

**REPAiR: REsource Management in Peri-urban AREas: Going Beyond Urban Metabolism**  
**D6.1 Governance and Decision-Making Processes in Pilot Cases**

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# REPAIR

## REsource Management in Peri-urban AREas: Going Beyond Urban Metabolism

### D6.1 Governance and Decision-Making Processes in Pilot Cases

Version 1.6

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## Acronyms and Abbreviations

AEB	Afval Energie Bedrijf (=Waste and Energy Company)
AMA	Metropolitan Area of Amsterdam
AMS	Advanced Metropolitan Solutions
A/N	Author's Note
ASIA	Hygienic and Environmental Services Company in Naples (ita: Azienda Servizi Igiene Ambientale Napoli)
ATO	Optimal Territorial Area (ita: Ambito Territoriale Ottimale)
BKG	AMA Central Administration
CE	Circular Economy
C2C	Cradle-to-Cradle
e.g.	exempli gratia
HCU	HafenCity Universität
i.e.	id est
MAN	Metropolitan Area of Naples
PA	Public Administration
PULL	Peri-Urban Living Lab
SA.P.NA	Environmental System Province of Naples
SIN	Sites of National Interest
SWC	Separate Waste Collection
TU Delft	Delft University of Technology
UNINA	Università degli studi di Napoli Federico II
WP	Work Package

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# Glossary

**Circular Economy**\_it is referred to a broad and slightly recent concept included several fields of operation:

- a. Circular Economy is an economy based on renewability of all resources – energy, materials, water, topsoil (for food production) and air – while retaining or creating value, promoting positive systemic impacts on ecology, economy and society, and preventing negative impacts.
- b. Circular Economy accommodates resources to flow through man-made and natural systems in renewable ways, creating or retaining value through “slowed, closed or narrowed loops”, rather than rapidly destructing value through the creation of waste. This value can manifest itself in monetary principles as well as other social, ecological or economic principles, taking account of potential trade offs. Important in this notion is the establishment of production-consumption-use systems built on restorative resources in optimal flows. Optimal flows imply that cycles are closed or connected at spatially and temporally favourable conditions i.e. where and when most appropriate (highest possible value). Moreover, changes in one part of the system should not incite negative externalities. Of particular interest for REPAiR in this respect are impacts on spatial quality. From that perspective REPAiR also includes the notion of waste-scapes (open spaces as well as built form) into the equation (European Union 2017; Ellen MacArthur Foundation 2013).

**Closed loops**\_through recycling, the loop between post-use and production is closed, resulting in a circular flow of resources (Bocken et al. 2016).

**Eco-innovative solution**\_are influenced by the site specificities; depend on policies/resources (managerial, economic/financial, administrative capacity, etc.); depend on stakeholders: different people, queries, communities, economies are involved in eco-innovation process; do not have a single scale, they cross multiple scales, different dimension, grain and scale of the territories of innovation. The combination of eco-innovative solutions produce integrated strategies: mixable instruments and solutions for new systemic relations (Own 2017).

**Peri-urban**\_is the area of urban region where built and unbuilt patterns intermix (Forman 2008:7). Periurban area have not the features of urban compact city nor the suburban village ones; their features, often unprecedented, are in turn defined as: urban sprawl, dispersed urban development, wide-spread city (città diffusa), territories in-between, etc. These are “areas where new functions, uses and lifestyles arise as a result of the on-going interaction of urban and rural elements. They cannot solely be explained as an intensification of urban functions in the rural environment, but have specific spatial and programmatic features that set them apart” (Wandl et al. 2014). Moreover, because of (former-round, wide-spread, increasingly polynucleated) structure of contemporary urban regions, periurban area is not matching with the intermediate area around the city. Then, periurban is a specific condition of contemporary settlements in the urban regions; it has a wide-spread and scattered nature and can be recognized both by landscape readings both by quantitative analysis. The landscape-reading shows territories characterized by high fragmentation, lack of urban and ecologic continuity, hybrid (not-rural, nor-urban) condition, dispersion of sense of places caused by continuous overlapping of sectorial elements and flows. That is a not-isotropic spatial structure; it is determined by iterations, rips, spatial accumulations of scattered uses and buildings. From a quantitative point of view, periurban settlements can be recognized by way of several indicators: someone

depending on physical features (number of buildings and surface they cover, built-up volume, parcel fragmentation, etc); other ones deriving from the way in which target areas are used (inhabitants, workers, infrastructures and their uses) (Own 2017).

**Peri-urban living lab**\_LLs are physical and virtual environments, in which public-private-people partnerships experiment with an iterative method to develop innovations that include the involvement of end users. In LLs different areas of expertise from diverse partners are needed for a good development of the activities, with the aim to meet the needs of the stakeholders by innovation (ENoLL).

**Resource**\_a source of supply or support (Merriam-webster). Within REPAiR 'essential resources' can refer to: energy, materials, water, topsoil, food, and air.

**Slowed loops**\_Through the design of long-life goods and product-life extension (i.e. service loops to extend a product's life, for instance through repair, remanufacturing), the utilization period of products is extended and/or intensified, resulting in a slowdown of the flow of resources (Bocken et al. 2016).

**Sustainability**\_the balanced and systemic integration of intra and intergenerational economic, social, and environmental performance (Geissdoerfer et al. 2017).

**System**\_an interconnected set of elements that is coherently organized in a way that achieves something... A system must consist of three kinds of things: elements, interconnections and a function or purpose (Meadows 2008).

**Value**\_The regard that something is held to deserve; the importance, worth, or usefulness of something (Oxford Dictionaries). Value can amongst others be expressed in material or monetary units.

**Waste**\_any substance or object that the holder discards or intends or is required to discard (European Union 2008).

**Wasteland**\_An unused or neglected area of land that has become barren or overgrown (Oxford Dictionaries).

**Waste-Scapes**\_Patches of landscape related to waste-cycles both by functional relations and because they are "wasted lands", areas not included in the peri-urban development scenarios, becoming neglected spaces. Therefore, with the term waste-scapes we refer to peri-urban elements of urban regions known both as Drosscapes and Operational infrastructure of waste (Team UNINA 2016).

## Publishable Summary

REPAiR will develop, test, and implement strategies for improved urban metabolisms in six peri-urban living labs (PULLs) in the case study areas of Amsterdam, Ghent, Hamburg, Łódź, Naples, and Pécs. In the frame of REPAiR a geodesign decision support environment (GDSE) will be developed and first tested in the PULLs.

In REPAiR's Work Package 6 "Developing and implementing decision models" decision making processes will be analysed and decision models for all six case studies will be developed in order to be implemented in cooperation with stakeholders in the six case study areas feeding into the GDSE.

The deliverable D6.1 Governance and Decision-Making Processes in Pilot Cases is focused on the definition and clarification of governance and decision-making structures in the two pilot cases of the REPAiR project: Amsterdam, the Netherlands and Naples, Italy. The deliverable is divided into 5 chapters.

After a brief introduction to the work done for the drafting of this document (Chapter 1), the second Chapter aims to explain the theoretical background on governance and stakeholder analysis and gives an overview on the development of EU policies in the field of waste management.

The third chapter and the fourth chapters report a description of the pilot caseworks Amsterdam and Naples they include an overview on the governance setting, a detailed timelines of the development of the waste governance and the decision-making framework. This is followed by descriptions of the stakeholder identification and interviews conducted in the pilot cases.

The Amsterdam focus area is located in the Western part of Amsterdam Metropolitan Area. The central idea of the case study is to develop a more circular economy. This idea is already quite present among many stakeholders and is formulated as an objective by public stakeholders. Moreover, the public side encourages the involvement of economic stakeholders into the development of a circular economy. The private stakeholders express great interest in becoming (more) involved into the process. However, the interviews also show that the development of a circular economy and changes in waste management in the Netherlands can only be reached on a long perspective and that many frame conditions in the waste management sector are long term bound.

The Naples focus area is covering parts of the City of Naples and 10 municipalities in the north-east of Naples. After the conclusion of the waste crisis in Naples public authorities are aiming to improve the waste management on a long term perspective. The interviews show that there are two main challenges linked to this process: firstly, the current change of the administrative system in both Italy and the Campania region; secondly, the necessity to involve local citizens in the decision-making process to regain the trust of the population.

Chapter 5 illustrates the conclusion of this first step of the project and gives an outlook on further steps.

# 1. Introduction

The Horizon 2020 project REPAiR – REsource Management in Peri-urban Areas: Going Beyond Urban Metabolism aims at extending the concept of urban metabolism in three ways: (1) by exploring the roles of governance, territorial and sociocultural characteristics; (2) by strengthening the relationship between resource management and design, not only of products, but also of space; and (3) by including participatory and science-based decision-making processes. In order to complete these research goals, REPAiR will develop, test, and implement strategies for improved urban metabolisms in six peri-urban living labs (PULLs) in the case study areas of Amsterdam, Ghent, Hamburg, Łódź, Naples, and Pécs. In the frame of REPAiR a geodesign decision support environment (GDSE) will be developed and first tested in the PULLs. The GDSE will facilitate the development of integrative spatial development strategies that comprehend waste and related treatment processes as a resource (Steinitz 2012). One essential principle of the transdisciplinary PULLs is the combination of scientific and practical knowledge. Therefore REPAiR involves a variety of stakeholders: universities, research institutes, public private waste management companies, regional and local public authorities, and small as well as medium-sized enterprises from the fields of planning and geodesign – either as partners in the consortium or as members of a user board. Additionally, further public, private, and intermediate stakeholders as well as citizens participate in the project throughout the PULLs.

In the frame of REPAiR's Work package 6 “Developing and implementing decision models” an analysis of the decision making landscape (stakeholders, processes, legal framework) of the six case study areas will be conducted. Based on this analysis and outputs of further work packages (WP3-5) decision models for all six case studies will be developed. These decision models will then be implemented in cooperation with stakeholders in the six case study areas feeding into the GDSE.

This deliverable (D6.1) is the first part of the analysis of the decision making landscape in the two REPAiR pilot cases Amsterdam and Naples. It contains background information on governance and stakeholder analysis methodology and an overview on policies on EU level. This is followed by the governance analysis of the two case studies Amsterdam and Naples. The deliverable ends with a first conclusion on the two case studies.

The next WP6 deliverable D6.2 will include further analysis on the two pilot cases, as well as the analysis of the four follower cases.

## 2. Governance Analysis

### 2.1 Definitions

Before embarking on the details of the analysis methodology, it is necessary to clarify some definitions that are important for a useful discussion of governance in the EU. There are numerous definitions of governance in the literature, and some have argued that the undefined nature of the term has contributed to its ongoing use and focus. In this paper, we will be using the term “governance” in the way used by Kohler-Koch & Rittberger (2006) to encompass a diversity of governing modes (e.g. Bulkeley & Kern 2006; Nilsson et al. 2009) and multi-level interdependence (e.g. Hooghe & Marks 2001; Newig & Fritsch 2009). In this sense then, we seek to illustrate the similarities and differences in both the structural realities of the decision-making frameworks and the unique geographical and cultural conditions that affect governance in our pilot case locations.

The word ‘stakeholder’ originates from the seventeenth century, when “it was used to describe a third party entrusted with the stakes of a bet” (Reed et al. 2009:1934). Other narrower definitions have been later proposed (see Section 2.1). The stakeholders’ analysis was introduced firstly in the field of business management: the awareness of the ability of actors at stake to “affect the success of a firm led to the development of approaches to analyse stakeholders, in order to understand their interests and influence” (Reed et al. 2009:1934). For more precise information see Reed et al. (2009).

**Box.1: Origins of Stakeholder’s analysis.**

There are several interpretations of the term **stakeholder**. In the frame of this analysis three of them have been chosen: the first one is given by Clarkson (1995), the second by Reed et al. (2009) concluding with Dente (2011). Clarkson defines stakeholders as “persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future” (Clarkson 1995:106). Reed et al. (2009) introduce the concept of stakeholders as the ones “who affect or are affected by a decision or action” (Reed et al. 2009:1934). On the other hand, Dente (2011) refers to stakeholder as “whatever individual or organisation that acts in a purposive way<sup>1</sup>” (Dente 2011:55). He specifies as well that a “collective body is an actor if there is self-interest, there are formal or informal rules and there is a collective identity<sup>2</sup>” (Dente 2011:58). The definitions are basically similar but each of them brings something new: Dente introduces the concept of collective identity to stress the personal and subjective interest of the actor involved in a project or process. Of interest is also the concept of time, as Clarkson (1995) suggests: along the process of decision (or project) the number of stakeholders involved can increase with the addition of new actors or decrease after them withdraw. Lastly, Reed et al. (2009) identify those actors as the protagonists of the decision process, both as subjects or objects of it: actors are

<sup>1</sup> “[...] gli attori sono coloro che compiono le azioni rilevanti” (Dente 2011:55).

<sup>2</sup> “[...] un attore collettivo [è] considerato tale [se soddisfa le] seguenti condizioni:

1. Che sia riconoscibile un self-interest [...];
2. Che vi siano delle regole [...];
3. Che vi sia un grado [...] di identità collettiva” (Dente 2011:58).

therefore identified as elements, which act on or are affected by the existing situation. This definition is useful in the extent of which it shows the *action-reaction* relation in a system (i.e. actors system).

Secondly, actors have generally **objectives** (or **goals**, or **priorities**, referring to the purpose of this document) that they are willing to achieve. Giunchiglia et al. (2003:163) state that “a goal represents the strategic interests of actors”. This definition is particularly useful as far as it introduces term *interest* and the *strategic* aspect of it: interest communicates personal involvement of the single actor; meanwhile strategic shows the kind of approach by which the interest is brought at stake. Dente (2011) goes deeply in the definition and he asks himself the question of the origin of interest. According to him, “the preferences of an actor will determine its objectives<sup>3</sup>” (Dente 2011:59).

A more complex notion is that one of **decision-making**. There is indeed plenty of literature that is dealing with it but few of them attempt in a proper definition of the term<sup>4</sup>. Dente (2011) reports a rather interesting view of this term: “decision implies an *action of will* and the *existence of alternatives*. In the absence of one of those [or both] no decision occurs. [...] a third fundamental element is represented by the *process* through which originated the final choice<sup>5</sup>” (Dente 2011:25-26). He argues that studying a decision means to study all those processes by which a person <<decides to decide>>, how he/she discarded other alternatives and the final goal is reached, that could end in a <<decision not to decide>> as well (Dente 2011:26). “This aspect”, Dente writes, “introduces a fourth element. [...] The decision must have content, an object<sup>6</sup>” (Dente 2011:26). The term decision-making, therefore, refers to the action of taking a decision or a series of decisions that are to be implemented by public policies (administration) or private ones (companies).

## 2.2 Methodology

In this way then, policy work and decision-making exist in a frame that ties them implicitly to their specific cultural, legal and goal context. With the general framework of waste governance established for the project, research and literature on the topic of waste governance was collected and analyzed. The scale of analysis ranged from the EU-level down to the local level, with focus being placed on the two countries and/or regions where the pilot cities are located: Amsterdam, the Netherlands; and Naples, Italy.

Following an assessment of the greater EU-level governance context, we concentrated on the aspects of intra-national policy that deal with waste and

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<sup>3</sup> “Le preferenze di un soggetto [...] definiranno i suoi obiettivi” (Dente 2011:59).

<sup>4</sup> Most of the literatures that report the definition of decision are more related to psychology field.

<sup>5</sup> “[...] la decisione implica un atto di volontà e l’esistenza di alternative. Se mancano l’uno o le altre [o entrambe] non c’è alcuna decisione. [...] un terzo elemento fondamentale è rappresentato dal processo attraverso il quale è venuta alla luce la scelta finale” (Dente 2011:25-26).

<sup>6</sup> “Quest’ultima osservazione mette in luce un quarto elemento. [...] Una decisione deve avere un contenuto, un oggetto” (Dente 2011:26).

waste governance. From there, the individual governance and decision-making situations of the two pilot cases, and their historical development, are described with an aim to concentrate on those policies that deal with waste management and policy.

### 2.2.1 Stakeholder Identification

In the present case TU Delft and UNINA, once having defined the project areas, have identified key stakeholders that have direct interest on the sites. Successively, other actors have been identified with the means of **snowball** sampling. In the actual first phase, the key stakeholders will be interviewed separately and later in focus groups with the help of the Living Lab programs. Interviews are semi-structured: following a ladder of questions with the aim of encouraging a more organic and broader spectrum flow of information given by interviewees.

To guide and supplement our stakeholder identification work, research and review was conducted on the methodology of stakeholder analysis to be utilized, and the beginning analysis elements of a more analytical comparison were described. A major part of this assessment was individual interviews with key stakeholders (Nilsson et al. 2009:5-6); these were identified and conducted by the research team in that case study location - more details can be found in the stakeholder identification methodology sections later.

The methodology used for the individuation of the main stakeholders is described in this chapter. Reed et al. (2009) attempted to write a review on the subject producing the scheme shown in Figure 1. The stakeholder analysis is divided into 3 steps: 1) identifying stakeholders, 2) differentiating between and categorising stakeholders and 3) investigating relationships between stakeholders. For each step, several methods are present in literature.

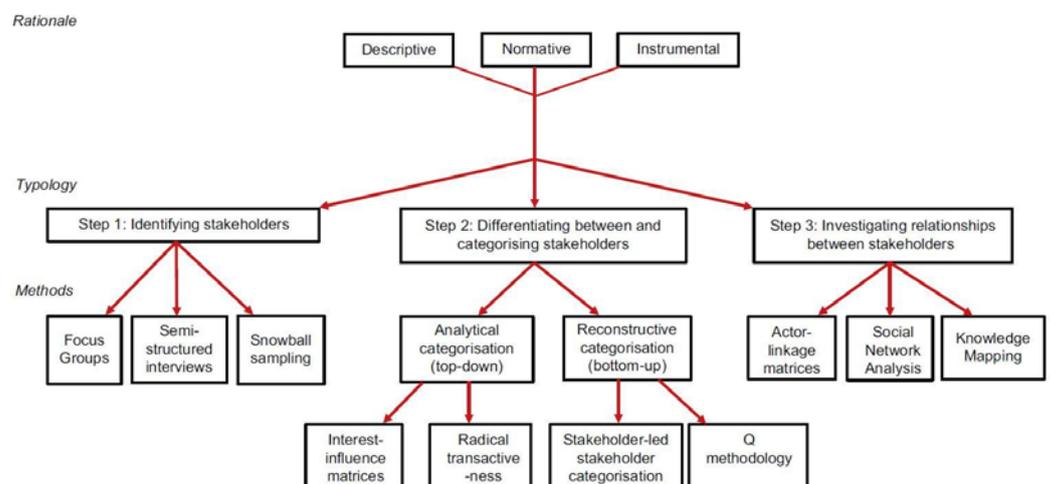


Figure 1: Schematic representation of rationale, typology and methods for stakeholder analysis (Reed et al. 2009:1936).

Lienert et al. (2013:4), in discussions about the methodology of stakeholder evaluation and the pros and cons of it being widely applied but not always rigorously scientific, note that while the identification of actors is a worthwhile

first step, additional tools, such as social network analysis, are necessary to build a more useful and complete picture of the decision-making framework or structure.

De Oliveira et al (2013:146) detail their assessment criteria and indicators for good governance into 4 dimensions; the one that pertains to our work here is their first process dimension, that of “decision-making process.” They define three general indicators for assessing the quality of the governance related to this dimension: participation / inclusiveness, responsibility / accountability, and decision-making effectiveness (de Oliveira et al. 2013:146). These indicators will be part of the deeper analysis conducted later over all 6 study areas and will form a basis of quantitative comparison that will be expanded as necessary.

The paragraphs called “Results” for both case studies (Paragraph 3.3.2 for Amsterdam and Paragraph 4.3.2 for Naples) aim to describe the stakeholders’ environment in Amsterdam and Naples. The methodology applied for the editing of these chapters comprehends the list of stakeholders with indications on:

- Level: EU/International, National, Regional, Sub-regional (e.g. Provincial, Metropolitan), Municipal, Sub-municipal (neighbourhood, fractions);
- Sector: Public (Pu), Private (Pr) or Public/Private (Pu/Pr);
- Goal: Content or Process related<sup>7</sup> and its description.

Another table is then provided with more subjective information:

- Power: High, Medium, Low; it refers to the available resources (political, financial, social) to the stakeholders and their ability to mobilize them for the project;
- Attitude: Positive, Neutral, Negative; it refers to the stakeholders’ reaction to the issues proposed in the project;
- Need for involvement: High, Medium, Low; it depends from the considerations regarding power, attitude and interests.

A paragraph with the analysis of the stakeholders for both cases follows with the indication of first impressions from the interviewees, the challenges and problems arisen by the stakeholders and the suggestions by the interviewees for new stakeholders that might be important in the context of the project for future involvement.

## 2.3 EU Policy Context

### 2.3.1 General Framework

The EU as a body has been the subject of seemingly unlimited scrutiny and research, across a variety of contexts and sectors. Our interest here is in properly framing the discussion about governance in the EU; a government structure defined as “a unique set of multi-level and regulatory institutions, as well as a

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<sup>7</sup> This categorisation has its roots in Dente’s theory. **Content related** describes an interest of an actor in the result of the project, not in process dynamics; the important is to reach a solution that is suitable for his/her own interests. **Process related** describes an interest of an actor in the process of decision, not in the result (Dente 2011).

hybrid mix of state and non-state actors in a non-hierarchical system of network governance” (Kohler-Koch & Rittberger 2006:42).

With that context, we must evaluate the power structures within the intra-national body of the EU and among the EU member states individually, to the point that such assessment can be reasonably compared. At the same time, it is necessary to remember that “multi-level governance represents a political ‘action blueprint’ rather than a legal instrument and cannot be understood solely through the lens of the division of powers” (EU Committee of the Regions 2009:13). To that end, we endeavoured to isolate the critical elements necessary for a useful analysis of governance: the general structures; the level, type, and diversity of stakeholders involved; and the legal and policy elements that control and shape decision making.

### 2.3.2 Stakeholder Participation

When it comes to stakeholder involvement in waste governance, recent work has focused on the involvement of non-state actors and related citizen participation across various countries and governance structures. As concisely stated in Renn et al. (1993:209) this model is premised on the argument that “the public is in principle capable and wise in making prudent decisions...[their] input is essential to make the right decision, and not only strategically necessary to gain acceptance.” The push for more participative decision-making in the EU has its root in the 1998 UN Aarhus Convention (Higgs 2006:1) which eventually became two EU Directives in 2003 (Directive 2003/4/EC and Directive 2003/35/EC), to be thereafter adopted within the various nations by 2005.

In reality, this happened with varying degrees of alacrity: the Netherlands adopted the Convention directly in 2004 and the Directives in 2005 (van Vliet 2006); whereas Italy adopted it in pieces over a span of 7 years, from 2001 to 2008. According to Bobbio & Pomatto (2007:47) the idea of participation in Italy dates back to the 70s in response to the social movements occurred in 1968. At that time, the students’ movements turned out in more stable and general movements acting in broader arenas at city level or higher. Nowadays, those movements are on the contrary limited to the single project or issue (*single-issue movement*).

Aarhus Convention principles were adopted by Italian legislation with the Law 16 March 2001, n. 108: this National Law states the right to all citizens to participate in public decision (Presidente della Repubblica 2001:Section 1).

Italy adopted the EU Directives in 2003 through three different legislations: Part 1, Section 4, subsection b, point 5 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006); Section 5, subsection 15 National Law 18<sup>th</sup> February 2005, n. 59 (Presidente della Repubblica 2005); and Section 3-sexies subsection 1 National Law 16<sup>th</sup> January 2008, n. 4 (Presidente della Repubblica 2008). Those laws are claiming the public participation in decisional processes related to environmental issues. With the Regional Law 28<sup>th</sup> May 2009, n. 6 Campania

Region states the importance of participation in public decision processes (Presidente della Giunta Regionale 2009:Part 3 Section 1).

There are numerous articles out there arguing for participative decision-making and evaluating the various forms it can take: Schneider et al. (1998:379) claims participative decision-making is required to avoid and/or solve conflicts; Renn et al. (1993:199) wants to keep citizen participation at the level of recommendations, not decisions; a position backed up by Petts (2001:224), who argued for a framework of participation as a learning process, rather than strictly a decision-making tool.

Not all assessments of participation in planning processes and decision making are positive, however – Dąbrowski et al. (2014:357) argue that a lot of non-governmental participation currently carried out amounts to “little more than ‘rubber-stamping’ the decisions already taken” by higher tier actors - participation for the sake of fulfilling a requirement, not in the spirit of cooperation or joint decision-making. Still others point out that “public and stakeholder participation are not easy (Joseph 2006:870)” and notes the continuation of traditional government hierarchical decision-making, with participation limited to goals or implementation phases (Kohler-Koch & Rittberger 2006:36); and Wolsink (2010:315-316) pointed out that stakeholders currently involved in planning and policy are still operating from a “technocratic worldview” and “[their] revealed priorities may be very different from the rhetoric” of more enhanced stakeholder and public participation.

Wolsink & Devilee (2009:219,222) further expand on this point, debating the technocratic assumption that the public is ignorant and criticizing the willingness of investors and authorities to assume that expansion and construction in the interest of “public good” needs to take place. To that end, the specifics of waste management policy come to the forefront of our evaluation - a sector that deals with environmental justice, citizen participation, public good, and democratic institutions at a core level. We will now turn to a more detailed description of the waste sector and policy at a supra-national level.

### 2.3.3 *Evolution of Waste Policy*

The increasing generation of waste since the industrial revolution and acceleration after WWII in European Member States are coming to a head as we begin to honestly confront the challenges of global climate change and the relation our waste management has on those changes. Part of the growth of that mindset has been the evolution of the mentality surrounding waste, which can simplistically be described as following three distinct steps over the last 30 years or so. To categorize them simply, that waste mentality has evolved as follows:

- Waste Collection/Disposal
- Recycling/Resource
- Circular Economy

As argued in Mengozzi (2010:2) just using the word “waste” creates a negative connotation for the work and possible solutions to it - waste is something to be disposed of (rather than a resource), forcing the economics of waste disposal to sit

diametrically opposed to the greater environmental goals of either that country or the EU. But this conceptual frame, also referred to sometimes as the “disposal paradigm,” was the general operating framework for waste management leading up to the 2000’s.

The 2005 Thematic Strategy on the Prevention and Recycling of Waste set the tone for a 2006 shift in EU waste policy away from the disposal paradigm (European Commission 2010). One of the steps as part of this Strategy was the creation of the Waste Framework Directive. Although some of the foundation documents dated from 1975 and mentioned “the recovery of waste and the use of recovered materials should be encouraged in order to conserve natural resources (European Union 1975:1).” This was reframed into stronger language in the 2006 Directive, later amended in 2008.

One of the key elements for the recent waste policy in the European Union is that 2008 EU Waste Framework Directive (Directive 2008/98/EC) which replaced previous legislation governing waste, waste oils and hazardous waste, established designations for waste elements, prioritized treatment processes, and set up a framework for more circular waste economies. The legislation was “designed to protect the environment and human health by emphasising the importance of proper waste management, recovery and recycling techniques to reduce pressure on resources and improve their use” (European Union 2016). It also encourages that “Waste policy should also aim at reducing the use of resources, and favour the practical application of the waste hierarchy (European Union 2008).” The Waste Hierarchy is a concept describing the prioritization of ways in which waste should be treated - from best to worst methods, these are: Reduce, Reuse, Recycle, Recover, Dispose.

Although this concept evolved to be a central element of waste policy at the EU level, not all actors in the field were convinced about its underpinnings. Mengozzi (2010:7) notes that when combined with Life Cycle Analysis [LCA] or Cost-Benefit Analysis [CBA], studies in the UK and Denmark both came out with mixed results - e.g. in favour of incineration over composting, or landfilling over incineration. Yet as with all attempts to quantify environmental decision-making, the specifics of the evaluation criteria are worth taking a look at; and the author notes that “most knowledge produced by these studies increases uncertainty rather than reducing it (Mengozzi 2010:7).”

More specific to our project work, one of the new targets established by the updated Waste Framework Directive is to increase the recycling of household waste, which typically contains biowaste (Ec.europa.eu 2016). As noted later in the section on the Naples Pilot Case, recycling was an oft-discussed but less-implemented solution for waste treatment and management, but steps have been moving slowly in the direction of more recycling oriented thinking, which has evolved into the concepts of circular economy and urban metabolism.

Recent action has seen the 2014 Circular Economy Package (COM(2014)397) suggest further updates to the Waste Directive (European Commission 2014) in line with a growing interest in converting economies into more circular and efficient systems - in broad strokes, this appeals strongly to those who want to find and create economic opportunities while advancing better reduction and reuse policies on waste across various sectors and spectrums. Being centrally tied up with waste governance, these considerations are an important jumping off point for more detailed discussions of our pilot cases.

Typically, the central issue with waste management (as it relates to spatial planning and the framework of the EU discussed so far) concentrates on the siting of waste facilities - yet to talk about waste facility governance decisions in a meaningful way, it is necessary to understand the national and sub-national frameworks that govern them in more detail. In this vein, we will now move to descriptions and details of our two pilot case study areas.

## 3. Pilot Case: Amsterdam

### 3.1 Description

The first definition of the Amsterdam case study area has been done in a pre-Lab participatory process, led by the TU Delft and in collaboration with other local partners and User Board Members. At the regional level, the Amsterdam Metropolitan Area (AMA) was chosen as relevant regional entity to start the selection of the peri urban scale. MFA and LCA will use this area.

The Amsterdam Metropolitan Area (Metropoolregio Amsterdam) is located in the North Wing of the larger polycentric Randstad region and spans across the boundaries of two provinces (North-Holland and Flevoland) and encompasses the city of Amsterdam and 32 municipalities. The total population is about 2.4 million. The region is responsible for a range of policies, including economic development, transport, and aspects of spatial planning related to urbanisation, landscape management, and sustainability (Metropoolregio Amsterdam).

Based on workshops with key stakeholders, as well as a preliminary territorial studies, we selected the area starting from an analysis of key challenges for developing a more circular economy in peri-urban areas in the region, and an analysis of key resource flows. On that basis, we decided to delimit focus on the basis of the three 'main ports' to the area: from the Amsterdam North-West urban docklands (key areas with circular urban developments) towards the West Amsterdam and IJmuiden port area (wasted landscapes and the port); South-West from there to include the Schiphol airport area (airport and the location of the Valley circular economy initiative); and finally South-East where the Greenport Aalsmeer is located (agricultural production in greenhouses and flower trading).



Figure 2: Amsterdam Metropolitan Area, REPAiR focus area (purple line) (TU Delft team 2017).

Those areas are also relevant from the perspective of the flows that are key for the above-mentioned challenges, such as construction and demolition waste (e.g. housing challenges in Haarlemmermeer or regeneration of docklands in Amsterdam), biowaste (e.g. related to the airport and greenport challenges), municipal solid waste (e.g. while municipal solid waste is a challenge across the metropolitan region, in the airport area there is a specific challenge of waste from the catering for airplanes, etc.). While this delimitation is functional and spans across municipal boundaries, for data we have to rely on municipal data. Within the focus area interventions will be proposed at a later stage (in PULLs).

### 3.2 Governance Background

For the governance background a distinction is made between governance of waste management and spatial planning on a national level and metropolitan level.

Waste management in the Netherlands, and spatial planning policy in general, suffer the realities of close ties between their economic and growth goals, and their environmental and waste infrastructure. Wolsink (2003) pointed out that “most organizations participating in the waste sector have an economic interest in constant or growing waste streams” - not an ideal scenario for meeting the EU (and nationally adopted) waste hierarchy goals of source reduction and recycling. Waste policy in the Netherlands has undergone a slow change since the late 1990’s, when it was observed that the national and supra-national goals of waste reduction were at odds with the economic realities - 4/5 of investments in waste infrastructure were going towards landfilling and incineration (Wolsink 2010). This is indicative of the larger EU issues with framing and the prevalence of the “disposal paradigm” (Wolsink 2010).

This can, in part, be explained by the inclusion of policy makers into the economics of the systems they are designing and the decisions they are making. Wolsink (2003) noted “the dominant approach in spatial planning has shifted towards mere alignment with economic interests.” It is difficult to fully contemplate the conflicts of interest that arise from this arrangement, but it was already noted by de Jong and Wolsink (1998:643) that there was little to no interest in minimizing waste streams by all actors in waste management. This issue will reappear in the section on Italian infrastructure investment and economic ties between waste processors and collection, but here it is enough to say that while the goals of the government on multiple levels (EU, national, and regional) may purport to be about noble targets (e.g. reducing waste, following the Waste Hierarchy, recycling and other means) the economic reality on the ground has been one of infrastructure-driven investments and a strong prevalence of waste-to-energy plants in Europe. Nevertheless, a recent study by BiPRO (2012) concluded that in terms of waste management performance of EU member states the Netherlands ranks on top with Austria.

Another crucial aspect with regard to the governance of waste management is spatial law and policy. In the Netherlands, the Spatial Planning Act (Dutch: Wet Ruimtelijke Ordening, WRO) developed in 2008 (Minister van Justitie 2016) sets down how the spatial plans of the state, the provinces and municipalities are to be effected (Government of the Netherlands 2017). The WRO marks a change towards more decentralisation and deregulation of planning powers in a number of fields, most notably infrastructure and the environment. Spatial planning decisions are made at the national, regional and local levels and are accompanied by more flexible spatial visions and policy changes that have replaced planning decisions (national government), regional plans (province), and structure plans (municipalities). This has allowed for more input in the policy and plan-making process by both market actors and civil society. Roodbol-Mekkes et al. (2012) even claim that these changes have caused the well-renowned Dutch spatial planning doctrine to be in disarray, with less emphasis on the hierarchical coordination of plans.

Furthermore, this development is supported by a changing attitude of Dutch local governments with regard to their role in land development and spatial planning. As a result of the Global Financial Crisis (GFC), the majority of Dutch municipalities have become more conscious about the financial risks involved with active land development policies and have readjusted their land policies towards a more facilitating role (Heurkens & Hobma 2014; van der Krabben & Heurkens 2015). This has allowed for more private sector-led urban development (Heurkens 2012), in which private and civic initiatives play a more significant role in spatial planning. In practice, this is supported by less strict and more flexible land-use plans that can accommodate market and societal needs. Also it should be noticed that public participation in the Netherlands in plan development and decision-making is arranged by public law; there is a right to appeal to plans before they become effectuated. To an increasing extent, for major developments like infrastructure projects, but also for smaller scale urban developments, authorities in tender procedures require market actors to organise public

participation in plan development and decision-making.

In terms of circularity and waste management, local authorities can develop specific policies and set their own targets. This can be seen in a number of Dutch cities like Amsterdam focusing on circularity (Municipality of Amsterdam 2016) and Rotterdam focusing on resilience (Municipality of Rotterdam 2016). Nevertheless, it is the Ministry of Infrastructure and the Environment that is the highest authority to developers and set national policies and targets for sustainability and waste management. At least once every six years this Ministry is obliged to determine a National Waste Management Plan (Dutch: Landelijk Afvalbeheer Plan, LAP) (Minister van Infrastructuur en Milieu 2017). This LAP functions as the assessment framework for giving environmental permissions for waste management related aspects based within the Environmental Management Law (Dutch: Wet Milieubeheer). In addition, at the national government level new policies with regard to the circular economy are coming forward, for instance one focusing on the construction sector by Rijkswaterstaat and the Ministry of Infrastructure and the Environment (2015).

At a metropolitan level, for instance in the Amsterdam Metropolitan Area, the governance landscape regarding spatial planning and waste management is more ambiguous and complex. In the AMA there are several municipalities that all set their own specific policies and targets for their own jurisdiction within their administrative geographical boundaries. The Province of North-Holland focuses on spatial planning and waste management issues that have regional significance. Moreover, various private actors, including waste collection and waste management companies, as well as real estate and construction companies working on circular development initiatives on a project level, all contribute to this governance landscape complexity. At this metropolitan peri-urban level, and this is most likely true for other similar metropolitan areas in the Netherlands, there is simply no completely effective hierarchical or network governance mechanism in place (yet).

### 3.3 Stakeholder Identification

#### 3.3.1 Process

There has been a number of methods that resulted in the identification of key stakeholders first for the basis of pilot case analysis. First, a Dutch stakeholder REPAiR kick-off meeting organised by the TU Delft team on 31 August in Amsterdam enabled the identification of CE initiatives involved key stakeholders as identified by practice partners and user board member involved in the REPAiR project (Municipality of Amsterdam, Municipality of Haarlemmermeer, AEB, Delta Development Group, Evolv). Second, an analysis of policy and business documents concerning economic and spatial development of the Amsterdam Metropolitan Region, and the development of circular economy and waste management initiatives in it, provided further ground for identifying significant stakeholders. Third, based on these insights the TU Delft team was able to map four focus (peri-urban) areas of study in the AMR, and jointly discussed and decided upon selecting a maximum of four key stakeholders per focus area for the

first round of stakeholder interviews. Finally, the key stakeholder interviewees were asked to name additional stakeholders for a second round of interviews, which can be seen as a snowball effect.

The request for interviews with key stakeholders happened by email and occasionally by telephone. The first round of interviews was held between 16 February 2017 until 25 April 2017 and was conducted by two members of the TU Delft team. All interviews were held face to face, most of them in person, and occasionally through Skype. The majority of the semi-structured interviews lasted around an hour, and followed a questionnaire of eleven main questions. This questionnaire can be made available when requested. All interview data collected is audio-recorded, and data has been described, analysed and summarised in interview transcripts, allowing for comparing the findings.

### 3.3.2 Results

Table 1 gives an overview of the first round of stakeholders interviews in the Amsterdam Metropolitan Area that have been conducted in terms of their institutional characteristics, goal orientation and goal description.

Title institution (Level, Sector)	Goal	Goal Description
WP6_6.1_1A Delta Development Group (Sub- municipal, Pr)	Content/Process related	Demonstrate and facilitate the business case for circularity by developing the Valley
WP6_6.1_2A Municipality of Haarlemmermeer (Municipal, Pu)	Content/Process related	To have no waste anymore; reduce waste by 95% in the next 5-10 years; work with parties to create circular projects/practices
WP6_6.1_3A Greenport Aalsmeer (Sub-regional, Pr)	Content/Process related	Introduce circular practices among flower producers; CO2 and residual heat pipelines; new ideas for use of vacant greenhouses and treating of organic waste Flora Holland
WP6_6.1_4A Van Gansewinkel (Shanks Group) (Regional, Pr)	Content/Process related	Collect waste at 'the end'; looking at re-delivering to other parties when there is a need
WP6_6.1_5A Stadslab Buiksloterham (Sub-municipal, Pr)	Process related	Achieving circular urban (re)development ambitions in Buiksloterham project
WP6_6.1_6A Port of Amsterdam (Sub-regional, Pu/Pr)	Content/Process related	Becoming a sustainable port; energy transition to circular economy; stimulating bio-based and circular commercial activities
WP6_6.1_7A Municipality of Amsterdam (Municipal, Pu)	Content/Process related	Becoming a circular city; generate new knowledge, learning by doing, develop urban areas, optimise waste management; realise 50% municipal waste separation by 2020

WP6_6.1_8A Amvest (Sub-municipal, Pr)	Content/Process related	Developing sustainable urban living environments; company continuity; corporate social responsibility; CE objectives in business decision models, location specific implementation
WP6_6.1_9A Schiphol Airport (Sub-regional, Pr)	Content/Process related	Become zero-waste by 2020; four areas of focus: building circular assets, maximize return on resources, extract maximum economic value from residual streams by pioneering new business models, inspire and empower other actors operating at the airport adopt circularity
WP6_6.1_10A AEB (Municipal, Pu/Pr)	Content/Process related	Generate yield for shareholder municipality of Amsterdam, based on waste management activities that contribute to CO2 reduction and CE
WP6_6.1_11A Tata Steel (Municipal, Pr)	Content/Process related	CO2 neutral in 2050, maximise use of recycled materials and resources in steel production
WP6_6.1_12A Ministry of Infrastructure & Environment (National, Pr)	Process related	Promote circular economy to safeguard the environment; promote upcycling and reduce waste generation; connect actors and set guidelines for circular developments
WP6_6.1_13A Westas (Regional, Pu/Pr)	Process related	Stimulate collaboration between the key economic hubs in the region (Port of Amsterdam, Schiphol Airport, Greenport Aalsmeer, and data centres) through circular economy activities

Table 1: List of key stakeholders involved in Amsterdam pilot case with their priorities. Categories retrace Dente theory (HCU from TU Delft team 2017).

On the basis of the interviews, the literature and document analysis, one can estimate the level of power, which each actor (might) has, its attitude toward the project and an opinion about the necessity of its involvement during the next phases of the project (see Table 2 below).

Actor	Power	Attitude	Need for Involvement
WP6_6.1_01A	Medium	Positive	High
WP6_6.1_02A	Medium	Positive	High
WP6_6.1_03A	Low	Positive	Medium
WP6_6.1_04A	Low	Positive	Low
WP6_6.1_05A	Low	Neutral	Low
WP6_6.1_06A	High	Neutral	High
WP6_6.1_07A	High	Positive	High
WP6_6.1_08A	Medium	Positive	Medium
WP6_6.1_09A	High	Positive	High
WP6_6.1_10A	Medium	Neutral	High
WP6_6.1_11A	Medium	Neutral	Medium
WP6_6.1_12A	Medium	Neutral	High
WP6_6.1_13A	Low	Positive	Medium

Table 2: List of key stakeholders involved in Amsterdam pilot case with judgements on their power, attitude and need for involvement (HCU from WP6 TU Delft Team 2017).

The interviewed stakeholders proposed a number of additional stakeholders that might be worthwhile talking to in the following stages of the research, which are subdivided here in various organisation categories:

- Government: Ministry of Economic Affairs, Rijkswaterstaat, Province of North-Holland, Municipality of Zaanstad, Environmental Agencies North Sea Canal, Amsterdam Economic Board, Waternet.
- Development industry: Volker Wessels, Royal Haskoning, De Alliantie, BAM, Eigen Haard, Studioninedots, Delva Landscape Architects.
- Energy/circularity/waste: SADC, Miscanthus Group, Valley Beta, Meermaker, Alliander, Wasted, New Energy Docks, Schoon Schip, De Ceuvel, Metabolic, Nuon, Orgaworld, Cargill, AECOM, Suez.
- Financial: Reggeborgh, Rabobank, ABN Amro Bank.
- Academic: AMS, Hogeschool van Amsterdam, TNO, WUR. UvA.
- Other: SIGN, Flora Holland, IKEA, Unilever, Philips.

The extensive list of additional stakeholders representing different sectors and playing different roles in the circular economy governance landscape of the Amsterdam region identified makes generated through snowball method provides a basis for further exploration. In the next stage, criteria will be developed to select a representative sample of the relevant stakeholders.

## 3.4 Decision-Making Framework

### 3.4.1 Description

In a nutshell, AMA is not a statutory sub-national authority, but rather a cooperation platform for the 32 municipalities involved as well as Province of North-Holland and Province of Flevoland. It is based on voluntary cooperation and its core focus is on accessibility, economic development, and spatial issues. More recently AMA has started developing strategies for CE. Given its set up, it is not a particularly powerful actor in the region, with the municipalities, and in particular Amsterdam, playing a more predominant role. The Provinces are also a relatively weak actor in the Dutch territorial governance system, albeit their importance has been growing with the delegation of spatial planning powers to them. The Provinces are in fact responsible for developing spatial visions for its territory. In this field, however, they do compete with the municipalities also claiming a key role in planning, which can result in tensions, as is the case with the ongoing conflict on the deployment of wind turbines, pitting the Province of North-Holland, which banned development of new windparks, and inter alia Haarlemmermeer and Amsterdam, which are keen to develop wind power capacity within their territories.

Concerning waste management, this is a competence of the municipalities, however, waste collection and processing is carried out by several major companies, including Van Gansewinkel, Meerlanden and Suez, the service areas of which span across municipal boundaries, as for instance can be seen in Figure 3. This figure for the entire AMA illustrates household waste management processing organisations and the administrative areas they operate in. The

stakeholders listed can be institutionally categorised as private, public/private and private organisations. The figure doesn't show the multiple waste collection companies, nor does it show other types of waste management processing companies related to construction and demolition waste. The role of the Province in waste management is limited to policy making, as it has no current LAP projects running in which it could play a more active role (see previous section). Furthermore, the Amsterdam Metropolitan Region is not a recognised formal authority for planning nor waste management, and therefore has no formal competence in these fields.

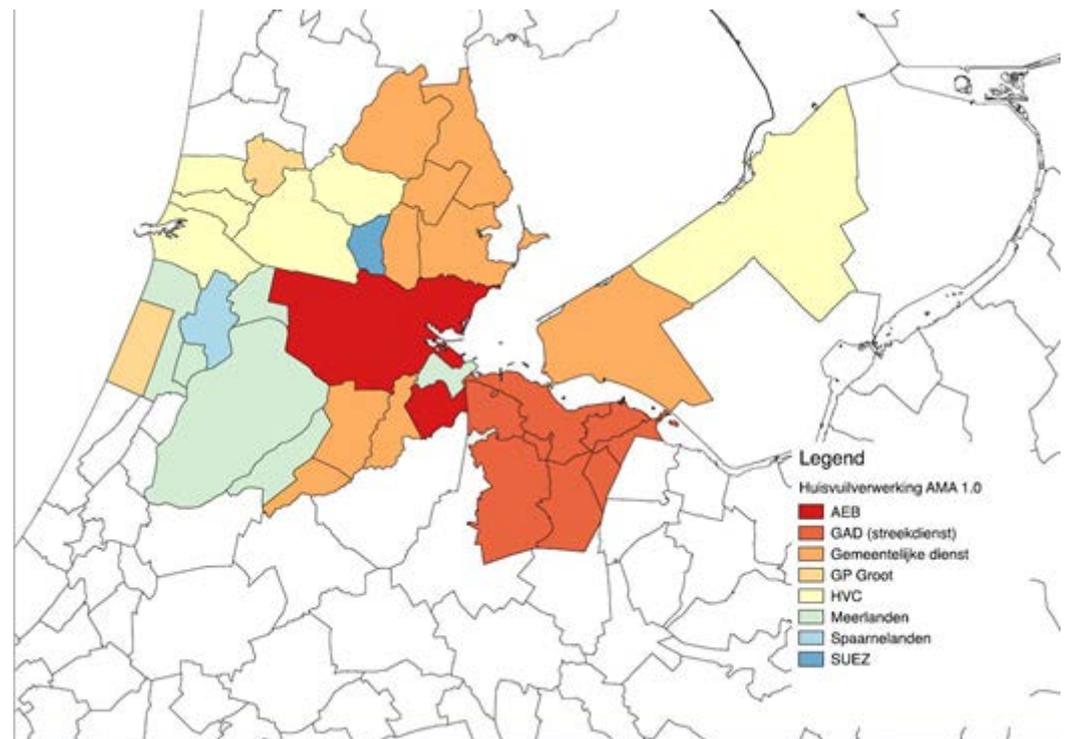


Figure 3: Household waste management processing organisations and their administrative areas in AMA (TU Delft team 2017).

Also various organisations in AMA are currently developing policies and strategies for circularity. However, decision-making and implementation to a large degree seems to take place on an intra-organisational rather than inter-organisational level. An exception to this is the joint effort by Municipality of Amsterdam (2016) and other stakeholders to develop a vision for a circular construction chain in AMA (see Figure 4). The Province of North Holland (2016) has written a first (non-binding) policy document about a development perspective for the circular economy in the province. Moreover, various companies and most organisations interviewed seem to incorporate circularity principles as a core business strategy. For instance, Tata Steel the Netherlands (2016) published a sustainability report stating sustainability and circularity objectives and evaluating their practices. This implicates that the awareness for circularity in public and corporate decision-making is increasing. The extent to which both intra-organisational and inter-organisational decision-making is effectuated in daily practice remains a point of attention.

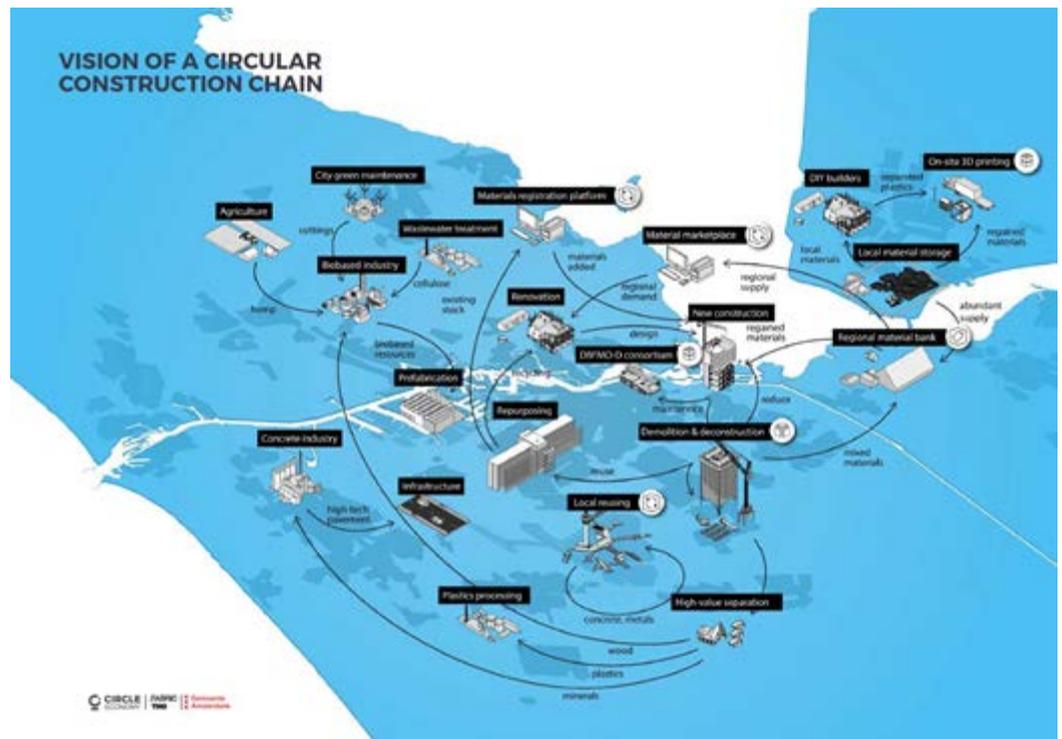


Figure 4: Vision of a circular construction chain in AMA (Municipality of Amsterdam 2016).

To conclude, the governance and decision-making landscape with regard to waste management and circularity in AMA remains complex and ambiguous, and requires further study.

### 3.4.2 Analysis

#### Understanding of Circularity

The questionnaire for the Amsterdam stakeholders included, at the very beginning, a question on the understanding of the term 'Circular Economy' (CE). This question has been introduced, as CE is a broad concept that embraces waste and resource management, and has been set as a Dutch central government policy (Ministerie van Infrastructuur en Milieu en Ministerie van Economische Zaken 2016). The answers given by the stakeholders in the Amsterdam Metropolitan Region show an high awareness of the topic, at least among the key stakeholders interviewed. All the actors interviewed refer to their own particular activities as well as society as a whole when defining CE, albeit they may put emphasis on different aspects of circularity. The consensus seems to be, however, that waste materials and resources represent an economic value, and that waste and material flows from various sources and organisations should be connected.

#### Potentials and Problems

The interviews conducted in the first phase of the research allowed for exploring the main potentials with respect to the key resource and waste flows for the improvement of circularity and waste management present in the wider metropolitan area and in the specific focus areas. At the same time, they pointed to a variety of challenges for promoting CE in the region. Both of these are summarised below.

The first potential stems from the **large variety of sectors** that are present in the region and could engage in CE and innovate, from farming, to logistics, creative economy, and services. At the same time, there is a relatively strong awareness of CE among the key stakeholders and many of the private and public sector actors have high ambitions with respect to promoting circular practices, albeit a less clear picture on how to achieve this and how to work together towards that goal. This creates **potential for the region to become a CE laboratory and, eventually, a CE leader an exporter of circular processes, ideas and products.**

Out of the various economic sectors in the AMA, however, it is **logistics** that was flagged up by most interviewees as the key potential for CE, especially for the area of Schiphol, but also the Greenport and the Port of Amsterdam. Indeed, energy and materials are transported throughout the region's territory and a lot could be done in this sector in order to move towards CE.

A further potential for development of CE has been also individuated identified in agriculture **and horticulture**, where producers, clustered in the Haarlemmermeer and Aalsmeer areas, have interest in biomaterials, such as crops used to produce energy, seeking ways to reuse organic waste and explore possibilities for connecting the greenhouses to the pipelines transporting CO<sub>2</sub> and residual heat produced in the port.

From the spatial perspective, potentials concern mainly the **reuse of the currently underused or vacant land**, whether these are the **wastescapes** around the airport where development is restricted due to noise and safety regulations, underused business parks or vacant greenhouses, and sites within the port area, which were raised by many interviewees. Underused wastescapes seem to be less present in the urban (harbour waterfront) area, as most locations there are already targeted and designated for the provision of housing for the city of Amsterdam. These other three areas have potential to be used to produce energy or host waste exploitation facilities which may have negative externalities (noise, odour), and hence be hardly acceptable in more densely populated areas.

Moreover, Amsterdam and Haarlemmermeer building and construction waste accounts for the largest volume of waste, followed by a large volume of company waste, but a limited volume of household waste. With an increasing market demand for housing in the AMA, it becomes clear that **(re)developing (peri-)urban areas in a more circular way**, reusing resources and materials, and minimising construction waste can be both seen as a major potential for CE, but also a major challenge. Although public and private actors show a shared interest in circular urban development and construction, it currently seems that novelties and misalignment of policy objectives and market decisions create uncertainty about the benefits of circular solutions for construction processes.

### **Goals of the Key Stakeholders and Collaborations to Achieve Them**

The interviewees were asked to identify the key responsibilities and objectives of their organisations concerning CE development in the AMA or their localities or

service areas. The answers to this question informed the overview of goals of the key stakeholders, as already outlined in Table 3 above.

Then, the interviews probed the **collaborations** of the interviewees' organisations with other actors to realise the objectives that they identified. The answers to that question allowed for a better understanding of the governance networks in CE in the region and for grasping the interdependencies between the various actors and their roles. The networks that each of the key stakeholders is engaged with in fact comprise a **wide variety of actors** spanning across the private sector, financial sector, the governmental sector from municipal and provincial authorities, to the Ministries of Economic Affairs and Infrastructure and Environment, to consultancies and research institutions. Most of the networks evoked by the interviewees had an **informal character and were not strongly institutionalised**, albeit some of them, like for instance Westas (economic cooperation between the Port of Amsterdam, Schiphol and the Greenport Aalsmeer revolving around CE) were based on joint cooperation agreements. While being extensive, the networks lacked a shared understanding of CE and goals in this area.

### **Challenges to Realisation of Circular Economy Objectives**

One of the key challenges evoked both by interviewees representing public sector organisations and businesses, was the presence of **clashes of interests** between the stakeholders. For instance, the various industrial players may have conflicting interests with respect to particular waste or material flows. For example, in the construction sector, Schiphol airport is keen to develop a new terminal according to CE principles, promoting reuse of materials in the construction phase and later on. However, this is against the interest of the construction companies whose current business models centres around making a profit from employing new materials and subsequent demolition and reconstruction. Another example of a tension of this kind concerns electronic waste – waste management companies have an interest in promoting production standards that will make it easier to disassemble discarded products and extract materials of value for their reuse, while the producers of those goods may have little incentive to do so and seek ways to produce according to their established processes and avoid additional cost stemming from such new standards. Such conflicts of interests, however, may also be found within both public and private organisations, for instance between sustainability / environmental divisions and infrastructure or economic development-oriented divisions of a central or local government, or a large business like Schiphol Group. An example of such a clash is the difficulty in reconciling the agendas of sustainability and CE within the AMA with the ongoing urban expansion and the significant housing development needs to accommodate the ballooning population.

Fundamentally as well, CE requires **all actors in the value chain to take part in efforts to promote reuse or upcycling throughout the lifecycle of a product**. In such a setting, one missing link considerably lowers the impacts of the efforts of the participating actors. A crucial challenge is thus making sure that all of the relevant stakeholders in a given material flow cycle are aware of the potential

benefits of CE and are invested in joint efforts to promote it within their respective activities. That **awareness**, while relatively widespread in the AMA, is **still missing** among many of the business sector actors who see CE as a burden rather than an opportunity or 'sit on the fence' waiting for some major players in their sector to pioneer circular solutions, which they could replicate or learn from.

While there is considerable stock of **knowledge** on CE available in the region and the term is becoming an important 'buzzword', what is missing is a shared understanding of **what circularity means in practice and how to actually implement it in a way that is profitable rather than burdensome for businesses**. Moreover, the knowledge generated by research institutions, local governments or private sector innovators does not always trickle down to a wide range of businesses. This relates to the further problem of devising **viable business models** based on circularity. At present, such models are still lacking and businesses in the AMA are not exposed to them. A further challenge, especially evoked by the business sector stakeholders, is the difficulty in stimulate **collaboration** across sectors and sharing of information and knowledge in order to facilitates the exchange of resources and processes and infrastructure for closing the material cycles. Such collaboration, at present, is limited, even if there are emerging platforms to stimulate this, like The Valley in Haarlemmermeer. The difficulty here is that businesses tend to innovate within their own organisation and are not necessarily keen to share knowledge stemming from those innovations. This is also related to the fact that **when waste becomes a resource, there is automatically competition between the actors to capture its value** for themselves. A related challenge stems from **fragmentation of organisations** operating in the AMA, both in terms of territorial administration and the businesses sector (there are, for instance, over 1500 horticulture-related businesses in the Greenport which makes coordination between them challenging). This situation which prevents thinking of a region as a system and hinders collaboration and knowledge sharing. This points to the **lack of regional leadership** that could spur and steer collaboration on CE and develop a regional framework that would provide the actors with guidelines on what to prioritise, and critically, where to promote circular developments. Given the relative lack of space in the AMA, what is also crucially absent in the region at present is an actor with an authority to steer the deployment of circular economy activities spatially, from street scale to the regional scale.

Concerning more specifically the business sector, interviewees also often report a **difficulty in upscaling new solutions** developed in CE experiments, due to lack of finance, regulatory barriers or risk averse attitudes. In other words, the current framing conditions and mind-sets are obstructing processes of learning from innovations. For instance, **banks remain reluctant to provide finance** to circular projects because of the lack of knowledge on how they could add value and generate returns of investment.

Many of the above challenges are also related to **regulatory limitations**, with the current legislation - on issues as varied as building, safety around the airport, transport of biological waste, land development, procurement, to taxation - being

inapt to accommodate, let alone promote, circular innovations. In addition, both municipalities and developers argue that formal legislative public procurement rules and tendering procedures for construction projects in the Netherlands **lack of circularity as assessment criteria**. Because it is not mandatory for the construction industry to comply with such criteria municipalities like Amsterdam allow for circular development pilots to experiment with and learn from in terms of tendering. Both developers and municipalities interviewed argue that circular procurement rules should be given more policy direction priority by the national government, and formalised in legislation.

Last but not least, promoting CE in the AMA faces fundamental **behavioural challenges** both in terms of **producer or consumer choices**. Why pay more to produce or purchase a circular product, if the economic, societal and environmental benefits are not clear? A number of interviewees argue that behavioural change can be promoted by government and companies by producing more circular products, but that it is the consumer that needs to be convinced. **Knowledge sharing and learning from circular innovations provide opportunities** to change decision-making, both on the producer and consumer side. Several interviewees mention that we are currently in a pioneering phase of a transition towards a more circular and resource efficient society and market, but that behavioural and institutional change is a process that evolves slowly.

In summary, the key challenges in the AMA include: (1) conflicting interests of stakeholders across and within organisations; (2) awareness of CE solutions and business models, particularly among the business players; (3) organisational fragmentation and lack of regional leadership; (4) regulatory, financial and behavioural obstacles to learning from and upscaling circular innovations.

### 3.5 Caveats

Representatives of all of the relevant kinds of key stakeholders for CE and waste management in the AMA were interviewed as part of this first phase of the research. Therefore, the 13 interviews conducted so far, give a rather full picture of the governance and decision-making landscape and the kinds of potentials and challenges encountered in the region. That being said, the obvious limitation is that there may be a variation in the perspectives among the different organisations corresponding to a particular kind of stakeholder (e.g. smaller and less economically thriving municipalities in the region are likely to have different goals and face different circularity challenges than Amsterdam or Haarlemmermeer). Moreover, further analysis is needed to explore more in depth the characteristics of the networks identified in this pilot phase.

## 4. Pilot Case: Naples

### 4.1 Description of the case study area

The definition of the area in the Naples case study has been carried out in a pre-PULL process, led by UNINA and in collaboration with the User Board Members.

The focus area is part of the territory of the Metropolitan City of Naples, which includes 92 municipalities on a total area of 1.171 km<sup>2</sup> and inhabited by 3.117 million people.

The defined area is a physical, socio-ecological and administrative sample for the matter of waste and resource management. The subsequent principles are relevant for choosing the focus area:

- the localization in the middle of the Land of Fires;
- the high amount and variety of wasted lands;
- the ATOs' (Optimal Territorial Area, in Italian Ambito Territoriale Ottimale) boundaries defined for the waste management by the Campania region.

Below is a map of the chosen area, consisting of eleven municipalities: Napoli, Casoria, Afragola, Acerra, Casalnuovo, Caivano, Cardito, Crispano, Frattaminore, Volla, Cercola.

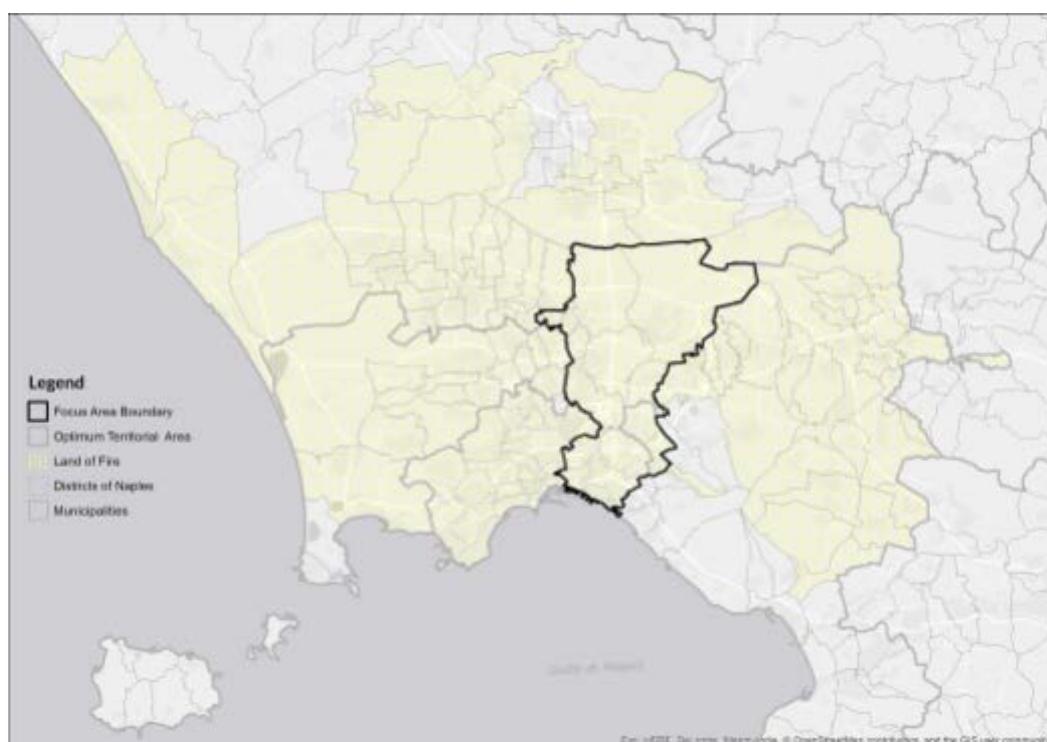


Figure 5: The focus area within the perimeter of the Land of Fires (UNINA WP3 Team, Pasquale Inglese 2017).

In the context of the peri-urban territories which composed the focus area, a series of needs were identified, which the project is aiming to tackle. The spatial aspect assumes an important role for UNINA group, which has individuated in

these derelict areas an opportunity to create new spaces for the community. This process of transformation should happen with the citizens' involvement. The process should have the priority to meet their needs and to give them the opportunity to learn to become responsible for their territory. The fight of illegal and criminal powers, support of local economies, increase of awareness and knowledge towards concepts of CE and regain of trust among the population are also important goals for Naples within the project framework.

Once defined the needs, challenges have been drawn accordingly. Three main challenges have been individuated. The first one is linked to the spatial aspect (Care of landscapes and communities) which includes a series of actions aiming to the re-appropriation of abandoned areas from the municipalities back for community usages. The second challenge refers to the health issue, frightened by the presence of pollutants in the ground generated by the illegal disposal of waste. Finally, the regain of trust among population towards administrations is the key element of the third challenge: the importance of having democracy, transparency and free access to knowledge has been stressed.

Apart from spaces and surfaces where toxic waste, pollutants, and other dangerous materials are illegally stored and hidden, temporarily or persistently, in the overall Land of Fires there are different patterns of waste and wasted landscapes. These include: disused spaces with different typologies of abandoned waste, agricultural lands housing illegal constructions; abandoned historical heritage; polluted sites of national (SIN) or regional interest (SIR); housing or productive facilities confiscated by the state the criminal organizations; unauthorized building lots, etc.

## 4.2 Governance Background and socio-ecological effects of the connection between Waste Emergency and the Land of Fires

In the recent past “the longest and most bitter waste management crisis in the history of contemporary Italy” occurred in Campania (Cantoni 2016:104). The region has witnessed the increasing presence of the organized crime (the so-called Camorra) on the territory<sup>8</sup> since the 1980s, when the Camorra was engaged in the illegal quarrying of building materials. Due to its rampancy, the Camorra was extremely adaptive in reusing those quarries as unauthorized waste dumps, expecting that this business would soon have become very fruitful (Corona & Sciarrone 2012). Grown during the '90s – as reports on Ecomafia by Legambiente clearly emphasize<sup>9</sup> – such a reuse became the core of the illegal

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<sup>8</sup> The Neapolitan mafia is called Camorra and works as a system which is composed of many clans. To learn more about the branch of Camorra which is related to ecological crimes, see also Saviano (2007).

<sup>9</sup> The neologism “ecomafia” appeared for the first time in 1994 in the report “Rifiuti spa” (Legambiente 1994), written by the popular Italian environmental NGO Legambiente, with the help of Eurispes and Carabinieri (members of the Italian military corps). Since 1994 annual reports on Ecomafia have been edited by Legambiente.

management of waste.

To stop the illegal business of waste by organized crime, national and local governments felt themselves obliged to manage the regional treatment and disposal of urban solid waste through the imposition of an authoritarian regime that took the name of Commissariat for the Waste Emergency in Campania (Martone 2014). Although the regime has been operating from 1994 to 2009, and despite efforts by public actors to restore rules for regulating waste management, the region witnessed the entrepreneurial rise of the Camorra in the waste management business. As a result, the Camorra progressively took control of the regional waste management sector by placing a stronger informal system besides the formal regulatory one (De Rosa 2017).

During the mid 1990s and the early 2000s garbage piled up in the streets and open spaces of the metropolitan region and forced the reopening of several landfills which, due to different forms of illegality, had been previously closed<sup>10</sup>. Between 2006 and 2007 further landfills became saturated and the garbage piled up again in the streets (De Rosa 2017). The consequence was a first wave of negative reactions and struggles by communities (Pasotti 2010). By the end of 2007, the civil mobilization against the regional government (specifically the executive branch) increased to the extent of violent clashes with police (Armiero 2008; Armiero & D'Alisa 2012; De Rosa 2017) and the designation of the Commissioners sequentially put in charge to solve the Emergency (Armiero 2014).

The systemic failures<sup>11</sup> were finally stopped in 2007 with court actions against Governor Bassolino and the freezing of assets belonging to the Impregilo company (Pasotti, 2010), in charge of the construction of the Acerra incinerator since 2000. After fifteen years of failures in taking back the waste management to normality through the planning of treatment and disposal plants in response to national and local laws and policies (De Rosa 2017), the Campania Waste Emergency was officially concluded with the opening ceremony of the Acerra incinerator in 2009 (Cantoni 2016).

Nevertheless, the long-lasting process of construction of the Acerra incinerator caused the accumulation in storage sites of an enormous quantity of waste pressed in bales (ecobales). In particular, the ecobales were intended to be concentrated blocks of processed engineered fuel for the ongoing incinerator - basically plastic wrapped, 1- ton blocks of waste material, stacked and waiting to be burnt (Pasotti 2010:296). The increasingly backlogged volume of ecobales was a problem that would repeat itself during the Waste Emergency every time there was any interruption elsewhere in the waste management infrastructure (Greyl et al. 2013).

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<sup>10</sup> According to Legambiente (2008), in 1990 on 459 facilities for waste treatment in Campania (mostly landfills), 316 did not have any authorization, and 103 were operating in violation of environmental laws.

<sup>11</sup> For an exhaustive history of the failures connected with the Waste Emergency, see De Rosa (2017) and Corona & Fortini (2010).

New phases of the Waste Emergency flared up both in 2010 (Cantoni 2016) and 2011. Further events in the European Parliament and European Commission lent weight to the assessment that the problem was still ongoing. A 2014 Notice from the Committee on Petitions in the European Parliament (2009-2014:1) reported that “the Campania region is lagging far behind in the treatment of wet fraction urban waste”. Up to 2017<sup>12</sup>, the Campania Region has been sanctioned by the European Court of Justice (2015) for the lack of disposal of the ecobales – produced and stocked before the incinerator started working – the lack of composting plants, and the lack of legal landfills.

In 2017 the infrastructure of waste is made of seven waste shredding-screening and packaging plants and only one big incinerator – located in Acerra – instead of the two originally planned by the first Special Commissary in 1997 (Armiero & D’Alisa 2012; Cantoni 2016). Nowadays (2017), the Acerra incinerator burns about 714.811 tons of solid waste annually (ISPRA 2016).

The phenomenon of Fires is younger than the Waste Emergency, even if there is a tight relationship between them. As a matter of fact, these “two intertwined, multi-scale processes (...) have had a remarkable influence on the changes of the landscape and the socio-environmental conditions” (De Rosa 2017: 58).

Land of Fires is the nickname coined in 2003 by Legambiente (2003:73) to define an area between the southern province of the town of Caserta and the northern province of the city of Naples where waste has been illegally burnt and buried (Palestino 2015a, 2015b).

The phenomenon of fires became evident in the early 2000s, due to a couple of further illegal services which the Camorra provided to public and private companies. Firstly, the incineration of different typologies of urban solid waste produced by companies from all over Italy, including the Campania region. Secondly, the illegal disposal and concealment of toxic waste in the regional peri-urban areas (Palestino 2015a, 2015b; Corona & Sciarrone 2012; Germani et al. 2017). In other terms, the Land of Fires is the result of two factors: the rise of criminal entrepreneurialism thriving on the illegal trade of solid, special and toxic waste, and the failure of regulatory strategies by the State (Palestino 2015a, 2015b).

The neologism Land of Fires is even today used to encompass the combined effects of governmental inability in managing the territory; collusion between politicians, professionals and organized crime; and the worsening of the global financial crisis (De Leo & Palestino 2017). As a matter of fact, this particular socio-ecological entanglement turned the urban region between Naples and Caserta into a dump of solid and toxic waste for North, Central and South Italian companies looking for low-cost illegal solutions for their waste disposal problems (Palestino 2015a, 2015b).

The authoritarian regime of the Commissariat for the Waste Emergency, coupled

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<sup>12</sup> The first infringement procedure against Italy for the Waste Emergency in Campania was on June 27, 2007. See De Rosa (2017).

with the Land of Fires' degradation process, had the further negative effect of fuelling the resentment of local populations by excluding them from decision-making processes (Armiero 2014, De Rosa 2017). This exclusion undermined the participation of the uncorrupted part of the population, leaving them trapped between the militarization of their area by the national government and the spread of criminal organizations (Palestino 2015a, 2015b).

The imposition of an authoritarian regime set off the aforementioned conflicts between local communities and public authorities. Conflicts were characterized through several forms and phases: from the first wave of reactions in the period from 2000 to 2011, to the second wave of organized actions from 2012 up to now (De Rosa 2017).

After peaking in 2007 and 2008, conflicts have left behind a situation of long-lasting tension (Armiero 2008, 2014). Until the end of the Waste Emergency in 2009, there was a concentration of authority in the region, specifically, shifting power and decision-making towards upper levels of government<sup>13</sup>. While this strategy was presented by governors and politicians as a means of reducing criminal influence by the Camorra, many scholars emphasized the production of substantial democratic resistance at the local level in response to this technocratic, top-down structure as a side effect (Armiero 2008, 2014; Petrillo 2009; Armiero & D'Alisa 2012; Cantoni 2016; De Rosa 2017). Mengozzi (2010:8), in particular, argued that "citizens have been accustomed to pre-determined decisions and to a defensive communication strategy with no inclusion."

From 2012 up to 2017, local citizens are living a second wave of conflicts that represents a transition from community resistance to community resilience (Palestino 2015a, 2015b; De Rosa 2017). As a matter of fact, in response to the conflicts, a close-knit network of associations and movements has arisen in the course of time. At the peak of the dissent against the Land of Fires - e.g. during the great demonstration "Raging River," which paraded in the streets of Naples on November 2013 - the Coordinamento Comitati Fuochi (Coordination of Committees against Fires) gathered about seventy movements and associations which, in spite of different backgrounds and histories, felt the need to form a cartel. A significant part of these groups has been developing new knowledge, competence, and fighting strategies (Caggiano & De Rosa 2015).

In 2013 the Land of Fires became the object of a "Pact" signed by 57 town administrations (33 in the Province of Naples, 24 in the Province of Caserta)<sup>14</sup>. This incoherent group of areas (about 1.076 square km) - with a population of about 3 million inhabitants - is what, up to present, has most frequently been designated as the Land of Fires. Depending on contingent events, its borders oscillate following the vagaries of discrediting media campaigns, or the bureaucratic boundaries of public policies (Dines 2016; Palestino 2015a, 2015b; De Leo & Palestino 2017). Finally, by effect of National Law 6<sup>th</sup> February 2014, n.

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<sup>13</sup> The sequence of Commissariats for Waste Emergency is a proof of the authoritarian regime characterizing the Campania Region during the emergency.

<sup>14</sup> The pact was signed and then ratified by the regional law n.222 of 2013.

6 (Presidente della Repubblica 2014), originally issued to manage the Land of Fires socio-ecological disaster, 33 more municipalities were included, since their territories incorporate agricultural areas whose state of health needed to be assessed.

According to De Rosa, “the legacy of the emergency is constituted by around 5.5 million tons of packaged garbage accumulated in 16 temporary storage sites disseminated throughout the region” (De Rosa 2017:66). As for the legacy of the Land of Fires, about 10 million tons of toxic waste arrived illegally in Campania to be “set on fire, buried underground, mixed with municipal waste, passed off as agricultural compost, dumped in the concrete of apartment buildings and roads, or simply abandoned in the countryside” (De Rosa 2017:67).

As for the imposition of the authoritarian regime, it also affected the current governance. From the interviews, it results that not only the Campania Region officials and politicians, but also several Mayors and councilors of the Metropolitan City learned a lesson from the experienced conflicts and are interested to carry out some bashful attempts of interinstitutional dialogue (see 4.3 and 4.4).

#### 4.2.1 Current Governance Structure

At the **National Level** general guidelines are defined by which the waste management should occur. The competences of the State in terms of waste are listed in the Section 195 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006) and they refer mainly to the a) draft of general criteria and guidelines for waste management and for sectoral and regional plans, b) incentives and initiatives on the territory for the reduction, recycling and reuse of materials, c) definitions, d) individuation of dangerous waste streams, e) localisation of national plants for waste treatment, f) modalities for cooperation between local entities, g) modalities for calls for tender and h) the setting of standards regarding the chemical composition of waste and other technical procedures for dealing, for instance, with harsh materials (e.g. asbestos, ...).

The **Region** has the duty to divide its own territory in ATOs with Regional Law. The power of subdividing the territory in ATOs derives from the National Law 5<sup>th</sup> February 1997, n. 22, also known as Ronchi Decree (Presidente della Repubblica 1997: Section 19 subsection 1 letter g): it states that, unless otherwise indicated at regional level, the borders of the provinces correspond to the ATOs. The Section 196 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006) listed the competences of the regions in terms of waste management, which are in some extent a specification of the general guidelines imposed by the State plus others: a) draft, update and adoption of *Waste management Regional Plans*; b) regulations on the waste collection; c) draft, update and adoption of *Remediation Regional Plans*; d) approval of new waste management plants; e) authorization for the operation of the waste management services; f) shipping of waste; g) establishing ATOs; h) establishing guidelines for Remediation Plans; i) promotion of the integrated waste management; l) incentivisation to the reduction of waste production and to the separate waste collection; m)

establishing criteria for designating areas for waste disposal. According to Section 200 subsection 4 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006) regions can discipline the control of the operations in terms of waste management, of the functionality of the waste plants and check if the prescriptions and limitations are respected. In Campania Region, the subdivision in ATO is defined by the Regional Law 26<sup>th</sup> May 2016, n. 14 (Presidente della Giunta Regionale 2016:Section 23).

An **ATO (Ambito Territoriale Omogeneo = homogeneous territorial area)** is a group of municipalities characterized by homogenous territorial features identified by the Region by Regional Law. These areas are chosen with the following criteria: a) out together several management modalities by one single and integrated waste management service; b) achieving of a suitable managerial dimension, defined by physical, demographical and technical parameters and on political-administrational subdivisions; c) evaluation of the adequacy of the road system within the ATO; d) similarity in the existing production and management of waste; e) the presence of already existing and functioning plants for waste management (Section 200 National Law 3<sup>rd</sup> April 2006, n. 152). Each ATO has a disposal and treatment plant: Section 23 subsection 1 National Law 5<sup>th</sup> February 1997, n. 22 (Presidente della Repubblica 1997) states that in each ATO an unitary management of urban waste must be assured and should have a waste management plan). Each ATO has a body (Unitá d'Ambito) which is in charge of the draft of the strategic plan, following the prescriptions of the National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006). The Section 34 Regional Law 26<sup>th</sup> May 2016, n. 14 (Presidente della Giunta Regionale 2016) describes the characteristics of the Zone Plan (Piano d'Ambito) for the Campania Region. Each ATO is indeed submitted to a different waste cycle, which is independent from the others and is driven by the Zone Plan<sup>15</sup>. The Section 201 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006) gives the power to the ATO authority (Autoritá d'Ambito) to allocate the service of integrated waste management after a call for tender (see National Law for modalities). The contract between ATO and the company is called Service Contract.

The **Province** of Naples was abolished in December 2014 and replaced by the Metropolitan City of Naples. All the functions that the Province had, listed in Section 197 National Law 3<sup>rd</sup> April 2006, n. 152, are now transferred directly to the Metropolitan City by Section 1 subsection 44 National Law 7<sup>th</sup> April 2014, n. 56 (Legge Delrio).

The **Metropolitan City**, according to the National Law 7<sup>th</sup> April 2014, n. 56, Section 1 subsection 44 (Presidente della Repubblica 2014), takes over the competences of the Province, competences which are listed in in the Section 197 National Law 3<sup>rd</sup> April 2006, n. 152 (Presidente della Repubblica 2006), after the introduction of this body in 2015 in Campania Region: the institution then started to be operative only on 9<sup>th</sup> October 2016 with the election of the Council of the

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<sup>15</sup> The issue (arose from a representative of the Metropolitan City of Naples) is that the Metropolitan City of Naples has to work with three different ATOs, hence three different waste cycles (see Chapter 5.3).

Metropolitan City. At the current situation, the Metropolitan City of Naples has the opinion that the reorganization of the governance operated by the Regional Law 26<sup>th</sup> May 2016, n. 14 generates a fragmentation of the waste management that could lead to a more chaotic and difficult application of mutual help between the different ATOs. The Metropolitan City suggests, indeed, the hypothesis of a single organizational structure that manages the integrated cycle of waste for all the 92 municipalities included in the Metropolitan City of Naples. This hypothesis clashes with the recent division into ATOs dictated by the aforementioned Regional Law. This transition step could therefore bring the Metropolitan City of Naples and the ATOs to a conflictual situation that will not be managed and resolved in predictable ways. Metropolitan City, ATO and Region have each a different power on the waste management. Therefore, clashes between the three administrative bodies are now unavoidable, especially in this recent time, when is not still so clear which are the competences of the metropolitan city (see Chapter 5.3). Competences of the metropolitan city derived from the province's ones are the following: a) control and verification of the remediation interventions; b) control on all the activities of management, intermediation and commerce of wastes; c) individuation (according to the regional plan) of the areas suitable to host disposal and treatment plants; d) control on the activities of companies and other bodies which produce waste (Presidente della Repubblica 2006:Section 197). Competences from Section 1 subsection 44 National Law 7<sup>th</sup> April 2014, n. 56, known as Legge Delrio (Presidente della Repubblica 2014) are: a) adoption and annual update of a three years long strategic plan which comprises the framework<sup>16</sup> for the metropolitan city and the municipalities part of it; b) general urban plan for the metropolitan area; c) organisation of public services in general; d) organisation of mobility and viability, ensuring coherence among the territory of competence; [...]. The waste management is included in public services.

For what concerns the waste management, each **Municipality** has the following competences: a) concurrence competences in waste management; b) regulations which establish hygienic measures along the entire process of collection, transport and treatment/disposal, describe the modalities in which this process occurs in order to divide the waste as best as possible, especially in relation with those waste streams that are dangerous; c) give information on waste to the upper levels; d) give opinions on remediation projects done by the upper levels (Presidente della Repubblica 2006:Section 198).

**SA.P.NA** is the the joint-stock company with the Metropolitan City of Naples as sole shareholder that is in charge of managing the facilities for the waste conversion (STIRs of Giugliano and Tufino) and the transport of unsorted non-recyclable waste flows to the plants. It was the technical body of the province of Naples, which is now divided in three ATOs and corresponds to the new metropolitan city. This company was chosen at the time of the provinces and now the company self does not know if it is still able to operate in the entire metropolitan area or not, because according to the regional law each ATO has to

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<sup>16</sup> 'Framework' is the translation of 'Atto di indirizzo': this act, drawn by the Mayor, has the function of coordinating and give guidelines on a specific topic (Michetti 2017).

individuate its own waste management company (see Chapter 5.3).

**ASIA (Environmental Services)** is the company for waste collection in Naples, in charge of the separate waste collection, street sweeping and the transport of the separate waste to the treatment plants. Sometimes it takes care of the abandoned waste along the streets in bordering municipalities, where it is not clear whose is the competence, as an additional task. It is a joint-stock company with the City of Naples as sole shareholder. **Casoria Ambiente** is the same company for Casoria.

#### 4.2.2 *The Campania Region Administration*

The Campania Region is administratively subdivided into four provinces (Benevento, Caserta, Avellino and Salerno) and the Metropolitan City of Naples.

As long as the ATOs will go full speed, in each of the cities of Benevento, Caserta and Salerno and in the Metropolitan City of Naples, there is one company that is taking care of the urban hygiene services (e.g. waste collection, street cleaning, etc.), whereas the treatment and disposal of waste is assigned to another company that is in charge of the management of waste in several municipalities, at a provincial or sub-provincial scale. As for the city of Avellino, it is differently organized, but a further description is not necessary as it is not part of the case study.

More specifically, as far as the Metropolitan City of Naples is concerned, there is just one company that is taking care of the treatment and disposal of waste, named SAPNA (Environmental Company for the Metropolitan City of Naples), while the Urban Cleaning companies are different and depend on the individual municipalities (e.g. “ASIA” for Naples, “Casoria Ambiente” for Casoria, etc.).

In compliance with The Regional Law n. 14 of May 26<sup>th</sup> 2016, “Implementation rules of the European and national legislation on waste” each ATO Authority has the task of designing and approving its plan (Piano d’ambito) that states the organization and management of waste in the corresponding area (art.34), pursuing the principle of self-sufficiency in the waste management (art.34, c.8; WP6\_6.1\_08N).

In the current phase seven ATOs, covering the overall region, are starting functioning. In particular, the three ATOs concerning the Metropolitan City of Naples, have been working since February 6 2017, with the election of the Area Committees formed by the representatives of the various municipalities of each ATO.

The REPAiR focus area comprises the ATO Napoli 1 and part of the ATO Napoli 3. More precisely, the focus area includes the municipalities of Naples, Casoria, Afragola, Acerra, Caivano, Casalnuovo, Crispano, Cardito, Frattaminore (ATO Napoli 1) and the municipalities of Volla and Cercola in the ATO Napoli 3.

Each ATO has a correspondent facility for the treatment of waste, named STIR (Waste Shredding-Screening and Packaging Plant). The ATO Napoli 1 has Caivano

STIR, managed by the company A2A Ambiente; the ATO Napoli 3 has Tufino STIR, managed by SAPNA.

On March 8 2017, the Mayor of the city of Casoria, Pasquale Fuccio, has been elected President of ATO Napoli 1 and the Mayor of Casamarciano, Andrea Manzi, President of ATO Napoli 3. In this stage, general directors must be selected in order to make the ATOs really operative.

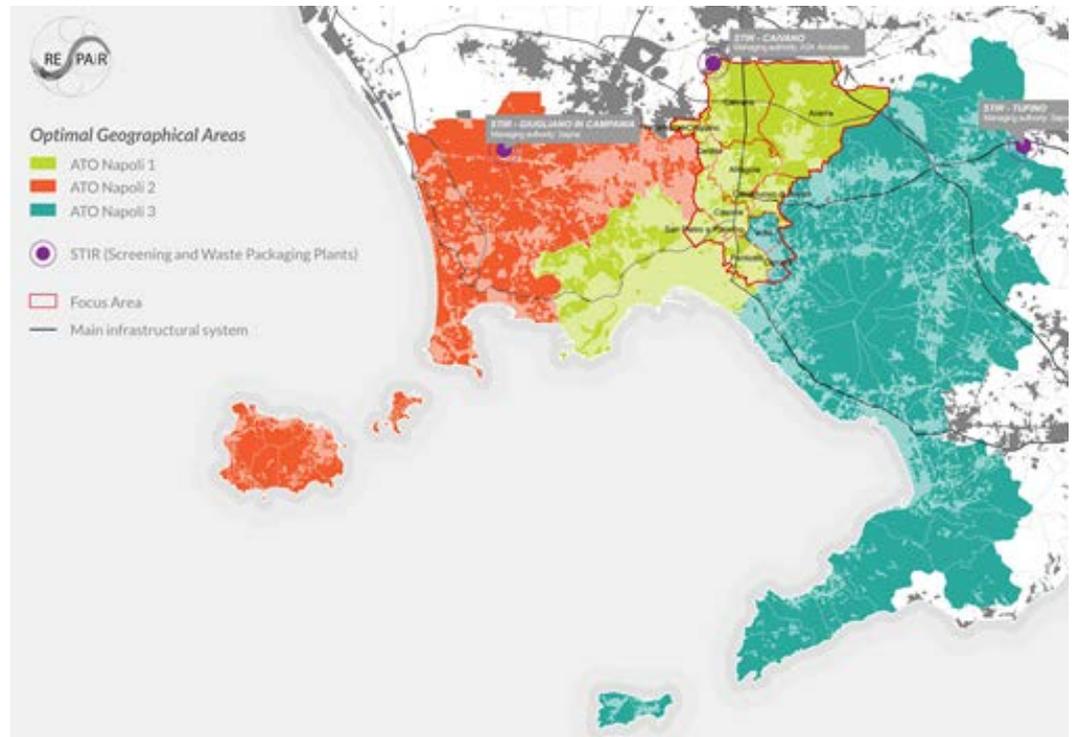


Figure 6: Boundaries of the Optimal Geographical Areas in the Metropolitan City of Naples (UNINA WP6 Team, Giuseppe Guida 2017).

## 4.3 Stakeholder Identification

### 4.3.1 Process

In the present case UNINA, once having defined the project areas, individuated key stakeholders that have direct interest on the sites. Successively, other actors have been identified with the mean of **snowball** sampling.

In the actual first phase, the key stakeholders will be interviewed separately and later in focus groups with the help of the Living Lab programs. Interviews are semi-structured: following a ladder of questions with the aim of having a conversational meeting, the talks can be enriched by spontaneous information given by interviewees.

The focus of UNINA team is on waste-scapes. For this reason in the interview text, questions from 8 to 13 invite the interviewee to face the issue of abandoned and discarded landscapes.

### 4.3.2 Results

The work done by UNINA with their stakeholders produced the Table 3 reported

below: here are listed the actors interviewed at the 7<sup>th</sup> of April 2017 with the indication of the type of goal and its specification.

Title institution (Level, Sector)	Goal	Goal Description
WP6_6.1_01N (Metropolitan, Pu)	Content/Process related	Planning the governance of the metropolitan city; enabling collaboration with the Campania Region on public services
WP6_6.1_02N (Metropolitan, Pu)	Content related	Encouraging municipalities to an increase of separate collection systems; protecting water, air and soil
WP6_6.1_03N (Municipal, Pu)	Content/Process related	Restoring social welfare, starting from the environmental recovery; overturning the lack of confidence in the institutions
WP6_6.1_04N (Municipal, Pu)	Content/Process related	Overcoming the fragmentation of the urban fabric; working on the right to housing, health and life
WP6_6.1_05N (Municipal, Pu)	Content/Process related	Allocating public park within unused areas of the City; enabling shared processes with citizens
WP6_6.1_06N (Metropolitan, Pu/Pr)	Content related	Bettering the treatment and disposal of waste by means of systems and flows
WP6_6.1_07N (Local, Pu/Pr)	Content related	Bringing the Company to successfully, erasing the past emergency phases; rehabilitating in an urban sense the landscapes subjected to illegal deposit
WP6_6.1_08N (Regional, Pu)	Content/Process related	Releasing the Campania Region from the EU sanction; stimulating the separate collection system
WP6_6.1_09N (Regional, Pu)	Content/Process related	Reducing or quashing the EU Court of Justice's sanction; treating eco bales; financing new composting plants
WP6_6.1_10N (Regional, Pu)	Content/Process related	Responding to EU Court of Justice's sentence through the promotion of separate collection of waste and the stimulation of community composting plants

Table 3: List of key stakeholders involved in Naples pilot case with their priorities. Categories retrace Dente theory (HCU from WP6 UNINA Team 2017).

The field research done by UNINA includes also the indication of the level of REPAiR - REsource management in Peri-urban Areas

power, which each actor (might) has, its attitude during the meeting toward the project and an opinion about the necessity of its involvement during the next phases of the project (see Table 4).

Actor	Power	Attitude	Need for Involvement
WP6_6.1_01N	Medium	Positive	High
WP6_6.1_02N	Low	Positive	Low
WP6_6.1_03N	High	Positive	High
WP6_6.1_04N	Low	Positive	Low
WP6_6.1_05N	High	Positive	High
WP6_6.1_06N	Low	Positive	It depends
WP6_6.1_07N	Low	Neutral (see text below)	It depends
WP6_6.1_08N	Medium	Positive	It depends
WP6_6.1_09N	Low	Positive, but out of her department's competences	Low
WP6_6.1_10N	High	Positive	High

Table 4: List of key stakeholders involved in Naples pilot case with judgements on their power, attitude and need for involvement (HCU from WP6 UNINA Team 2017).

The information about the level of power, together with the indication of actors' attitude, represents an important base on which the future stakeholders' network can be built and on the base of which it is possible to decide for future strategies within the next steps.

In summary, in Campania Region under the current conditions, companies that deal with waste collection and disposal are focused on managing waste at an industrial scale. For this reason, they require engagement from the project on their cycle management segment. In this case, companies have also proposed some ideas (see next paragraph).

### Public and private sectors

From the interviews with stakeholders in the Campania Region (WP6\_6.1\_08N, WP6\_6.1\_09N, WP6\_6.1\_10N) a primary goal of the regional authority emerges that aims to activate the municipalities on public interest issues, such as the environment and public health. This is a model of action that we can read in the analysed practices: the Region promotes agreements and public announcements to which the municipalities are called to respond with projects or expressions of interest, as single or associated subjects. Among the current challenges to tackle are the prevention of fires and the rehabilitation of different typologies of abandoned waste, as well as the localization of new plants for the waste management in the region.

One of the important agreements recently formed is the Framework Program Agreement on the Land of Fires (APQ Terra dei Fuochi), among the National

Agency for Territorial Cohesion, the Ministry of Environment and Protection of Land and Sea, and the Campania Region of January 20, 2016. The object of the agreement is the realization of feasible actions implementing the requirements of the Pact for the Land of Fires<sup>17</sup> (Patto per la Terra dei Fuochi, MIPAAF 2013). These actions, proposed by the municipalities that signed the Pact of the Land of Fires, deal with environmental protection and controls to prevent the proliferation of illegal incineration. Two possible strategies were proposed for financing: the acquisition and management of video surveillance devices, and the recovery of areas previously interested by abandonment of waste or fires. Fifty-nine municipalities presented their proposals of action, with thirty-nine applications<sup>18</sup>. The Municipality of Naples could only provide 30.000 euros, showing a certain inability to draw EU funds (WP6\_6.1\_08N).

Besides carrying out the activities concerning territorial control and environmental protection, the Campania Region is working hard to plan the implementation of composting plants. With the resolution 13<sup>th</sup> of September 2016, n.494 (Regione Campania 2016) by the Regional Board, the plants for the treatment of the organic waste fraction coming from the separate collection of waste (F.O.R.U.) were planned and financed (WP6\_6.1\_07N, WP6\_6.1\_08N, WP6\_6.1\_09N). Some municipalities submitted their expression of interest for localizing new plants in their territories as a response to the announcement by the Campania Region. In particular, the cities of Napoli, Afragola and Casalnuovo (all within the focus area of the REPAiR project) in collaboration with the company managing the Waste Shredding-Screening and Packaging Plants (STIR) of Giugliano and Tufino (SAPNA, WP6\_6.1\_06N). Specifically for Napoli, ASIA Company proposed a composting plant to manage 57.000 tons/year in the Eastern area, where the wastewater treatment plant is located (WP6\_6.1\_07N).

The Campania Region is also promoting the creation of community composting plants<sup>19</sup> for treating the organic fraction of waste (Regione Campania 2017a, 2017b) in order to reduce the biodegradable waste disposal in the dumps according to the Regional Law 26<sup>th</sup> May 2016 (Presidente della Giunta Regionale 2016:Section 45 subsection 1c; WP6\_6.1\_08N, WP6\_6.1\_09N, WP6\_6.1\_10N). The municipalities of Campania Region, as single or associated subjects, can submit an expression of interest, with one of two management methods: either to supply community composters to be managed directly by that municipality, or they can make an agreement with interested community members for the

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<sup>17</sup> The “Pact” was signed under Caldoro president, while the Agreement “APQ Terra dei Fuochi” occurred under De Luca President. As a matter of fact, the last political regional elections took place in May 2015.

<sup>18</sup> It was possible for the municipalities to respond as either single or associated subjects, but partnerships among municipalities were encouraged. As for the municipalities in the focus area of REPAiR project, the proposals judged feasible by the Campania Region were as follows: Caivano in partnership with Crispano (financed with 500.000 euros), Casalnuovo with Pomigliano (249.998 euros), Afragola (249.496 euros), Cercola (31.260 euros), Acerra (30.000 euros), Napoli (30.000 euros), and Casoria (30.000 euros).

<sup>19</sup> The community composting is concerned with the use of small plants (between 60 and 130 tons of organic fraction/year) suitable for treating the organic fraction produced locally by small communities. These plants deal with a volume of waste between the industrial scale and individual compost.

management of the plants and the use of the compost produced. The deadline to submit the expression of interests was March, 30, 2017 (WP6\_6.1\_10N). Thus, in addition to the responses to the waste management, this last public announcement indicates effort of the Campania Region to promote the involvement of local communities in territorial and urban protection.

In accordance with the goals of the region, the Municipality of Naples has set an essential aim to involve associations, civic groups and citizens in the process of territorial transformation. An example is the “Restart Scampia” project that involved, from design to realization, institutions, authorities and universities in building a shared scenario of a neighborhood transformation (WP6\_6.1\_04N). In addition, the municipality of Casoria has stated its goal of finding opportunities for collaboration and network creation with neighboring municipalities, especially in relation to the implementation of public service provision (WP6\_6.1\_05N).

The city administration of Naples (WP6\_6.1\_03N, WP6\_6.1\_04N) aims to ensure that the inhabitants have, on every occasion, a leading role in regenerative policies. It is considered a necessary task to meet the local communities and build a relationship with all those actors who can, with their investment, involvement and qualifications, provide a broader picture of the real needs of the territory (WP6\_6.1\_04N). At the same time, it is considered essential to involve the entrepreneurial world; in the eyes of some administration officials, it is unthinkable to use only public resources. Specifically, they desire to involve those entrepreneurs who have already implemented sustainable changes in their company policies (WP6\_6.1\_03N).

## 4.4 Decision-Making Framework

### 4.4.1 Description

Before we begin to describe the decision-making framework, it is important to note that the governance of the urban region of Naples is currently changing. Indeed, the Province of Naples does not exist anymore and there is instead the Città Metropolitana (Metropolitan City) that has been approved with the National Law 7<sup>th</sup> April 2014, n.56 “Provisions on metropolitan cities, provinces, unions of municipalities” (Presidente della Repubblica 2014). However, though the Metropolitan City has been established from January 1, 2015, the actual realization of the new institution and its administration on the area started only on October 9, 2016 with the election of the Council of the Metropolitan City (WP6\_6.1\_01N).

Therefore, the area is in a transition phase in which different authorities are redefining their own responsibilities both within the metropolitan area (e.g. mayors, Città Metropolitana) and within the broader Campania Region.

According to a staff member in the Metropolitan City of Naples, one bottleneck in the governance of the area of Naples is the low degree of communication between the Regional Authority and the Metropolitan City. This makes cooperation in the metropolitan interests very hard to realize (WP6\_6.1\_01N). One example of this is the competing offers for various public services, for which both the Campania

Region (5.861 million inhabitants) and the Metropolitan City of Naples (3.117 million inhabitants, 92 municipalities) compete over (WP6\_6.1\_1N). The integrated management of waste is one of these public services: the Region has the duty of design the guidelines, each ATO should later draft a plan accordingly (Piano d'Ambito); the Metropolitan City has on the other hand powers of basically controlling the waste management. Region, Metropolitan City and ATO are here all in the position of having a say on the waste issue.

Finally, it's important to keep in mind that there are other factors harder to qualify or quantify that will nevertheless have a measured (if not measurable) effect on the policy and plans of governments and organizations. Some of these factors are tied inextricably to the history, culture and memories of a place and its people, and it can easily make or break efforts to involve the greater public in decision making, a critical aspect of waste management planning. Renn et al. (1993:208) notes that political and individual culture in a country can have an effect on the citizen view and opinion of pre-planned participation models, and should be considered before blindly applying a particular technique or method. Also supported by Dąbrowski et al. (2014) who pointed out that the context or institutional setting of a specific region or country has a significant impact on the outcome or success of MLG policy and action. Specific to waste policy and structures, Petts (2001) states that the structure of decision-making has a substantial effect on the efficacy of citizen participation models. In few places has this shown itself more clearly than in the Naples Metropolitan Area.

#### 4.4.2 *The Metropolitan City*

The aforementioned Legge Delrio (Delrio Law) states mainly a role of controlling for the metropolitan cities in terms of the “organization of services of public interest in the metropolitan area” (Section 1 subsection 44 letter c), therefore this is referred to the waste sector too.

According to the Regional Law 26<sup>th</sup> May 2016, n. 14 “Implementation rules of the European and national legislation on waste” (Presidente della Giunta Regionale 2016: Section 23), the Campania Region manages [1] the integrated governance of waste through the Optimal Geographical Areas (ATO, acronym in Italian). The ATO is “the territorial dimension suitable for the municipalities connected in a compulsory partnership to carry out the management of waste according to the principles of efficiency, feasibility, affordability, transparency and environmental sustainability” (Presidente della Giunta Regionale 2016:Section 7 letter c). The Regional Authority has the task of: establishing the ATOs; disciplining the organization and the implementation of the integrated management of waste; defining the provisional discipline designed to guarantee the waste management in the transition stage. In turn, the Municipalities have the task of organizing the integrated management of waste according to the ATOs, while the Provincial Environmental Companies in charge for waste management shall carry out their tasks until the effective start of the new authority responsible for the management of waste (Presidente della Giunta Regionale 2016:Section 40).

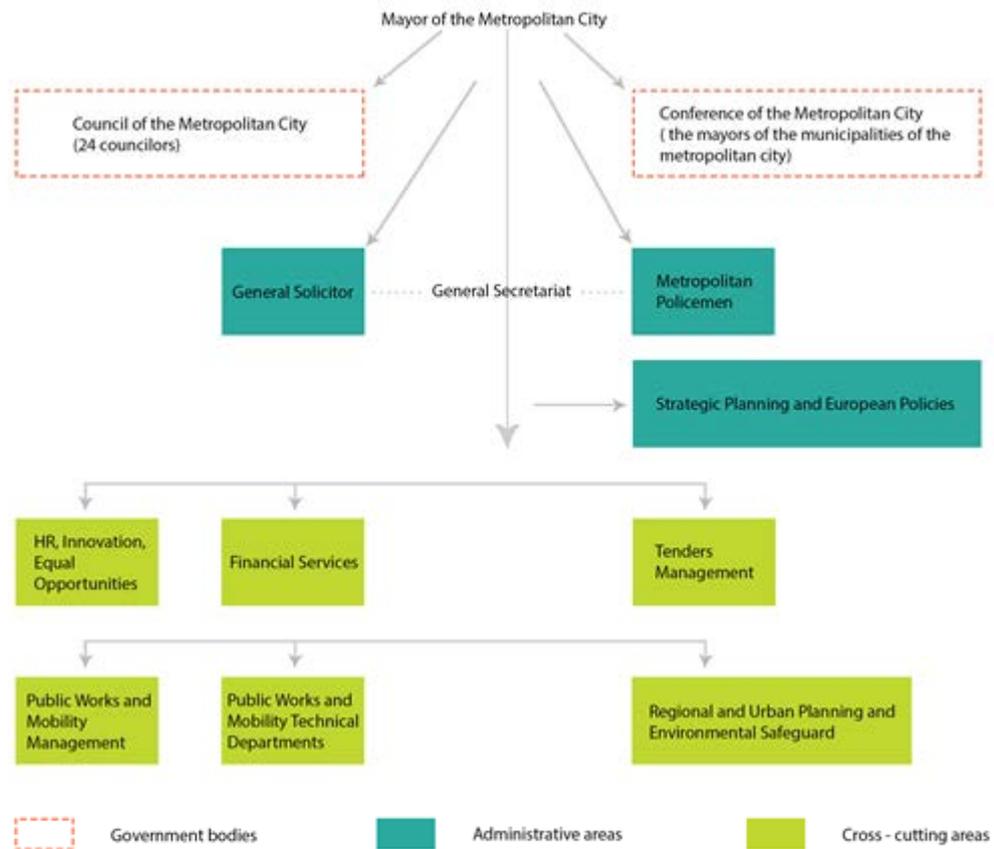


Figure 7: Metropolitan City of Naples organizational frame. Each Management Area has correspondent levels of sub-offices (UNINA WP6 Team, Elaboration by Giuseppe Guida on Città Metropolitana di Napoli 2016).

Currently, we are in the aforementioned transition stage, with the new ATOs starting their functioning and the Provincial Environmental Companies still active to solve the problems of the treatment and disposal of waste (WP6\_6.1\_08N).

In the Metropolitan City of Naples there are 3 ATOs (Napoli 1, Napoli 2, Napoli 3) that currently define the organization of the waste flows in the metropolitan area.

The Campania Region, in establishing the ATOs, is forcing the Municipalities to cooperate for carrying out the integrated management of waste (WP6\_6.1\_08N). The Municipalities see the compulsory association in the ATOs as a loss of power (WP6\_6.1\_05N, WP6\_6.1\_01N).

From the point of view of the Metropolitan City (WP6\_6.1\_02N, WP6\_6.1\_06N), the reorganization of the governance, operated by the Regional law 14/2016, creates fragmentation of the waste management that could lead to a more chaotic and difficult application of mutual help between the different ATOs (for example in case of damages in the ATOs).

It is necessary to stress that in Campania the integrated management of waste, and specifically the collection, treatment and disposal of waste, is organized by separate companies, one for the waste collection and street cleaning and one for the treatment and disposal of waste.

### **The Role of Mayors in the Metropolitan City**

The Metropolitan City of Naples holds the role of the Mayor in high importance, as he or she is also at the centre of Delrio law (Legge Delrio). They also put the Council<sup>20</sup> and the Metropolitan Conference (composed of all the mayors of the municipalities of the metropolitan area) close to the Metropolitan Mayor.

According to a high ranking member of the Metropolitan city Mayor's Office, there is no collective conscience that encourages mayors to step away from territorial self-interest and really work as a part of metropolitan governance: the Metropolitan Conference generally sees just 40% of attendance (WP6\_6.1\_01N). As one interviewee noted, "it could be useful to give up a bit of municipal power and local sovereignty in favor of joint planning between municipalities" (WP6\_6.1\_01N). Yet a representative of the Region points out that: "while we are tending toward the associations among municipalities (the ATOs are an example in this direction), the municipalities, instead consider associating with the others as giving up a part of the individual power" (WP6\_6.1\_08N).

In line with this thinking, the mayors of the municipalities of the Metropolitan City (especially the larger ones) try to maintain their independence from the city of Naples, a large, dense urban municipality which threatens to suck them into more complex issues. From this point of view the issue of waste is exemplary, given the multiple socio-environmental crisis between 2007 and 2011<sup>21</sup> that affected the urban region of Naples. Since the city of Naples is part of the ATO Napoli 1, the mayors of the municipalities within the ATO Napoli 1 feel penalized compared to the mayors of municipalities within the other ATOs, where there is no big "weight" city equivalent to the city of Naples (WP6\_6.1\_05N, WP6\_6.1\_06N).

#### *4.4.3 Analysis*

With respect to the organization of the waste cycle, the Metropolitan City suggests the hypothesis to foresee just a single organizational structure that manages the integrated cycle (i.e. the collection, the treatment and the disposal) of waste for all the 92 municipalities of the Metropolitan City. This hypothesis, however, clashes with the recent division into ATOs established by the Regional Law, which on the contrary, assumes an organization based on the Optimal Areas (WP6\_6.1\_01N, WP6\_6.1\_02N, WP6\_6.1\_06N).

On the other hand, the above described solution would be not accepted by the mayors of the Metropolitan City, who are claiming, for each their own municipality, the possibility of maintaining the management of waste collection in

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<sup>20</sup> According to the Delrio Law (Presidente della Repubblica 2014:Section 1 subsection 20), the Metropolitan Council is composed by the Metropolitan Mayor and 24 councilors. The Metropolitan Council is elected by the mayors and city councilors of the municipalities of the Metropolitan City (Presidente della Repubblica 2014:Section 1 subsection 24).

<sup>21</sup> Although the waste emergency was declared finished in 2009 with the launch of the Acerra incinerator, in 2010 a further waste crisis exploded that resolved at the beginning of 2011. Urban protests against the reopening of closed landfills arose in 2007-2008 and 2010. See also Cantoni (2016).

the hands of local companies (WP6\_6.1\_05N). It is evident, therefore, that this current phase of reorganization and adjustment may result in inter institutional conflicts that will not be managed and resolved in certain times and in predictable ways.

### **The public sector problems and potentials**

An essential problem of this area is to **restore social welfare**, through various actions (educational, productive, social and cultural actions) that, through the recovery of the environment in a broad sense, builds the basis of a change. We deal with places that for decades have been devastated by abandonment and by criminal practices, both of which have negatively affected public health and the environmental system (WP6\_6.1\_03N).

Abandonment and **illegal deposit** of waste (sometimes accompanied by “fires”<sup>22</sup>) are frequent in many areas of the city of Naples, along the streets of the border between Naples and its surrounding municipalities (e.g. Afragola and Casoria) and in most of the municipalities within the study area (WP6\_6.1\_02N, WP6\_6.1\_06N). This occurs where it is unclear which the responsible organization for the collection is. In general, in the city of Naples the land is not contaminated everywhere, but has become, in some cases, a kind of illegal deposit of different types of waste. On the contrary, in other municipalities (especially Acerra, Caivano and Casalnuovo) there is a big concern of soil contamination and, consequently, there are many soil’s characterizations projects already accomplished or underway (WP6\_6.1\_02N).

The reiteration of illegal waste deposits is a difficult problem to eradicate, which shows how the target areas lack an active local protection (WP6\_6.1\_02N, WP6\_6.1\_07N).

One of the problems associated with the presence of derelict lands is that **responsible entities do not always deal with the waste removal in their areas**. As an example, the company responsible for waste removal in Naples is often forced to intervene in areas that, according to the service contract, are not of its responsibility, e.g. in the urban parks of relevance of the City of Naples; in green areas of competence of other municipalities; in public housing areas of expertise of the “Napoli Servizi” company; sometimes in schools (WP6\_6.1\_07N). Those are all cases in which the corresponding authorities, institutions or appropriate internal services should deal with.

Other problems in the focus area concern **water**. Groundwater pollution can be found, probably due both to bury of waste and to disposal directly into groundwater, on which investigations are currently undergoing. In addition, the soils of Casoria, Volla and Casalnuovo are affected by a rise of the level of the groundwater that causes continuous flooding at lower floors of buildings (WP6\_6.1\_02N).

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<sup>22</sup> With the world ‘fire’ is intended the illegal incineration of waste operated in the open air by several subjects.

In Casoria, as in a lot of areas of the Metropolitan City, the **land ownership is fragmented**. According to the mayor of Casoria, a lot of wastescapes along large infrastructures split the territory. It is difficult to give these areas an appropriate function because of their specificity, but if they were put into a system they might be used to trigger city regeneration processes instead (WP6\_6.1\_05N).

As for the issue of waste disposal, one of the reported problems is the risk of **falling back into a new emergency** related to urban waste, unless there is the provision in a short time of new industrial composting facilities. Moreover, a shared vision about where to allocate these facilities is totally absent and conflicts get closer each time one area is selected with this destination (WP6\_6.1\_01N, WP6\_6.1\_02N, WP6\_6.1\_06N, WP6\_6.1\_07N, WP6\_6.1\_08N, WP6\_6.1\_09N). The community composting plants recently promoted by the Campania Region represent nowadays a way to realize a 30.000 tons plant without attracting local communities' attention: "with 300 community composters we solve the problem of 30.000 tons of organic fraction to dispose of" (WP6\_6.1\_10N). In 2016, only in the city of Naples 58.000 tons of urban bio have been collected. In 2017 it is expected to gather 74.000 tons, all intended for carriage to the town of Este, in the province of Padua (Italy), where there is a composting facility that can dispose up to 500.000 tons of bio waste (WP6\_6.1\_07N). Tc; WP6\_6.1\_06N, WP6\_6.1\_08N, WP6\_6.1\_09N, WP6\_6.1\_10N).

Another problem is concerned with the **overlap** of political and institutional roles that regards both the deputy mayor of the Municipality of Naples and the deputy President of the Campania Region (WP6\_6.1\_08N): it is not easy to respond to all the issues that different responsibilities pose. Moreover, the ordinary planning of the technical offices is very often trespassed by emergency issues.

There is moreover a generally spread NIMBY syndrome, both among the citizens and politicians (WP6\_6.1\_08N). The municipalities are very active in responding to public announcements, but they are not always able to mobilize in a suitable way, sometimes showing their inadequate skills (WP6\_6.1\_10N).

### **The private sector problems and potentials**

WP6\_6.1\_07N believes the objectives of the project are unreal, almost fictional. For the Environmental services and Hygiene company, not only it is not easy to implement the recovery of degraded areas, but it is not feasible a project that **recycles a waste stream in the same areas**. In WP6\_6.1\_07N's opinion, small plants for organic / urban waste can be realized as a value just for environmental education. They are not enough for a company that puts a target on much larger scales. It should not be overlooked that the management of small virtuous plants requires constant attention; otherwise such small plants would create a boomerang effect in the target area (WP6\_6.1\_07N). On the contrary, the Region is promoting the localization of community composting plants for treating the organic fraction of waste (WP6\_6.1\_08N).

With regards to organic urban waste, both WP6\_6.1\_07N and WP6\_6.1\_08N note that in Campania there are no fully functioning composting centers, except the

one in the city of Salerno. Although there are some recent projects that define new plants<sup>23</sup>, it does not seem appropriate to focus precisely on a type of recycling for which the Campania is likely to fall back into a new emergency (WP6\_6.1\_07N, WP6\_6.1\_06N).

### Proposals of the stakeholders

- WP6\_6.1\_08N: inter-municipal collection centre in Casoria, at the borders of Naples
- WP6\_6.1\_07N: tyres recycling at the STIR of Tufino and Giugliano; collection point for WEEE recycling
- Municipality of Casoria: damp recycling within an urban park, connected with different areas of the territorial system
- Campania Region: CIRO (integrated centers for optimal reuse of durable goods). These centers were introduced by the regional implementation plan for waste prevention (Resolution 13<sup>th</sup> December 2013, n. 564 by the Regional Board, WP6\_6.1\_08N; Regione Campania 2013) with the aim to intercept that part of objects in a good condition before that they become waste, allowing their entry in the second-hand market, after small repairing works. The waste fractions interested are: WEEE, wood, metal, bulky items, textile items, undifferentiated.

### Snowball identification of additional stakeholders

- Campania Region, ARPAC (Regional Agency for Environmental Protection), Waste Registry
- Commissioner for the Land of Fires
- Casoria Ambiente Company (urban sanitation company)
- A2A Ambiente Company (Management Authority of the Caivano Stir)
- Ecopneus (non-profit organization that deals with the collection, treatment and disposal of used tyres)
- Private companies that deal with the disposal of urban waste by recycling it for energy (biodigesters), in the metropolitan city area
- Mayors of other municipalities in the focus area
- Third sector actors

The actors to be involved will be the protagonists of a further careful evaluation based on how UNINA decides to shrink the case study and on which waste flows UNINA focuses.

## 4.5 Caveats

In this stage of the survey, we focused our attention mainly on public actors, in order to respond to the actual transition from a governance system to another. Local communities and third sector actors will be further investigated at a later date.

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<sup>23</sup> Both interviewees are referring to the resolution 13<sup>th</sup> September 2016, n. 494 (Regione Campania 2016) by the Regional Board that finances the plants for the treatment of organic fraction.

We anticipate that in the studied area we will investigate the following stakeholder types: socio-ecological associations (and coordination of associations); citizen movements with environmental and/or socio-ecological purposes (and coordination of movements); as well as social cooperatives with purposes of promotion/production of socio-ecological values (and their grouping). While these three typologies may appear similar, there are important differences: associations are more stable, movements are not permanent and vary according to the current events, and social cooperatives are the favourite to be chosen as interlocutors of the governance of the urban region.

What is evident so far with respect to local communities is strong opposition to all waste plant proposals, even those including basic composting facilities - numerous interviews confirm that we are in presence of widespread NIMBY syndrome (WP6\_6.1\_07N). As far as the territorial repercussions are concerned, the Region responded by offering incentives for the construction of new composting plants ("for citizens, the presence of a waste plant in their neighbourhood should be seen as a resource. They would acquire a subsidy for environmental relief, and they save on a part of the waste tax" WP6\_6.1\_09N; Regione Campania 2016) and encouraging the spread of small composting plants (WP6\_6.1\_10N). And yet, the Environmental services and Hygiene Company of the city of Naples (ASIA) is convinced that the only way to solve the crucial issue [of NIMBY] is simply starting to make things happen (WP6\_6.1\_07N).

## 5. Conclusion

To conclude, it is worthwhile to again note that there are substantial differences between our two pilot case studies Amsterdam and Naples, on issues spanning from historical responses to citizen participation, regional governance structures and national policy, to implementation records and coordination with the European Commission and other supra-national bodies. Yet the realities of the waste governance structures in both bases show some remarkable similarities.

Both have a history of concentrating power at upper levels of government, a process that began in the 1990's and is now moving back in the direction of multi-level governance. Both governments currently acknowledge the importance of stakeholder involvement while indicating some frustration about the apparent unwillingness of some citizen groups to meet them halfway at the negotiating table. Both are struggling to find ways to involve more stakeholders, on multiple levels of governance, into a decision-making process that seems to be increasingly more complex, not less. Finally, understanding and acceptance of circular economy and its principles vary widely in both cases.

Differences are also seen in the knowledge basics. Amsterdam has an already strong understanding of the Circular Economy concept and related aspects, meanwhile Naples, and Italy in general, is still struggling solving obstacles related to the waste management itself. This different awareness is also clearly visible in the outcome of the interviews prepared and conducted by the two partners. But it should be noted that research in the Naples case study first focused mainly on public stakeholders, due to the high complexity of the topic of waste management in the area. Only after further interviews are conducted can an understanding of the stakeholders' views on circular economy be provided.

As mentioned above this deliverable is part of an ongoing analysis. In both case studies the governance framework was analysed and key stakeholder's positions were identified through interviews. As the first step on a longer journey that is this entire project, this document is a rough outline of governance and stakeholder analysis steps taken to date, and a description of the decision-making frameworks that both pilot cases reside in. The efforts expended will lay the groundwork for more widespread and deeper analysis of those frameworks in the coming months.

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