



**“Please in my backyard”**

**Local acceptance and  
stakeholder engagement in  
municipal waste management**

**WANO Working paper**

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### Abstract:

This Working Paper introduces and analyses local acceptance and stakeholder engagement in municipal waste management in North Norway and Tuscany, Italy. Our comparative study of municipal waste management between North Norway and Central Italy reveals interesting good practices and innovative approaches related to municipal waste management, especially including the “Please–in–my–backyard” (PIMBY)” approach of the Peccioli municipality, with a long-term and systematic effort in improving local acceptance of waste management operations and new initiatives with a rare combination of waste management and culture & art, also inviting residents as shareholders to new investments. The waste management actors and stakeholders in both case study regions welcome knowledge-based analysis of local acceptance and stakeholder engagement related to municipal waste management.

This Working paper is part of the WANO (Waste Management in the Arctic North) 2021-2024 project, financed by the Research Council of Norway programme (project nr 319464). The Peccioli case in Central Italy has been described in more detail in the Annex.

## EXECUTIVE SUMMARY

This paper aims to investigate the possibilities of contributing to the local acceptance of municipal waste management in non-metropolitan and peripheral regions. The working paper looks at the waste management sector from the viewpoint of local acceptance and stakeholder engagement and applies place marketing/place branding perspective to the field of waste management. In addition, we are interested in promoting joint international learning between North Norway and regions where the regional attractiveness of municipal waste management has been successfully enhanced.

We have gathered data to answer this question from two major sources. The first source includes a literature review on waste management, local acceptance, and place marketing. The second source includes empirical work by site visits and interviews in North Norway and Tuscany, Italy.

Based on the comparative study of municipal waste management in Peccioli, Tuscany, and North Norway, we conclude that:

- there is a need to pay additional attention to local acceptance and stakeholder engagement related to municipal waste management.
- Despite the geographical distance and differences between Central Italy and North Norway, the cross-case comparison provides elements of inspiration and joint learning, especially reflecting on factors that may contribute to the “Please-in-my-backyard” (PIMBY)” approach to municipal waste management.
- It is possible to identify some factors of success in stakeholder engagement including e.g. the key role of leading persons & institutions and engaging the residents in the development of municipal waste management.
- The waste management actors and stakeholders’ welcome knowledge-based analysis of local acceptance and stakeholder engagement related to municipal waste management. In addition, the analysis of stakeholder engagement study of municipal waste management provides new research avenues and insights into the growing field of foundational economy.

## 1. INTRODUCTION

Waste management in the circumpolar north attracts rising attention. Global trends including climate change, the green transition and increased circular economy force the waste sector to upgrade management plans and industrial operations that are characterized by vulnerable conditions such as harsh climatic circumstances, scattered populations, remoteness, long distances, and smaller waste volumes.

Waste management is not only about the collection of waste and technical processes of waste treatment but also includes firm renewal and innovative processes to create value out of waste products. In addition, waste management companies need to consider changing regulatory frameworks as well as challenges related to competencies and knowledge (Moalem & Kerndrup 2023). Waste management is also related to local and regional planning, especially concerning establishing new waste management sites and facilities. Waste management is often seen as a necessary part of local and regional economies, but not as a sector with a high level of innovativeness. Moreover, waste management includes characteristics such as odour, noise, and risk of fire hazards, that have resulted in the “not-in-my-backyard” phenomenon which affects the development of existing waste management sites and logistics systems, not to talk about new initiatives.

The WANO project (Waste Management in the Arctic North, under the Research Council of Norway programme) in 2021-2024 focuses on Arctic cross-border innovations and technology transfer, with a focus on municipal waste management. In addition, the WANO project aims to put municipal waste management in North Norway into a broader international perspective and to provide the North Norway waste management actors and stakeholders with interesting learning cases to further develop municipal waste management in North Norway.

There are highly interesting examples of stakeholder engagement in municipal waste management efforts which deserve a closer look. One interesting example of connecting stakeholder engagement to municipal waste management can be found in Peccioli in rural part of Tuscany, Italy.

This Working Paper explores local acceptance and stakeholder engagement within the municipal waste management sector in non-metropolitan and peripheral regions. Our study aims to discuss municipal waste management in North Norway in the Arctic from the viewpoint of local community and local stakeholders’ relationship with local waste management investments and projects. We assume that stakeholders’ perceptions, cognitive understanding and emotional responses play a role in explaining the degree of acceptance and engagement. The perceived link between the waste management site and the place is framed as a factor potentially influencing acceptance and engagement. Therefore, branding principles and theories are considered as part of the framework to interpret such perceptual dimensions of acceptance and engagement.

Place branding literature and practice help us to reflect on the formation of the local community’s perceptions of the place and its local development trajectory including (or not) the perceived role of local waste management in locals’ lives. We provide two case studies to explore waste management approaches in two different local contexts to provide actors and stakeholders of municipal waste management with a broader international perspective. We also provide recommendations to North Norway regarding the enhancement of stakeholder engagement and local acceptance of municipal waste management initiatives.

## **About NORCE and the authors**

**NORCE** is one of Norway's largest independent research institutes with long-term experience in Arctic research and focus areas such as, e.g., sustainability, climate change, circular economy, and regional development issues. The Sustainable Development in the Arctic group of NORCE in Tromsø works currently intensively on waste management issues. NORCE acted as the Lead partner for the GROM (Green Transition in North Norway) project, under the RFF Nord programme, in 2019-2022, with Arctic waste management as one of the key themes. The WANO project (Waste Management in the Arctic North, under the Research Council of Norway programme) in 2021-2024 focuses on Arctic cross-border innovations and technology transfer, and the ReCoWaMa (Research collaboration with the Waste Management sector in Troms and Finnmark for improved value creation) project 2023-2025, funded by the RFF Arktis programme, focuses on innovation promotion and research collaboration in waste management in North Norway.

**Jukka Teräs** (D.Sc. Tech., MBA), a Research Professor at NORCE in Tromsø, acts as the Project Director of the WANO waste management projects. He has over 25 years of experience in regional development. He possesses a comprehensive network of business, research, and technology transfer actors in the field of waste management in the Nordics.

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## 2. METHODOLOGY AND STRUCTURE

In this Working Paper, issues of local acceptance and stakeholder engagement have been discussed and applied in the municipal waste management sector. We explore how local acceptance could be enhanced in a traditional sector of municipal waste management. The major research question is presented as follows:

*How do local acceptance and stakeholder engagement unfold over the waste management system development?*

This paper has a specific interest in investigating the possibilities to contribute to the development of the municipal waste management sector in non-metropolitan and peripheral regions through efforts related to promoting and communicating a positive and attractive link between waste management and place images, with a focus on the local community as the main target.

Our paper introduces and discusses local acceptance and stakeholder engagement in the sector of municipal waste management also from the viewpoints of place marketing and place branding. Place marketing and place branding related to waste management do not usually attract the same attention as, for instance, high-tech and creative industries. The interest in boosting high-tech investments emerged in several regions and place marketing helped these regions frame an investment value proposition (including high-tech incubators, science and technology parks, fiscal incentives, etc., see Pasquinelli and Teräs, 2013). Knowledge-intensive and creative industries have an image advantage as promising the “high roads of development”, which became central to public discourse on local development. Instead, a place image issue might arise for places hosting waste management sites for a combination of environmental hazard perceptions and negative images impacting image-sensitive sectors (e.g., real estate and tourism), perceived liveability and, therefore, local acceptance. This Working Paper takes the chance to explore contexts characterized, in contrast, by the capacity to build positive place images connected to the presence and development of a waste management system until strategically positioning the place brand (the case of Peccioli in Tuscany, Italy).

A working paper format has been selected to enable a more illustrative and detailed description of the WM case in Tuscany, as well as to provide insights both from the research literature and from the field of practitioners in a more open format. The results presented here will be useful both for further academic research and for the purposes of the actors and stakeholders not only in North Norway but also nationally in Norway and internationally.

This paper applies a qualitative research methodology in the frame of two case studies. To set the background and lay a basis for the analysis of the waste management sector, a literature review was implemented considering different research streams, such as municipal waste management, local acceptance, stakeholder engagement, and place marketing and branding, composing the analytical framework applied to interpret and discuss the case study results. The empirical context of this paper introduces and discusses the local and regional acceptance of municipal waste management initiatives in North Norway. Moreover, the Peccioli case in Tuscany, Italy, will be presented, followed by a cross-case comparison of local acceptance and stakeholder engagement of municipal waste management sectors in North Norway and Italy (The Peccioli case has been described in more detail in the Annex).

This study opens to further research in the domain of promoting, communicating and nurturing engagement with local waste management by building the link between waste management and local sustainable development.

Data collection involved primary and secondary sources. For the Italian part, the collection of the empirical data for this Working Paper largely focuses on the field study by Jukka Teräs and Cecilia Pasquinelli in Peccioli and Pisa, Italy, in 2024. Primary sources included in-depth semi-structured interviews with key informants such as the Mayor of Peccioli and a meeting with the local waste management company's top manager in April 2024, (which focused on the dynamic evolution over time of the Peccioli waste management system with a focus on stakeholder engagement), academic experts from the Interdisciplinary Centre on Sustainability and Climate, Scuola Sant'Anna in Pisa in April 2024 (a group interview focusing on the characteristics of the waste management sector in Tuscany, state of the art, innovation projects and future developments). For the North Norway part, the WANO project work with Remiks and HRS company interviews and North Norway waste cluster interviews, are essential parts of the data collection. Secondary sources were collected in a dialogue with the interviewees who kindly provided additional printed materials for the analysis.

A draft of this Working Paper, including preliminary results, was presented at the international waste management seminar "*Research meets Waste Management in the North*" by the WANO project in Tromsø (October 28, 2024). The seminar feedback has been considered in this final Working paper document.

### **3. LITERATURE REVIEW**

In this section, we provide a literature review of the key themes and concepts relevant to this Working Paper. First, we introduce the municipal waste management sector. We also address the issues of local acceptance and stakeholder engagement related to municipal waste management. Finally, we introduce place marketing and place branding concepts.

#### **3.1 Municipal waste management - an introduction**

More than 2 billion tonnes of municipal solid waste are generated globally each year, and the trend is growing (World Bank, 2022). In 2008, the European Union (EU), as part of the efforts to develop a more sustainable and resource-efficient economy, adopted the "Waste Framework Directive» (2008/98/EC) which establishes principles for how EU member states must treat waste in a responsible and environmentally sound manner that does not harm people or the environment. In 2015, the waste directive was incorporated into the "Circular Economy Package", which required each country to draw up a plan for waste management, an analysis of the current system, as well as measures to increase the proportion of waste collected, sorted and delivered for reuse and recycling. These regulations were renewed and strengthened in 2018 (European Commission 2018). Municipalities face challenges not only in meeting the EU goals related to waste management but also related to the social acceptance of these changes; waste management is an activity that usually requires financial support from system users (that is, citizens).

Waste management is not only about the collection of waste and technical processes of waste treatment but also includes firm renewal and innovative processes to create value out of waste products. However, the waste management sector does not search for solutions within a contextual vacuum. Waste management companies need to consider a changing regulatory framework as well as challenges related to relevant competencies and knowledge development (Moalem & Kerndrup 2023).

According to the European Parliament and European Council Directive 2008/98/EC municipal waste means: (a) mixed waste and separately collected waste from households, including paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment, waste batteries and accumulators, and bulky waste, including mattresses and furniture; (b) mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households.

Municipal waste management deals with all the waste under municipal responsibility: waste collection, waste sorting stations, local collection points for sparsely populated areas, enough reception points for hazardous waste, as well as takes care of waste treatment and landfilling. Municipal waste management also provides information and advice on separate waste collection and is responsible for environmental awareness raising.

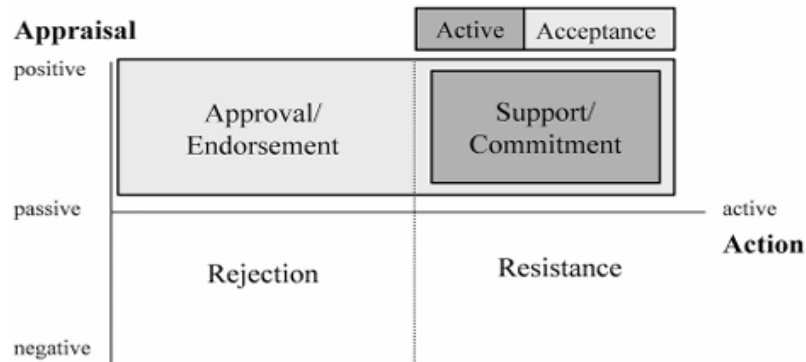
It is important to note that municipal waste management – the sector of our empirical study – is characterized as a foundational economy, including the production of goods and services that are critical to human welfare (e.g., Hansen 2021). The municipal waste management sector does not attract the same attention as high-innovative and high R&D-intensive sectors such as information and communication technology.



### 3.2 Local acceptance and municipal waste management

Local acceptance refers to the level of support or approval for projects by residents near the project site. Local acceptance involves residents' attitudes, perceptions, and behaviours towards existing or planned projects in their community. Local acceptance can range from active support to passive approval to active resistance (Schumacher & Schultmann, 2017)

The figure below illustrates these different dimensions of local acceptance. It categorizes four dimensions of local acceptance: approval (passive acceptance), support (active acceptance), rejection (passive non-acceptance), and resistance (active non-acceptance). (Schumacher & Schultmann, 2017).



**Figure 1:** Four dimensions of local acceptance (Schumacher & Schultmann, 2017)

Issues of local acceptance of waste management facilities are often analysed using the “Not in my backyard” (NIMBY) perspective. This perspective is part of the overarching theoretical framework of rational choice theory which presupposes that human behaviour is primarily motivated by self-interest – people do what benefits themselves (Soland et al., 2013).

In the context of local acceptance of facilities, which are associated with a negative impact on the local area, rational choice and NIMBY implies that support is dependent on where the individual lives. People living close to a proposed plant are expected to be negative, motivated by negative local impact, while people living elsewhere are expected to be positive, motivated by the more general positive impact of the facilities.

### 3.3 Stakeholder engagement and municipal waste management

Stakeholder theory has become one of the major ways to conceptualize and comprehend business organizations in the fields of strategy and management. Stakeholder engagement is the manifestation of stakeholder behaviours towards an organization, purpose or brand (Verhoef et al., 2010). It has been coupled with stakeholder value co-creation conceptualization (Wiesmeth, 2020) and is driven by cognitive processing and emotional relationships with the object of engagement (Loureiro et al., 2020). According to stakeholder theory, the purpose of a business firm is to bring together employees and customers, suppliers and distributors, investors and communities and other actors in society to create value for the various stakeholders. Stakeholder engagement has become the term for practising the stakeholder theory (Freeman et al., 2017).

Research on stakeholder engagement in environmental policies and waste management innovations is in its infancy (Wiesmeth, 2020). This mirrors scholars' resistance to focus on the centrality of citizens' public acceptance and engagement in sustainable transitions (Corsini et al., 2019). In the waste-to-energy sector, it was analysed how stakeholders' behaviours may transition from boycotting and opposition to projects perceived as potentially dangerous and deteriorating the local context (such as incineration plants or photovoltaic plant stations) to active support that goes beyond acceptance (Song et al., 2024). However, knowledge about the drivers of attitude and behavioural change is limited (Song et al., 2024).

Active engagement with these kinds of projects and PIMBY attitude are considered counterintuitive phenomena, but there is a wide range of cases where radical conflicts did not occur and even local advocacy emerged (Song et al., 2024). Endorsement, advocacy, active support and PIMBY responses are forms of stakeholder engagement since they are active behavioural manifestations. Nevertheless, the related drivers remain an open research field. Context characteristics, agency and subjectivity, as well as individual instrumental rationality focusing on project benefits, socio-political identities, ideological commitment and a sense of self-determination (see Song et al., 2024) may be part of the explanatory factors triggering stakeholder engagement. The emotional side of stakeholder engagement with contentious projects and the role of emotional factors in turning "hostility into hospitality" (Song et al., 2024, p.105) were largely neglected in the literature.

### **3.4. Place marketing and place branding**

Place marketing and place branding have been envisioned as part of local and regional policies widely, in Europe and beyond. It is the set of processes put in place to promote the place to identified target audiences by positioning the "place-as-a-product". Place branding is focused on the representation and symbolic dimension of places. Place branding acknowledges the relevance of place images, assuming their relationship with local and regional development. Place brands are projected mental representations of places in people's minds (Zenker and Rutter, 2014) such as tourists, entrepreneurs, workers, investors, residents, and policymakers. Place branding aims to create mental associations, expectations, and individual and collective behaviours (Pasquinelli, 2014).

Beyond informing about the place by leveraging the rational side of human beings, branding is meant to activate the emotional bonding that, according to marketing principles, is an effective behavioural trigger. The emotional and symbolic dimensions of places are even relevant to curating investment promotion as investors and company managers are individuals moved by cognitive and emotional drivers (Jacobsen, 2009; Pasquinelli and Vuigner, 2019). Place branding debate has evolved in two main directions, reshaping conceptualisations and practices. Much attention has shifted from place attractiveness for outside targets (such as tourists and investors) to the rising relevance of internal place branding, considering local stakeholders (such as residents, local businesses and organisations) as key branding targets. Local stakeholders' satisfaction, liveability and residents' proximity to public decision-making are the frames in which place branding has been progressively envisioned (Insch et al., 2015; Parker et al., 2015). In this framework, participation in place brand building has become central to place branding studies (Eshuis et al., 2014; Kavaratzis and Hatch, 2019). There has been a shift from top-down branding to politicking (i.e., persuading local stakeholders about the brand promise) and place brand co-creation. In line with a multi-stakeholder perspective on place brand building, the role of local firms in actively contributing to the place brand was under scrutiny in the frame of regional innovation (Pasquinelli et al., 2023).

## 4. MUNICIPAL WASTE MANAGEMENT IN NORTH NORWAY

### 4.1 Geographical context

North Norway consists of three northernmost counties (Troms, Nordland, Finnmark) of Norway with 484,000 inhabitants. North Norway borders Finland, Sweden, and Russia, and consists of different cultures with a mixture of northern cities (such as Tromsø and Narvik), rural and peripheral communities, and indigenous Sámi people in the inner parts of the region. North Norway has important peripheral characteristics with a low population, long distances, and a mix of high and low skill levels. The major industries include fisheries, aquaculture, construction sector and service functions. Tourism is also a rising industry. Moreover, the public sector is an important employer.



Figure 2: The map of North Norway

### 4.2. Arctic Waste Management in North Norway

According to the main principle of the Norwegian waste policy, the municipalities are responsible for the collection and treatment of household waste, while the handling of industrial waste takes place in a free market within the framework of the legislation. The municipalities are free to choose how they wish to organise municipal waste management: it may be through a separate department, agency, municipal enterprise or through participation in inter-municipal cooperation. The municipalities are also relatively free to choose which waste collection solutions they offer their residents (Miljødirektoratet 2019).

The waste management sector in Norway has undergone a transition from a completely publicly owned sector to a public-private sector where privately owned companies carry out increasingly larger parts. The North Norway waste management sector was highly regulated until the beginning of the 2000s. The local waste management was a *de facto* local monopoly, to be compared with fire brigade type of activities. Since the deregulation of waste management in Norway started in 2002, the waste management sector has been regarded as a sector with possibilities to make things more efficient, i.e., to create value out of waste.

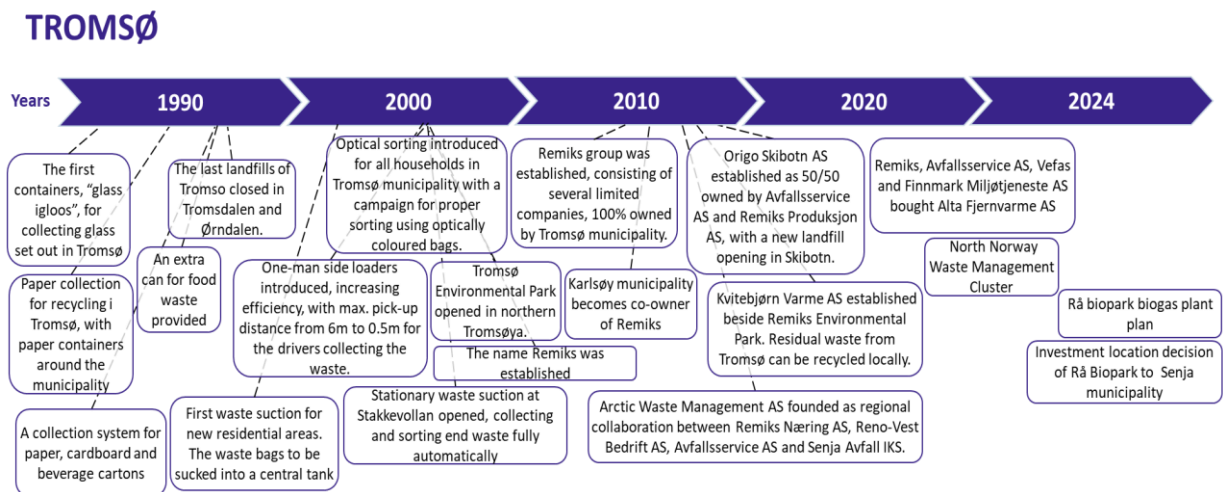
The waste management sector in North Norway is an example of a sector of economy with strong public-private interlinkages, embedded in a circular economy context. Remiks Miljøpark A/S in Tromsø and Hålogaland Ressursselskap IKS (HRS) in Narvik are the leading waste management companies in North Norway. Remiks is 100 % owned by the municipalities of Tromsø and Karlsøy and has approximately 130 employees. Remiks handles approximately 69.000 tons of waste per year, including waste from Svalbard in the north to Nordland in the south, and serves 80,000 inhabitants. HRS, with its main administration in Narvik, is a waste management and recycling company owned by 8 municipalities in the northern part of Nordland and Sør-Troms and has a total of 125 employees. The company provides daily services to our 60,000 inhabitants. HRS handled more than 100,000 tonnes of waste in 2021.



Figure 3: Remiks facility for optical sorting of municipal waste in Tromsø

### 4.3 Case Remiks: From landfills to advanced waste management actor

The waste management sector in North Norway has undergone a significant transformation from old-style landfills to advanced technology facilities and logistics. In this working paper, we present the dynamic evolution and transformation of the municipal waste management sector over time in North Norway by summarizing the development story of Remiks, the leading waste management company in Tromsø, from 1992-2024. Figure 4 illustrates the transformation of the sector in North Norway, using the dynamic evolution of the Remiks company as an example (based on a historical overview of events and activities)<sup>1</sup>.



**Figure 4:** The dynamic evolution of municipal waste management in North Norway: Case Remiks (adapted from [www.remiks.no](http://www.remiks.no))

The first containers, so-called "glass igloos", for collecting glass were set out in Tromsø in 1992. At the same time, the so-called "dog houses" were introduced for waste collection: the blue small houses to collect hazardous waste. Most of the collection points for special waste were deployed next to a petrol station.

In 1995, it became possible to collect paper for recycling. Tromsø set out its paper containers in various places in the municipality, where people could deliver paper waste such as newspapers, etc.

In 1997, an extra can for food waste was being provided, together with a small basket to keep on the kitchen counter for the biowaste bags. From the year 1997 on, the Tromsø citizens were able to send all food waste on to composting.

The last landfills of Tromsø were closed in 1997. In the following years, collaboration on the incineration of Tromsø's waste was also started. For several years, the wagon trains ran to Kiruna in Sweden and became district heating for the Swedes. Tromsø's waste has also been burned in Kjølpsvik in Nordland. There were an estimated 1,500 waste trucks out of Tromsø each year at that time.

Before Kvitebjørn Varme opened its energy recovery plant for residual waste on land set aside for the purpose in Remiks Miljøpark, the residual waste was packed in plastic. The remaining waste was packaged in round bales, like those used by farmers to store animal

<sup>1</sup> <https://remiks.no/remiks-om-oss/var-historie/>

feed. This made the residual waste easier to transport and enabled the reduction of CO<sub>2</sub> emissions. The packaging also eliminated the risk of flying debris.

In 1997-1998, Tromsø introduced a collection system for paper, cardboard, and beverage cartons, with which one could collect paper and cardboard in your own, glossy bags that are distributed from Renovasjonen i Tromsø. In addition, orange bags were introduced to collect used drink cartons.

In 2003, Tromsø received its first waste suction, which meant that the residents of new residential areas had various discharges close to where they lived. The bags of waste were sucked into a central tank which the renovation's suction truck can empty. The idea of waste suction was adopted learned from Bergen, Norway.

One-man side loaders were introduced in 2006-2007, creating a formidable increase in efficiency. With the help of one-man side loaders, Remiks reduced its need for renovators by 50% of what Remiks had previously employed with a minimum of two persons in each waste car. The conversion took place in dialogue with the employees, and the Trade Union.

Optical sorting was introduced in 2006-2007 for all households in Tromsø municipality, including a campaign to get everyone to sort correctly in the optically coloured bags.

Stationary waste suction at Stakkevollan was opened in 2006 and it attracted international attention. The facility collected and sorted waste fully automatically, without the intervention of people or waste collection vehicles along the way. The waste suction route from Northern Norway's most densely populated residential area, Stakkevollan, to Remiks Miljøpark, is 2.5 kilometres long. From 42 disposal points, the waste bags are sucked into the facility.

In 2006, Tromsø Environmental Park (Tromsø Miljøpark) opened a joint facility for its operations in the northern part of Tromsøya. At the same time, the name Remiks was established. From 2007 all production took place in the new facility where as much as possible of the activity should take place indoors and undercover.

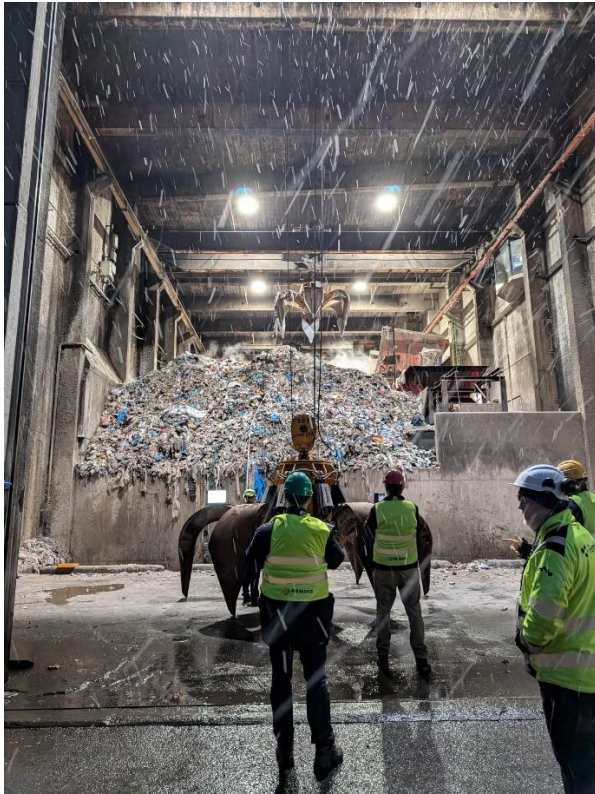
In 2010, Remiks was established as a group consisting of several limited companies, wholly owned by Tromsø municipality. Remiks Miljøpark AS is the parent company, which in turn owns three subsidiaries: Remiks Household AS, Remiks Produksjon AS and Remiks Næring AS. The name of the area changed from Tromsø Miljøpark to Remiks Miljøpark. To be able to participate in the same recycling scheme, Karlsøy municipality became a co-owner of Remiks Miljøpark AS in 2011.

One of the reasons why the company was organised as a group with a commercial part and a household company was that there was a change in the definition of waste and municipal responsibility in 2004. All waste generated in households was still to be the municipality's responsibility, but the municipality could at the same time participate commercially in the market that is open to competition, that is to say on industrial waste.

The regional cooperation in North Norway started in 2014 when the company Arctic Waste Management AS was founded to collect and handle liquid and solid hazardous waste with sludge vacuum cleaners, and to offer industrial services such as cleaning and checking of tanks, boats, oil separators and the like.

In addition, Remiks together with Avfallsservice AS and two waste companies in Finnmark, Vefas IKS and Finnmark Miljøtjeneste AS, bought Alta Fjernvarme AS and rebuilt it so that it can burn recycled wood. In this way, Alta City has gained a stable district heating supplier, and the waste companies involved have a short way to recover energy from demolition and return wood from Finnmark and Troms.

Kvitebjørn Varme AS established itself in the area of Remiks Environmental Park in 2018. In this way, residual waste from Tromsø can be recycled locally, and Remiks' CO<sub>2</sub> footprint is significantly reduced. A milling line with conveyor belts was built from the production hall of Remiks Produksjon AS into the Kvitebjørn Varme AS. This meant streamlining of the production of Remiks, and improved operating conditions for the incineration plant at Kvitebjørn.



**Figure 5:** The WANO “Research meets Waste Management” seminar participants visiting the Remiks site in Tromsø in 2024

#### **4.4 Local acceptance and stakeholder engagement**

In North Norway, municipal waste management has traditionally been regarded as a sector that belongs naturally to the municipal requirements. The North Norway waste management sector was highly regulated until the beginning of the 2000s, and local waste management was a *de facto* local monopoly. Since the deregulation of waste management in Norway started in 2002, the waste management sector has been regarded as a sector with possibilities to make things more efficient and create value out of waste.

The issue of local acceptance has been part of the development of municipal waste management in North Norway, including local discourse. While the general attitude towards municipal waste management was relatively positive during the domination of the landfill solutions, much of the negative discourse focused on the vicinity of existing or proposed waste management plants, motivated by negative local impact on people living close to the waste management sites.

In recent years, the discussion around local acceptance related to municipal waste management has intensified. This is partly due to the global trend of sustainability, paying more attention to the economic, social, and environmental elements of sustainability. In addition, in the context of North Norway, issues such as long-distance transportation of waste and the need to respect the Arctic's vulnerable nature, have been lifted in the

discussion of local and regional acceptance of existing and planned waste management sites and the waste collection and sorting related to these sites.

The Remiks company in Tromsø emphasizes the importance of proper advice to residents and other users of waste management services, as well as advice on waste collection, waste sorting, and awareness raising of environmental issues among residents. Additional emphasis has been put on advice, even incentives, e.g. proper sorting of food to avoid extra general waste. The technological solutions are already available e.g. camera systems, ID tags, advanced waste bins etc. Additionally, initiatives such as the recently opened REBELL sustainability centre in Tromsø raise awareness and highlight the importance of reuse and waste reduction among the stakeholders of waste management both among private households and among trade and industry. In 2023, Remiks opened the Rebell Sustainability Centre in the old postal terminal close to Tromsø International Airport. With 1,000 m<sup>2</sup> of space, Remiks established the city's largest second-hand store including a workshop with sewing machines.

### **Local acceptance and waste management: Case Rå Biopark**

The recent development of the Rå Biopark biogas plant initiative in North Norway has raised discussion on local acceptance of municipal waste management. The Rå Biopark initiative in Finnsnes in the Senja Municipality is a biogas plant located 145 km southwest of the city of Tromsø. It is seen as the flagship cooperation project of the North Norway waste management sector for the coming years. The idea is to reach the critical mass of waste handled within the region since the actors plan to collect waste from several communities. The Rå Biopark will utilize organic waste from the region to produce biogas. At the same time as biogas is produced, the bio-residue is used to produce biochar. The Rå Biopark is organized as a separate company, owned by seven waste management companies in North Norway. A total of 41 municipalities will deliver waste to the Rå Biopark facility.

There has been a relatively intense debate around the planned Rå Biopark initiative in 2022-2024 in North Norway. In Skibotn in Nord-Troms, which was the main location alternative for the biogas plant until 2024, there was some concern among the residents of Skibotn about odour from the facility, and potential additional environmental problems. Some scepticism among local politicians and residents resulted from previous odour problems at the existing composting facility in Skibotn.

The Norwegian broadcasting company NRK published an article in March 2024 in which Marte Lambela from the local action group of residents in Skibotn stated: *“That biogas plant sounds very exciting, but not here!”* According to the interview with Lambela, the residents suffer from smell and odour from composting food waste in today's waste facilities in Skibotn. *“When the smell comes down from the plant, it reaches all the way down into the village. Then you realize it's quite bad at times.”* Rå Biopark AS stated in the NRK article that a modern facility with odour purification technology will solve the odour problems<sup>2</sup>. (NRK 2024).

In September 2024, the Rå Biopark company announced that the Rå Biopark biogas plant investment will take place in Finnsnes in the Senja Municipality, 145 km southwest of the city of Tromsø, instead of Skibotn. The company argued primarily for a financially sustainable solution for the northern Norwegian municipalities that own Rå Biopark. In addition, the local waste management company Senja Avfall will be able to supply thermal energy to the biogas facility – adding to an environmentally sound solution. Rå Biopark estimates a cost

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<sup>2</sup> <https://www.nrk.no/tromsogfinnmark/ra-biopark-skal-lage-biogassanlegg-i-skibotn-1.16761084>



reduction of over NOK 100 million by having the plant in Finnsnes instead of Skibotn. Rå Biopark is expected to make an investment decision by the end of year 2024.

As part of the media study by the WANO project in 2024 on municipal waste management, in North Norway, the newspaper articles on the Rå biopark initiative have been analysed. According to the regional newspaper Nordlys<sup>3</sup>, the relocation decision from Skibotn to Finnsnes was good news for the opponents of the Skibotn facility as there had been some scepticism and mistrust about the new facility especially due to, the odour from the current plant. *“At a public meeting in January 2024, the fronts were steep”*. Nordlys concludes, however, that green industrial ventures often meet with local reluctance and scepticism. *“Biogas plants can, however, like few other ventures, get visibly positive ripple effects in the local communities. It remains to be seen whether the biogas plant will be met with just as much scepticism at Senja, however. The move is an important step in the right direction to ensure a sustainable future for Northern Norway.”*

The overall impression of the media coverage of North Norway waste management reveals that the newspapers in North Norway have a rather “neutral” tone in reporting about municipal waste management. The majority of the newspaper articles report on local interests, but also highlight critical issues, in an attempt to inform the public about services and best practices.

### **Waste Cluster Promoting Stakeholder Engagement**

Regarding stakeholder engagement, the municipal waste management sector has taken promising steps in recent years in North Norway. The North Norway waste cluster initiative was launched in 2018, aiming to intensify and organize cooperation between the waste management actors in North Norway. The goal of the cluster, with a total of 9 members representing the municipal waste management companies in North Norway, is to address challenges collectively and to improve the efficiency of waste management in North Norway. The cluster focuses on themes of joint interest such as e.g. the circulation of textiles, fire prevention at waste management sites, and competence & sustainability, and innovation and communication. The Rå Biopark initiative is an example of a successful cooperation effort with significant contributions by the cluster members.

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<sup>3</sup> [www.nordlys.no](http://www.nordlys.no) 7.9.2024” Mindre konflikter, større økonomisk gevinst”

## 5 MUNICIPAL WASTE MANAGEMENT IN TUSCANY, ITALY

### 5.1 Geographical context

Tuscany is a region in central Italy with an area of about 23,000 square kilometres and a population of about 3.7 million. Peccioli, a town of about 4,600 residents in the province of Pisa in Tuscany, is located in the hills of Valdera, in the southern part of this area, with a low population density (51 inhabitants per km<sup>2</sup> vs 158 inhabitants per km<sup>2</sup> in Tuscany), at a distance of 74 km from Florence (Figure 6).

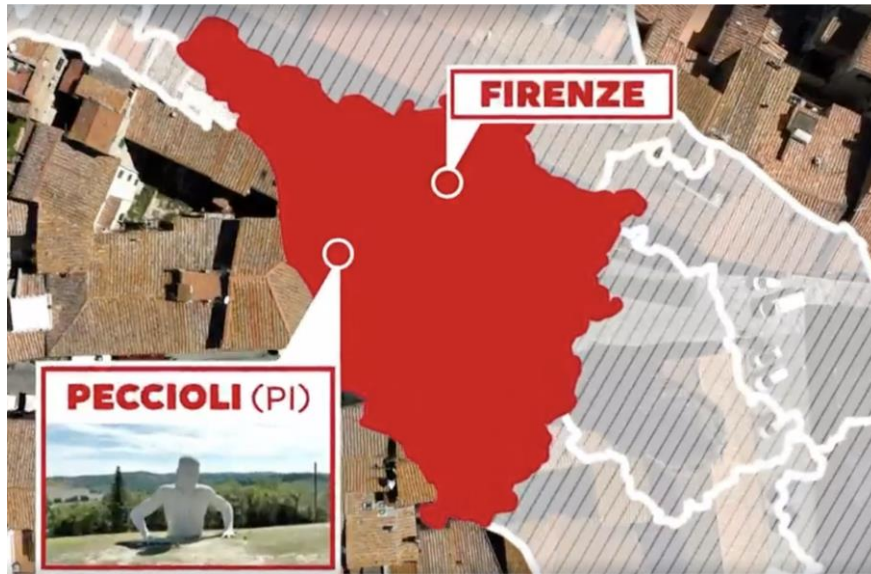


Figure 6: Peccioli on the regional map. Source: RaiPlay.it

Peccioli has been defined as a “fragile area concerning the demographic structure and its geographical isolation”<sup>4</sup>. Like Southern Valdera, Peccioli has shown constant demographic shrinkage with a depopulation trend over time<sup>5</sup>. Peccioli and Southern Valdera are a peripheral area. In terms of mobility and connections, the distance from the reference urban pole of Pontedera is about 30 minutes. The urban pole Pontedera is characterised by the high percentage of young residents with a university degree. Notably, the level of cultural consumption is high in Pontedera and Peccioli, which show good levels of cultural offerings<sup>6</sup>.

Peccioli is an inner area with an agricultural specialization, in contrast with the manufacturing and service economy of Northern Valdera<sup>7</sup>. The natural landscape and the rural identity of Peccioli and Southern Valdera are assets for rural tourism development, with agritourism representing the dominant model of the hospitality industry. Peccioli has grown significantly in terms of tourist flows in recent years, showing a steep increase. In 2022, tourist arrivals reached +71% compared to pre-Covid statistics (2018-2022), doubling the overnight stays in about ten years from about 23,000 stays to 47,000 stays<sup>8</sup>. Tourists are interested in visiting the old town and the landfill in the Green Triangle (landfill site in Legoli-Peccioli).

<sup>4</sup> Caspretti, S. (2013). La strategia del consenso nel caso della discarica di Peccioli, *Partecipazione e Conflitto*, 6(1): 102-120.

<sup>5</sup> Irpet (2019). Il sistema socio-economico della Valdera: Dotazioni e relazioni, Firenze.

<sup>6</sup> Irpet, 2019.

<sup>7</sup> Irpet, 2019.

<sup>8</sup> <https://www.pisatoday.it/economia/dati-turismo-peccioli-2022.html>

## 5.2 Waste Management in the Regional Context of Tuscany

In the 1980s, the regional waste management in Tuscany was not efficient and a rationalisation of the existing landfills was necessary, catalysing investments in upgrading and rejuvenating several landfills. One of the major landfills in the Florentine area was closed and a waste emergency phase started in Tuscany. In Legoli-Peccoli, there was an unmanaged landfill serving six municipalities, with several structural problems (e.g., frequent fires and landfill odour). Local community and provincial authorities put pressure to close this site<sup>9</sup>.

Table 1 presents an overview of urban waste management plants of the regional waste management system in Tuscany.

<b>Urban waste plants in Tuscany</b>	
Composting plant	19
Aerobic/anaerobic integrated treatment plant	1
Mechanical/biological treatment plant	14
Incineration plant	4
Co-incineration plant	1
Landfills	9

**Table 1:** Regional waste management system (urban waste)  
Source: Belvedere SpA, 2023

In a broader national context, Central Italy lags behind Northern Italy and Southern Italy in organic waste treatment, see Table 2.

<b>Organic waste treatment</b>			
	Composting plants	Anaerobic digestion plant	Integrated treatment
Northern Italy	174	18	29
Central Italy	41	0	7
Southern Italy	78	3	6
Total	293	21	42

**Table 2:** Organic waste treatment and the disadvantage of Central Italy  
Source: Belvedere SpA, 2023

Central Italy (including Tuscany) lags behind Northern Italy in terms of reuse capacity, including organic waste reuse, reintroducing waste management products into the cycle and the “end of waste system”. There is a need for sites dedicated to control and guaranteeing the characteristics of the “end of waste system”. This field opens opportunities for new investment projects in the regional system (Interview, National Expert, April 2024). There is a need to accelerate the capacity to treat urban waste and a significant potential resides in the enhancement of organic waste, which represents 34.7% of urban waste. Tuscany region has lacked organic waste treatment capacity and has relied on the support of other regions to deal with it.

<sup>9</sup> IDEAS (2017). Community Stakeholding for managing local services, [www.ideasonline.org](http://www.ideasonline.org)

### 5.3 Case Peccioli: From landfill site to circular local district

The Peccioli landfill is located in Legoli (*Triangolo Verde*, Green Triangle), a locality in Peccioli municipality, about 9 km from the old town and other villages on the hilly valley. The landfill covers 340,000 m<sup>2</sup> and treats about 300,000 tons of urban non-dangerous waste per year<sup>10</sup>. It is key to the regional waste management system serving a population of about 3.7 million inhabitants. The waste in the landfill is treated to provoke no odour and is covered with clay that, thanks to its molecular structure, blocks any odour, then is covered until given back to the original landscape. By law, once used for waste disposal, the landfill area must be covered and treated to have previous shapes and colours similar to the surrounding hills<sup>11</sup>.



**Figure 7:** The Peccioli landfill site.

Source: Milanese, 2022; Touring Club <https://www.touringclub.it/notizie/bandiere-arancioni/peccioli-virtuosa-il-comune-toscano-avra-un-nuovo-impianto-di-smaltimento-a-zero-emissioni>

In 1997, Belvedere SpA *Innovazione – Progetti – Sviluppo* (Innovation – Projects Development), the company managing the landfill and the connected activities, such as a mechanical-biological treatment plant, a cogeneration plant for biogas, renewable energy plants (photovoltaic and mini-wind farm), and other municipal services such as parking management, start-up business incubator and real estate management.

Belvedere SpA reported a 48 million Euro turnover and a profit of 6 million Euros in 2022, with 44 people. The company paid 2.8 million euros in dividends to shareholders. The Sustainability Report 2022 estimated a 35-million-euro value created by Belvedere SpA for the territory in 2022. The Belvedere SpA is 25% owned by Peccioli Municipality, and 75% by citizen-shareholders (mostly from Peccioli), actively participating in the company.

The development of the Peccioli waste management system needs to be understood in the broader regional and national contexts. In the 1990s, the prevalent urban waste management models concerned waste disposal in landfills. The progressive expansion of recycling and energy production created for Peccioli site a need to change its business model towards circular economy. The landfill was coupled with a mechanical/biologic treatment plant and the Belvedere SpA has invested in renewable energy production. Currently, it is working for an anaerobic digestion plant, with the vision of establishing an integrated pole for environmental

<sup>10</sup> Belvedere SpA (2019). Raporto di sostenibilità ambientale, sociale e economica.

<sup>11</sup> Belvedere SpA (2023). Report di sostenibilità Belvere SpA. La gestione dei rifiuti organici e il nuovo impianto di digestione anaerobica. Esercizio 2022. Prato.

activities<sup>12</sup>. Before this project was announced, there was no similar plant in Central Italy, while in Northern Italy there were 18 and 3 in Southern Italy<sup>13</sup>. The anaerobic biodigestion plant was inaugurated 2024, to treat 100% of the organic waste produced in central and coastal Tuscany, together with another plant in Montespertoli<sup>14</sup>.

An additional ongoing project is a *thermal oxidation plant*, which will be one of the most advanced waste treatment plants in Italy. This plant will rely on a new Italian technology inserted by the EU Commission under the BAT (best available technologies) for waste treatment<sup>15</sup>. This plant is important for its capacity to close the circularity of waste management in Tuscany for the products that it will produce, such as “glassy pearls” to be used as “end of waste” products for the construction sector, water for industrial usage, CO<sub>2</sub> for the market, energy that will supply the plant and will be sold in the market.



**Figure 8:** The anaerobic digestion plant inaugurated in 2024. Source: Belvedere SpA, website

The Legoli landfill in Peccioli will achieve its maximum usage in the next three years. Solutions might make the saturation speed lower. Currently, the company asked for permission from the regional government for a functional rationalization of the infrastructures and plants connected to the landfill to recover additional volumetry for disposal<sup>16</sup>. The local management has been working on this for years and the current investments and projects also need to be interpreted in this scenario.

The figure below illustrates the dynamic evolution over time of the Peccioli waste management system from 1990-2024, including major events and investments. The figure is based on a collection of previous studies, and primary and secondary data on the development of Peccioli and its waste management system.

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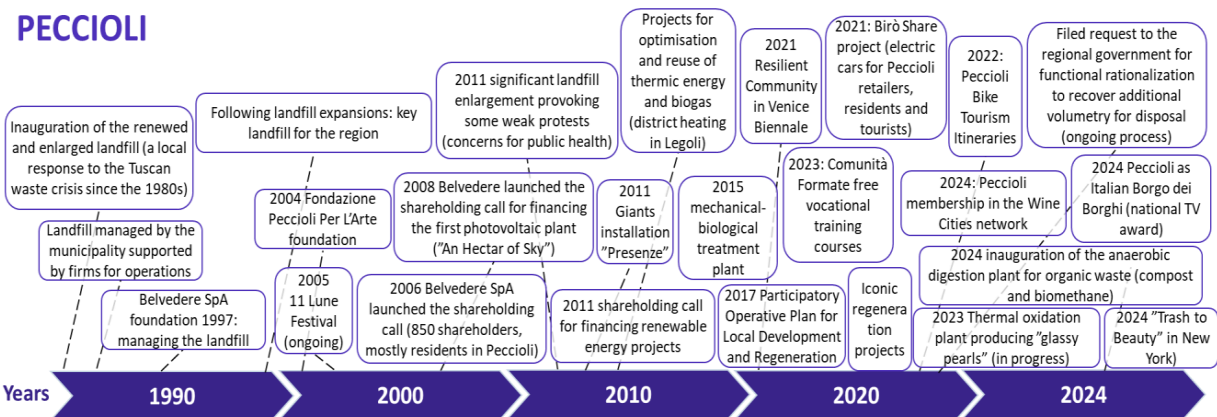
<sup>12</sup> Belvedere SpA, 2023.

<sup>13</sup> Belvedere SpA, 2023.

<sup>14</sup> <https://www.pisatoday.it/cronaca/inaugurazione-biodigestore-anaerobico-smaltimento-rifiuti-peccioli.html>

<sup>15</sup> Belvedere SpA, 2023.

<sup>16</sup> Belvedere SpA (2024). Relazione sulla gestione 2023, Peccioli.

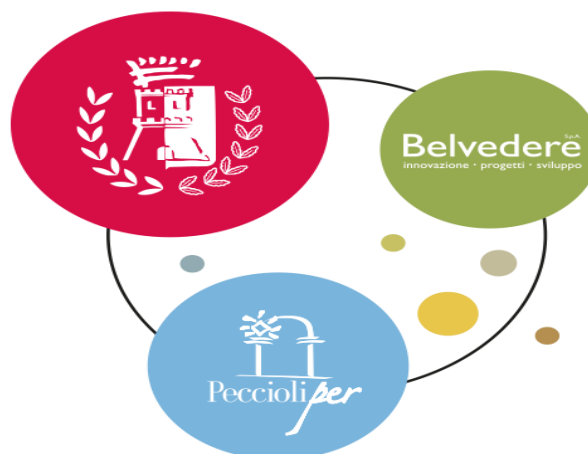


**Figure 9:** Dynamic evolution of Peccioli municipal waste management

Besides being participated by citizen-shareholders (75% share), Belvedere SpA adopted public financial participation as a method for project funding. Through the emission of bonds, 350 and 300 residents directly invested in renewable energy plants in 2008 and 2010<sup>17</sup>. Furthermore, the photovoltaic plant in La Fila, Peccioli, was the first renewable energy project in Italy funded through popular participation and it was called “An Hectar of Sky”, which can be visited with a guided tour (Belvedere official website). Moreover, Belvedere SpA contributes to in the social capital of other important companies for the local waste management system and its development.

### Peccioli System: Turning Waste Management into the Pillar of socio-economic Value Creation

The evolution of the landfill investments and Belvedere SpA resulted in the emergence of the so-called “Peccioli System” (*Sistema Peccioli*), which has become a best practice of turning waste management into a socio-economic system that creates value for the hosting territory by boosting job creation, income, services for the local community, aimed to cohesion, inclusion and wellbeing<sup>18</sup>.



**Figure 10:** The logo of Sistema Peccioli. Source: peccioli.net

*Sistema Peccioli* is composed of Peccioli Municipality, Belvedere SpA and Fondazione Peccioli per l’Arte which was established in 2004 to promote arts and culture in Peccioli (Figure

<sup>17</sup> Belvedere SpA, 2023.

<sup>18</sup> Belvedere SpA, 2023.

x). The mission of the Peccioli System is to make the “waste model” go beyond the economic dimension of the waste industry and curate the transformation of economic value (produced by Belvedere SpA) into cultural, social and environmental value for the community<sup>19</sup>. The System creates and leverages synergies in assisting the local community with social services, welfare and infrastructures and cultural services and initiatives. The landfill is managed by the company Belvedere SpA in convention with the Municipality, which channels resources from waste management to street improvements, school buildings and equipment and laboratories.

Peccioli System worked for the urban regeneration of the old town and the surrounding area, making urban projects of public art the cornerstone of the urban strategy. These urban projects have been “the most concrete and tangible manifestation of the positive impacts derived from the Legoli plant” and aimed to improve the quality of life and attractiveness of Peccioli.<sup>20</sup> These projects originated in the Operative Plan by Peccioli Municipality, adopted in 2017. This Plan was produced through an intense participative process, developed with the collaboration of Udine University, setting up “Laboratorio Peccioli”, which involved the community with different methods of active listening to steer a dialogue informing the urban plan.

Various regeneration projects (greenfield or brownfield) were developed. One of the most iconic projects – designed by Naturaliter, a leader in museum design - is the giant sculptures positioned in the landfill site to symbolically communicate that a new life can be generated by waste.

#### **5.4 Local acceptance and stakeholder engagement**

The local community’s involvement in waste management started in the 1980s when Renzo Macelloni, the mayor of Peccioli, proposed the landfill expansion and the improvement of the Legoli landfill site to face a regional waste emergency. Despite the initial scepticism in Peccioli, the expansion decision and the following implementation of the landfill expansion met no effective local rejection or resistance. Opposition and conflicts, often experienced in local communities in the face of similar projects, have not been significant aspects of Peccioli story<sup>21</sup>. According to Renzo Macelloni, “opposition to the project was not systematic and not well structured so that it was easy to go by simply explaining the rationale of actions that we had clearly in mind” (Interview Peccioli Mayor, 2024). The only moment of mobilised opposition in the evolution of the landfill emerged around 2011 when an additional expansion of 4.5 million m<sup>3</sup> was proposed by Belvedere SpA. The landfill’s enlargement catalysed environmental protests by political oppositions and grassroots movements motivated by perceived health risks for residents. However, protests were relatively weak and limited, asking for an assessment of the impacts on public health that was not produced<sup>22</sup>.

The reasons for the lack of conflicts related to the landfill project have been interpreted differently by various analyses of the Peccioli case. For some, the factors triggering widespread consensus were the valid strategic projects, conscious and responsible public administration, and an intense promotion, information sharing, and public debate involving active listening to locals’ needs and a process to make citizens feel responsible about the future of Peccioli, and social cohesion<sup>23</sup>. For others, the factors of consensus included the long-term political leadership and political and entrepreneurial vision of the mayor, who then became president of the waste management company Belvedere SpA and was again elected Mayor twice. Additionally, the low population density of Peccioli and its location at a distance from the residential area lowered the perceptions of environmental risks. A symbolic use of

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<sup>19</sup> Belvedere SpA, 2023.

<sup>20</sup> Farinosi, 2019.

<sup>21</sup> Caspreti, 2013; Farinosi, M. (2019). Comunicazione e processi partecipativi. Amministrazione pubblica e coinvolgimento dei cittadini nel Comune di Peccioli, Franco Angeli.

<sup>22</sup> Caspreti, 2013.

<sup>23</sup> Farinosi, 2019.

spaces creating new positive meanings around the landfill, the cultural viewpoints, and the “innovation rhetoric” through the introduction of experimental technologies in collaboration with prestigious partners were listed as factors contributing to local acceptance<sup>24</sup>. Finally, significant economic payoffs for the local community (e.g., free district heating) contributed to local acceptance.

Relatively to the first phase of the landfill development, we can speak of passive acceptance manifesting as a lack of systemic opposition. Active support behaviours and engagement among residents manifested in 2006 when Belvedere SpA opened to public shareholding for the first time. Opening to private shareholding has worked as a stakeholder engagement instrument. “This route of development succeeded in wiping out the discussion about the landfills from bars and bringing citizens to speak about this important local fact in the public assemblies as they became interested directly and personally...they became responsible for the development of the landfill and its evolution” (Interview, Mayor, May 2024). This was a turning point in local stakeholders’ engagement, turning the usually negative public opinion against plants of this kind into a positive attitude<sup>25</sup>.

Belvedere SpA is the only example in Italy of a public local company participated by citizens, and this direct participation in the company is an important aspect characterising Peccioli’s case of waste management. The connection with the territory is significant and “promoting the development of Peccioli municipality, its territory and economy” is part of the company’s mission<sup>26</sup>. For this reason, “Peccioli has become an example of “good governance”, a model of bottom-up development guided by a public authority” (Peccioli Mayor, reported by IDEAS, 2017). In this modality, participation became concrete, boosting responsible behaviours. Over time, Peccioli became a proper system also because of the widespread participation of residents in political and economic life. “The case of Peccioli is a unique case in Italy witnessing stakeholder engagement and the capacity to shift from NIMBY attitude (Not in my backyard) to PIMBY (Please in my backyard) attitude” (Interview, national expert 2, April 2024).

Local community financial participation has become a method adopted by Belvedere SpA also for funding two photovoltaic plants. This experience has inspired other contexts in Italy.<sup>27</sup>

Residents’ engagement as time and efforts spent to participate in discussing the future of Peccioli emerged around 2017 throughout the intense participative process for the Municipal Operative Plan identifying and defining several urban regeneration projects in the town and the surrounding area. Many participative events were organized, to inform and listen to the local communities through technical panels and the publication and spread of a booklet on Peccioli, its history and evolution.<sup>28</sup>

Residents were involved in the experimental phases of innovative projects, as protagonists testing technology, its effectiveness and usability (e.g., DustBot and Robot-Era, see later). Other engagement projects provided residents with the opportunity to cultivate lands freely and share this environmental resource to produce wine and olive oil as a social bonding opportunity. Direct contact and experience with the waste site in the Green Triangle are also created through the possibility of visiting the landfill (guided tours are organized for residents and tourists).

All these projects were held together by a progressively sophisticated narration of the link between waste management and local development, making Peccioli brand emerge.

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<sup>24</sup> Caspreti, 2013.

<sup>25</sup> IDEAS, 2017.

<sup>26</sup> Belvedere SpA, 2023.

<sup>27</sup> <https://www.quinewsvaldera.it/Peccioli-l-orto-solare-e-un-esempio-virtuoso.htm>

<sup>28</sup> Farinosi, 2019.



Communication has been an important part of the stakeholder engagement in Peccioli. “Communication is functional to maintain reality oriented towards a dream” (Interview, Peccioli Mayor, 2024), related to the future of the Peccioli community and its wellbeing.

Significant communication synergies have been established within the Peccioli System among the key actors (waste management company, municipality and foundation for culture and events). Belvedere SpA pays significant attention to narrating its projects, impact and evolution. Significant communication efforts were part of participative processes in Peccioli, with defined procedures and moments for communicating to create a public debate. Local and national media has frequently covered the story of Peccioli over the years, creating a buzz around Peccioli locally and regionally. Social media platforms have been widely used by Peccioli Municipality, which has developed an informative and storytelling modality on Facebook and Instagram. Social media were widely utilized to narrate the candidacy of Peccioli to *Borgo dei Borghi 2024*, a national award for small towns in Italy hosted by the main national TV (RAI-Radio Televisione Italiana). Facebook and Instagram steered support from the local community that could vote for sustaining the candidacy and helped share happiness and pride for being awarded the title of “Borgo dei Borghi”. The buzz and involvement of locals in voting for Borgo dei Borghi were also nurtured through a dedicated WhatsApp channel informing about the competition, the voting, and sharing content (like reels and posts) with residents and people connected with Peccioli.

Another important moment contributing to building local pride is the locals’ participation in the exhibition “Trash to Beauty”, inaugurated in New York in 2024. Peccioli residents could “see the story of their community narrated in a different and distant context speaking of us...many families and young people participated” (Interview, Peccioli Mayor, 2024). Visitors from residents were also overwhelmed by watching videos about Peccioli presented on the giant screens of the iconic Times Square.

The installation of four giant sculptures called “Presenze” (Figure 12), 5 to 9 meters tall, has created a new opportunity to visit the landfill. The landfill is conceived not only as a place to learn about waste management, open to visitors – including schools – to learn about waste disposal and the lifecycle of what we buy and consume but also as a place to experience contemporary art. Guided or independent visits to the landfill and the Giants area of sculptures create an open and welcoming attitude of Belvedere SpA to visitors, provide a possibility to experience the landfill, contribute to education on waste and environmental awareness and add to the attractive and unique local tourist offering.

Communication of waste and waste management has been at the core of the Peccioli model, including re-envisioning waste perceptions and positioning the topic of waste differently in people’s minds. If waste is perceived as something “bad” and smelly, the waste narration in Peccioli has worked to turn this perception around. According to some, thanks to the communication strategy, Peccioli has become an innovative model of waste management locally and nationally, a highly symbolic communication policy that has framed the Peccioli “miracle” of turning waste into wealth and income<sup>29</sup>. New meanings have been attached to “waste” and “landfill” through the design of first-hand place experiences, constantly accompanied by increasingly sophisticated storytelling about the link between waste and the local community’s wellbeing.

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<sup>29</sup> Caspreti, 2013.



**Figure 11:** Anaerobic biogas plant with Tremlett and Salvatory artwork  
Source: Artribune, Fondazione Peccioliper archive<sup>30</sup>



**Figure 12:** Mayor Renzo Macelloni with Borgo dei Borghi Award in the Giants Gallery, Legoli landfill  
Source: Greenreport.it<sup>31</sup>

<sup>30</sup> <https://www.tribune.com/arti-visive/arte-contemporanea/2024/06/interventi-peccioli-tremlett-salvadori/>

<sup>31</sup> <https://www.greenreport.it/news/enogastronomia-moda-turismo/1792-i-turisti-a-peccioli-continuano-a-crescere-macelloni-abbiamo-risposto-con-piu-servizi>

## 6 COMPARATIVE ANALYSIS

Our comparative analysis on local acceptance and stakeholder engagement related to municipal waste management in North Norway and Tuscany, Italy, revealed some similarities as well as differences between the case study areas.

Regarding the regional, national, and international context, North Norway and Tuscany face the same kind of challenges in meeting the requirements and directives coming from the EU. Local waste management facilities and solutions are part of the broader regional and national context. The peripheral location and Arctic conditions create additional technical and environmental challenges to North Norway waste management, as well as limited volumes of waste to be collected, sorted, and processed, compared to more densely populated regions. The relative peripherality of Peccioli in the regional context, its “fragility” concerning demographic shrinkage, the agricultural specialisation in contrast with the close by industrial pole of Pontedera, the natural landscape and rural identity creating the aspiration to rural tourism development, set the scene for local waste management site. The landfill could be conceived as the antithesis of this type of development, while over time it has been assisting this trajectory. The specificity of the place and its aspirations probably have influenced the modality of combining waste management with local development.

The key actors in promoting and developing municipal waste management can be identified both in Peccioli in Tuscany, Italy and in North Norway. In Peccioli, the key role of the city/town Mayor with a long-term vision, political leadership, and good cooperation between the city/town and the waste management company has been highlighted as important from the actor's viewpoint. In North Norway, the Remiks company in Tromsø has taken the locomotive role in the development of the municipal waste management sector, although in active cooperation with the other local waste management companies.

Collaborative networks are relevant to both local systems. In North Norway, the waste cluster as well as the international collaborations play an important role. In Peccioli, collaborations include technology and waste management partners and fundamental collaborations extended to ‘unconventional’ fields of collaboration in the waste sector, such as culture and arts. That is, in Peccioli cultural and creative networks around the local waste management site, the company dealing with it have been an important lever for communicating the waste management system and make its evolution visible and tangible. The cultural and creative network around Peccioli site has worked as a bridge to create socio-economic value for local stakeholders (e.g., urban regeneration projects, public arts and tourism, cultural events and labs). This case suggests the importance to combine waste management with the broader development trajectory of the local community hosting waste management sites and facilities. The connections with the creative and cultural fields represent the footprint of the Peccioli case, framing a local pathway to generate value for the local community. If culture and arts were a valid support in establishing the “Peccioli model”, other sectors and connections may combine waste management with local development in a unique way that is meaningful to the place.

The major similarities, as well as differences between the case study areas regarding context, actors, and collaboration, are summarized in the following table.

Feature	Peccioli /Tuscany	Tromsø/ North Norway
Regional, national, and international context	Regional waste crisis as a trigger to take development steps EU directives: an international context	Deregulation of waste management in Norway from 2002 Challenges of cold climate and long distances - need for cooperation and new solutions in waste management. EU directives: an international context
Key actors	" Peccioli System": City/town & Mayor , Belvedere SpA; Fondazione Peccioli per l'Arte	Remiks in Tromsø as the locomotive company North Norway waste cluster
Collaboration between waste management companies & stakeholders	Belvedere SpA as management company with new technology solutions providers, joint ventures partners, environmental services, collaboration with universities, culture & art actors	Cluster cooperation between actors Joint projects, especially the Rå Biopark Research collaboration (with NORCE &UiT) International cooperation e.g. Interreg with Finland and Sweden

**Table 3:** Municipal waste management, Comparison Peccioli vs. Tromsø

Peccioli in Tuscany is an example of systematic work on improving local acceptance and stakeholder engagement in municipal waste management, through an innovative combination of waste management, culture, and public arts as levers of local development and urban regeneration. The long-term efforts have resulted in a positive attitude towards waste management among the local community, also including stakeholder engagement e.g. in the form of co-investing in the waste management company and the circular district. As a result, Peccioli is currently seen as an example of PIMBY (Please in my backyard) in Italy and internationally.

The collected information on the case suggests that communication and, progressively, place branding have addressed three main targets: locals (those living within the borders of Peccioli municipality), through an action that progressively configured as internal branding aimed to inform, make locals experience and engage with the local development vision (building legitimacy "from the inside"); national media, framing the Peccioli model and legitimising it and its role within the regional waste management system and as a national positive reference case (building legitimacy "from the outside"); regional and national tourists, in an attempt to trigger tourism potential in the area as a form of economic diversification in line with the regional pro-tourism mindset (marketing the place brand and further fuelling the "outside-in" mechanisms of reputation and legitimacy building). Peccioli's case suggests the potential positive impacts of nurturing external visibility and legitimacy "from the outside" – which contribute to locals' sense of pride and sense of belonging -, further strengthening internal acceptance and engagement.

In North Norway, municipal waste management has been traditionally regarded as a typical foundational economy sector which focuses on the provision of necessary everyday products and services like housing, health services and transport, the need of which is generally recognized. Regarding new investment in waste processing sites, there have been some elements of NIMBY (not in my backyard) to be observed, some of which are due to previous negative experiences e.g. odour issues in local waste management sites. From the viewpoint of local acceptance and stakeholder engagement, North Norway waste management actors have recently taken considerable steps forward.

In both cases, the interviews with the local actors of the waste management system revealed the awareness of the importance and need to find innovative modalities to communicate and "socialize" waste and its impacts on the communities hosting waste management sites. Such

communication efforts need to be constant and adopt innovative modalities to result effectively meaningful to the targeted audiences (including residents). In this regard, the waste management companies emerged as pivotal in both cases: the management companies need to steer involvement among local stakeholders (including residents) and *de facto* contribute to broader local development (looking beyond waste management).

The major similarities and differences between Peccioli and North Norway waste management regarding local acceptance and stakeholder engagement have been summarized in the following table.

Feature	Peccioli/Tuscany	Tromsø/North Norway
Local Acceptance & Stakeholder Engagement	<p>Residents as shareholders and co-investors</p> <p>Participation of residents in public assemblies and participatory processes of waste management and local development</p> <p>Residents' involvement in innovation, social, cultural &amp; art projects, funded by Belvedere SpA and promoted by Peccioli System</p>	<p>Local acceptance of waste management under discussion, related e.g. to the Rå Biopark biogas initiative</p> <p>Much emphasis on consumer education: instruction &amp; encouragement to sort the waste, already at home</p>
Communication & branding	<p>Building local pride</p> <p>Communication "with a purpose" to increase engagement with waste activities</p> <p>Narrating the "Peccioli model" Nurturing Peccioli brand</p>	<p>Frequent information campaigns on waste issues</p> <p>Open days, youth involvement</p> <p>The Rebell Centre initiative for sustainability and waste</p>
Additional specific features	<p>Tight connection between waste and local development ("everything" is connected to waste)</p> <p>Boosting sense of urgency "Landfill soon over, what is next"</p>	<p>Mentoring Programme with the University of Tromsø on waste issues</p>

**Table 4:** Municipal waste management, Comparison Peccioli/North Norway

## 7 CONCLUDING REMARKS

This working paper and the in-depth analysis of two different cases of municipal waste management in Europe, namely Peccioli, Tuscany, and North Norway, open to the following remarks. A first learning point that emerged during the interactions with local stakeholders in the two contexts (interviews and the international workshop in Tromsø) revealed how the waste management actors and stakeholders welcome and recognise the need for knowledge-based analysis of local acceptance and stakeholder engagement related to municipal waste management. As Mirata (2024) puts it: *"While all transformation of reforming industrial systems and value chains must be done by industry actors, academic and research institutions often play a key part in guiding decision makers to knowledge-based action"* (WANO Policy Brief 2024). In the waste management sector, knowledge-based actions are also of significant importance in the field of local acceptance and community engagement.

The comparative study highlights the central importance of local acceptance and stakeholder engagement related to municipal waste management. Despite the geographical distance and

differences between Central Italy and North Norway, the cross-case comparison provided elements of inspiration and joint learning, especially including the “Please–in–my–backyard” (PIMBY)” approach of Peccioli, with an unconventional combination of waste management, culture and public art. Further analysis is needed in the waste management sector to deepen knowledge of the PIMBY phenomenon, especially by adopting a micro-perspective on it to outline the factors that at the micro-level (at the individual citizen level) define the borders of the PIMBY community, that is, the community feeling deeply engaged by and proud of the Peccioli model, reaching an understanding of the factors influencing perceptions and lived experiences of those remaining outside the PIMBY community. Geographical, socio-economic and cultural factors may impact the borders of the PIMBY community and deserve further attention.

The analysis revealed some factors of success in stakeholder engagement, including, e.g. the key role of leading persons and institutions; engagement modalities that transcend participation and imply residents’ shareholding in the waste management company. Beyond information and participation in public debate, the option of making the local community “in charge” and responsible for its relationship with waste and the role of waste in local development is one potential driver of the PIMBY phenomenon. This pathway should be further investigated and analysed from a longitudinal perspective, paying attention to the relationships and potential tensions between the different components of the local community. Significant communication efforts are needed to create a sense of responsibility. Overlooking the importance of communication (in innovative, interactive and tailor-made forms to be locally meaningful) and community engagement as part of waste management can have detrimental effects on the long-term evolution of the waste management system.

Another learning point concerned the actors orchestrating the process of community engagement. Beyond the formal governance of waste management in the specific local context, the municipality and the waste management company share the leadership role in this process. On the one hand, the municipality gives a sense of orientation and political legitimacy to framing waste as part of the local discourse on development; on the other, the waste management company may direct resources, knowledge, and competencies on waste management, including marketing and communication skills and organisational capacity.

Finally, future research should also consider the case of cohesive communities mobilised in favour of the waste management system as an extreme case of the PIMBY phenomenon. In this case, cognitive lock-ins may trap the community in an uncritical loop, failing to recognise signals of threats and novel opportunities, emerging challenges or the urgency to reconsider the local path of development. The lock-ins phenomenon is largely studied in the literature, while it needs an application to contexts where local development has been tightly intertwined with waste management.

## References

- Corsini, F., Certomà, C., Frey, M. (2019). Participatory energy: Research, imaginaries and practices on people' contribute to energy systems in the smart city. *Technological Forecasting & Social Change*, 142: 322-332.
- Eshuis, J., Klijn, E.-H., & Braun, E. (2014). Place marketing and citizen participation: branding as strategy to address the emotional dimension of policy making? *International Review of Administrative Sciences*, 80(1), 151.
- Eugenio-Vela, J. D. S., Ginesta, X., & Kavaratzis, M. (2020). The critical role of stakeholder engagement in a place branding strategy: a case study of the Empordà brand. *European Planning Studies*, 28(7), 1393–1412.  
<https://doi.org/10.1080/09654313.2019.1701294>
- European Commission (2018). Circular economy package. Retrieved from: [www.commission.europa.eu/publications/documents-circular-economypackage\\_en#details](http://www.commission.europa.eu/publications/documents-circular-economypackage_en#details)
- Freeman, R. & Kujala, J. & Sachs, S. & Stutz, C. (2017). Stakeholder Engagement: Practicing the Ideas of Stakeholder Theory. 10.1007/978-3-319-62785-4\_1.
- Hansen, T. (2021). The foundational economy and regional development. *Regional Studies*, 56(6), 1033–1042. <https://doi.org/10.1080/00343404.2021.1939860>
- Insch, A. Stuart, M. (2015). Understanding resident city brand disengagement. *Journal of Place Management and Development*, 8(3): 172-186.
- Jacobsen, B.P. (2009). Investor-based place brand equity: a theoretical framework. *Journal of Place Management and Development*, 2(1): 70-84.
- Kavaratzis, M. (2005). Place branding: a review of trends and conceptual models. *Marketing Review*, 5(4), 329–342.
- Kavaratzis, M., & Hatch, M. J. (2019). The Elusive Destination Brand and the ATLAS Wheel of Place Brand Management. *Journal of Travel Research*.
- Loureiro, S. M. C., Romero, J., & Bilro, R. G. (2020). Stakeholder engagement in co-creation processes for innovation: A systematic literature review and case study. *Journal of Business Research*, 119, 388–409.
- Miljødirektoratet (2019) Avfallsplan 2020-2025 (Waste Plan) . Miljødirektoratet, Norway Report M-1582, 2019.
- Moalem & Kerndrup (2023) The entrepreneurial role of waste companies in transforming waste streams to value streams: Lessons from a Danish Municipal waste company. *Waste Management & Research* 2023, Vol. 41(3) 620–634
- Parker, C., Roper, S., Medway, D. (2015). Back to basic in the marketing of place: the impact of litter upon place attitudes. *Journal of Marketing Management*, 31(9-10): 1090-1112.
- Pasquinelli, C. (2014). Branding as Urban Collective Strategy-making: The Formation of NewcastleGateshead's Organisational Identity. *Urban Studies*, 51(4), 727–743.  
<https://doi.org/10.1177/0042098013493025>
- Pasquinelli, C., & Teräs, J. (2013). Branding Knowledge-intensive Regions: A Comparative Study of Pisa and Oulu High-Tech Brands. *European Planning Studies*, 21(10).
- Pasquinelli, C., Vuigner, R. (2019). Place marketing, policy integration and governance complexity: an analytical framework for FDI promotion. *European Planning Studies*, 28(7): 1413-1430.
- Pasquinelli, C., Rovai, S., & Bellini, N. (2023). Linking place brands and regional innovation: sustainable business strategies leveraging heritage. *Regional Studies*.  
<https://doi.org/10.1080/00343404.2023.2187046>
- Schumacher K, Schultmann F (2013) Local Acceptance of Biogas Plants: A Comparative Study in the Trinational Upper Rhine Region. *Waste Biomass Valor* (2017) 8:2393–2412 DOI 10.1007/s12649-016-9802-z

- Soland M., Steimer N., Gotz W (2013) Local acceptance of existing biogas plants in Switzerland . *Energy Policy* 61 (2013) 802–810
- Song, L., Sun, Y., Song, J., Feng, Z., Gao, J., & Yao, Q. (2024). From “not in my backyard” to “please in my backyard”: Transforming the local responses toward a waste-to-energy incineration project in China. *Sustainable Production and Consumption*, 45, 104–114. <https://doi.org/https://doi.org/10.1016/j.spc.2023.12.019>
- Verhoef, P. C., Reinartz, W. J., & Krafft, M. (2010). Customer Engagement as a New Perspective in Customer Management. *Journal of Service Research*, 13(3), 247–252. <https://doi.org/10.1177/1094670510375461>
- WANO Policy Brief 2024. [www.wanoresearch.no](http://www.wanoresearch.no)
- Wiesmeth, H. (2020). Stakeholder engagement for environmental innovations. *Journal of Business Research*, 119, 310–320. <https://doi.org/https://doi.org/10.1016/j.jbusres.2018.12.054>
- World Bank (2022) Solid waste management. Retrieved from :  
<https://www.worldbank.org/en/topic/urbandevelopment/brief/solid-waste-management>
- Zenker, S., & Rütter, N. (2014). Is satisfaction the key? The role of citizen satisfaction, place attachment and place brand attitude on positive citizenship behavior. *Cities*, 38, 11–17. <https://doi.org/10.1016/j.cities.2013.12.009>



## Annex: Case Study of Peccioli, Italy



Special report on the Peccioli waste management system in Tuscany, Italy.

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## Geographical context

Peccioli is a town of about 4,600 residents in the province of Pisa, Tuscany, Italy. Peccioli lies on the hills of Valdera, in the southern part of this area, with a low population density (51.32 inhab./Km<sup>2</sup> vs 158 inhab./Km<sup>2</sup>, Tuscany). It comprises different localities (Cedri, Fabbrica, Ghizzano, Legoli, Libbiano, Montecchio e Montelopio). The town is part of an association of municipalities called “Unione Parco dell’Alta Valdera”, established in 2016 and including Chianni, Lajatico, Peccioli, Terricciola (Irpel, 2019). In 2013, a referendum proposed merging Peccioli with two other small municipalities, but the local population rejected this proposal (Irpel, 2019).



Figure 1: Positioning Peccioli. Source: RaiPlay.it

The Peccioli landfill is located in Legoli (*Triangolo Verde*, Green Triangle), a locality in Peccioli municipality, distant from the villages and on the hilly valley. The landfill covers 340,000 m<sup>2</sup> and treats about 300,000 tons of waste per year (Belvedere SpA, 2018) and is key to the regional waste management system serving a population of about 3.7 million inhabitants. The waste in the landfill is treated to provoke no odour and is covered with clay that, thanks to its molecular structure, blocks any odour, then is covered until given back to the original landscape. By law, once used for waste disposal, the landfill area must have previous shapes and colours similar to the surrounding hills (Belvedere SpA, 2023).



Figure 2: The landfill site. Source: Milanese, 2022; Touring Club<sup>32</sup>

<sup>32</sup> <https://www.touringclub.it/notizie/bandiere-arancioni/peccioli-virtuosa-il-comune-toscano-avra-un-nuovo-impianto-di-smaltimento-a-zero-emissioni>

Peccioli was defined as a “fragile area concerning the demographic structure and its geographical isolation” (Capretti, 2013). Like Southern Valdera, Peccioli has shown constant demographic shrinkage with a depopulation trend over time (Irpel, 2019). Peccioli and Southern Valdera represent the peripheral area. In terms of mobility and connections, the distance from the reference urban pole of Pontedera (about 30 minutes) corresponds to the distance to major transport infrastructures (highways and train connections), framing Peccioli as an inner area (Irpel, 2019). The urban pole Pontedera is characterised by the high percentage of young residents with a university degree. Notably, the level of cultural consumption is high in Pontedera and Peccioli, which shows good levels of cultural offerings (Irpel, 2019).

Peccioli is an inner area with an agricultural specialisation, in contrast with the manufacturing and service economy of Northern Valdera (Irpel, 2017). The natural landscape and the rural identity of Peccioli and Southern Valdera are assets for rural tourism development. Agritourism significantly represents the hospitality model in this area, with 72.3% of beds in agritourism accommodations (Irpel, 2017). Peccioli has grown significantly in terms of tourist flows in recent years, showing a steep increase. In 2022, tourist arrivals reached +71% compared to pre-Covid statistics (2018-2022), doubling the overnight stays in about ten years (from about 23,000 to 47,000; 9,642 arrivals in 2022 versus 4,468 in 2018).<sup>33</sup> Tourists are interested in visiting the old town and the landfill in the Green Triangle (landfill site in Legoli-Peccioli). In 2022, Belvedere Plants hosted 4,230 visitors, 3,327 tourists and people interested in art focused on “Presenze” by Naturaliter and 903 visited the site for professional and technical or educational interests (Belvedere SpA, 2023). 10% of landfill visitors are foreign tourists (Pisa Today, 2022). In 2022, 13,195 people visited the tourist information office in the old town. According to a local bartender: “We are flooded with people during the weekends. Many people from the region and foreign visitors spend the weekend in Peccioli. Last Sunday, I had to close before because I finished all the food and beverage ... the bar was full of people. I can’t complain, this is very positive for us” (May 2024).

### Regional waste management system: Birth and evolution of Peccioli landfill

The figure below illustrates the dynamic evolution over time of the Peccioli waste management system, including major events and investments. The figure is based on a collection of previous studies and other data sources on the development of Peccioli and its waste management system.

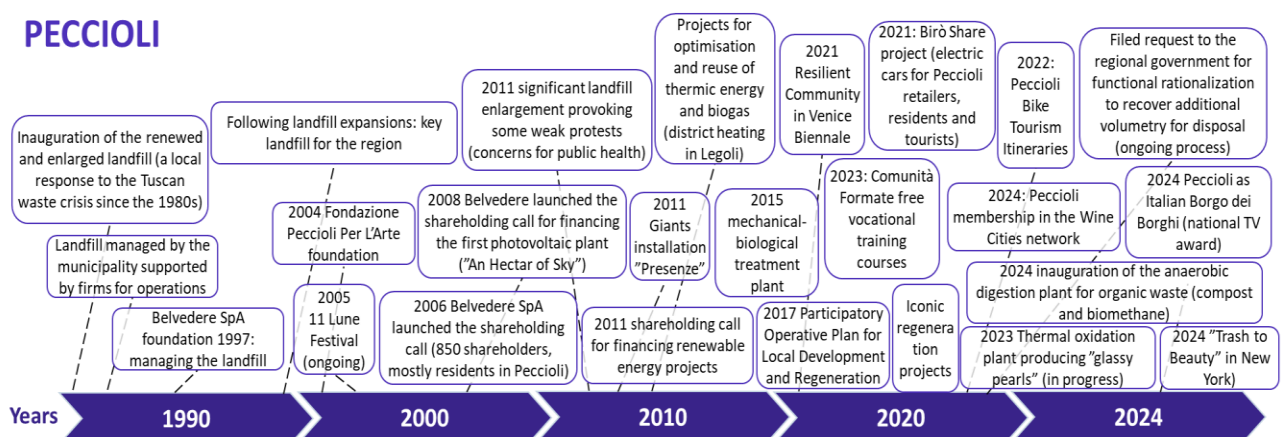


Figure3: Dynamic evolution of Peccioli municipal waste management

<sup>33</sup> <https://www.pisatoday.it/economia/dati-turismo-peccioli-2022.html>

In the 1980s, the regional waste management in Tuscany was not efficient and a rationalisation of the existing landfills was necessary, catalysing investments in upgrading and rejuvenating several landfills. One of the major landfills in the Florentine area was closed and a waste emergency phase started in Tuscany. In Legoli-Pecciolli, there was an unmanaged landfill serving six municipalities, with several structural problems (e.g., frequent fires and landfill odour). Local community and provincial authorities put pressure to close this site (Ideas, 2017). That historical moment was “the chance to be more entrepreneurial and look at this crisis as an industrial opportunity” (Interview, Peccioli Mayor, May 2024). The expansion of the landfill in Peccioli was interpreted by some as “a territorial injustice” to transfer waste from strong central areas (like Florence, Prato and Pisa) to a “marginal area in Tuscany” (Peccioli) which has carried on the burden of environmental costs (Caspreti, 2013).

The current mayor of Peccioli, Renzo Macelloni, proposed already in the 1980s an expansion and the improvement of the Legoli site - a proposal shared in a local assembly that, at the beginning, was received by significant scepticism. However, the expansion decision and the following implementation of the landfill expansion met no real local conflicts, which is a peculiar aspect of this case (Caspreti, 2013). Opposition and reluctance, often experienced in local communities in the face of similar projects, are not a significant aspect of Peccioli's story, which is instead connected to a PIMBY local attitude (Please in my backyard) (Farinosi, 2019). According to Mayor Macelloni, “opposition to the project was not systematic and not well structured so that it was easy to go on by simply explaining the rationale of actions that we had clearly in mind” (Interview, Mayor Macelloni, May 2024). In 1990, the new landfill was inaugurated to collect urban non-dangerous waste.

The reasons for the lack of conflicts related to the landfill project were interpreted differently by various analyses of the Peccioli case. For some, the factors triggering widespread consensus were the valid strategic projects, conscious and responsible public administration, and an intense promotion, information sharing, and public debate involving active listening to locals' needs and a process to make citizens feel responsible about the future of Peccioli, and social cohesion (Farinosi, 2019). The factors of consensus were also said to be the political leadership of the Mayor of Peccioli, who then became president of Belvedere SpA (i.e., the company managing the landfill plants since 1997) and, then, became the mayor of Peccioli once again for two mandate periods, leveraging his personal abilities, political vision, relational capital and “entrepreneurial” attitude in a “red” region historically governed by the Left party; low population density and the location of the site at a distance from the residential area lowering the perceptions of environmental risks; a symbolic use of spaces creating new positive meanings around the landfill and the development of an “environmentalist rhetoric” through various correlated projects (e.g., renewable energies, circular economy related to the landfill, see later) that overshadowed the main function of waste disposal of the landfill, and an “innovation rhetoric” through the introduction of experimental technologies in collaboration with prestigious partners; Belvedere SpA's shareholding, public and widespread, involving citizens, mostly local residents (see later); cultural events hosted by the landfill site (e.g., fashion shows, concerts, workshops and conferences) (Caspreti, 2013). In addition, significant economic payoffs for the local community e.g., free district heating contributed to local acceptance.

Various expansions made Peccioli a reference landfill for the Tuscany region, therefore facing the demand for waste disposal from areas outside the province. The only moment of conflict in the evolution of the landfill emerged around 2011 when an additional expansion of 4.5 million m<sup>3</sup> was proposed by Belvedere SpA. The landfill's enlargement catalysed environmental protests by political oppositions and grassroots movements motivated by perceived health risks for residents (Caspreti, 2013). However, protests were weak and limited, asking for an assessment of the impacts on public health that was not produced (Caspreti, 2013). A new phase of the landfill evolution concerned the optimization and the reuse of thermic energy and biogas, and new initiatives and projects were started. In Legoli,

all buildings were provided with district heating covered by the thermic energy of biogas produced in the landfill.

The development of the Peccioli waste management system needs to be understood in a broader regional and national context. Central Italy (including Tuscany) lags behind Northern Italy in terms of reuse capacity, including organic waste reuse, consisting of reintroducing waste management products into the cycle and the “end of waste system”. There is a need for sites dedicated to control and guaranteeing the characteristics of the “end of waste system”. This field opens opportunities for new investment projects in the regional system (Interview, National Expert, May 2024). There is a need to accelerate the capacity to treat urban waste and a significant potential resides in the enhancement of organic waste (34.7% of urban waste) which the Tuscany region is lacking (Belvedere SpA, 2023). Tuscany needs the support of other regions to deal with its organic waste.

The evolution of the Legoli landfill in Peccioli needs to be interpreted considering the normative limitations to its expansion stating that, with the current collection rate, the landfill will achieve its maximum usage defined by the regional government law in three years. Out of 34 hectares of the landfill area, 14 have been used and covered permanently. The remaining 20 hectares include two expansions. Currently, the operations take place in the second expansion, “Legoli2” (Belvedere SpA, 2023), with technology solutions potentially lowering the saturation speed. At the time of writing this report, permission was asked from the regional government for a functional rationalisation of the infrastructures and plants connected to the landfill to recover additional volumetry for disposal. The environmental impacts assessment, including assessment of public health impacts, is underway. This process led by the regional government was ongoing. The environmental impacts assessment was underway, and observations of the official report produced by Belvedere SpA were made, making – among others – the request for an assessment study on the public health impacts.

The capacity limitations of the Peccioli waste management site bring about the need to imagine the future of Peccioli beyond the landfill. The local management has been working on this for years and the current investments and projects also need to be interpreted in this scenario.

<b>Urban Waste Plants in Tuscany</b>	
Composting plant	19
Aerobic/anaerobic integrated treatment plant	1
Mechanical/biological treatment plant	14
Incineration plant	4
Co-incineration plant	1
Landfills	9

**Table 1:** Regional waste management system (urban waste).  
Source: Belvedere SpA, 2023

<b>Organic waste treatment</b>			
	Composting plants	Anaerobic digestion plant	Integrated treatment
Northern Italy	174	18	29
Central Italy	41	0	7
Southern Italy	78	3	6
Total	293	21	42

**Table 2:** Organic waste treatment and the disadvantage of Central Italy.  
Source: Belvedere SpA, 2023

## Belvedere SpA

Belvedere SpA *Innovazione – Progetti – Sviluppo* (Innovation – Projects – Development) was established in 1997, a management company of the landfill (urban non-dangerous waste) and the connected activities, such as a mechanical-biological treatment plant (treating not differentiated waste before disposal, recovering materials for reuse such as metallic materials and stabilising the residual organic component before disposal), a cogeneration plant for biogas, renewable energy plants (photovoltaic and mini-wind farm), and services on behalf of the municipality such as municipal multi-level parking management, start-up business incubator (currently hosting 14 start-ups, Belvedere SpA, 2024), and real estate management.

Belvedere SpA gives jobs to 44 people, out of which 42 with permanent positions and 43 full-time jobs (Belvedere SpA, 2023). The Sustainability Report 2022 estimated 35 million euro value created by Belvedere SpA for the territory in 2022 (340 million Euros in 18 years). The economic impact on the local community is also indirectly produced through Peccioli Municipality and Fondazione Peccioli per l'Arte, according to the report. Several economic players co-create value for the territory thanks to the resources and opportunities mobilised by waste management (Sbrana and Gandolfo, 2012).

Initially, Belvedere SpA was established because the Municipality was not in the condition to run the landfill in the best possible way. The Municipality was managing the landfill in 1990-1997 through the support of firms doing the operative management of the site. The foundation of Belvedere SpA in 1997 represented a radical change as this company directly managed the site (Caspretti, 2013). The Belvedere company can release financial instruments by law. The Belvedere SpA is 25% owned by Peccioli Municipality and 75% by citizen-shareholders (mostly from Peccioli). Citizens were invited to participate in the social capital of the company, and, in two years, 900 small shareholders became part of it (Belvedere SpA, 2023). This public-private shareholding (mostly composed of shareholders with small stakes) resulted in fragmented ownership so that control has not been concentrated in the hands of a single or only a few private shareholders. This was conceived as a guarantee for the company to prioritise the local community's quality of life over profits (Ideas, 2017).

Public financial participation is a method that Belvedere SpA also adopted to fund projects. Through the emission of bonds, 350 and 300 residents directly invested in renewable energy plants in 2008 and 2010 (Belvedere SpA, 2023). Furthermore, the photovoltaic plant in La Fila, Peccioli, was the first renewable energy project in Italy funded through popular participation and it was called "An Hectar of Sky", which can be visited with a guided tour (Belvedere official website). Moreover, Belvedere SpA participates in the social capital of other important companies for the local waste management system and its development (Newco Novatosca srl, Albe srl Innovazione Ambientale and B&C Granulati Valdera srl, Belvedere SpA 2024)

Beyond the utility of the provided environmental services, the impact of the company's activities has been estimated as follows: about 300 jobs (direct and indirect), the share of profit benefiting about 500 local families, about 100 local firms supplied with products and services, financial flows for the Municipality that, though the land concession fees, share of profits and taxes paid by Belvedere SpA, spends those resources to provide public infrastructures, cultural initiatives, social services and keep local taxes low for residents (Belvedere SpA, 2023).

## From landfill to the circular local district

In the 1990s, the prevalent urban waste management models concerned waste disposal in landfills. The progressive expansion of recycling and energy production created for the Peccioli site created a need to change the business model towards the circular economy. The landfill was coupled with a mechanical/biologic treatment plant and the Belvedere SpA has invested in renewable energy production. Currently, it is working for an anaerobic digestion plant, with the vision of establishing an integrated pole for environmental activities (Belvedere SpA, 2023). Before this project was announced, there was no similar plant in Central Italy, while in Northern Italy there were 18 and 3 in Southern Italy (Belvedere SpA, 2023). The *anaerobic biodigestion plant* addresses the mentioned need for organic waste treatment, and its operations will produce compost (fertilizer for agriculture and the forestal sector) and biomethane (to reduce the use of fossil fuels, a form of energy production out of organic waste through the production and upgrading of biogas). The plant was inaugurated in 2024, to treat 100% of the organic waste produced in central and coastal Tuscany (*ATO Toscana Centro* and *ATO Toscana Costa*, two of the three Optimal Territorial Areas in the region), together with another plant in Montespertoli (PisaToday, 2024).

An additional ongoing investment is a *thermal oxidation plant*, which will be one of the most advanced waste treatment plants in Italy, promoted by Newco Novotosc srl (85% capital by Belvedere SpA). This plant will rely on a new Italian technology inserted by the EU Commission under the BAT (Best Available Technologies) for waste treatment (Belvedere SpA, 2023). This plant is important for its capacity to close the circularity of waste management in Tuscany for the products that it will produce, such as “glassy pearls” to be used as “end of waste” products for the construction sector, water for industrial usage, CO<sub>2</sub> for the market, energy that will supply the plant and will be sold in the market.

The subsequent investments have progressively changed the Peccioli site from a waste disposal site for the regional system to a pole with “a strategic role in waste disposal and treatment in the region” (PisaToday, 2024). As the president of Belvedere SpA put it: “We started with the idea to address a temporary environmental emergency in Tuscany but then, we have built an advanced industrial pole” and, in his words, this is also due to the capacity to collaborate with local businesses to go together for a circular territorial model.<sup>34</sup>



**Figure 4:** The anaerobic digestion plant inaugurated in 2024.  
Source: Belvedere SpA, official website

<sup>34</sup> <https://www.pisatoday.it/cronaca/inaugurazione-biodigestore-anaerobico-smaltimento-rifiuti-peccioli.html>

## The Peccioli System

The evolution of the landfill investments and Belvedere SpA resulted in the emergence of the so-called “Peccioli System” (*Sistema Peccioli*), which is renowned as a good practice of turning waste management into a socio-economic system that creates value for the hosting territory by boosting job creation, income, services for the local community, aimed to cohesion, inclusion and wellbeing (Belvedere SpA, 2023). Peccioli System made this small town a lab of sustainable development, inclusion and innovation (Belvedere SpA, 2023).



**Figure 5:** The logo of Sistema Peccioli.  
Source: peccioli.net

Peccioli System aims to be a multiplier of the returns from waste management projects for the local community in terms of wellbeing. The landfill is managed by the company Belvedere SpA in convention with the Municipality, which channels resources from waste management to street improvements, school building equipment and laboratories. *Sistema Peccioli* is mainly composed of three organizations, a triangulation (see Figure 5) of Peccioli Municipality, Belvedere SpA and Fondazione Peccioli per l’Arte, which play different yet complementary roles. Fondazione Peccioli per l’Arte was established in 2004 to promote arts and culture. It manages the Museums Pole of Peccioli (4 sites and one open-air museum), festivals (e.g. 11 Lune, Pensavo Peccioli), education initiatives and training (e.g., Music Academy of Alta Valdera) and aims to expand and qualify the cultural offering of Peccioli. It also runs the tourist information office and the destination website portal (official website, [www.peccioli.net](http://www.peccioli.net)), informing on events and proposing experiences and itineraries for different tourist motivations (e.g., sport and culture) and targets (e.g. families).

The mission of the Peccioli System is to make the “waste model” go beyond the economic dimension of the waste industry and curate the transformation of economic value (produced by Belvedere SpA) into cultural, social and environmental value for the community (Belvedere SpA, 2023). The System creates and leverages synergies in assisting the local community with social services (e.g., for old people assistance, a kindergarten and a school), welfare (e.g., support to citizens in need, health convention for healthcare services on top of the national sanitary system for prevention for Peccioli residents) and infrastructures (e.g., library, polyfunctional urban spaces, green mobility, multi-level parking, lift connecting the parking with the old town, cycling trails, urban regeneration, swimming pool and sports facilities) and cultural services and initiatives (e.g., a music academy for more than 500 learners including kids from 3 to 6 years, museums, contemporary art projects such as the Endless Sunset installation on the panoramic bridge connecting the old town with the residential outskirts and the MACCA, see below).



<b>Peccioli System: Sample projects</b>		
<b>Investment area</b>	<b>Initiative example</b>	<b>Brief description</b>
<i>Green Mobility (various initiatives)</i>	Birò Share	Birò Share won the Urban Award 2022 by ANCI (National Association of Municipalities). In 2021, 20 electric cars were given to local commercial activity owners and 12 cars for residents and tourists for car sharing enabled by a dedicated app (minicars that fit in the lift connecting to the multi-level parking).
<i>Tourism development</i>	Place marketing for Alta Valdera	In collaboration with Touring Club Italia, in 2019, a project assisted in the definition of a tourism destination product involving four municipalities (Peccioli, Chianni, Lajatico and Terricciola). This project also involved training for local tourist actors.
	School for environmental tourism	A course in collaboration with Vivitalia, Federparchi and AITR (Italian Association for Responsible Tourism): a lab for Peccioli territory to turn the environmental resources into opportunities for tourism development
	Peccioli Working Village	In collaboration with Municipality and Touring Club. A call for applications was launched in 2021 to create a network of tourism professionals in the area. In 2022, “Peccioli, bike tourism itineraries” was launched, 6 postcards in Italian and English to tell about 129 km of bike-pedonal tracks (6 itineraries). One of the itineraries includes the Green Triangle in Legoli (landfill site).
	Bandiera Arancione; Bandiera Lilla; Village for All	Peccioli was awarded the Bandiera Arancione by the Touring Club assessing quality hospitality in a context rich in cultural and environmental resources, and the Bandiera Lilla as an accessible destination. Collaboration for making Peccioli accessible for people with mobility and accessibility issues (Guide Peccioli Accessible can be downloaded) <sup>35</sup> . Technical training for local tourist actors and operators organized by Belvedere and Village for All.
	Città del Vino	In 2024 Peccioli became part of the national network of Wine Cities, a brand supporting local wine productions and wine itineraries.
<i>Cultural events</i>	11 Lune	Summer and winter festivals, music and street artists
	Theatre performances	Hosted by the amphitheatre at the Green Triangle, Legoli, built-in 2007 (2,000 seats)
	Pensavo Peccioli	Festival in collaboration with The Post (3-day festival) about information and society
	Notte e Alba dei Giganti 2022 Run & MTB (Giants Night and Dawn)	2-day event for sports enthusiasts and tourists (national target). Run, and cross-country bike with itineraries in the woods surrounding Peccioli.
<i>Professional training</i>	“Comunità Formate”	Launched in 2023, in collaboration with Lajatico and Peccioli Municipalities and Misericordia association in Tuscany. Belvedere SpA offers free vocational courses to the two municipalities’ residents in the fields of digitalisation, civil protection, healthcare (e.g., Hazard analysis and critical control points), and social assistance, involving local associations in Peccioli and Lajatico

**Table 3:** Peccioli System’s project. Source: Belvedere SpA Sustainability Report 2022.

<sup>35</sup> <https://greenreport.it/news/enogastronomia-moda-turismo/1645-peccioli-e-village-for-all-il-borgo-dei-borghi-punta-sul-turismo-accessibile>

## **Urban regeneration and investments in contemporary art**

Peccioli System works for the urban regeneration of the old town and the surrounding area, making urban projects of public art the cornerstone of the urban strategy. These urban projects have been “the most concrete and tangible manifestation of the positive impacts derived from the Legoli plant” to improve the quality of life and attractiveness of Peccioli (Farinosi, 2019).

These projects were developed in the frame of the Operative Plan by Peccioli Municipality, adopted in 2017. This Plan was produced through an intense participative process, developed with the collaboration of Udine University, setting up “Laboratorio Peccioli”. Many participative events were organized, to inform and listen to the local community through various participative methodologies (e.g., technical panels and the publication of a booklet on Peccioli, its history and evolution shared with residents) (Farinosi, 2019).

Various regeneration projects (greenfield or brownfield) were developed, including the “Tower lift”, Cinema Passerotti and the *Palazzo senza tempo* (Timeless Building) restoration. This last was financed by Belvedere SpA in the old town, regenerating an ancient building owned by the Medici family, restored by Mario Cucinella Architects (Belvedere SpA, 2023). It has a huge terrace hosting graffiti by Daniel Buren with a panoramic view of the hilly landscape. It was internationally awarded with the Novum Design Award 2022 and became one of the most frequented tourist attractions in Peccioli.

Peccioli System invested in two museums: the Archaeological Museum in Peccioli, nominated as a national relevance museum by the Ministry of Culture, and the MACCA Open Air Museum of Contemporary Arts. MACCA Open Air Museum of Contemporary Arts – founded in 2023 - comprises 70 artworks spread in Peccioli territory. This has been an investment in creating a cultural brand that has worked as an umbrella for the investments in contemporary arts made over time (since the 1990s) in the old town, in the Green Triangle and the surroundings (Belvedere SpA, 2023). Contemporary artworks are inserted in the old town and the landscape: “Presenze” (the giants in Legoli and the amphitheatre Torre Mazzola), “Via di Mezzo di Tremlett” in Ghizzano, another artwork by Tremlett in the landfill in Legoli, and the Endless Sunset by Patrick Tuttofuoco.

Belvedere SpA asked Naturaliter, leading museum design, the creation of giant sculptures to be positioned in the plant’s area to symbolically communicate that a new life can be generated by waste. Additional artworks are in the business incubator and the amphitheatre.

## **Peccioli System governance and stakeholder engagement**

### ***Financial involvement***

A remarkable aspect of the Peccioli System is the public-private shareholding of Belvedere SpA, responsible for waste management in Peccioli and a fundamental actor in the System.

Belvedere is the only example in Italy of a public local company participated by citizens, and this direct participation in the company is an important aspect characterising the Peccioli case. The connection with the territory is significant and “promoting the development of Peccioli municipality, its territory and economy” is part of the company’s mission (Belvedere SpA, 2023). For this reason, “Peccioli has become an example of “good governance”, a model of bottom-up development guided by a public authority” (Mayor Macelloni’s words in the Introduction to the report by IDEAS, 2017).

In this modality, participation became concrete, boosting responsible behaviours. “This route of development succeeded in wiping out the discussion about the landfills from bars and

bringing citizens to speak about this important local fact in the public assemblies as they became interested directly and personally... they became responsible for the development of the landfill and its evolution” (Interview, Peccioli Mayor, May 2024).” This was a turning point in local stakeholders’ engagement, turning the usually negative public opinion against plants of this kind into a positive attitude (Ideas, 2017). Over time, Peccioli became a proper system also because of the widespread participation of residents, not only in the political life but also in the economic life. “The case of Peccioli is a unique case in Italy for stakeholder engagement and the capacity to shift from NIMBY attitude (Not in my backyard) to PIMBY (Please in my backyard) attitude” (Interview, national expert 2, May 2024).

Local community financial participation has become a method adopted by Belvedere SpA also for funding two photovoltaic plants. This experience has started to inspire other contexts in Italy.<sup>36</sup>

### ***Access to physical spaces and resources***

Participation in Peccioli also meant access to spaces and resources like land, creating physical proximity and connection with Peccioli System projects and rationale. This was the case of “Productive Gardens” (*Orti produttivi*), providing residents with the opportunity to cultivate lands freely and share this environmental resource to produce wine and olive oil as a social bonding opportunity.

Direct contact and experience with the waste site in the Green Triangle are also created through the possibility of visiting the landfill (guided tours are organized for residents and tourists). Peccioli Council recently approved the possibility of celebrating weddings on landfill premises. In 2022, a couple got married in the landfill in proximity to the Giants. As a top manager at Belvedere said, “Families are coming to the Green Triangle on Sundays to have pic-nic in the proximity of the landfill to see the magnificent view on the hilly valley and the giants and we constantly work to make the area more welcoming for people that want to spend time closeby” (May 2024).

### ***Consultation and participative process for planning***

Peccioli municipality developed a collaboration with Udine University to unfold a participative process involving the community with different methods of active listening to steer a dialogue informing the urban plan. The methodology led to the operative plan in 2017, and it was adopted structurally for subsequent community surveys and participation (see Farinosi, 2019).

### ***Local community engaged in innovative experimentations***

Various experimental projects focused on technological innovations to boost sustainability. Residents were involved in the experimental phases, as protagonists testing the technology, its effectiveness and usability. Examples were the DustBot in 2010 with 20 families and commercial activities involved in the old town with the waste collection by a robot. Another project called Robot-Era in 2014 involved 80 people over 65 years old to assess the pros and cons of three robot caregivers (Farinosi, 2019).

## **Communicating Peccioli: Unfolding a communication model**

The existing literature on the case converged on the centrality of communication, information and symbolic representation of the landfill, its evolution and Peccioli's story (Caspreti, 2013; Farinosi, 2019). Communication has always been part of the project, “communication is

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<sup>36</sup> <https://www.quinewsvaldera.it/Peccioli-l-orto-solare-e-un-esempio-virtuoso.htm>

functional to maintain reality oriented towards a dream” (Interview, Peccioli Mayor, May 2024). The dream is residents’ capacity to imagine the future of Peccioli and, beyond the dream, there has been the mayor’s vision composed of two key goals: establishing Peccioli as a best practice of waste management to be followed and gaining and having financial resources to invest in favour of the local community (Interview, Peccioli Mayor, May 2024). “I have a project, I always had one, as an administrator, I do not follow what citizens say nor do I ask them what they want. Administrators need to have and propose to the community a vision” (Interview, Peccioli Mayor, May 2024). The mayor’s mission has been to create the conditions for the Peccioli community’s well-being and quality of life. This path created “an advantage for Peccioli, compared to other towns in Tuscany and beyond, a gap that cannot be bridged at least for the next fifty years” (Interview, Peccioli Mayor, May 2024).

This attitude to communication also characterises Belvedere SpA, which pays attention to narrating its projects, impact and evolution. Belvedere has published many books and multimedia content, and it voluntarily produces the Sustainability Report yearly following the Global Reporting Initiatives guidelines (Farinosi, 2019).

Peccioli community has a twofold relationship with communication. The local community has been the target of communication as well as the subject of communication.

### ***Local community as communication target***

Much communication has been part of the participative processes in Peccioli and *Laboratorio Peccioli* in collaboration with Udine University helped define procedures and moments for communicating to create a public debate, as described above. Local media (e.g., *ilTirreno* newspaper) widely covered the story of Peccioli over the years, creating a buzz around Peccioli locally and regionally. Social media platforms have been widely used by Peccioli Municipality, which has developed an informative and storytelling modality on Facebook and Instagram, integrating multimedia content and a lively presence in social networks.

Social media (similar to newspapers) were not central in Peccioli to inform residents about ongoing projects and policies (Farinosi, 2019). However, social media were widely utilized to narrate the candidacy of Peccioli to Borgo dei Borghi 2024, an award for small towns in Italy hosted by the main national TV (RAI-Radio Televisione Italiana). Facebook and Instagram steered support from the local community that could vote for sustaining the candidacy and helped share happiness and pride for being awarded the title of “Borgo dei Borghi”. As a Facebook content posted by Peccioli Municipality says:

*Peccioli Borgo dei Borghi 2024, exulting like during the World Cup last match! Peccioli people let’s hug and love one another! A week ago, from the day that for us in Peccioli and for all the people who love us was the World Cup final match. The Giants Gallery was our stadium, with more than 600 people pushing for this historical achievement. We need to celebrate it like the most beautiful victories, the ones that make us think of our national football team. Yes, because this award Borgo dei Borghi 2024 was celebrated in Peccioli like the World Cup!* (Facebook post, Peccioli Municipality account, April 7, 2024).

The buzz and involvement of locals with voting for Borgo dei Borghi were also nurtured through a dedicated WhatsApp channel informing about the competition, the deadlines for voting, about the local initiatives in preparation for the *gran finale* and sharing content (like reels and posts) by residents and people connected with Peccioli.



**Figure 6:** Mayor Renzo Macelloni with Borgo dei Borghi Award in the Giants Gallery, Legoli landfill  
Source: Greenreport.it<sup>37</sup>

Another important moment contributing to building local pride is the locals' participation in the exhibition "Trash to Beauty", inaugurated in New York in 2024 (see below). Peccioli Municipality organized a call for applications for Peccioli residents for funds to participate in a trip to New York to see the exhibition speaking about their community and 400 residents were involved in different trips (the first in February 2024 with 80 people, including a 94-year old man willing to join his community in this experience). It was a tourist opportunity, including a visit to the New York Institute of Technology, become an important partner for Peccioli, "a unique opportunity for Peccioli people, for many an important one thanks to municipal funds sustaining local families to make this trip affordable, accessible and inclusive... Peccioli residents could see the story of their community narrated in a different and distant context speaking of us...many families and young people participated" (Interview, Peccioli Mayor, May 2024). Residents could watch videos about Peccioli in the iconic Times Square (see below).

### **Local community and "Peccioli model" as communication subject**

In 2021, the Peccioli community was the protagonist of the exhibition Resilient Communities at the Biennale in Venice, telling the story of Peccioli, its waste legacy and the role of public contemporary arts for cultural regeneration and wellbeing. This was deemed an interesting format to attract attention to the Peccioli model and fuelling tourist flows to the town. This was followed by the participation of Peccioli at the Venice Biennale in 2023. This experience was also followed by an exhibition dedicated to the Peccioli model in New York, hosted by the Institute of the Italian Culture where the story of the community was narrated. In 2024, the exhibition "Trash to Beauty" was inaugurated. A promotional video of Peccioli inviting to visit the exhibition was projected in Times Square. In a Facebook post by Peccioli Municipality, the reason for this projection was explained:

*"We long thought about how to conclude the countdown [for the New York exhibition], of the best possible way to celebrate all the work Peccioli System has done for the exhibition and to make the Peccioli community participate. The best way we thought was this: making the Giants fly over the Atlantic Ocean and make them land directly at the heart of Manhattan, like the guardians of our community and testimonials of our territory. In the video, there is Peccioli's*

<sup>37</sup> <https://www.greenreport.it/news/enogastronomia-moda-turismo/1792-i-turisti-a-peccioli-continuano-a-crescere-macelloni-abbiamo-risposto-con-piu-servizi>

old town, our contemporary artworks, the Endless Sunset and the Giants and this video was projected on a mega-screen on the Tsx Broadway skyscraper” (Valdera.it, 20 February 2024).

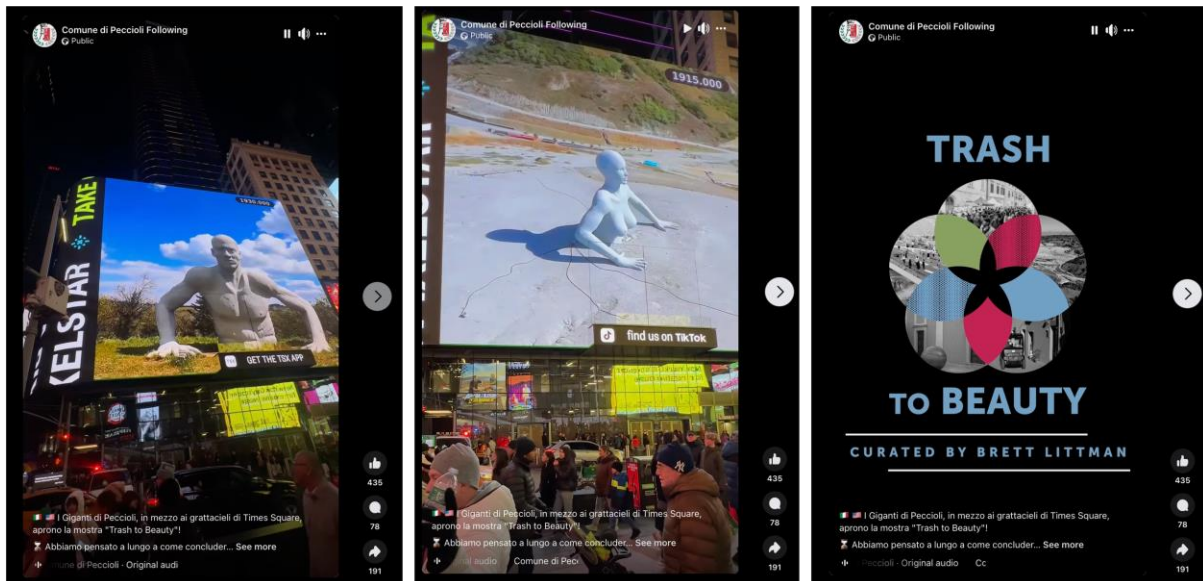


Figure 7: Peccioli promotion video in Times Square  
Source: Facebook reel<sup>38</sup>

Borgo dei Borghi 2024 award provided national visibility to the Peccioli model. Google Trends shows a spike in “Peccioli” searches on the day that “Borgo dei Borghi” was awarded. Voters and the jury focused on Peccioli for the local attention to development, quality of life, environmental sustainability and engagement with contemporary arts. Google Trends also revealed a steep increase in the correlated query about “Sei di Peccioli se...” (a Facebook page dedicated to the local community, “You come from Peccioli if...”), the Giants of Peccioli, the festivals *Pensavo Peccioli*, *11 Lune* and MACCA open-air museum.

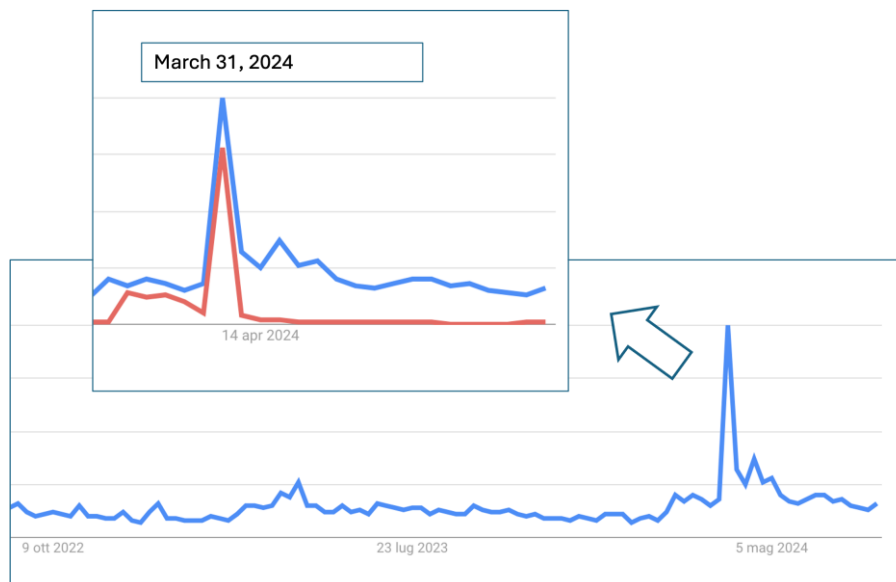


Figure 8: Interest in Peccioli on the Web\*.

Source: Google Trends

\* Red line: “Borgo dei Borghi” search trend; blue line: “Peccioli” search trend

<sup>38</sup> Available at: <https://www.facebook.com/reel/1406370049965481>

A movie set in Peccioli *“La seconda vita”* (The Second Life) was released in 2023, in collaboration with Rai Cinema, funded by Emilia-Romagna region, Municipality of Peccioli, Belvedere SpA and in collaboration with Toscana Film Commission and Emilia-Romagna Film Commission. The movie tells a story about hospitality and exclusion in a small town, giving visibility to the iconic symbols of Peccioli.

A series of workshops, conferences scientific events and collaboration narrated the Peccioli model as an innovation model. For instance, in 2019, a scientific conference on resilient communities took place in collaboration with UN-Habitat. The event “How to narrate sustainability” in collaboration with AsVis – Italian Alliance for Sustainable Development occurred in 2022. In 2024, an art exhibition was hosted by the New York Institute of Technology, with the title “SustainArt: Building a Sustainable Future through Architecture and Arts in Peccioli”. This exhibition is part of a collaborative research and educational project between the School of Architecture and Design at the NYIT and Peccioli Town. The exhibition documented the “innovative sustainable strategies” through waste management and aimed to contribute to the “discourse on sustainable urban development, circular economies, and the transformative role of arts and architecture in creating inclusive communities” (NYIT website). The webpage dedicated to the exhibition<sup>39</sup> presents Peccioli as “Peccioli Model Town”, an “exceptional urban living laboratory model”, a “paradigmatic case study in environmental sustainability practices...pioneering social community project”. Peccioli is described as a “social model” through “minimising inequality and democratising access to arts and architecture” and showing the benefits of accessible arts and architecture. The different sections of the exhibitions involving many architects, artists and designers, frame the Peccioli narrative around a “groundbreaking approach in the field of architectural ecology and urban resilience” and the “Peccioli cultural movement” for the interdisciplinary perspectives including architecture, digital arts, comic art and music.

### ***Narrating waste and the landfill experience in Peccioli***

This last paragraph focuses on how waste, at the core of the Peccioli model, has been narrated, whose relevance is transversal to the two above sections (local community as a target and local community as the subject of communication). The communication of waste puts local community and national/global audiences on the same page in Peccioli. It is committed to re-envisioning waste perceptions and positioning the topic of waste differently in people’s minds. If waste is perceived as something “bad”, or smelly, and the landfill is perceived as the opposite of a liveable place where one wants to spend time (all people may easily agree on this, regardless of their provenance), the waste narration in Peccioli worked to turn this perception around. According to some, thanks to the communication strategy, Peccioli has become an innovative model of waste management locally and nationally, a highly symbolic communication policy that framed the Peccioli “miracle” of turning waste into wealth and income (Caspretti, 2013).

The communication policy has had a spatial dimension since the early stages of the landfill expansion and improvement. The landfill was not a hidden space narratively. Instead, it became the physical pivot of Peccioli model narration and new meanings have been attached to “waste” and “landfill” through the design of first-hand place experiences, constantly accompanied by a narrative echo.

The experientialisation of the landfill started in the early stages of the landfill development. In 2010, the fashion event by Andrea Turini cashmere fashion brand took place in the landfill, “a new entertainment proposal based on turning around the common sense, become outdated

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<sup>39</sup> [https://www.nyit.edu/events/peccioli\\_opening](https://www.nyit.edu/events/peccioli_opening)

nowadays, of the landfill as an infernal and unliveable place, transforming the landfill in a place where beauty, classy style and high technology combine”.<sup>40</sup> At that time, this was defined a “provocatory act”<sup>41</sup>.

In 2011, Naturaliter snc created an installation of four giant sculptures called “Presenze” (Figure 9), 5 to 9 meters tall, creating a new opportunity to visit the landfill. This was not only a place to learn about waste management, open to visitors – including schools – to learn about waste disposal and the lifecycle of what we buy and consume, but also a place to experience contemporary art. The landfill became one key site of contemporary art in Peccioli, and the most recent plants witness this evident effort to create new meanings around the landfill and waste. In 2016, the mechanical-biological treatment plant (inaugurated in 2015) was decorated with artwork by Sergio Staino, a journalist and reputable cartoonist, and his son (Figure 10), composed of ten billboards and 100 metres long.



**Figure 9:** Giant in Legoli plant.  
Source: peccioli.net

<sup>40</sup> <https://www.iltirreno.it/pontedera/cronaca/2010/07/20/news/la-moda-va-in-discarda-sfilata-di-mo-delle-nell-impianto-di-peccioli-1.1972439>

<sup>41</sup> Il Tirreno, 2010.





**Figure 10:** Mechanical-Biological Treatment Plant with Sergio Staino and son's artwork  
Source: peccioli.net<sup>42</sup>



**Figure 11:** Staino's artwork detail.  
Source: Belvedere SpA, official website

The anaerobic biodigester plant inaugurated in June 2024 was covered by Remo Salvadori's art piece narrating a new life springing out from chaos ("Germoglio") to generate a transformation and by David Tremlet work ("Untitled") painting with the colours of the surrounding hills.

<sup>42</sup> <https://www.peccioli.net/allaltezza-delle-margherite-di-staino/>



**Figure 12:** Anaerobic biodigester plant with Tremlett and Salvadory artwork  
Source: Artribune, Fondazione Peccioliper archive<sup>43</sup>

The MACCA Museum, an open-air museum collecting 70 art pieces spread around Peccioli territory, systematised the contemporary art experience in Peccioli including the landfill experience and created a thread and connection between the village and old town and Legoli site.

Guided or independent visits to the landfill and the Giants area are possible daily. The open and welcoming attitude of Belvedere SpA to visitors is a commitment to make people experience the landfill, contribute to education on waste and environmental awareness and to the attractive and unique local tourist offering. As a top manager at the waste management company put it: “We are doing a lot to allow visits and improve the quality of the experience in our landfill. We commit to explain what we do, and we are constantly thinking of how to provide services to our visitors and experiences like the treasure hunt for kids during weekends” (May 2024).

Besides, the landfill has been the location for several concerts and events. The building dedicated to welcoming visitors is a congress venue where a screen constantly projects documentaries and promotional videos about the landfill and its functioning.

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<sup>43</sup> <https://www.artribune.com/arti-visive/arte-contemporanea/2024/06/interventi-peccioli-tremlett-salvadori/>