cooperation between civil society and food-sector businesses

Inclusion impacts

- Enhances social inclusion by supporting organisations assisting minorities and vulnerable groups.





JORDAN

Legal framework analysis

Waste management in Jordan is governed by a national legal framework that combines general environmental legislation with sector-specific waste regulations and strategic planning instruments. The overarching legal basis is the Environmental Protection Law No. 6 of 2017⁴, which establishes general principles of environmental protection, including the polluter pays principle, environmental liability, and regulatory oversight by the Ministry of Environment. More specifically, the sector is regulated by the Waste Management Framework Law No. 16 of 2020⁵, which introduced a comprehensive regime for waste classification, licensing of collection and treatment activities, hazardous waste management, data reporting, and economic instruments to support waste reduction and resource recovery.

Institutional responsibilities are shared: the Ministry of Environment sets national policy and regulatory standards; the Ministry of Local Administration and the Greater Amman Municipality oversee municipal solid waste collection and service delivery; and Joint Services Councils manage waste operations at the governorate level. Strategic direction is provided through the National Solid Waste Management Strategy (2015–2025)⁶, aligned with circular economy principles and donor-supported reforms aimed at improving cost recovery, private sector participation, and landfill rehabilitation.

⁴ <https://faolex.fao.org/docs/pdf/jor173241E.pdf>

⁵ https://www.moenv.gov.jo/ebv4.0/root_storage/ar/eb_list_page/waste_management_framework_law_no_16_of_2020.pdf

⁶ [https://www.mola.gov.jo/ebv4.0/root_storage/ar/eb_list_page/\(1st_draft_report\).pdf](https://www.mola.gov.jo/ebv4.0/root_storage/ar/eb_list_page/(1st_draft_report).pdf)



COMPOSTING FOOD WASTE AT HOUSEHOLD LEVEL (JORDAN VALLEY, MAFRAQ, SOUTH OF JORDAN)

Type of waste: Organic food waste from kitchens.

Brief description of the practice

More than **700 women and youth** received hands-on training on low-cost composting techniques at home, using:

- simple plastic barrels to mix food scraps with manure, dust, tree trimmings;
- manual aeration and controlled decomposition;
- underground composting pits for in-soil maturation.

The initiative demonstrates that composting is inexpensive, easily replicable, and well-suited for rural/agricultural households.

It improves soil fertility, reduces methane emissions from landfills, and encourages climate-friendly behaviour.

Monitoring and accountability

Monitoring focused on:

- reduction of food waste,
- compost quantities produced,
- improvements in household garden productivity,
- pre/post questionnaires.

Citizen feedback was collected through a **mobile hotline** (calls, texts, voice messages).

Inclusion

- **700 trained beneficiaries**, 90% women; 50% of women are youth.
- Refugees and vulnerable groups included.
- Beneficiaries actively contributed to needs mapping, outreach, and implementation.

Constraints: Few structural barriers due to small-scale home implementation; main limitation is *small compost quantities*, insufficient for large farms.

Governance and stakeholders

Implementing organisation: Future Pioneers for Empowering Communities' Members, in coordination with local CSOs (2019–2025).

Scale: community- and household -level.

Governance model: community-led via households, CSOs, cooperatives.

Stakeholders: households (primary actors), CSOs/cooperatives supporting training and replication.

Participation mechanisms: Full participatory approach across all phases: diagnosis, capacity building, co-design, implementation, monitoring.

IMPACTS



Environmental benefits

- Reduced methane emissions from avoided landfill disposal.
- Soil enrichment, improved moisture retention and plant health.
- Reduced need for chemical fertilizers.

Social and economic benefits


- Higher productivity of home gardens (vegetables, herbs).
- Improved household living conditions for **700 families**.

Inclusion impacts

- Strong representation of women and refugees.
- Improved livelihood conditions for vulnerable groups.



SOLID WASTE MANAGEMENT (SWM) AND CIRCULAR ECONOMY AT CSO/COMMUNITY LEVEL (IRBID)

 **Type of waste:** Recyclables (cardboard, plastic, metals, textiles).

Brief description of the practice

Within the UNDP/GAC-funded project Enhancing Women's Role in SWM, the initiative:

- strengthened CSOs/CBOs to support women's engagement in SWM and circular-economy activities;
- provided financial support to establish **nine green business projects** employing **600 women**;
- trained **1,000 women** on 3Rs/5Rs, circular economy and green entrepreneurship.

Examples of established green projects include:

- textile upcycling and reuse;
- eco-friendly bags;
- green packaging for herbal products;
- banana/saffron leaf reuse;
- glass processing for mosaics;
- plastic recycling;
- food repurposing;
- fish farming and hydroponic systems.

Monitoring and accountability

Monitoring included:

- project progress and quality control,
- quantities of received materials and produced goods,
- revenue generated,
- pre/post awareness assessments.

Citizen feedback via **mobile**.

Governance and stakeholders

Implementing organisation: Future Pioneers (2021–2023) with CSOs, UNDP, municipalities.

Scale: community-level; scalable nationwide.

Governance model: CSO-led; each project managed by hosting CSOs/cooperatives.

Stakeholders: municipalities, Ministry of Municipal Affairs, private-sector buyers, households.

Participation mechanisms: Full participatory process at every phase, involving community members, private sector and government actors.



Inclusion

- Workforce: **95% women**, 5% men; half of the women are youth.
- Trained women contributed to design, outreach and implementation of projects.
- Mechanisms included safe workplaces, transport allowances, childcare incentives.

Constraints: Cultural barriers, household responsibilities, lack of safe transport.

Enabling actions: Childcare incentives, transportation support, women-friendly CSO facilities.



IMPACTS



Environmental benefits

- Significant reduction of waste sent to dumpsites.
- Reuse and recycling converted waste into marketable products.

Social and economic benefits

- **600 jobs created** for vulnerable women.
- Improved household living conditions through income generation.

Inclusion impacts

- Enhanced representation of women in green economic activities.
- Improved access to opportunities for marginalised groups.



SORTING FACILITY FOR RECYCLABLE MATERIALS (CARDBOARD, PLASTIC, METAL), (AI-KURA, IRBID)

Type of waste: Recyclables (cardboard, plastic, metals).

Brief description of the practice

The initiative establishes and operates a **sorting facility** for recyclable materials in cooperation with the Joint Service Council. The system:

- collects, sorts and processes recyclables (baling cardboard, shredding plastics);
- sells them to private-sector buyers;
- reduces waste sent to dumpsites;
- generates revenue for local waste services;
- creates jobs for vulnerable groups.

To secure consistent material flow, the project conducted:

- wide awareness campaigns,
- door-to-door outreach encouraging waste separation at source,
- distribution of sorting bins to households, schools and shops,
- installation of storage cages in malls,
- coordination of collection schedules.

Monitoring and accountability

Monitoring involved:

- weekly input/output reports,
- quantities of material received, processed and sold,
- number of households/schools/shops reached,
- pre/post awareness questionnaires,
- financial tracking of revenues.

Citizen feedback collected via **mobile hotline** (calls, texts, voice messages).

Governance and stakeholders

Implementing organisation: Future Pioneers (2021–2023), later handed to a local cooperative for long-term sustainability.

Scale: municipal level, replicable across Jordan.

Governance model: cooperative-led, under contract with the Joint Service Council/Ministry of Municipal Affairs.

Stakeholders: Joint Service Council, municipal authorities, private recyclers, households, schools, commercial shops.

Participation mechanisms: Participatory diagnosis, co-design, implementation and monitoring; active involvement of community groups, NGOs and schools in awareness and mobilisation efforts.



Inclusion

- Majority of workers are **women**; men represent around 35%.
- Local women NGOs played key roles in creating safe participation spaces.
- Vulnerable workers were selected based on socio-economic criteria to improve livelihoods.
- Households, schools and businesses engaged through awareness activities.

Constraints: Cultural barriers for women; addressed by partnering with women’s NGOs and ensuring safe working environments.

IMPACTS

Environmental benefits


- Waste sent to dumpsites reduced by **around 60%**.
- Recyclables transformed into new input materials for private industry.

Social and economic benefits

- **30 jobs** created for vulnerable women and men.
- Revenue generation improves municipal financial sustainability.

Inclusion impacts


- Better representation of women and vulnerable groups in waste-sector jobs.
- Improved access to livelihood opportunities.







ORGANIC COMPOSTING FROM CHICKEN AND COW MANURE (AL-HUSSYNIAT, MAFRAQ)

 **Type of waste:** Animal manure (chicken, cow), mixed with sawdust or tree trimmings.

Brief description of the practice

The Mafraq region hosts numerous livestock farms that traditionally disposed of **raw manure directly on agricultural land**, causing:

- odour, pests, and environmental pollution,
- risks to soil quality,
- community health and ecosystem impacts.

To address this, the Ministry of Local Affairs, UNDP and GIZ established a **large-scale open windrow composting plant**:

- facility area: **22,000 m²**;
- annual intake: **12,000 tons of raw manure**;
- annual output: **7,800 tons of high-quality compost**.

Main activities include:

- day-to-day operation of aerobic windrow composting;
- ensuring regular delivery of manure from surrounding farms;
- quality assurance following international standards;
- workforce management (site manager, accountant, laborers, guards);
- packaging and distribution of compost to farmers.

Monitoring and accountability

Monitoring covered:

- weekly production records (input manure, compost output);
- compost sales volumes;
- number of farms reached;
- pre/post awareness surveys.

Citizen feedback collected via **mobile hotline**.

Governance and stakeholders

Implementing organisation: Future Pioneers (2018–2023), with Joint Service Council; later handed over to the private sector.

Scale: municipal/inter-municipal; recognized nationally as a success model.

Governance model: public-private partnership (private operator under government contract).

Stakeholders: Ministry of Municipal Affairs, Joint Service Council, private operator, livestock farm owners, manure transport subcontractors, local workers, farmers purchasing compost.

Participation mechanisms: Participatory design, consultations with farm owners, awareness campaigns promoting compost over raw manure, household composting sessions for women, community recruitment for cash-for-work.



Inclusion

- Workforce split: **50% women / 50% men**; youth represent 20%.
- Vulnerable workers selected to strengthen livelihoods.
- Workers participate in monthly review meetings to discuss challenges and propose improvements.

Constraints: Cultural norms restricting women’s participation; mitigated via women’s NGOs and safe work environments.



IMPACTS



Environmental benefits

- **12,000 tons** of raw manure treated annually.
- Production of **7,800 tons** of clean, weed-free compost.
- Reduced soil and water contamination, odours and pests.
- Lower GHG emissions compared to untreated manure.

Social and economic benefits

- **50 jobs** created for vulnerable local workers.
- Compost sales support agricultural productivity and reduce dependence on chemical fertilizers.

Inclusion impacts

- Greater participation of women and youth; strengthened community livelihoods.



DESIGN AND IMPLEMENTATION OF MUNICIPAL REUSE CIRCUITS (NEW DEIR ALLAA)

Type of waste: Integrated municipal solid waste management, with focus on **reuse and preparation for reuse**.
Waste streams involved: textile waste (clothing); furniture and household items; WEEE (appliances and electronics); books and small reusable goods; organic waste (local composting)

Brief description of the practice

The REUSEMED pilot in New Deir Allaa is a **municipal-level circular economy initiative** aimed at reducing waste generation through the creation of **local reuse circuits**.

The system is based on:

- source-separated collection of reusable materials;
- dedicated containers and decentralized collection points;
- logistics for transport, storage, repair and redistribution;
- donation-based and, where relevant, resale mechanisms;
- integration of reuse services with awareness-raising actions.

The practice addresses:

- limited recovery of reusable materials within the municipal waste stream;
- high disposal rates of items with reuse potential;
- lack of structured local reuse infrastructure.

Its technical relevance lies in the **integration of multiple reuse streams** at municipal level and in the combination of operational waste services with **community-based participation and local partnerships**.

Governance and stakeholders

Governance model: public-led, with participatory and collaborative elements.

Scale of implementation: local / municipal.

Actors involved:

- Ministry of Local Administration;
- Deir Allaa Municipality (strategic and managerial roles);
- local NGOs, community organisations and civil society actors (operational support);
- residents as users, donors and participants in reuse activities.

Participation:

- phases include context analysis, co-design, implementation, monitoring and learning;
- tools include stakeholder consultations, co-design meetings, awareness campaigns, community events and digital tools supporting reuse networks.

Gender and generational dimensions: No disaggregated data available; women and youth are involved mainly through community engagement, awareness activities and operational participation, with a predominantly consultative role.

Monitoring system

Indicators:

- number and functioning of reuse circuits;
- quantities of materials collected and reused;
- participation levels and community engagement.

Responsibility: Municipality, Ministry of Local Administration and implementing partners.

Tools: Project monitoring systems, community feedback mechanisms, stakeholder meetings, surveys and direct feedback during events and activities.

Inclusion

- Open access to reuse circuits and donation systems.
- Engagement through public awareness campaigns and collaboration with local organisations.

Main barriers:

- lack of targeted inclusion strategies;
- absence of gender- and age-disaggregated data;
- reliance on voluntary participation and local social dynamics.

Participation is mainly **informative and consultative**, with stronger involvement during operational and awareness-raising phases.

IMPACTS

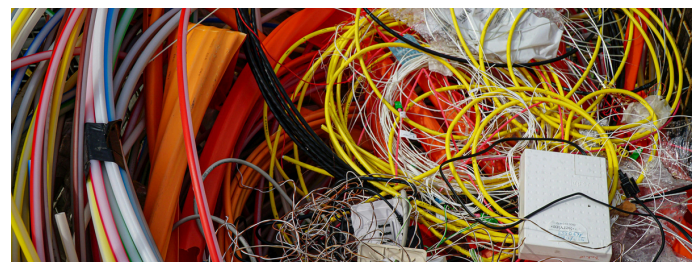


Environmental benefits

- Reduction of municipal waste disposal through reuse and repair.
- Diversion of reusable materials from landfill.
- Promotion of composting practices for organic waste.


Social and economic benefits

- Support to local community initiatives and organisations.
- Promotion of sustainable consumption behaviours.
- Development of local circular economy and reuse activities.
- Increased environmental awareness at community level.





SWM AND CIRCULAR ECONOMY AT INDIVIDUAL, MSME AND SME LEVEL (IRBID)

 **Type of waste:** Recyclables (cardboard, plastic, metals, textiles).

Brief description of the practice

Under the **INNOMED-UP** project (ENI CBC Med), activities supported circular-economy entrepreneurship among cultural and creative industries (CCI SMEs):

- established **6 pilot clusters** across Mediterranean historic centres;
- provided **€205,000** in innovation & mentorship vouchers;
- developed **27 pilot products/services**;
- deployed smart collection prototypes (smart bike & smart bin);
- created an **open-source repository** for eco-design;
- promoted industrial symbiosis and cross-border innovation.

In Irbid, **40 circular MSMEs/SMEs** were supported with training in:

- CE principles (5Rs),
- branding and packaging,
- business model development,
- marketing and private-sector linkages.

Governance and stakeholders

Implementing organisation: Future Pioneers (2019–2023) with CSOs.

Scale: individual, MSME and SME level.

Governance model: community-led; 40 small circular businesses run by owners (women, men, youth).

Stakeholders: municipalities, Ministry of Municipal Affairs, private sector buyers, commercial partners, households.

Participation mechanisms: Fully participatory process across all phases: mapping, diagnosis, training, co-design, implementation, monitoring.

Monitoring and accountability

Monitoring strategy included:

- monthly progress reports,
- quantities of materials received/processed,
- production volumes,
- generated revenue,
- business model viability,
- pre/post questionnaires.

Feedback via a **mobile**.



Inclusion

- **70% women**, 40% of them youth; refugees and vulnerable groups included.
- Beneficiaries actively co-designed outreach and implemented projects.

Constraints: Barriers similar to the community-level model: cultural norms, domestic responsibilities, transport barriers.

Enabling actions: Safe workspaces, transportation incentives.



IMPACTS



Environmental benefits

- Significant reduction of waste sent to dumpsites due to reuse/upcycling.
- Increased recycling and circular innovation.

Social and economic benefits

- **40 new circular MSMEs** created or strengthened.
- Improved household income and economic resilience for vulnerable groups.

Inclusion impacts

- Better representation of women and youth in green entrepreneurship.
- Enhanced livelihoods and improved socio-economic conditions.



SPAIN

Legal framework analysis

Spain transposed and updated these obligations through Law 7/2022 on Waste and Contaminated Soils for a Circular Economy⁷, which repealed the previous 2011 framework and introduced enhanced prevention targets.

Institutional competences reflect Spain's decentralised structure: the State establishes basic environmental legislation and strategic planning instruments, while the Autonomous Communities are responsible for regional waste plans, authorisations, inspections, and enforcement. Municipalities organise the collection and management of municipal waste and implement local waste fees in line with cost-recovery principles.

⁷ <https://www.boe.es/eli/es/l/2022/04/08/7/con>



TRAPEROS DE EMAÚS – INTEGRATED REUSE, RECYCLING AND SOCIAL INCLUSION MODEL (PAMPLONA, NAVARRA)

Type of waste: Integrated waste management with a strong focus on reuse, preparation for **reuse, recycling and social inclusion**.

Waste subcategories: Textiles, furniture, household goods, books, toys, bulky waste, paper and reusable materials, WEEE.

Brief description of the practice

Traperos de Emaús is a **non-profit social foundation** dedicated to the **collection, sorting, preparation for reuse and recycling** of used goods, while creating **employment pathways for socially vulnerable groups**.

The model includes:

- door-to-door collection and selective collection services,
- manual sorting and classification,
- repair, refurbishment and cleaning,
- second-hand shops,
- integration of reuse training and repair workshops,
- authorised management of specific waste streams (e.g., WEEE).

The initiative combines **waste prevention and circular economy** objectives with **deep social-inclusion work**, making it a unique hybrid model of environmental and social impact.

Monitoring and accountability

Monitoring covers:

- quantities of collected and recovered materials,
- reuse and recycling rates,
- preparation-for-reuse volumes,
- employment and inclusion indicators,
- financial sustainability of reuse operations.

Citizen feedback occurs via second-hand shops, collection services, awareness activities and community communication channels.

Governance and stakeholders

Implementing organisation: Fundación Traperos de Emaús Navarra.

Governance model: community-based, part of the international Emmaús movement; collaborates with municipalities while maintaining autonomy.

Scale: inter-municipal / regional.

Stakeholders: Municipalities, public waste consortia, citizens (donors and buyers), social-economy organisations, workers and volunteers, people in insertion programmes, public environmental agencies.

Participatory mechanisms: Donation and reuse participation, community shops, awareness campaigns, inclusion programmes. Formal structured participatory governance is not explicitly described.

KEY 2024 OUTCOMES

- **3,363,086 kg collected**, with **83.7% recovered** through reuse/recycling.
- High recovery rates across multiple streams: WEEE (99%), textiles (77%), furniture (74.7%).
- Strong social-inclusion performance through structured work-integration pathways.

Inclusion

- High involvement of **people in vulnerable situations** through work-integration schemes.
- Gender/youth data not reported.
- Vulnerable groups participate mainly at **operational and vocational levels**, receiving training and social support.

Inclusion mechanisms: Employment integration, equal-pay principles, repair-skills development.

Constraints: Labour-intensive operations, dependency on social-support funding, pressure from mainstream “efficiency-based” waste systems.



IMPACTS



Environmental benefits

- Major waste diversion from landfill.
- Extension of product lifespans and resource preservation.
- High WEEE preparation-for-reuse performance.

Social and economic benefits


- Job creation for people at risk of exclusion.
- Affordable second-hand goods.
- Local circular-economy development and skills training.

Inclusion impacts

- Reinforced social reintegration and employment opportunities.
- Strong community identity based on solidarity.



PARTICIPATORY WASTE MANAGEMENT THROUGH LOCAL, COMMUNITY-BASED COMPOSTING. (TARPUNA, CATALONIA)

 **Type of waste:** Organic waste; decentralised composting.

Brief description of the practice

Tarpuna is a **social cooperative** promoting **sustainability, community participation and environmental education**.

Its participatory waste-management line focuses on:

- **community composting systems,**
- **auto-composting at neighbourhood or school level,**
- **decentralised technologies** such as the *Revolta* pre-composting machine,
- integration of compost into **urban agriculture,**
- strong emphasis on **training, awareness and active citizen involvement.**

The initiative seeks to:

- reduce organic waste at source,
- create local composting loops,
- build community capacity and environmental awareness.

Monitoring and accountability

Monitoring is documented in annual reports ("memòries"), including:

- number of composting systems installed,
- number of trained participants,
- organic waste quantities treated,
- schools and community groups involved,
- number of active community agricultural installations.

Citizen feedback is gathered directly through community activities and training.

Governance and stakeholders

Implementing organisation: Tarpuna Iniciatives Sostenibles SCCL (social cooperative).

Governance model: cooperative and participatory, with shared leadership and local partnerships.

Scale: community-based, implemented with municipalities, schools, associations and citizen groups.

Stakeholders: citizens, neighbourhood organisations, educational centres, municipal authorities, environmental/urban-agriculture associations.

Participation mechanisms: Community-managed composting areas, training workshops, school programmes, hands-on involvement in composting operations.

EXAMPLES FROM THE 2024 REPORT

- 15 urban gardens installed,
- 261 people at risk of exclusion involved in programmes,
- 43 schools engaged in awareness actions,
- 12 community agricultural installations active,
- 800 students/teachers involved,
- 150 residents mobilised in community composting.

Inclusion

- Open community participation; specific gender/youth data not provided.
- Participants actively contribute to compost management, training and awareness activities.
- Inclusion supported through environmental education, hands-on engagement and community empowerment.

Constraints: Improper sorting (contamination), need for sustained community engagement, challenges in maintaining participation in larger urban areas.

IMPACTS**Environmental benefits**

- Reduced organic waste entering conventional streams.
- Local compost production.
- Lower transport needs thanks to decentralised treatment.

Social and economic benefits

- Increased environmental awareness.
- Community capacity building.
- Strengthening of local sustainability initiatives.
- Enhanced community cohesion and place-based ownership.

Inclusion impacts

- Participation enhances empowerment, environmental responsibility and social engagement.





MUNICIPAL REUSE NETWORKS FOR WASTE PREVENTION (CÓRDOBA)

Type of waste: Integrated municipal solid waste management, with focus on **reuse and preparation for reuse**.
Waste streams involved: textile waste (clothes); furniture and household items; WEEE; food surplus (collection and redistribution); organic waste (composting actions); books and small reusable goods

Brief description of the practice

The REUSEMED pilot in Córdoba is a **local reuse system integrated into municipal waste management**, aimed at diverting reusable items from disposal and channeling them into **reuse, repair and redistribution pathways**.

The system is based on:

- dedicated collection streams for reusable materials (recycling centres, bulky waste collection);
- preparation for reuse processes (inspection, sorting, repair, refurbishment and quality control);
- establishment of redistribution channels (reuse centres, second-hand shops, reuse corners);
- repair cafés and community-based reuse initiatives;
- integration between municipal waste services and social economy actors.

The practice addresses:

- high quantities of bulky and reusable waste sent to landfill;
- limited valorisation of reusable materials within conventional waste services;
- low citizen involvement in reuse and repair practices.

Its technical relevance lies in the **integration of reuse circuits within municipal waste infrastructure**, combining operational waste services with social economy, repair activities and citizen participation.

Governance and stakeholders

Governance model: municipal-led with participatory and collaborative governance elements.

Scale of implementation:

- municipal scale (integration with waste services and infrastructure);
- community scale (citizen participation in reuse circuits and repair activities).

Actors involved:

- Municipality of Córdoba (strategic and managerial role);
- Saneamientos de Córdoba SA and Asociación Nacional de Empresas Públicas de Medio Ambiente;
- local community organisations and social economy actors;
- citizens as donors, users and participants in reuse, repair and awareness activities.

Participation:

- phases include co-design, infrastructure set-up, implementation, awareness-raising, monitoring and feedback;
- tools include stakeholder engagement, community events, repair cafés, reuse campaigns and a digital app to support interaction and monitoring.

Gender and generational dimensions: No gender- or age-disaggregated data available. Women, youth and the general population are involved mainly as participants in awareness, donation and reuse activities, with no evidence of co-decisional roles.

Monitoring system

Indicators:

- quantities of items collected and prepared for reuse;
- number and functioning of reuse circuits and infrastructures;
- levels of participation and citizen acceptance.

Responsibility: Municipality and project partners within the REUSEMED framework.

Tools: Project-level monitoring systems, surveys, community engagement activities, digital application, feedback collected through events and awareness actions.

Inclusion

- Broad access to reuse services embedded in municipal waste systems.
- Low-barrier participation for citizens as donors and users of reused goods.
- Involvement of educational centres and social economy actors.

Main barriers:

- absence of explicit gender and generational inclusion strategies;
- lack of disaggregated data;
- strong dependence on voluntary participation and behavioural change.

Participation is mainly **informative and consultative**, focused on engagement rather than shared decision-making.

IMPACTS



Environmental benefits

- Waste prevention through reuse and repair.
- Diversion of reusable materials from landfill.
- Reduction of municipal waste sent to disposal.
- Development of composting actions linked to organic waste reuse.
- Creation of permanent reuse infrastructure (reuse centres, reuse corners, repair cafés).


Social and economic benefits

- Promotion of sustainable consumption behaviours and reuse culture.
- Support to local NGOs and community initiatives involved in reuse and repair.
- Strengthening of local reuse and circular economy networks.
- Improved collaboration between municipal services and civil society.





DECENTRALISED COMPOSTING IN SMALL AND MEDIUM TOWNS (LES MASIES DE RODA)

 **Type of waste:** Organic waste management, with focus on **household bio-waste** and **local composting**.
Waste stream involved: organic waste / OFMSW; compost production and local reuse

Brief description of the practice

The DECOST pilot in Les Masies de Roda is a **community-based decentralised composting system integrated with door-to-door selective collection**, designed to treat **100% of organic waste locally**.

The system is based on:

- decentralised (on-site and proximity) composting infrastructure using modular composting bins or reactors;
- source separation of organic waste at household level;
- low-tech aerobic composting processes adapted to small municipalities;
- technical monitoring of composting conditions (temperature, moisture, quality);
- strong engagement and training of households and municipal staff.

The practice addresses:

- high reliance on landfill disposal for organic waste;
- lack of cost-effective organic waste treatment solutions in small towns;
- need for circular economy solutions with low technological and financial barriers.

Its technical relevance lies in the **local treatment of organic waste without centralised infrastructure**, combining operational simplicity, low costs and strong community involvement.

Governance and stakeholders

Governance model: local public-led governance with strong technical and community support.

Scale of implementation: municipal (small- and medium-sized towns).

Actors involved:

- Municipality of Les Masies de Roda (operational leadership);
- BETA Technological Centre (UVIC-UCC) (technical planning, assistance and monitoring);
- residents and households (users and contributors);
- schools and local communities (awareness and educational activities).

Participation:

- participation mainly during implementation and monitoring phases;
- tools include community-based composting schemes, training sessions, local outreach activities, controlled-access composting points for accountability.

Gender and generational dimensions: No gender- or age-disaggregated data available. The approach is described as people-centred, with broad community involvement rather than targeted inclusion strategies.

Monitoring system

Indicators:

- quantities of organic waste treated;
- compost produced and reused;
- participation levels;
- composting process performance and quality.

Responsibility: Municipality and technical partner, within the DECOST project framework.

Tools: User-ID access to composting points, operational data tracking, technical monitoring of composting parameters, training sessions and community-level feedback mechanisms.

Inclusion

- Direct involvement of residents as active waste managers rather than passive service users.
- Educational and awareness activities targeting households, schools and local communities.
- Training and capacity building for local administrations.

Main barriers:

- strong dependence on citizen participation and behavioural change;
- lack of disaggregated gender and age data;
- need for long-term municipal commitment beyond project funding;
- risk of contamination if source separation is not correctly applied.

Participation is mainly **operational and consultative**, with decision-making retained at municipal and technical levels.

IMPACTS



Environmental benefits

- Reduction of organic waste sent to landfill.
- Local treatment of organic waste, reducing transport and associated emissions.
- Production of compost reused in urban agriculture, municipal green areas and gardens.
- Closure of the organic waste loop at local level.

Social and economic benefits

- Increased citizen awareness and behavioural change on organic waste separation.
- Strengthened community ownership of waste management services.
- Capacity building for municipal staff and local actors.
- Creation of green jobs and support to local circular economy practices (at project scale).





TUNISIA

Legal framework analysis

Waste management in Tunisia is governed by a national legal framework that integrates environmental protection principles with sector-specific regulations and institutional arrangements.

The cornerstone of the system is Law No. 96-41 of 10 June 1996 on Waste and the Control of its Management and Disposal⁸, which establishes the general legal regime for waste classification, collection, transport, recovery, treatment, and disposal, as well as the polluter pays principle and producer responsibility. This law is complemented by implementing decrees defining hazardous waste management procedures, authorisation requirements, and technical standards for landfills and treatment facilities. Institutional coordination is ensured through Agence Nationale de Gestion des Déchets (ANGED)⁹.


Municipalities are in charge of household waste collection and local cleanliness services, while the Ministry of Environment sets national strategies and regulatory oversight. Strategic direction has been provided by the National Strategy for Integrated and Sustainable Waste Management and related action plans aimed at improving recycling rates, reducing uncontrolled dumping, and promoting circular economy practices.

⁸ <https://www.ecolex.org/fr/details/legislation/loi-n-96-41-du-10-juin-1996-relative-aux-dechets-et-au-controle-de-leur-gestion-et-de-leur-elimination-lex-faoc157217/>

⁹ <http://www.anged.nat.tn/>



VALORIZATION OF GREEN WASTE THROUGH COMPOSTING (BIZERTE)

 **Type of waste:** Organic waste – green waste.

Brief description of the practice

The Bizerte green-waste composting project aims to **reduce landfill disposal of biodegradable waste** and promote **local valorization of green waste from municipal green-space maintenance**.

The practice is based on:

- separate collection of green waste,
- **controlled aerobic composting**,
- low-cost, simple technology adapted to local conditions,
- a replicable operational model for other municipalities.

The project addresses high landfill costs, environmental impacts, and the need for circular waste solutions.

Monitoring and accountability

Monitoring includes:

- quantities of green waste treated,
- compost quality,
- number of trained participants,
- environmental and socio-economic indicators.

Tools: operational monitoring sheets, registers, attendance lists, periodic reports.

Citizen feedback is collected through meetings, surveys, local communication channels.

Governance and stakeholders

Implementing organisations: Municipality of Bizerte; co-financing from Germany (University of Rostock); technical support from CITET.

Scale: Municipal.

Governance model: public-led with community involvement.

Stakeholders: municipal officers, private partner (Tunisia Highway), households, local associations, green-space users.

Participation mechanisms: consultations, awareness events, co-design of compost use, public site visits, collaboration with private actors.



Inclusion

- Strong gender and youth involvement: **132 participants**, mostly women and youth (NEETs), trained in composting, circular economy and sustainable agriculture.
- About **80 trained individuals** integrated into composting operations.
- Roles: operational tasks, awareness campaigns, compost use; participation mainly **consultative**, with municipal co-decision.

Constraints: socio-economic barriers, varying awareness levels, and social norms limiting women's participation; mitigated through training and awareness-raising.



IMPACTS



Environmental benefits

- Reduced green-waste landfilling.
- Higher organic-waste recovery rates.
- Reduced GHG emissions from avoided anaerobic decomposition.
- Soil improvement through compost application.

Social and economic benefits

- Local green job creation, especially for women and youth.
- Income opportunities from compost valorization.
- Improved efficiency of municipal green-waste services.

Inclusion impacts

- Strengthened local governance, better representation of women and youth, expanded opportunities for vulnerable groups.



SELECTIVE COLLECTION SERVICE – TUNISIA RECYCLING (NGO), (GAMMARTH, LA MARSA)

Type of waste: Recyclable materials (plastics, paper/cardboard, light metals, glass).

Brief description of the practice

The initiative improves recyclable-waste management through:

- **source separation,**
- neighbourhood-level selective collection circuits,
- simple equipment (dedicated bins/bags),
- manual sorting in local facilities,
- integration and formalisation of informal actors.

It responds to landfill overload by increasing recycling rates and strengthening a **local circular economy** based on community participation.

Governance and stakeholders

Implementing organisations: NGO Tunisia Recycling (operational coordination), with municipal support.

Scale: community-based with municipal integration.

Governance model: community-led, mixed with public and private partnerships.

Stakeholders:

- NGO (strategic + operational roles),
- municipalities (strategic oversight),
- informal waste pickers (operational roles),
- private recyclers,
- citizens and small businesses (source separation).

Participation mechanisms: consultations, co-design, co-management

Monitoring and accountability

Monitoring includes:

- quantities of recyclables collected,
- household participation rate,
- number of informal actors trained,
- number of awareness sessions,
- estimated reduction in landfill waste.

Tools: field forms, household surveys, GPS tracking where possible, periodic coordination meetings.
Citizen feedback: public forums, surveys, suggestion boxes, social media channels, SMS contact, community-representative involvement.

TUNISIE RECYCLAGE
Le tri c'est Vous, la collecte c'est Nous

PLASTIQUES CANETTES BOÎTES DE CONSERVE

PLASTIQUES

- Sachets
- Emballages (pâtes, riz, couscous, café, chocolat...)
- Bouteilles (aplatis)
- Yaourt à boire, crème fraîche,...
- Bidons (javel, lessive...)

CANETTES (vides)
BOÎTES DE CONSERVE (rincées)

PAPIER CARTON BRIQUES ALIMENTAIRES

PAPIER ET CARTON

- Journaux, Magazines et tout ce qui se déchire comme du papier
- Carton
- Cahiers
- Emballages

BRIQUES ALIMENTAIRES (rincées et aplatis)

Nous prenons aussi :

- Le verre dans un carton
- Les piles à part
- Les déchets électroniques

Le rinçage et le compactage facilitent beaucoup le travail de l'association.
Merci de nous aider.

Inscrivez-vous sur : www.tunisierecycling.org

NOS PRINCIPAUX RECYCLEURS : SOTIPAPER, ANGed, Sharek

Ecrivez-nous sur : contact@tunisierecycling.org
Rejoignez nous sur :

TUNISIE RECYCLAGE est une association à but non lucratif



Inclusion

Approximate representation:

- **Women:** 30–40% (awareness, sorting, coordination).
- **Youth:** 40–50% (mobilisation, collection support, volunteering).
- **Vulnerable groups (informal actors):** involved in collection, sorting, valorization.

Participation levels: operational and consultative; gradual integration of informal workers.

Constraints: socio-cultural barriers for women; limited training/technical resources for youth; stigmatization of informal actors; economic constraints.



IMPACTS



Environmental benefits

- Higher recycling rates for plastics, paper, metals and glass.
- Reduced landfill waste and related emissions.
- Better prevention of soil and water pollution.

Social and economic benefits

- Job creation for informal workers.
- Income opportunities through sale of recyclable materials.
- Improved cleanliness and municipal service efficiency.
- Capacity building and increased awareness.


Inclusion impacts

- Greater representation of vulnerable groups in waste management.
- Strengthened local leadership and livelihood opportunities.
- Improved governance through integration of informal actors.





WASTE WISE CITIES – MUNICIPAL INTEGRATED WASTE-MANAGEMENT INITIATIVES (UN-HABITAT), (SOUSSE & BNI KHALED)

 **Type of waste:** Organic waste and municipal solid waste (plastic, glass, paper/cardboard, metals).

Brief description of the practice

“Waste Wise Cities” strengthens sustainable municipal waste management through:

- waste-flow analysis and diagnostics,
- improved source separation,
- **integrated systems combining reduction, sorting, recycling, and composting,**
- stakeholder mobilisation and data-driven planning,
- context-adapted technical solutions.

The practice addresses rapid waste growth, low recycling rates, lack of data, and limited municipal capacity.

Governance and stakeholders

Implementing organisations: municipalities; waste agencies; UN-Habitat; NGOs; private operators.

Scale: inter-municipal.

Governance model: mixed public-led system with multi-stakeholder partnership (public, civil society, private sector).

Stakeholders: municipal decision-makers, public technical partners, private collectors/sorters, CSOs, citizens.

Participation mechanisms: participatory diagnosis, co-design workshops, community involvement in implementation, awareness campaigns.

Monitoring and accountability

Monitoring uses:

- technical indicators (quantities collected, sorting rates),
- participation indicators,
- environmental impact indicators.

Data collected via monitoring sheets, diagnostic tools, and periodic reports by municipalities and partners. Citizen feedback through public meetings, surveys, social media, SMS systems.



Inclusion

- Intentional inclusion of women and youth in awareness and field activities, though no consolidated statistics.
- Roles include awareness-raising, sorting, separation at source, and community mobilisation.
- Level of participation: mostly **consultative and operational**.

Constraints: socio-cultural barriers, limited availability, economic constraints; enabling factors include strong institutional support and contextual relevance.



IMPACTS



Environmental benefits

- Reduction of waste sent to landfill.
- Higher recycling rates.
- Reduced pollution (air, water, soil).
- Compost production and organic-waste recovery.
- Reduced GHG emissions and improved cleanliness.

Social and economic benefits

- Local green job creation.
- Formalization of informal workers.
- Income generation from recyclables and compost.
- Lower municipal waste-management costs.
- Stronger sense of community responsibility.

Inclusion impacts

- Increased representation of women, youth and informal actors in waste-management processes.
- Greater access to opportunities and improved livelihoods.
- Strengthened social cohesion.



VALORIZATION OF ORGANIC WASTE THROUGH COMPOSTING AND VERMICOMPOSTING (MAHDIA)

Type of waste: Organic waste: household organic waste + green waste (with minor components of plastics in sorting areas).

Brief description of the practice

Mahdia faces a critical challenge: **the absence of a local landfill** despite high population density and seasonal pressure from tourism. Organic waste accumulates, harming landscapes, agricultural land and the coastline.

To address this, the municipality implemented:

- a **municipal composting station** for household and green waste,
- a **vermicomposting unit**, the first to use worms to valorize municipal waste,
- local **sorting systems** in selected collection areas,
- a **low-cost, easy-to-manage technological model** adapted to the local context.

The initiative combines innovation (worm compost, higher compost quality) with practical and operational simplicity.



Governance and stakeholders

Implementing organisations: Municipality of Mahdia, co-financed by the ENI CBC Med programme.

Governance model: public-led with strong community involvement.

Scale: municipal.

Stakeholders: households, shopkeepers, schools, hotels, restaurants, municipal technical staff, private sector actors.

Participation mechanisms: Neighbourhood meetings, workshops with households and professionals, awareness days, door-to-door campaigns, training for staff and hotel kitchen managers.

Monitoring and accountability

Monitoring is organised through an M&E framework with indicators such as:

- quantities sorted and composted,
- participation rates,
- compost quality.

Data collection occurs through field surveys and regular evaluation meetings. Monitoring roles are shared between the municipality, CITET, CLIMA project partners and civil society.

Citizen feedback is mainly collected through **social media**.

Inclusion

- Women represented **~90%** of household-level meetings and **~50%** in professional meetings.
- Youth and vulnerable groups participate actively in sorting and awareness roles.
- Their participation in decision-making remains mostly **informative/consultative**, with limited co-decision.

Constraints: social norms, limited time for women, low visibility of informal waste collectors, limited access to information.

Enabling factors: women's central role in household waste, youth interest in the environment, targeted campaigns, existing associative support.



IMPACTS



Environmental benefits

- Reduction of illegal dumping and landfill dependence.
- Lower greenhouse gas emissions.
- Soil quality improvement through compost use.
- Preservation of local natural resources.

Social and economic benefits

- Local job creation.
- Income generation from compost and sale of plastics/glass.
- Reduced municipal waste-management costs.
- Improved quality of life and local environment.

Inclusion impacts

- Broader participation of women, youth and vulnerable groups.
- Improved access to leadership and local opportunities.
- Stronger legitimacy of local governance through inclusion.



NETWORK OF MUNICIPALITIES

Type of waste: Integrated municipal waste management (prevention, sorting, collection, recycling, recovery and governance).

Brief description of the practice

The initiative establishes a **network of municipalities** to:

- improve inter-municipal cooperation,
- share and replicate **best practices**,
- overcome fragmentation, capacity gaps and difficulty scaling local innovations.

Key activities include:

- peer learning,
- technical workshops and working groups,
- inter-municipal exchange visits,
- capitalization of experiences,
- implementation of pilot projects on source separation, biowaste recovery and collection optimization.

The model is innovative for enabling **rapid transfer of solutions**, context-specific adaptation and cost-effective scaling through collaboration.



Governance and stakeholders

Implementing organisations: member municipalities + coordination structure + technical/institutional partners.

Governance model: mixed public partnership with community and private-sector involvement.

Scale: inter-municipal.

Stakeholders: municipalities (strategic / administrative / operational), coordination bodies, CSOs, citizens, private sector suppliers/contractors.

Participation mechanisms: consultations, public meetings, thematic working groups, co-design workshops, co-management arrangements, awareness campaigns, incentive schemes for engagement.

Monitoring and accountability

Monitoring is conducted jointly by municipalities and the coordination body.

Key indicators include:

- stakeholder participation,
- best practices shared and implemented
- waste-management performance,
- capacity-building activities.

Tools: surveys, questionnaires, collaborative digital platforms, municipal periodic reports, follow-up workshops.

Feedback mechanisms include public forums, online platforms, social media, SMS systems, surveys and suggestion boxes.

Inclusion

- Women represent ~**40–50%** of participants.
- Youth represent ~**25–35%**, particularly active in field actions and awareness.
- Vulnerable groups are increasingly integrated through targeted engagement actions.

Roles: awareness activities, participation in working groups, involvement in pilot actions.

Levels of participation: informative → consultative → co-decisional (in some working groups or committees).

Constraints: social norms, limited access to information, low resources, low institutional trust, mechanisms not always tailored to vulnerable groups.

Enabling factors: inclusive participatory mechanisms, targeted training, CSO support, favourable local policies, incentives.



IMPACTS



Environmental benefits

- Waste reduction at source through improved sorting.
- Higher recycling rates.
- Compost production in participating municipalities.
- Reduced GHG emissions.
- Better protection of natural resources.

Social and economic benefits

- Local job creation in collection, sorting and recovery.
- Income generation from recyclables and compost.
- Stronger municipal technical capacity.
- Cleaner environments and better service quality.
- Cost savings through shared resources and solutions.

Inclusion impacts

- Improved representation of women, youth and vulnerable groups.
- Enhanced access to opportunities and leadership roles.
- Better livelihoods and stronger social cohesion.
- More democratic and equitable local governance.



TURKEY

Legal framework analysis

Waste management in Türkiye is governed by a comprehensive national legal framework aligned with European Union environmental acquis and circular economy principles.


The overarching legal basis is the Environmental Law No. 2872¹⁰, which establishes general environmental protection principles, including the polluter pays principle, administrative sanctions, and environmental liability. The sector is more specifically regulated by the Waste Management Regulation of 2015, which harmonised national legislation with the Waste Framework Directive 2008/98/EC and introduced detailed provisions on waste classification, separate collection, recovery, disposal, record-keeping, and licensing procedures.

Institutional competences are shared: the Ministry of Environment, Urbanisation and Climate Change defines national policy, issues secondary legislation, and oversees permitting and inspections; Metropolitan Municipalities are responsible for integrated solid waste management planning and disposal facilities; and district municipalities manage collection services. Strategic direction is provided through national waste management plans and zero-waste policies (notably the “Zero Waste Initiative”), which aim to increase recycling rates, reduce landfill dependency, and promote resource efficiency.

¹⁰ <http://www.lawsturkey.com/law/environment-law-2872>



AGRICULTURAL USE OF SOIL AMENDMENT PRODUCTS DERIVED FROM ORGANIC WASTE TREATMENT PROCESSES (ANTALYA)

 **Type of waste:** Household organic waste (food waste).

Brief description of the practice

The practice focuses on transforming household organic waste into **solid and liquid fermented soil-amendment products** through:

- mechanical separation of organic waste;
- thermophilic bacterial digestion in biometanisation tanks;
- separation of output into solid and liquid fractions;
- production of organic fertilizers and pH regulators.

The model contributes to:

- reduced dependence on chemical fertilizers,
- soil improvement and environmental protection,
- methane conversion into energy,
- circular use of biowaste to create value-added outputs.

The pilot includes extensive **capacity-building for farming communities** through training on:

- waste separation at source,
- safe handling of chemical fertilizer and pesticide packaging,
- environmental impacts of chemical agriculture,
- sustainable farming and organic fertilizer use.



Governance and stakeholders

Implementing organisation: Antalya Metropolitan Municipality.

Scale: provincial administrative boundary (municipal).

Governance model: public-private.

Stakeholders: Finike Municipality, farmer associations, agricultural cooperatives, chambers of agriculture, students, local communities.

Participation mechanisms: Consultations, co-design with farmer groups, awareness meetings, field applications, municipal environmental campaigns.

Monitoring and accountability

Monitoring includes:

- waste treatment volumes,
- changes in agricultural practices,
- number of farmers trained,
- field-based feedback and observations.

Data collection tools: facility records, attendance lists, field monitoring, stakeholder consultations. Regular review meetings update implementation strategies.

Citizen feedback: participatory meetings, consultations, municipal communication tools, social media.

Inclusion

- Women and young farmers are actively involved in training and adoption of organic practices.
- Women are considered central actors in household and agricultural decision-making, thus targeted for learning and awareness.
- Youth participation is promoted through environmental campaigns, field activities and municipal youth assemblies.

Constraints: Need for long-term behavioural change, coordination across institutions, and sustained youth engagement.

Enabling factors: Strong local governance model, collaboration with agricultural organisations, environmental campaigns, and inclusive training programs.



IMPACTS



Environmental benefits

- Reduced chemical fertilizer use.
- Improved soil and water quality.
- Lower GHG emissions through waste valorisation and energy recovery.

Social and economic benefits

- Lower fertilizer costs for farmers.
- Increased awareness of sustainable agriculture.
- Local value creation from organic waste.

Inclusion impacts

- greater involvement of farmers, women producers, young people and local organisations in decision-making and environmental practices.



ECO-FRIENDLY FARMER CARD PROJECT (ANTALYA)

Type of waste: Pesticide-laden agricultural packaging waste (hazardous waste).

Brief description of the practice

The project aims to prevent pollution from **agricultural pesticide packaging waste** by deploying:

- solar-powered smart collection machines,
- digital monitoring systems,
- incentive-based farmer participation (reward & scoring system),
- safe on-site waste collection and transfer to licensed facilities.

The practice shifts from a “polluter pays” to a “protector wins” model, encouraging behavioural change and environmentally responsible farming.

It integrates:

- real-time digital tracking of waste flows,
- awareness-raising campaigns,
- gender-sensitive and youth-inclusive design,
- integration with existing municipal environmental programs (e.g., “Plastic-Free Coasts, Plastic-Free Waters”).



Governance and stakeholders

Implementing organisations: Antalya Metropolitan Municipality + Finike Municipality + cooperatives + private technical partners.

Scale: municipal/inter-municipal.

Governance model: public–public and public–private collaboration.

Stakeholders: women farmers, youth, agricultural cooperatives, muhtars (local leaders), private recyclers, municipal departments (Zero Waste Unit, Environmental Council).

Participation mechanisms: Awareness campaigns, field activities, volunteer initiatives, coordinated decision-making via the Environmental Board, support for women-led cooperatives.

Monitoring and accountability

Monitoring tools include:

- digital dashboard (Eco-Friendly Farmer Card App),
- real-time machine data,
- bi-monthly on-site inspections and surveys,
- gender-disaggregated participation data,
- training feedback loops.

The system is designed as a **modular package** (machine + digital monitoring + training + incentives) to support scalable implementation.

Citizen feedback is collected through: mobile app, surveys, meetings, field visits, continuous risk-management loops with the Zero Waste Unit.

Inclusion

- Target: **20% active participation of women farmers** (exceeding national averages of female farm registration).
- Women's cooperatives receive priority in decision-making.
- Youth engaged through digital tools, environmental campaigns and volunteer programs.

Constraints: Traditional gender norms, low digital literacy, limited access to information, unequal training participation.

Enabling factors: Gender-sensitive incentives, user-friendly design, peer learning, cooperative-based mobilisation, local leadership.



IMPACTS



Environmental benefits

- Reduction of hazardous agricultural plastics.
- Protection of soil, water and coastal ecosystems.
- Contribution to circular economy through licensed recycling channels.

Social and economic benefits


- Incentivised farmer participation encourages safe waste handling.
- Supports behavioural change in agricultural production.
- Promotes responsible use and disposal of chemical packaging.

Inclusion impacts

- Improved representation of women farmers.
- Youth empowerment through digital engagement.
- Enhanced local governance with community-centred decision-making.



ENVIRONMENTAL EDUCATION AND INNOVATION CENTER – ANTALYA

 **Type of waste:** Park and garden waste, fruit waste (vinegar production), beeswax waste, paper waste.

Brief description of the practice

The Environmental Education and Innovation Center is a municipal initiative aimed at increasing environmental and climate-change awareness through hands-on learning, zero-waste demonstrations, and renewable-energy education. The center functions as a **living laboratory**, providing interactive workshops, exhibitions, and practical activities accessible to all segments of society — with a strong focus on children.

The practice combines:

- educational workshops on climate change and zero waste,
- demonstration systems (renewable energy, water recovery, xeriscape landscaping),
- participatory learning activities,
- community feedback mechanisms (“Your Voice for Climate and Environment”).

The initiative promotes practical environmental learning, encourages behavioural change, and showcases replicable sustainability solutions.



Governance and stakeholders

Implementing organization: Antalya Metropolitan Municipality, with partnerships among public institutions and private actors.

Scale: municipal, serving all residents of Antalya, with special engagement of children and youth.

Governance model: public-led with public–public and public–private cooperation.

Stakeholders involved: Municipality, Environmental Board, public institutions, NGOs, citizens, university partners (e.g., Akdeniz University).

Participatory mechanisms: Interactive feedback system, workshops and co-creation activities, exhibitions, awareness-raising events, joint initiatives with universities. Participation is structured mainly through consultation and co-design during activities.

Monitoring and accountability

Monitoring focuses on:

- number and profile of participants (gender, youth, vulnerable groups),
- learning outcomes and behavioural change,
- frequency and type of educational activities,
- outputs of workshops (e.g., compost, recycled products).

Tools include digital feedback, participant records, surveys, educator observation forms, and input from academic partners.

Public reporting mechanisms exist but are not standardized across all program areas.

IMPACTS

Environmental benefits

- Reduction of organic waste through composting and educational use.
- Increased recycling and upcycling, extending the lifecycle of materials.
- Greater public awareness of renewable energy and climate action.
- Water conservation promoted through demonstration systems.

Quantitative data not specified.

Inclusion

- High participation of children and youth (estimated 60–70% of attendees).
- Strong involvement of women, especially in zero-waste and creative-recycling workshops (approx. 50% of adult participants).
- Activities are free and accessible, supporting inclusion of vulnerable groups, families, and diverse socio-economic backgrounds.

Constraints: transport/time limitations for low-income families, cultural norms affecting women's attendance, unequal access to digital information, physical accessibility challenges for people with disabilities.



Social and economic benefits

- Enhanced environmental literacy across age groups.
- Strengthened social cohesion through shared learning experiences.
- Empowerment of women and youth through hands-on skills and active participation.
- Potential development of green skills relevant to employment and local innovation.
- Reduced household resource consumption through education on sustainable practices.

Inclusion impacts

- Increased participation of women, children and vulnerable groups in environmental initiatives.
- Strengthened intergenerational learning and shared responsibility.
- Expanded access to environmental education regardless of socio-economic status.
- Improved representation of community voices through feedback systems and co-creation activities.



5

CONCLUSIONS



CONCLUSIONS

Based on the comparative transferability matrix (please see Annex I) developed across the Italian, Jordanian, Spanish, Tunisian and Turkish practices, and in coherence with the objectives and methodological framework of the Gov4GreenMed Catalogue, several strategic conclusions emerge.



First: transferability across Mediterranean municipalities is not primarily determined by technological sophistication, but by the presence of enabling governance conditions. The Catalogue clearly frames waste management as a governance and participation challenge rather than a purely technical one, emphasizing multi-stakeholder cooperation, participatory methodologies and replicable local models. The comparative analysis confirms that the most transferable practices are those combining clear institutional mandates, structured stakeholder coordination and community engagement mechanisms. Public-led models such as Capannori, Mahdia or Antalya demonstrate that strong municipal leadership, legal alignment and monitoring capacity are decisive pre-conditions for scaling. Conversely, community-led initiatives (e.g. household composting, reuse hubs, CSO circular enterprises) show high adaptability and low entry barriers, but require structured partnerships and financial sustainability mechanisms to scale beyond pilot level.

Second: scale suitability varies significantly according to the operational complexity of the model. Decentralised, low-tech and behaviour-based solutions (community composting, food-recovery networks, neighbourhood reuse systems) are highly adaptable to small and medium municipalities and can serve as entry points for broader systemic reform. Infrastructure-intensive or digitally enabled models (sorting facilities, biomethanisation plants, smart hazardous-waste systems) present higher environmental impact potential but depend on stronger technical capacity, stable financing and robust monitoring systems, thus requiring metropolitan or inter-municipal coordination structures.

Third: the analysis highlights recurrent risk factors across all contexts: behavioural resistance, uneven institutional capacity, weak monitoring frameworks, financial fragility and limited structured inclusion of women, youth and vulnerable groups in decision-making processes. While many practices demonstrate strong operational inclusion (particularly in Jordan, Tunisia and Turkey), participation often remains consultative rather than co-decisional. For transferability to be sustainable, governance mechanisms must formalise inclusive decision-making spaces, integrate gender- and youth-disaggregated monitoring tools, and secure hybrid funding models combining municipal budgets, external funds and revenue generation.



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