



European Union  
European Regional  
Development Fund

*Innovation in Waste Management Policies*

# SMART WASTE

Interreg Europe

**Action Plan**



Resources Recovery  
Regional Agency



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## General Information

**Project :** SMART WASTE

**Partner organisation :** Resources Recovery Regional Agency

**Country :** Italy

**Nuts2 :** Toscana

**Contact person :** Massimiliano Di Mattia

**Email address :** massimiliano.dimattia@arrr.it

**Phone number :** + 39 055 321851

## Introduction

The SMART WASTE project is born out of the willingness of 5 project partner to support innovation in waste management in their territories. SMART WASTE partner's main aim is to develop policy improvements for a selected set of local, regional and national policy instruments. The project's main tools are two synergic activities, namely interregional exchange of experiences among partners and partner's stakeholders & engagement of regional stakeholder's groups. Interreg Europe PLP was also a key source of support to the project, especially when it came to relevant policy briefs and webinar and also thanks to the PLP knowledge Hub.

SMART WASTE started in mid-2019, just 1 year after the EU Commission delivered pivotal innovations of several framework directives on waste management, following up the first Circular Economy Action Plan adopted by the Commission (2015). In 2020 the European Commission then adopted the New Circular Economy Action Plan as one of the main pillars of the European Green Deal, Europe's new agenda for sustainable growth. Following-up the new Circular Economy Action Plan several legislative initiatives are already been delivered and more are ongoing in order to strengthen public support to an ever more circular economy across Europe.

In this context, SMART WASTE activities faced several challenges. First of all, partner's territory showed, from the very beginning, strong differences in terms of waste management development from the point of view of circular economy.

A direct consequence is, of course, in the differences among each partner's stakeholders request for support from SMART WASTE and local authorities managing tackled policy instruments. Last but not least, SMART WASTE dealt with very different policy instruments, from municipal waste management plans up to regional and even national operational programs for EU Regional Development Funds (ERDF), further widening the complexity of the project.

In this regard, one major step in SMART WASTE included the development and application of a shared evaluation methodology to analyse in detail points of strength and weaknesses of partner's policy instruments in supporting innovation in waste management. The evaluation outcomes provided the basis to overcome each policy instrument's weakness trough interregional exchange of each policy instrument's point of strength. In order to take properly into account the abovementioned variety of issues to be dealt with, the evaluation methodology includes both a general and a local evaluation section. Local stakeholder's contributions in developing both the general and the local evaluation methodology proved essential in order to highlight regional needs in terms of support to innovation in waste management. Moreover, since SMART WASTE main focus is innovation, the *Eco-Innovation* in Europe Policy Brief from the Policy Learning Platform on Environment and resource efficiency (February 2019) offered a very important reference in developing the evaluation methodology.

Local stakeholder's contributions proved also essential in identifying good practices in partner regions to be submitted to the JS for evaluation. Selected GPs were also a most relevant source of inspiration for interregional exchange of experiences among partners and partner's stakeholders, including, for some partners, GPs from the PLP knowledge hub.

In person study visits were limited, due to the pandemic restrictions, to the Kick-off meeting in Florence and to the second study visit in Kolding. Partner's stakeholder's, including representatives from Managing Authorities of the policy instruments tackled by SMART WASTE, also took part to both visits, thus ensuring a fairly good level of involvement from the very beginning. However virtual study visits were organised in Apeldoorn (February 2022) and Sofia (April 2022), as a key tool supporting interregional learning.

Local stakeholder involvement was also granted through regular contacts via email, phone calls and local/online meetings, as far as the limitations induced by the pandemic emergency allowed meetings.

Interregional exchanges among partners included periodic online meetings and steering groups and also informal meetings, in smaller groups, to discuss specific topics of interest on waste management in partner territories, such as, for instance, waste management data gatherings and validation systems, smart bins for waste collection, advanced waste collection centres, food and green waste management and so on.

ARRR, LP of SMART WASTE, is an in house company of Tuscany Region, established in 1991 to support Tuscany Government and Council in developing and monitoring waste management public policies. SMART WASTE is the first Interreg Europe project on waste management ARRR is involved in. As such, working on the project offered a great opportunity of professional growth to the personnel involved, thanks also to both local and interregional cooperation and local networking activities.

ARRR specific goal in SMART WASTE is to improve Tuscany ERDF Regional Operational Programme (ROP) 2021 – 2027 ability to support innovation in waste management on a local basis, thanks to the lessons learnt during the project development.

This Action Plan covers Tuscany Region territory. It is the outcome of ARRR and its local stakeholder efforts to make the most out of contributions of SMART WASTE partners and partner's stakeholder and of close cooperation with the Managing Authorities of the selected Policy Instrument, as detailed in the following pages.

## Policy context

### Operational programme of the European Regional Development Fund 2021 – 2027 for Tuscany (ROP ERDF)

The Action Plan addresses the Operational programme of the European Regional Development Fund 2021 – 2027 for Tuscany (ROP ERDF). The Managing Authority of the Policy Instrument is Tuscany Region. ARRR, as in house company of Tuscany Region, supports on a daily basis Tuscany Region, since the early nineties, in developing and monitoring regional public policies in waste management and circular economy.

The ROP is the reference policy instrument in Tuscany for the management of the ERDF for the programming period 2021 – 2027. The ERDF finances programmes in shared responsibility between the European Commission and national and regional authorities in Member States. The Member States' administrations choose which projects to finance and take responsibility for day-to-day management. In 2021-2027, the fund will enable, among others, investments to make Europe and its regions greener, low-carbon and resilient. The OP includes the Policy Objective 2 "for a greener Europe" that, in turn, aims at supporting the development of a more

circular economy in Tuscany, both for household waste and for waste from any other source. Moreover, supporting circular economy development is included in the intervention priorities of OP2, more specifically through future calls for projects in new and/or innovative waste treatment facilities maximizing waste recycling and minimising waste disposal.

SMART WASTE main aim is to support innovation in waste management, exactly the same goal of the proposed Action. Moreover, the proposed Action is also a direct result of the policy evaluation developed within SMART WASTE, since the evaluation pointed out a specific weakness of ROP ERDF 2014 – 2020 for Tuscany, namely its lack of support to innovation for recycling capacity in Tuscany, focusing instead only in supporting R&D&I projects in waste management.

## Details of the Action Envisaged

### Title of the action

#### Introduction of a new action to support circular economy through waste recycling in the Tuscan ROP ERDF 2021-2027

### Policy Need Addressed

In Tuscany, up-to date, the waste management system, both for household waste and waste for any other source, sees excellences and failures living side by side.

For instance, 2019 municipal waste separate collection rate in Tuscany amounts to 60% on a regional basis (i.e. 3.6 million citizens, 273 Municipalities, 14.5 million tourists in 2019), with 76 Municipalities over 75% separate collection rate and 105 Municipalities below 50%: very high differences between territories.

Moreover, when it comes to municipal waste recycling, many Tuscany areas are currently lacking enough facilities (e.g. composting and anaerobic digestion plants) to recycle the total amount of organic & green waste from municipal waste separate collection. As a consequence, many municipality send their organic and green waste outside Tuscany for recycling.

Taking instead into account waste other than municipal waste, such as, for instance, construction and demolition waste, waste from the manufacturing and industrial sector and so on, Tuscany recycling plants treated for recycling almost 7.3 million tons of such waste in 2018, out of a waste generation (other than municipal) of the same magnitude. At the same time, over 2 million tons of such waste, produced outside Tuscany were received in Tuscany for recycling/disposal and almost the same amount of waste, produced in Tuscany, was sent outside Tuscany for recycling/disposal. In other words, in Tuscany today coexist recycling excellences (such as, for instance, one of the main paper and cardboard recycling districts and one of the main textiles waste recycling hubs in Europe) and, at the same time, some non-municipal waste streams generated in Tuscany do not have enough recycling services in line with the proximity principle of the Waste Framework Directive.

This state of play, as briefly summarised above, calls for public support to further develop advanced separate collection of municipal waste – where needed – and for additional recycling capacity when it comes to waste streams that still need to be recycled by plants outside Tuscany, for lack of enough operating facilities, nowadays.

Policy evaluation activities carried-out withing SMART WASTE, including interregional exchange, showed that ERDF OP 2014 – 2020 was quite successful in supporting R&D&I projects for innovation in the recycling of waste generated by the main regional manufacturing sectors, by granting a total public funding of 17.4 million euros to 29 projects with total eligible expenditures of 41.4 million euros.

On the other hand, said OP lacked specific support to both projects to enhance regional recycling capacity and to innovation in municipal waste management separate collection. This turned out in only 0.02 million euro to municipal waste management public funding to just 1 project on this theme with 0.04 million euro of eligible expenditure.

These results highlighted the need to improve the OP in a way to support the enhancement of regional waste recycling capacity and innovation in separate collection of municipal waste.

## Overview of the Policy Improvement that this Action refers to

In order to meet the policy need identified, thanks to the Interreg Europe project SMART WASTE, ARRR has worked with local stakeholders (particularly ROP ERDF Managing Authority) to improve the structure of our policy instrument, thus producing a Type 3 policy change: change in the strategic focus of the policy instrument (structural change).

The policy improvement consists in a new action, entitled “Interventions in Circular Economy”, inserted in the Tuscany Operational Programme 2021 – 2027 for European Regional Development Fund. More specifically, the ERDF OP latest and final draft is the 16 March 2022 one, the deadline for its submission to the European Commission for approval is 17 April 2022, the deadline for the final approval by the Commission, according to the European regulation, is 17 September 2022 (should the Commission ask for clarifications, said deadline would be 31 December 2022). The aforementioned ERDF OP draft includes Specific Objective B.6 “Promoting the transition to a circular and resource efficient economy (Circular economy)”. This directly addresses the failure of the ROP ERDF 2014-2020, as emerged from the evaluation of the policy instrument in SMART WASTE (see section Background below for details).

The action is included under RROP ERDF 2021-2027 Policy Objective 2 “A greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility” and Specific objective (VI) “Promoting the transition to a circular and resource efficient economy” of the Regulation (EU) 2021/1058 of the European Parliament and of the Council of 24 June 2021 on the European Regional Development Fund and on the Cohesion Fund.

On the basis of work carried-out in SMART WASTE, this new specific Action has been developed for ROP ERDF 2021 – 2027, to support further transition of waste management in Tuscany toward one of the higher steps of the European waste hierarchy, namely waste recycling, providing specific support to a better management, in terms of economic and environmental circularity, to both household waste and waste from any other source. The title of the Action is “Interventions in circular economy”.

Overall, the action main goal is to provide co-financing to project supporting further shift of Tuscany waste management on the higher steps of the European waste hierarchy, as set out by the European Waste Framework Directive, namely waste recycling, also through support of municipal waste separate collection.

The Action will allocate 50 million euros during the current programming period 2021 – 2027 of public funding through calls for projects, to co-finance interventions in the following fields:

- Investments in projects granting more waste recycled, in order to reduce raw materials consumption along supply chains and, at the same time, reducing the amount of waste disposed of in landfills or used as fuel in waste to energy plants;
- Investments to reduce the amount of municipal waste disposed of in landfills, therefore financing priorities are the following :
  - Projects to enhance effectiveness and efficiency of separate collection of such waste, in terms of more quantity waste source-separated and with an ever lower cross-contamination level;
  - Projects to provide, according to the Best Available Techniques, additional capacity for waste selection for recycling in existing waste treatment plants;
  - Projects to provide additional food and green waste recycling capacity, for instance through anaerobic digestion.

The approval of ERDF ROP 2021 – 2027 is scheduled in the first half of 2022 and the first call for projects should be launched no later than 18 months after the approval.

## Background

Work in SMART WASTE has been essential for us to develop and achieve this policy improvement. Input came from both regional and interregional activities that run in parallel throughout the project, as described in the paragraphs below.

In project semester 1 our partnership developed an evaluation methodology to assess the performances of policy instruments addressed. Policy evaluation was initiated accordingly. We discussed the methodology with our stakeholders (including a joint meeting on 29/11/2019 and via various bilateral contacts) and applied it to Tuscany ERDF OP 2014 – 2020. This helped us to identify points of strength and weaknesses of the policy instrument in supporting innovation in waste management in our territory. As described above, one of the main weaknesses of the ROP ERDF 2014-2020 was the lack of specific support to projects to enhance regional recycling capacity and to innovation in municipal waste management separate collection.

This paved the way for the development of our action.

Interregional work in subsequent semesters helped us to better understand the relevance of the failure identified for our policy instrument and to focus on possible ways to address it. In this regard, key input came from successful Good Practices (GPs) and other experiences shared by project partners.

Exchange on GPs started already at the kick-off meeting in Florence (September 2019). It continued in subsequent semesters, including one study visit to Kolding (January 2020), in which a stakeholder from the Tuscan Managing Authority also took part, and various interregional virtual meetings (due to COVID-19 emergency).

Key input came from targeted experience exchange with partners in semesters 4 and 5, thanks to a series of 6 informal small groups online meetings (April to December 2021), devoted to delve deeper into topics such as local stakeholder involvement in delivering policy instruments, waste management data gathering systems, food and green waste collection and recycling services, sewage sludge management, construction and demolition waste management and so on.

Throughout SMART WASTE we were able to identify and assess several GPs from our partners, which proved essential in developing our action. We describe the specific inputs of each GP to our policy improvement in the table below, with details on the exchange process.



Good Practice / other experience and partner	Input to our policy improvement	Exchange process
<p>Integrated waste management in Municipality of Burgas (P4 – BAMEE)</p>	<p>The GP made clear to us the effectiveness of an holistic approach when innovating municipal waste management, by underlining the need for simultaneous intervention on multiple aspects</p>	<p>BAMEE identified this GP with their local stakeholders and first presented it to the consortium in the occasion of a virtual project meeting in June 2021. Following this, we supported the partner in submitting the GP, thus gaining further specific details on the functioning of this GP.</p>
<p>Recycleservice 2025, a reversed waste collection system for residual waste with pay-as-you-throw (P6 – Municipality of Apeldoorn)</p>	<p>Recycles Service 2025 was inspirational in showing how an high level service for separate collection of municipal waste coupled with a payment scheme for unsorted waste collection is highly effective in achieving very high municipal waste separate collection rates and, at the same time, a very low generation of unsorted waste per capita</p>	<p>Recycleservice is an ambitious project being implemented in Apeldoorn. P6 first presented it at the SMART WASTE kick-off meeting (September 2019), provided more specific details in the occasion of partner meeting 2 in Kolding (January 2020) and updates in the occasion of all subsequent virtual meetings. Specific exchange on Recycleservice 2025 was also addressed in the occasion of the trilateral meetings that with had with P6 and P2 in 16th april 2021</p>
<p>24-hour service for handing in hazardous waste (P2 – Municipality of Kolding)</p>	<p>The automated collection system success proved to us the importance of taking into account specific innovation in waste collection systems for citizens</p>	<p>We first learnt about this GP during the study visit at partner meeting 2 in Kolding (January 2020). There, we could see the service in operation, understand the practical elements and discuss with service managers about pros and cons. Following the meeting, P2 provided additional information on this GP, which was also discussed in the occasion of the trilateral meetings that we had with P2 and P6 in 3rd September 2021</p>
<p>Support for improvement of waste management system in Zlatograd (P4 – BAMEE)</p>	<p>The GP highlighted to us the paramount importance of providing support to the development of food and green waste composting facilities</p>	<p>BAMEE presented this practice to the consortium in the occasion of a virtual meeting in May 2020 and provided additional information via email in the following months when drafting the GP for submission to the JS.</p>
<p>Fill-level sensors for waste collection</p>	<p>Example of innovation in municipal waste collection system worth funding with ERDF ROP</p>	<p>Virtual study visit in Apeldoorn on 10th February 2022</p>
<p>Dynamic route planning for waste collection</p>	<p>Example of innovation in municipal waste collection system worth funding with ERDF ROP</p>	<p>Virtual study visit in Apeldoorn on 10th February 2022</p>

Listed GPs allowed us to learn about the usefulness of transferring in Tuscany ROP ERDF 2021 – 2027 a specific action to support innovation in municipal waste management separate collection and recycling services, by providing specific examples of successful experiences. In more detail, partner's GPs allowed us to better understand the importance of envisaging public support to more different aspects of municipal waste management in Tuscany, for the strong existing synergies between, for instance, collection service efficacy and effectiveness and subsequent industrial recycling processing.

In general, input from the local stakeholder group was essential in two ways: by providing specific inputs on what kind of projects Tuscany ERDF OP should support and how to grant support, and by providing relevant GPs then submitted to the policy learning platform.

Abovementioned specific inputs included :

- What ERDF OP of Tuscany should support :

- There is a need to support well-established effective technologies and approaches by adapting them to current public policies goals, not focusing on pure research-oriented projects only;
- EU funding should also support waste management infrastructures investments costs;
- ERDF OP priorities to support innovation in waste management should also include waste prevention, developing a market for goods produced from waste recycling, support education (both in the public and private sector) concerning green public procurements developments and requirements;
- ERDF should provide support according to private and public companies real needs in term of innovating waste management.

- How ERDF OP of Tuscany should grant support :

- Check for room to mitigate de minimis aid regulation effect on access to public funding;
- Access to ERDF funding should be simplified, with specific reference to administrative procedures;
- Approve, through regional law, simplified procedures for operation permits to ERDF funded projects.

Overall, stakeholder's inputs were quite consistent with the results of our evaluation activity of the policy instrument, which also served as double-check of our evaluation results reliability.

Stakeholder's inputs were gathered in a first meeting held in November 2019. Stakeholders participating to the meeting included representatives of Tuscany Region as Managing Authority of the policy instrument, representatives of public and private companies and SMEs associations, universities, public and private research centres. As a follow-up to the meeting we drafted a meeting minute then shared with participants for feedbacks. It continued throughout subsequent semesters, to assess interregional GPS, provide input to exchange with the other partners and help structuring our Action.

To this end, joint activities between ARRR and the Managing Authority of Tuscany ROP ERDF 2021 – 2027 were extremely important. They have been engaged in SMART WASTE from the start: besides regular contacts via email and phone, MA representatives took part in the exchange activities at the project kick-off meeting (September 2019) and in the study visit in Kolding (January 2020).

When contributing to support innovation in waste management through policy improvement of Tuscany ERDF OP, constant contact and cooperation with ERDF regional managing Authority and relevant regional departments was of course of paramount importance. To this aim, close contacts were established and fostered since SMART WASTE very beginning, by constantly keeping Region government relevant stakeholders informed on SMART WASTE activities, asking for their feedbacks and proposals and also by keeping constant and close track of political and technical ongoing activities for the development of ROP ERDF 2021 – 2027.

A milestone cooperation activity, in the above-mentioned regard, took place from May 2021 to February 2022, when we had a series of meetings and email exchanges to draft the Action itself, in order to make the most of the lessons learnt in previous SMART WASTE semesters, both from our project partners and from our regional stakeholder group. Activities also included support to the regional managing authority of the policy instrument in selecting and quantifying the target value for the related indicators.

We shared with MA representatives the needs expressed by our regional stakeholders and the proposals from our project partners, finding a very good match between SMART WASTE outcomes and Tuscany region willingness to support, through the 2021 – 2027 ERDF, municipal waste separate collection services and recycling facilities for both municipal waste and waste from the manufacturing sector. Our joint Action drafts were revised by the MA external technical advisor so we also provided the requested clarifications, including, as aforementioned, proposals for output and results indicators and related values.

Eventually, the Action will be approved by Tuscany government as an integral part of Tuscany ROP ERDF 2021 -2027.

## Specific Activities and Timeframe

### Activities implemented in Phase I

#### **August 2019 – July 2020**

Policy instruments evaluation methodology development, its application to Tuscany ERDF OP 2014 – 2020 and outcomes shared with partners and local stakeholders for feedbacks

#### **September 2019**

Project Kick-Off Meeting, including representatives of the policy instruments Managing Authority.

#### **November – December 2019**

Full local stakeholders group meeting and shared minute with proposals for actions/policy improvementst

#### **January 2020**

Study visit in Kolding, including a representative of Tuscany Region office in charge of ERDF OP call for projects

#### **July 2020 – February 2021**

GPs identification, trough close cooperation with local stakeholders, and interregional exchange with project partners

#### **April – June 2021**

Informal online meetings with small groups of project partners and relevant stakeholders to discuss specific waste management issues

#### **May 2021 - February 2022**

Work group with Tuscany region representatives in charge of developing and delivering regional ERDF OP 2021 – 2027 Action to support circular economy. Action joint drafting, including indicators quantification

#### **March – July 2022**

Contacts with the Managing Authority to finetune the new action on circular economy to be included in the draft ROP ERDF 2021 – 2027 to be sent to the European Commission.

Monitoring the process of approval of ROP ERDF by the European Commission and the subsequent formal adoption of ROP ERDF by Tuscany Region decree.

## Activities implemented in Phase 2

### **August – September 2022 December**

Monitoring the process of approval of ROP ERDF by the European Commission and the subsequent formal adoption of ROP ERDF by Tuscany Region decree (expected by September 2022).

### **September 2022 - Beginning 2023**

Support to Tuscany Region to develop the first call for projects.

### **Beginning of 2023**

1<sup>st</sup> Regional call for projects on circular economy according to ROP related Action (expected)

### **Spring - Summer 2023**

Projects approved for funding and monitoring of funded projects specific content



## Stakeholders involved

Name of Organisation / person (where possible)	Role in Action Plan
<b>Tuscany Region</b>	Responsible for ERDF OP drafting and draft submission to the European Commission for approval and also for the final approval of the OP after European Commission final decision
<b>European Commission</b>	Responsible for ERDF OP approval
<b>Tuscany ERDF Managing Authority</b>	In charge of coordination, surveillance and monitoring of ERDF OP, including OP delivering, technical and financial management, first level control, OP evaluation, communication activities and all related database

## Costs and Funding Sources

Costs	Funding Source
<b>50 million euro of ERDF funds allocated to the new action on separate waste collection and waste recycling included in Tuscany OP ERDF 2021-2027</b>	50 million euro allocated in Tuscany Region ROP ERDF 2021 – 2027 budget (including EU, national and regional resources)

## Risk and Contingency Plans

Description of Risk	Level of probability (High, Medium, Low)	Description of Contingency Plan
<b>Delay in the approval of Tuscany ROP ERDF 2021 – 2027</b>	Medium	Monitoring of the approval process and support to Managing Authority in the process of approval
<b>Amount of ERDF funds to finance call for projects in separate waste collection and waste recycling lower than planned</b>	Low	Monitoring of the approval process and support to Managing Authority in the process of approval

## Monitoring

Self-defined Performance Indicators		
Indicator	Target	Means of Verification
Number of new actions included in Tuscany ROP ERDF 2021 – 2027 to support innovation in waste management	1	Tuscany Region Decree approving ROP ERDF 2021-2027
Output Indicators		
Indicator	Target	Means of Verification
Number of meetings involving ARRR and the Managing Authority to prepare the new action on circular economy for ROP ERDF 2021 – 2027 (including indicators)	15	Meeting follow-up documents
Number of drafts of the action (and indicators) on circular economy to be included in ROP ERDF 2021 – 2027 shared and improved	5	Draft documents

### Signature

Institution REGIONE TOSCANA

Name of Signatory VALERIO MARANGOLO

Position DIREZIONE AMBIENTE ED ENERGIA  
SETTORE SERVIZI PUBBLICI LOCALI, ENERGIA,  
INQUINAMENTI E BENEFICHE

Date 26/05/2022

Stamp (if available)

Signature

*Valerio Marangolo*



