



European Union Action to
Fight Environmental Crime

Victims in the “Land of Fires”: A case study on the consequences of buried and burnt waste in Campania, Italy

Work Package 4 “Case Studies”



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ABSTRACT

The “Land of Fires” indicates an area in Campania, in the south of Italy where, systematically, since the end of the ‘80s, toxic wastes have been dumped by organized crime (i.e., camorra, the name for the Neapolitan mafia). Organised crime plays, as a matter of fact, a significant role in the waste management industry; however, organized criminals are not the only players. Although in the public opinion the mafia clans are the most important subjects involved in the illegal waste trafficking, a significant role is also played in this field by many businessmen and firms. Corruption is a crucial element that connects all these actors in the waste sector, characterized by the grant of public licenses and authorizations. Moreover, this sector needs large economic investments and has to face a huge bureaucratic machine, which makes the ground even more fertile for corruption. All these conditions hamper the competition and facilitate the creation and the development of oligopolistic forces, where the strength of mafia intimidation turns out to be particularly effective. The weak (or the absolute lack of) enforcement power at both national and regional levels has been used to explain this widespread illegal situation, but responsibilities actually lie at various governance levels, spanning from inefficient bureaucracy to political patronage and criminal malfeasance. Moreover, the lack of adequate (and effectively enforced) waste management policies has created institutional and regulatory uncertainty which fosters the illegal market of waste. On these premises, with the present case study report we aim to investigate how and why some associations and organizations become a reference point for the victims of those waste-related environmental crimes. The victims of the present analysis are not such *ex-lege*, but are those people who maintain the status of being victims of illegal waste disposal, and that were identified through several semi-structured interviews. An affiliation networks analysis was developed to study how the victims interacted over time with different associations; the findings obtained allows us to say that victims are strengthening their relationships with local associations in the network and are starting to play an important role to reinforce their socio-political and judicial actions and to combat the illegal practices that can considerably affect their lives.

Table of Contents

1	Introduction.....	7
2	Literature review	8
3	Description of the methodology	11
4	Case presentation.....	12
4.1.1	Statistical information	12
4.1.2	Waste emergency in Campania: but only for urban waste	14
4.1.3	Land of Fires: the unknown	15
4.1.4	Legislative context	18
4.1.5	Data collection	19
4.1.6	Results	21
5	Conclusions and policy implications	24
	References.....	27

List of Figures

Figure 1: Geographical position of Campania region.....	12
Figure 2: Metropolitan area of Naples.....	13
Figure 3: Potentially contaminated sites in Campania.....	14
Figure 4: Land of Fire	16
Figure 5: The pollutions' fighters affiliation networks (multi-relational networks)	21
Figure 6: The pollutions' fighters affiliation networks (attribute networks)	23

LIST OF ABBREVIATIONS

SNA	Social Network Analysis
PFN	Pollution Fighters' Network
PCS	Potentially Contaminated Site
ARPAC	Agenzia Regionale Protezione Ambientale Campania
PCIWCCIA	Parliamentary Commission of Inquiry on Waste Cycle and the Connected Illicit Activities

1 Introduction

The term “land of fires” was used for the first time in a dossier by Legambiente (2003), a prominent environmental Italian NGO, to indicate some areas of the municipalities of Qualiano, Villaricca and Giugliano in the province of Naples where since the ‘80s, thousands of tons of toxic wastes have been buried and burnt. The waste problem in the Campania region has been characterized by illegality, inefficiency, irresponsibility and indecision; it is a much more complex phenomenon than it seems and unfortunately has been inadequately addressed by official decision making bodies. The role of organised crime and corruption in creating this situation cannot be underestimated. Politicians, public authorities and media have disseminated a simplistic view of the problem, which has served as a foundation for policies that do not really address the roots of the problem and erode democracy (D’Alisa et al., 2010).

With regard to the general research questions of this work package of the EFFACE project, this case study contributes to the followings:

1. *How does the case study contribute to understanding the link between environmental crime and organized crime?*

This question is extensively explored since Camorra is part of an opaque web of entrepreneurs and bureaucrats that secured cheap dumps for hazardous waste.

2. *How does the case study help to understand the main motivation to commit an environmental crime?*

This question is explored to a limited extent. Among the main motives and incentives to illegally dispose waste there is a) the avoidance of the costs of disposal by firms, b) the will of keeping hidden the waste coming out of the black market production (illegal and informal business), c) the opportunity to gain enormous profit (Camorra).

3. *To which extent are the enforcement procedures for discouraging environmental harmful conducts in your case study effective?*

This is the point of departure of our analysis: there is a lack of enforcement and legislative planning. The legislator simply reacts to the social struggle and to the claims of the affected community

4. *Why your case study is relevant to implement a coherent framework for an effective fighting of environmental crime at EU level?*

The case study is important in examining the effectiveness of enforcement systems within Member States. Given the link of this type of environmental crime with the organized crime, this is a particular challenge for the EU.

With regard to environmental costs and impacts, the illegal disposal of waste and the consequent illegal burning can produce emissions (including particulates, carbon dioxide, carbon monoxide and mercury) also harmful to human health. Thus, some of the costs related to this type of environmental crime might include: i) land remediation; ii) health; disruption of social trust (e.g. Institutions); iii) assets value (in Italy 80% own the house); iv) agriculture, tourism sector; v) diminishing attractiveness for investors.

One of the key features that characterize the “land of fires” has been the lack of enforcement and the absence of justice for the victims. Our point of departure is that the failure on the part of both Institutions and regulatory agencies is linked to weak and ineffective legislative and institutional frameworks. Looking at the phenomenon from a victim’s perspective helps to make the victim, in a way, an enforcer of the laws.

The main research question that has inspired this report consists in exploring how and why some associations and organizations become a reference point for the victims of those waste-related environmental crimes. Starting with a review of the main theoretical and empirical literature on waste and organised crime, the report continues with a summary of the methodological approach that was used for this case study. The report concludes with some critical considerations based on the results that emerged from the empirical evidence.

2 Literature review

Nowadays, organised crime is widespread in any branch of economic activity, and waste management is not an exception. Criminal organisations are the most problematic actors in the Italian environmental criminality and the region of Campania is where they are most active (Greyl et. al., 2013). In addition to the legal disposal of waste, Campania is, in fact, strongly impacted by the illegal traffic in toxic waste, which, by definition, is extremely difficult to quantify. The industrial waste market is a major sector of organised crime activity given the smaller infrastructure needed and the high profits. It is believed (Greyl et al., 2013) that criminal organisations exploit opportunities in the waste sector to make illegal investment, which is feasible mainly due to the absence of appropriate sanctioning instruments.

Recent evidence (D'Alisa et al., 2010) suggests a major role for criminal organisations in controlling the illegal disposal and tracking of both urban and hazardous wastes. The Italian NGO, Legambiente, which coined the term “eco-Mafia”, has estimated that the illegal waste business in Italy has enlarged over the years, reaching a turnover of 16.7 billion euros in 2013, while millions of tons of hazardous waste annually find their way outside legal circuits (Legambiente, 2013). According to one of the latest report by Legambiente (2013), from January 2010 to May 2013, there were 135 investigations relating to environmental corruption with regard to, among others, zoning variations and landfill waste. The quantities of material seized at Italian harbours in 2012 doubled compared to 2011, rising from 7 000 to 14 000 ton mainly due to illegal waste that ends up in South Korea (rubber), China and Hong Kong (plastics), Indonesia and China (paper and cardboard), and Turkey and India (metals). These volumes of illegality provide huge profits for traffickers, who sell the waste rather than dispose it.

The problem, however, is not confined to Italy. Violations of waste management legislation account for around 20% of EU environmental infringement cases and the EU lacks the ability to directly monitor the actions taken by regions and municipalities since monitoring is left to member states, and often the Commission is left unaware until an environmental disaster appears (INECE, 2012).

Starting with Becker (1968), the analysis of crime has significantly grown among law and economics scholars. Even though the Italian case is famous worldwide, the role of organised crime in waste management is also well documented in other countries; Block and Scarpitti (1985) and Rebovich (1992), among others, analyse toxic waste disposal in the US, while Liddick (2010) examines the role of organised crime in the international trafficking of hazardous wastes. The Mafia's role is now documented in various reports by the National Commission on Waste Disposal and Related Crimes (Commissione Parlamentare d'Inchiesta, 2000) and by Legambiente, as well as by other publications in the field (see for instance, Bianchini and Sicurella, 2007).

The literature on waste and organised crime has diverged and developed in different fields, involving the perspectives of NGOs and government institutions, historians and social and medical scientists (D'Alisa et al., 2010). The complex picture of the Italian political disaster emerges, indeed, only if different studies and dimensions of analysis are taken into account. For instance, Fontana et al. (2008) and Iacueli (2007) analyse, across Italy and Europe, the importance of the toxic waste trade between the Camorra and corporations; Lucarelli (2007a, b, c) and Raimondi (2007) conduct a legal analysis on the Campania region case underlying the abuse of legal power by the government; Fazzo et al. (2008), Martuzzi et al. (2008), Senior and Mazza (2004) and Comella (2007) provide health risks analyses and epidemiological assessments; de Medici (2007) and Ortolani (2008) focus on the impacts of legal and illegal landfill sites on the environment and human beings; Rabitti (2008) examines the institutional responsibilities of the waste mismanagement problem; Armiero (2008) studies the links between society and nature in environmental conflicts; Musella (2008) underlines the role of activism; and Barbieri and Piglionica (2007) analyse the political implications of the waste crisis.

Legal and illegal waste dumping in Naples, together with burning toxic and industrial waste have been linked to an increase in severe health problems (Comba et al., 2006; Fazzo et al., 2008; Senior and Mazza, 2004). The most dangerous risk comes from the illegal disposal of toxic waste, which contaminates land and water sources. There is no official consensus on the health effects of the toxic waste traffic (Pasotti, 2010). The Ministry of Health refuses to draw a link between toxic waste and changes in public health in Campania (Ministero della Sanità, 2008). However, between 1996 and 2002, rates of cancer increased significantly in the towns most affected by the illegal landfills, compared with nearby towns (World Health Organisation et al., 2005). The illegal disposal of toxic waste can contaminate land and water sources causing biological alterations that could affect the entire ecosystem (Rajaguru et al., 2003). Organisms inhabiting areas with effluent discharges can suffer genetic damage and humans using polluted water are also at risk of similar genotoxic effects (Stahl, 1991). Senior and Mazza (2004) are convinced that there is a link between the level of pollution, caused by inadequate waste control methods, and the high level of cancer mortality in the Campania Region. Residents in the provinces of Naples and Caserta have a significantly higher cancer mortality compared to the rest of the Campania region (Comba et al., 2006). Maselli (2010) conducted a study on a specific type of frog (namely on edible frog erythrocytes considered a good bioindicator for detecting genotoxic effects of chemical environmental hazards) and showed that severe DNA damage occurred in north Campania where the emergence of environmental waste recently exploded. Assessing the effect of waste treatment on human health, on cancer incidences and on mortality is likely to be a difficult task. In the 1990s, Goldberg et al. suggested that men living near a municipal solid-waste landfill site in Montreal were at a higher risk of developing cancer. More recently, some studies have shown that living close to a waste-incineration plant is associated with an increase in cancer incidence. Comba et al. (2006) found that living within a 2 km radius of an industrial waste incinerator in Mantua (Italy) was associated with a significant increase in risk of soft-tissue sarcomas. Parodi et al. (2004) looked at lung cancer mortality in two regions of northern Italy exposed to environmental pollution emitted by a coal-fired power station and other industrial sources, including a waste incinerator. In women, the results suggested a pollution related risk, but in men, the results were confused by occupational exposure and a greater tendency to smoke.

Senior and Mazza (2004) in their article entitled “the Triangle of Death” published in “The Lancet Oncology” showed a correlation between increasing cancer rates and the presence of landfill sites (both legal and illegal) in the Campania region, labelling this area “the Triangle of Death” with its three points at the three towns of Nola, Marigliano, and Acerra. This area used to be an important agricultural centre, but the illegal waste dumping has made the land practically unusable.

From a stricter theoretic point of view, D’Amato and Zoli (2012) develop a simple model where an economic agent can choose among legal and illegal disposal methods. Legal disposal implies convex private costs and payment to a waste disposing firm; illegal disposal can be performed directly by the firm or by a criminal organisation, whose aim is to maximize net rents. Under the assumptions that i) the State cannot directly enforce taxes on illegal disposal, and ii) punishing an illegal action implies greater enforcement resources, their main conclusions suggest that the existence of the Mafia imposes restrictions on the freedom of the government in setting taxes on legal disposal and reduces enforcement effectiveness. In a previous work, D’Amato and Zoli (2012, 2011) analyse the impact of bribery to corrupt officials and criminal organisations in waste management. Using a simple sequential game, they provide some insights on how the presence of criminal organisations might affect illegal disposal and enforcement efforts, suggesting that the presence of the Mafia lowers the enforcement level and leads to greater illegal waste disposal.

Empirical analyses regarding waste generation and disposal drivers have been developed on the analysis of regional frameworks (Ham, 2009; Hage and Soderholm, 2008; de Jaeger, 2010; De Jaeger and Eyckmans, 2008; Dijkgraaf and Gradus, 2009, 2004; Allers and Hoebe, 2010), at EU level (Mazzanti and Zoboli, 2009; European Environmental Agency, 2009 and 2007) and at OECD level (Johnstone and Labonne, 2004). However, very few empirical studies have addressed the issue of organised crime activities in the Italian waste management system. For example, Mazzanti et al. (2008, 2010) analysed waste generation and landfilling issues and demonstrated the relevance of drivers such as population density, tourism and tariff implementations, underlying the role of criminal activities as a key economic issue that needs more investigation. D’Amato et al. (2011) investigate, both theoretically and empirically, how accounting for waste related crimes and the presence of the Mafia in an area might affect policy and waste management choices, with specific attention to recycling and landfilling.

Waste related crimes have become a typical modern mainstream criminal activity. As an empirical matter, illegal waste disposal is a type of crime driven by strong economic incentives; its benefits materialize in the form of savings from bypassing costly environmental regulations and legal disposal procedures. Many scholars have been studying waste regulations, from a traditional law and economic perspective, in terms of enforcement effects in order to better understand the relationship between benefits and expected costs of crime (Choe and Fraser, 1999; Fullerton and Kinnaman, 1995).

Armiero and D’Alisa (2012) believe that the waste problem in Naples can be analysed within the Environmental Justice (EJ) frame. The key concept of EJ issues is that low-income groups and ethnic minorities bear disproportionate environmental burdens, in the form of polluted air and water, unsafe jobs, under-enforcement of environmental laws, etc. (Ringquist, 1997; Evans and Kantrowitz, 2002). EJ, thus, deals mainly with the question of whether disadvantaged population groups, such as racial and socioeconomic minorities, are disproportionately exposed to pollution and whether demographic

composition influences the amount of pollutants. In the United States it has been widely shown that socioeconomic status and ethnicity are associated with exposures to environmental hazards (Bullard, 1990; Brown, 1995; Low and Gleeson, 1998; Arora and Cason, 1999). In particular, minorities and people with low income often tend to live closer to contaminated sites, thus suffering more than the general population from adverse environmental risks. Armiero and D'Alisa identify two motivations that, even in the absence of racially discriminated minorities, allow framing the issue within the EJ context. The first reason is that, at the local level, individual communities, such as Chiaiano, are targeted to become a 'wasteland', and the second is that the region of Campania has become the cheap trashcan of the rich industries of the north (Iacueli 2007, 13-15; 47-48). Furthermore, Armiero and D'Alisa believe that these conflicts are reshaping the borders between politics and the environment and they stress the need to include the environment in the political sphere; it is from here that the environmental justice and the ecological democracy issues have risen.

Notwithstanding the wide and interdisciplinary literature, our contribution is to look at the problem employing a Social Network Analysis (SNA) approach focusing on the role of the various organisations upon the activists' self-perception of being victims. To this end, we aim at drawing the Pollutions' Fighter Affiliation Network (PFN) taking into account two sets of agents: one consisted of the victims of the illegal waste disposal in the 'land of fires', the second consisted of the organization through which victims react and interact over time.

The importance of studying affiliation networks rests on theoretical relevance of people's memberships in society. Simmel (1950, 1955) is commonly believed as one of the first social theorists who examined the theoretical implications of individuals' affiliation with collectivises. Briefly, his argumentation is that individuals' affiliation (e.g. with family, political parties, trade unions) is crucial in outlining the people beliefs and perceptions. Several social scientists afterwards have deepened and thus enlarged Simmel's contributions.

3 Description of the methodology

SNA is used, as it allows us to: (i) well define the key actors forming the pollutions' fighters affiliation network, (ii) examine the evolution of the network architecture's properties as a result of a particular event (i.e., turning point), and (iii) understand the role of different involved organizations in the formation of victims' self perception and how their influence has changed over time.

The PFN can be seen as an affiliation network composed by two modes. The first mode is the set of agents N (persons), the second mode is the set of events M (organizations). The number of agents in the network is n and the number of events is m . An agent can attend one or more events. We can denote an affiliation network by an affiliation matrix A of size $n * m$. We characterize an element of A by a_{ij} , with $i = 1, \dots, n$ and $j = 1, \dots, m$. The coefficient a_{ij} has the value 1 if the agent i attends the event j and 0 otherwise. By definition, affiliation networks are 2-mode networks and, in order to set up the adjacency matrix X^{NM} we can take into account the affiliation matrix A .

$$X^{NM} = \begin{pmatrix} 0_{(n*m)} & A_{(n*m)} \\ A_{(m*n)}^T & 0_{(m*n)} \end{pmatrix}$$

where A is the affiliation matrix, A^T its transposed and 0 the zero matrix.

The main interest of representing affiliation networks by “two mode networks” is to keep the two sets in the graphs and to study interactions and their evolutions. Moreover, links between agents are also considered, although not directly but rather through events. Namely, co-memberships in organizations are typically thought of as providing opportunities for social relationships among individuals (and also as the consequences of pre-existing relationships). At the same time, ties between organizations through their members are thought to be conduits through which organizations influence each other.

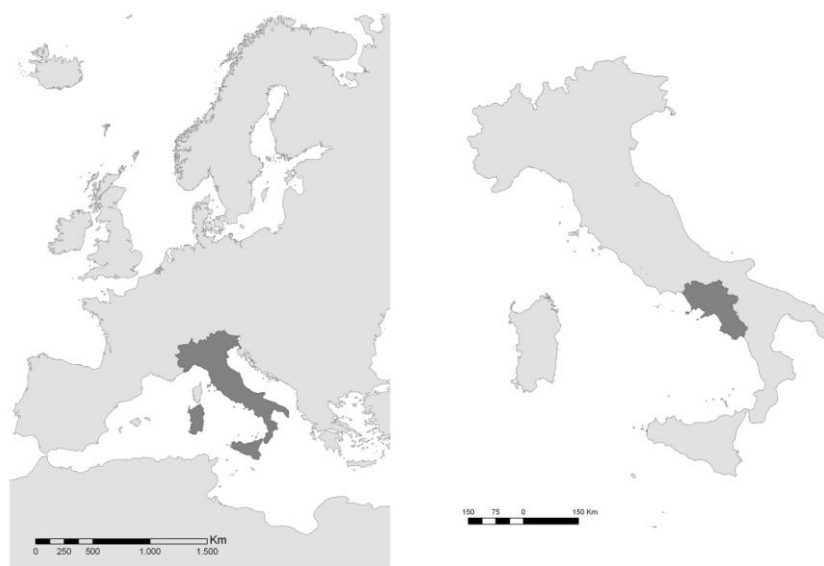
Furthermore, 2 mode-networks can exhibit different kinds of relations existing between agents and events. To enrich our understanding, it can be useful to extend the analysis to another variable such as the nature of interactions between the two sets of actors forming our pollutions’ fighters affiliation network. In order to deal with this further extension, we shall consider multi-relational networks, distinguishing among a generic type of interaction (i.e. ‘information exchange’) and more specific type of interactions involving the exchange of knowledge and the active membership.

4 Case presentation

4.1.1 Statistical information

Campania is a region of the South of Italy (Figure 1); the most densely populated and among the poorest region of the Nation; its GDP per capita in 2009 was less than €13,000, the average in Italy was more than €20,000, in the South of Italy was almost €13,500 (Istat)¹.

Figure 1: Geographical position of Campania Region.

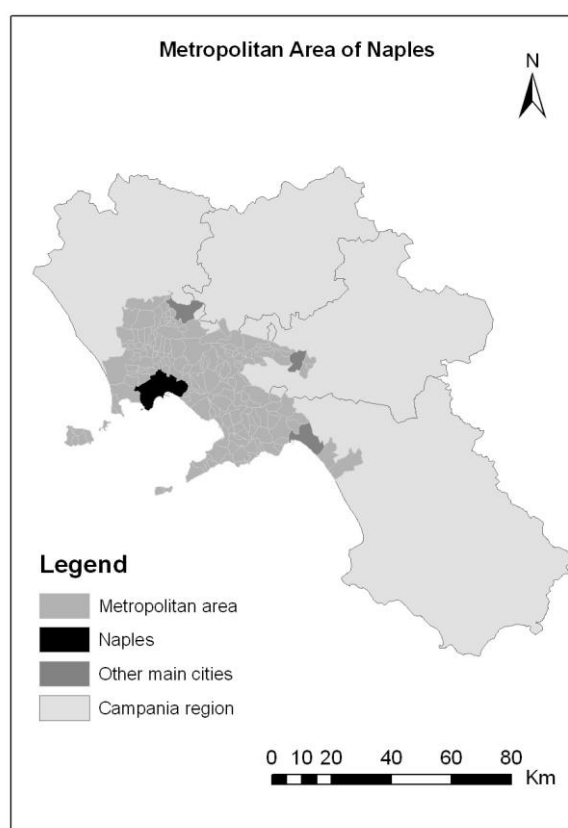


Source: elaborated by Burgalassi (2010)

¹ <http://sitis.istat.it/sitis/html/>

Campania comprises five provinces: Avellino, Benevento, Caserta, Naples and Salerno. Its total population amount to almost 6 million people mostly concentrated in the metropolitan city of Naples (more than 3 million people)², which represents less than the 9%³ of all the territory of the Region, 1,170 km² and 13,590 km² respectively⁴. The Metropolitan city of Naples has the highest density of population in Italy and one of the highest in the EU. Its average density of population is more than 2,500 inhabitants per km², that become 8,000 in the municipality of Naples, which holds no more than one million inhabitants (Istat, 2011)⁵. In an old study commissioned by SVIMEZ (Smarrazzo, 1999), a nonprofit research association with the aim to promote the economic development of the South of Italy, the metropolitan area of Naples was interpreted as a complex urban-rural system which connects not only the territory of the metropolitan city of Naples but also contains three other main cities of the region (Caserta, Avellino and Salerno) and many other municipalities of those provinces (Figure 2).

Figure 2: Metropolitan area of Naples.



² The metropolitan city of Naples has been instituted with the Law 56/2014, and since 1st January 2015 it substitutes the Province of Naples.

³ The surface of all the Metropolitan City of Naples is smaller than the only Municipality of Rome (1.285 km²).

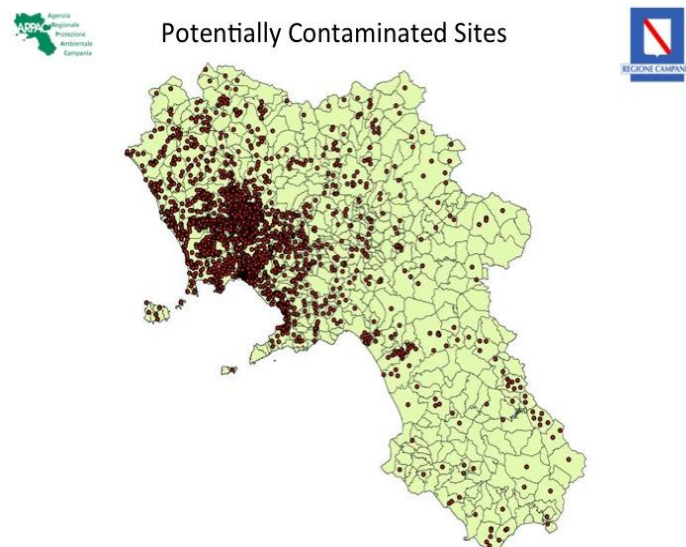
⁴ <http://www.statistica.regione.campania.it/>

⁵ <http://dati-censimentopolazione.istat.it/?lang=it>

Source: elaborated by Burgalassi (2010) on SVIMEZ data.

In this area is concentrated the 80% of all the population of the region in a intricate network of urban territories, agriculture lands and industries; in particular, the presence of several waste treatment and disposal facilities, legal and illegal, submit the area to a very high waste-related biophysical pressure (D'Alisa et al., 2012). The area coincided, indeed, also with the densest surface of Potentially Contaminated Sites (PCSs), (Figure 3). The technicians of the Regional Agency for the Protection of the Environment Campania, namely ARPAC, spotted more than 2,500 PCSs in the entire region; only in the northern area of Naples were located 1,117 PCSs, 822 linked to the waste disposal and 295 linked to different productive activities of the Region (ARPAC ,2005). The highly contaminated area has been strongly affected by illegal disposal of toxic waste since the '80s. Later on, that area between the north of Naples and the south of Caserta, became known under the name of "Land of Fires" (Legambiente 2003, Saviano, 2007).

Figure 3: Potentially Contaminated Sites in Campania.



Source: elaborated by D'Alisa (2010) on the map produced by ARPAC.

4.1.2 Waste emergency in Campania: but only for urban waste

During the '80s the worldwide awareness of the potential harmful effects of the waste trafficking forced many industrialized country to tighten their domestic regulation (La Rocca, 2014). Stricter laws and increasing production of special waste transformed the illegal disposal in a very lucrative business. In the

'90s, the illegal waste business in Italy thrived⁶; the free masonry, some components of the state apparatus and camorra, orchestrated a powerful network able to dispose millions of tons of waste per year (Iacueli, 2008), which is worth more than €7.5 billion per year and caused a loss for the treasury of €1 billion every year (Scalia, 2000).

The Parliamentary Commission of Inquiry on Waste Cycle and the Connected Illicit Activities already in 2000 recognized that blaming only the ecomafia, i.e. the organized crime mafia-like, whose main business is related with environmental resources, for the illegal waste disposal was a big error, legal business without relations with criminals have a very important role in the illegal trafficking of waste (Scalia, 2000). The organization uses several disposal strategy such as a) dumping hazardous waste in the countryside, b) dumping hazardous waste in illegal quarry and construction sites of infrastructural public works, c) burning special waste in the countryside, and mixing toxic with no hazardous domestic waste for disposal in legal landfill and incinerator (Scalia, 2000; Barbieri and Paglionica, 2007; Fontana et al., 2008; Iacueli, 2008). As a consequence, Campania became the main final dumping ground in Italy⁷. The impact of such a business has been disastrous. It twisted the political, economical and ecological life of the entire region. Indeed, even if the prosecutors tried to stop the flourishing of the waste trafficking shutting down some landfills because of their precarious sanitary conditions, the main consequence of those actions was no detriment to the illegal disposal but caused the interruption of the urban waste collection. The diminishing of landfills capacity (D'Alisa and Armiero, 2011), and the absence of a regional waste management plan was the justification for the central government to declare, in 1994, the state of emergency for Campania region and delegate the waste management to an ad hoc Commissioner (Armiero and D'Alisa, 2012). The national government focused its authoritarian intervention on the urban waste and dismissed completely the mounting and more problematic issue of the illegal dumping of hazardous waste. The state of emergency caused the increasing of civil unrest and facilitated the proliferation of the camorra's businesses, which infiltrated also in the urban waste management. The result was a crisis of democracy in Campania (D'Alisa et al., 2010), which has become the icon of urban waste mismanagement in Europe. Only with the resurgence of local grassroots movement in the 2012, when the waste emergency had been declared already ended by three years, the "Land of Fires" became again visible.

4.1.3 Land of Fires: the unknown

As already said, the term "Land of Fires" was used for the first time in a dossier by Legambiente (2003),

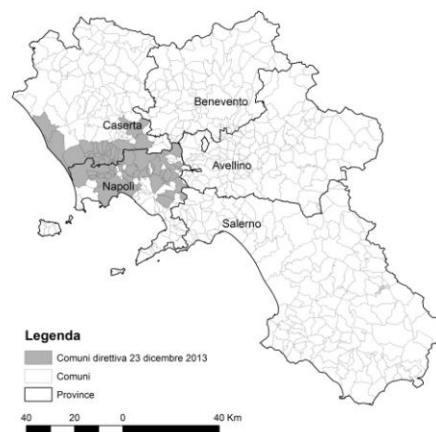
⁶ According to the Parliamentary Commission of Inquiry on Waste Cycle and the Connected Illicit Activities (PCIWCCIA), every year, almost the 30% of national special waste is illegally disposed (Scalia 2000, p. 7). Considering that Campania businesses produce only a small amount of the national special waste (see next footnote), most of the waste illegally disposed in Italy is produced by enterprises located in other regions of Italy.

⁷ Campania generates a small amount of the special waste if compared to the rest of Italy, not only in absolute terms but also relatively to its contribution to the national GDP. For example, in 2009 the production of special waste in Italy was about 134 Million of tons, of them more than 10 million were hazardous (7.5 % of the total production). Campania produced slightly more than 6.4 Million, of them 0.35 million are hazardous (5.8% of the regional production) (ISPRA, 2012). It means that Campania contributes only for the 4.7% of the total special waste in Italy and for only the 3.5% of the national production of hazardous waste, even if the contribution to the national GDP is of 6.25% (<http://sitis.istat.it/sitis/html/>).

a prominent environmental Italian NGO, to indicate some areas of the municipalities of Giugliano in Campania, Qualiano and Villaricca in the province of Naples where since the '80s, thousands of tons of toxic wastes have been buried and burnt (Figure 1, Map of the Land of Fires). The Italian citizens started to be familiar with the term “Land of Fires” after the publication of Gomorrah (Saviano, 2006), a best seller that describes the businesses of camorra, an organized criminality able to compose the web of interests of the local black economy and play a key role inside the Italian economy as well as abroad.

Camorra is a key actor among others in an intricate web of legal entrepreneurs and governmental officers that secured a cheap dump for: a) myriads of small illegal business in Campania region, b) the hazardous waste of Northern Italy, and c) other toxic waste coming from some European countries (Scalia, 2000⁸). In 2007, an activist of Giugliano in Campania created a website called the Land of Fires and, since then, every day new videos that show columns of toxic smokes are uploaded. Currently, more than 800 hundreds of toxic smokes are mapped⁹. In the last years, several grassroots committee were born such as the “Victims of Land of Poisons”, the “Coordination Committees Fires¹⁰”, which denounce the increase of cancer diseases and mortality in the area.

Fig. 4 Map: Land of Fires



The clamour about the Land of Fires exploded after the declaration by the informant Carmine Schiavone, an ex-affiliate of the camorra (he was a prominent boss of the Casalesi one of the most powerful

⁸ Scalia (2000). Documento sui traffici illeciti e le Ecomafie. Commissione Parlamentare d'inchiesta sul ciclo dei rifiuti e sulle attività illecite ad esso connesse. Doc. XXIII No 47. Available on line: http://legislature.camera.it/_bicamerale/riofuochi.asp?pagina=/_bicamerale/riofuochi/home.htm

⁹ The map is available at <http://www.laterradeifuochi.it/>. Last visit: 12th August 2014.

¹⁰ <http://www.coordinamentocomitatifuochi.org/>

Campania clans). Since 2009 (Di Chio and Martini, 2009)¹¹ when he was not any more part of the protection programme guaranteed to all the informers by the Italian State, he has been issuing a series of interviews to local and national newspapers and broadcasts¹². The boss of the Casalesi revealed the links between the politicians and the mafia; he spoke about the economic interests of his family and the huge amount of money they gained from the business of the illegal dumping of toxic wastes. In 2013, his hearing of 1997 to the Parliamentary Commission was declassified and the media gave wide coverage to the declaration. Even if politicians, journalist and activists criticize Schiavone for his alarmism and colourful interviews (Musella, 2013;¹³ Televomero broadcast 2014;¹⁴ LivioTV¹⁵), however, none denied that his stories contributed to spread the gravity about the “Land of Fires”. Several massive popular protests at the end of 2013 prompted the national government to issue a Law Decree (136/2013), that few months later converted in Law 6/2004. With this law, the national government recognized the extreme seriousness of the environmental, health and economic conditions of some areas in Campania. The government committed to invest money and resources to map the agriculture territory in the region for controlling the contaminated area, prohibiting the cultivations, implementing a more effective repression of the illegal burning of toxic wastes, and coordinating the necessary interventions of land reclamations. The recognition at national level of the importance of a coordinate intervention to stop the toxic smokes started in 2012 when the Minister of Internal Affairs named an officer for the waste burning in Campania¹⁶ with a coordination task of the police, the prefectures of Naples and Caserta and other interested authorities (Decree 12/11/2012); however, only with Law 6/2004 the area “Land of Fires” is institutionalized and the intervention is systematized (Fig 1). In 2013, the national Government¹⁷ extended the Land of Fires up to 1.076 km², which consist of, 57 Municipalities: 33 in the Province of Naples and 24 in the Province of Caserta (see the Map – Fig. 1). However, more than a geographical area, the Land of Fire should be interpreted as a phenomenon, i.e. an illegal strategy of waste dumping and burning useful to cut down the costs of waste disposal for legal and illegal businesses. The phenomenon escapes to a strict perimeter¹⁸. Indeed, in 2014, the government commissioned a technical investigation to verify the contaminating effects of the illegal disposal for 88 municipalities¹⁹ in Campania, and not only for the 57 previously located. Furthermore, more and more municipalities are asking to be part of the Pact for the Land of fire, i.e. a

¹¹ Il Tempo, <http://www.iltempo.it/cronache/2012/12/12/parla-il-pentito-schiavone-br-ecco-la-vera-gomorra-1.206464>, last access 12 August 2014.

¹² http://video.sky.it/news/cronaca/schiavone_a_skytg24_non_mi_pentirei_di_nuovo/v168746.vid;

http://www.serviziopubblico.it/2013/12/24/news/parla_carmine_schiavone.html

¹³ <http://alicegate.homenet.telecomitalia.it/noconnect.html?nm=1&client=192.168.1.9&server=198.18.1.6&event=DNSSpoofed&url=www.fanpage.it/terra-dei-fuochi-massimo-scalia-giorgio-napolitano-2/>

¹⁴ <https://www.youtube.com/watch?v=iBX-VwX8-eA&feature=youtu.be>

¹⁵ https://www.youtube.com/watch?v=6QowyoN-o_E

¹⁶ Spagnolo 2012, Lotta ai roghi tossici c'è un commissario, www.avvenire.it/Cronaca/Pagine/roghi-tossici-la-mossa-del-commissario.aspx

¹⁷ Ministerial Directive 23rd December 2013. Available at:

http://www.salute.gov.it/portale/news/p3_2_3_1_1.jsp?lingua=italiano&menu=dossier&p=dadossier&id=36

¹⁸ The phenomenon cannot be restricted to Campania region, It is a national as well as international

¹⁹ Ministerial Directive 16th April 2014. Available at:

http://www.salute.gov.it/portale/news/p3_2_3_1_1.jsp?lingua=italiano&menu=dossier&p=dadossier&id=36

memorandum of understanding to promote activity of control, prevention repression of the illegal stakes of waste²⁰.

4.1.4 Legislative context

Before proceeding through the social network analysis, we briefly introduce the legislative context of the Italian waste management and the special legislation enforced in Campania. Public institutions tried to develop new legal frameworks for monitoring waste management, but these improvements failed to lead to any real improvement of the situation (Greyl *et al.*, 2013). The first Regional Waste Management Plan was approved in 1993 in order to reduce the use of landfills in Campania by 50% through the new management of networks of municipalities. However, this measure was not effective and when, in 1994, landfills were saturated, the state of emergency was announced. An ad hoc commissioner was nominated by the national government receiving special powers to implement Campania's waste plan, replacing the ordinary actors (region, provinces and municipalities) of waste management. The Italian government initially conceived the commissioner as a temporary institution; nonetheless, from 1994 to 2013, it nominated twelve commissioners.

In 1997, three years after the beginning of the state of emergency, the most important piece of Italian waste legislation was issued; the so-called Ronchi Decree, which incorporated the main principles and prescriptions of European waste management regulations into Italian law and allocated the related responsibilities among different institutional levels. The principle of "self-sufficiency" was also introduced stating that each region should be responsible for the waste of its own territory and not export waste outside of it. The Decree implemented not only waste production prevention policies but also waste collection, recycling and incineration procedures. Moreover, the Decree made provisions for the limitations of waste disposal to prevent health and environmental contamination risk and made illegal waste disposal a criminal offence. In particular, Title VI/bis broke down crimes against the environment into four categories: environmental pollution, alteration of the natural patrimony, damage to the cultural patrimony, and illegal traffic of waste and environmental fraud. These charges introduced key tools for prosecution; however, it is challenging to stop the trade (Pasotti, 2010). Despite the good regulatory provisions, the Decree had no impact in practice (Greyl *et al.*, 2013). The need for new waste disposal sites kept growing to the point where new landfills were created and some old ones were reopened.

In 1999, with Decree n. 16, a temporary company association called FIBE²¹ was provisionally awarded the waste management for the province of Naples. In 2000, with Decree n. 54, the commissioner officially awarded the contract for urban waste management for the entire region to FIBE. A controversial aspect of the agreement made with FIBE was that the consortium was given the authority to select the construction sites of the infrastructures, completely independent of public administrative bodies (Greyl *et al.*, 2013). Since 2001 there have been constant emergencies within the emergency. On January 2006, a law

²⁰ For an updating of the list of participants to the Pact for the Land of Fire visit:
http://www.utgnapoli.it/public/roghi2013/cabina_regia_2014.php

²¹ FIBE was composed of the following companies: Fisia Italmimpianti S.p.A., Babcock Kommunal GmbH, Deutsche Babcock Anlagen GmbH, Evo Oberhausen AG, and Impregilo S.p.A.

recognized the responsibility of FIBE for the waste management crisis, stating that the company should continue to manage the waste treatment facilities until a new consortium was selected. Two European proposals were launched, but neither has been awarded. In June 2007, the European Commission (EC) initiated an infraction procedure for Campania's waste management.

In 2008, with waste treatment capacity beyond saturation, another state of emergency was declared and this time propagating worldwide attention (Rosenthal, 2008; Naughtont, 2008). In order to deal with the crisis, the national government implemented Decree 90, the most powerful ruling approved in Campania for waste management, and also the least respectful of environmental and human rights. The Decree planned the construction of nine new landfills in the region and four incinerators: two in the province of Naples, one in the province of Salerno and one in the province of Caserta.²² However, no real measures were taken under this Decree to stop corruption and crime in waste management. In 2008, the EU's Commissioner to the Environment warned that waste disposal was a problem far from limited to Campania. The European Court of Justice in Luxemburg charged Italy for the existence of 4,866 illegal or unmonitored landfills in 15 regions.

In December 2009, a new decree was approved that effectively ended two states of emergency. In June 2013, given that the previous Court ruling had not been complied with, the EC decided to refer Italy back to the European Court of Justice for its long-running failure to manage waste adequately in the Campania region and implemented fines.²³ Even though the Commission recognized that some progress had been made with the adoption of a new waste management plan for Campania in January 2012, accompanied with the presentation of a program of measures intended to manage waste until 2016, when new waste treatment plants are expected to become operational, nonetheless, it is concerned about delays that have stopped the construction of most of the planned plants for recovering organic waste, incinerators and landfills. There is therefore the risk that many of the planned installations will not be ready by the end of 2016, i.e. within a reasonable period of the first Court ruling.

Throughout the 1980s, legislation governing waste management (including the management of toxic waste) did not include criminal charges. This hole offered organised crime the opportunity to gain huge returns by offering northern industrialists a solution to their waste disposal at a fraction of the usual costs (Pasotti, 2010).

4.1.5 Data collection

The data used in this study were collected through face-to-face semi-structured interviews carried out over 6 months, August and December 2014, in the Campania Region, in particular in the area so called "land of fires"²⁴. Our method consist in conducting 60 semi-structured interviews with opinion leaders²⁵

²² The incinerator in the province of Caserta has not been built, as the sites designated for its construction have been sequestered.

²³ The Commission is suggesting a daily penalty payment of €2568.19/day after the second Court ruling until Italy complies with the judgment and a lump sum of €56 million for the period between the first judgment and the day of compliance or the day of the second Court ruling.

²⁴ Interviews were conducted in the following municipalities: Acerra, Giugliano, Caivano.

part of the archipelago of associations emerged out of the 20 last long environmental conflicts about waste mismanagement in the Campania region. The interviewed have been selected among the citizens that acted as “the face” of the local mobilization with a relevant coverage on regional and national media (newspapers and broadcasts), and/or promoted appeal to the President of the Italian Republic, and/or resort to courts denouncing the serious environmental conditions of the “land of fires” and the consequent negative impacts to human health.

The questionnaire consisted of four parts and was designed to provide: (1) general information on the respondents (i.e. age, education, employment, etc.); (2) information on the level of knowledge and personal experiences related to environmental issues and to the self-perception of the victims; (3) information on relationships and, more precisely, on the existence or not of ties, their nature and, in the case of the existence of a tie, the kind of relationship established between the victims and the associations/organization at various moments in time; (4) an open discussion about the environment, the environmental crime and its victims.

Such information allowed us to draw the pollutions’ fighters affiliation network which was composed by two sets of nodes: one set consisted of the victims (agents), and the second set consisted of the environmental associations and institutions (events) they use to be member of and/or gain knowledge about waste management, illegal disposal and the health consequences deriving from contamination. A tie between a victim and an organization means that the victim reports having been or be member of the organization in the past 6 months. Because ties can only exist between the different node sets, the resulting network is a two-mode network.

The list of organizations included the most popular association/institution in the investigated regions, grouped as: (1) local grassroots environmental associations (e.g. 29th August Committee, Campania Network health and Environment, Coordination Committees Fires, etc.); (2) local branches of national environmental associations (e.g. Legambiente, Italia nostra, Rete Lilliput, etc.); (3) local branches of international environmental associations (e.g. WWF, Greenpeace, ISDE, etc.); (4) research centres (e.g. CNR, ENEA), (5) health institutions (e.g. WHO, etc.); (6) public institutions (e.g., Waste Emergency Commissioner, Department of Civil Protection, etc.).

Considering the general context depicted above, in order to assess how some previously identified touring points have affected the pollutions’ fighters affiliation network through time and, consequently, the victims’ self-perception development, we applied a snowball sampling methodology. Particularly, the associations named by interviewed, but not included in the original list of actors, have been added into the initial sample network. In this way, we were able to include in the network 54 actors, 21 of which are citizens (“opinion leader”) and 33 organizations, 15 of which are local associations, 3 national associations, 4 international organizations, 3 research centres, 2 healthcare institutions and 6 public institutions.

Following Morone et al. (2014), we consider three different types of networks: (1) ‘information exchange’ network; (2) ‘knowledge exchange’ network; and (3) ‘membership’ network. In order to identify the possible effects coming from the turning point (2008) on the networks’ properties, we asked explicitly

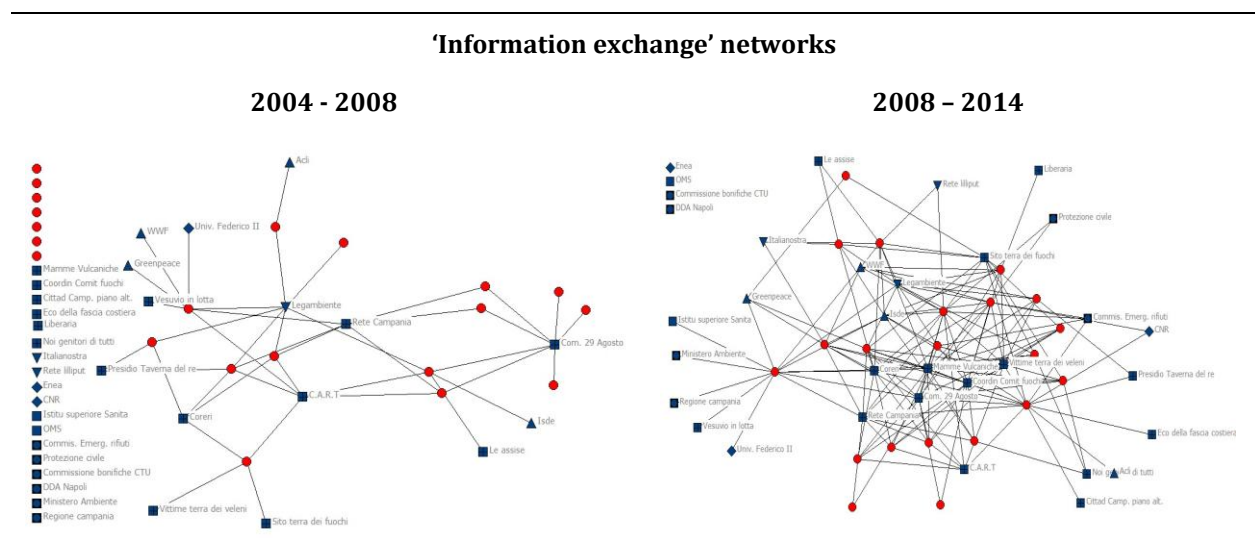
²⁵ Not all individuals exert an equal amount of influence over others. In this sense opinion leaders are influential in spreading either positive or negative information about a particular issue. Rogers (1962) emphasized the role of opinion leaders in influencing late adopters during the evaluation stage of the innovation-decision process.

the respondents to specify if and how the above networks' relations have changed looking at the time periods (2004-2008 and 2008-2014). It is worth noting that although relevant, the first network ('information exchange') depicts just generic forms of interaction among actors; more specifically, 'information exchange' network deals with any kind of mutual interaction, not necessarily to the issues of waste-related environmental crimes. On the opposite, 'knowledge exchange' and 'membership' networks could be more relevant when it comes to assess the victims' self-perception development given the nature of relations forming them. The former identifies relations between persons and organizations aimed at sharing specific knowledge (e.g. environmental and epidemiological reports, alternative plans of waste management etc.) and consolidate the self-perception of environmental crime. The latter pertains to the deepest level of interaction between persons and organizations that is the 'membership'. Be a member of an organization means to be actively involved in its initiatives (e.g. meetings, demonstrations, workshops, providing reports etc.). Finally, networks can be also considered by single or multiple attributes related to each node of the graph. In our case we shall focus on two attributes, namely the lifestyle (i.e. a way of life that reflects people habits and their attitudes) and health (i.e. serious illness contracted at individual, familiar and friends level).

4.1.6 Results

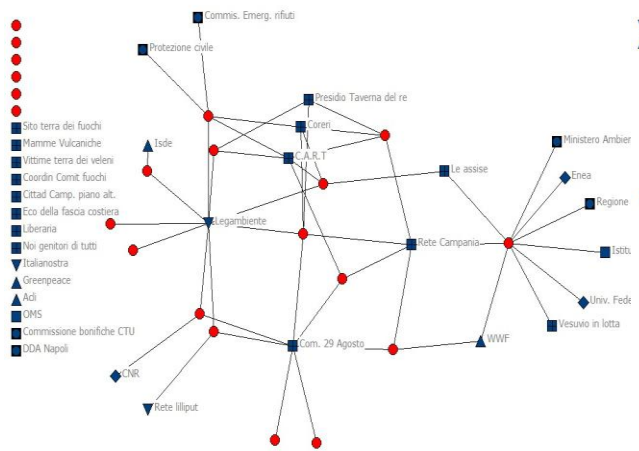
All gathered network data have been organized in the form of full structural network adjacency matrices and processed with the UCINET 6 software package that allows us to generate two-mode networks through its incorporated NetDraw visualization software. We conducted the study at two different levels: firstly, we focused on the aforementioned three affiliation networks ignoring actor's attributes and taking into account the evolution of the pollutions' fighters affiliation networks as a result of a shock (turning point). Secondly, we extended our analysis by investigating the effect of the affiliation networks on the evolution of population attributes (lifestyle and health).

Fig. 5. *The pollutions' fighters affiliation networks (multi-relational networks)*

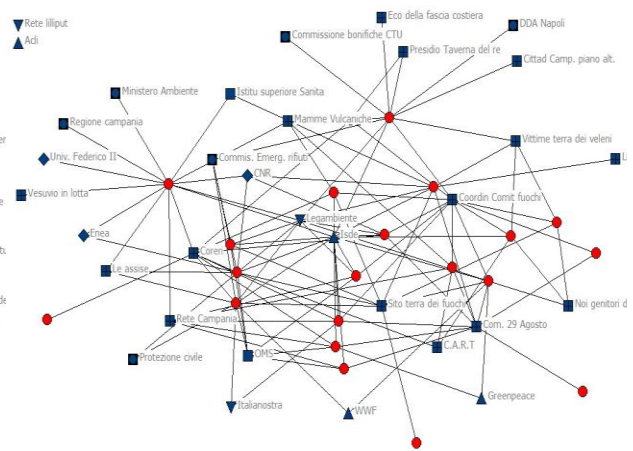


'Knowledge exchange' networks

2004 - 2008

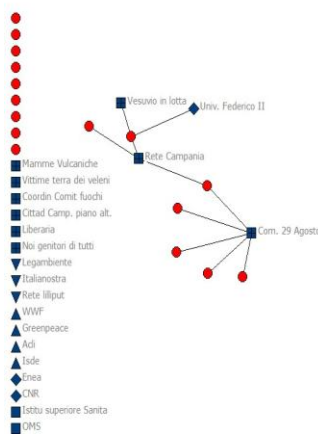


2008 - 2014

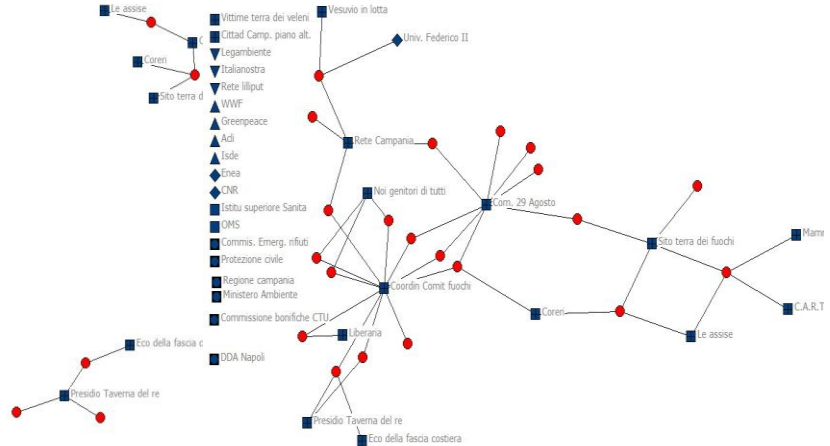


'Membership' networks

2004 - 2008



2008 - 2014

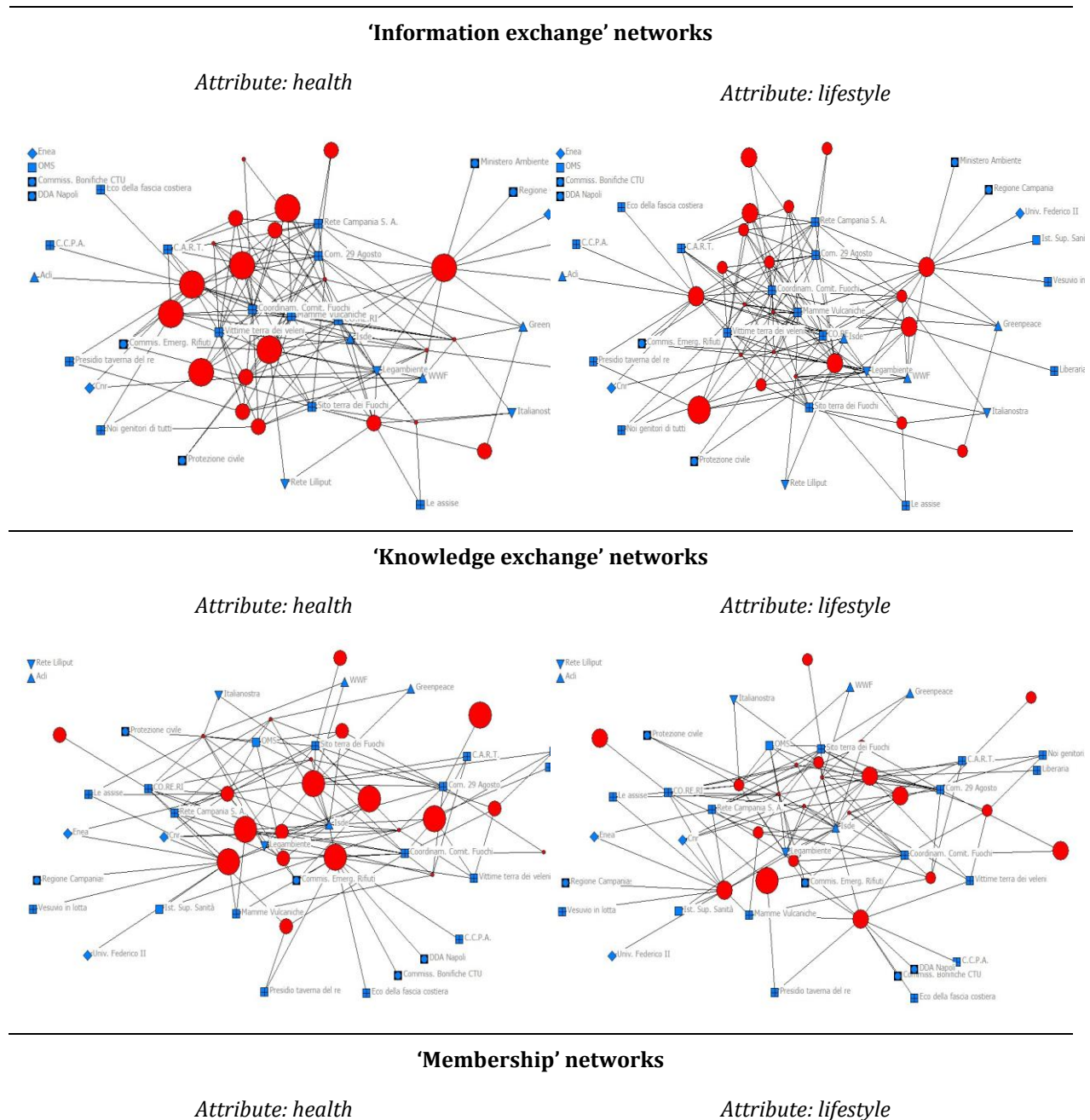


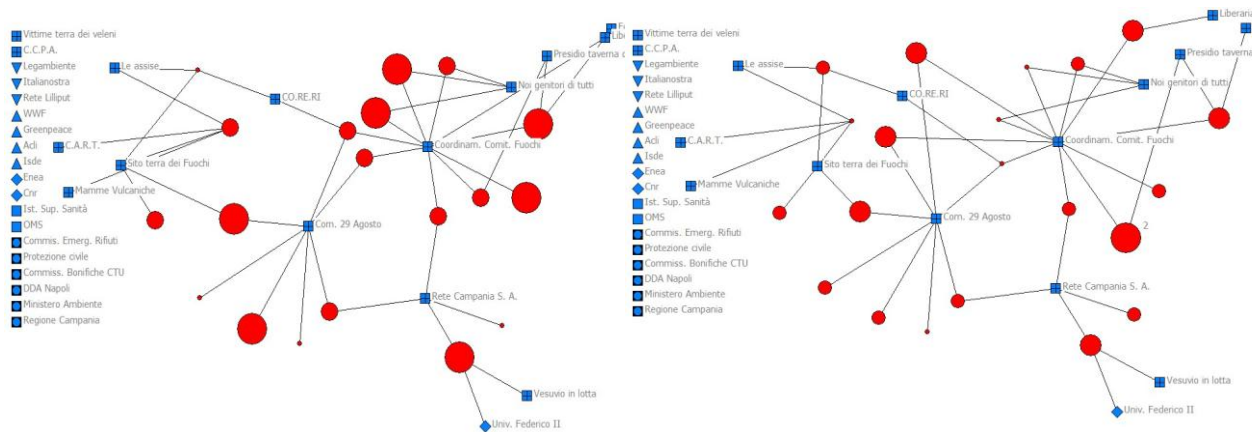
Legend 2-mode networks: Red = Agents; Blue = Events (Circle = persons; Box = local associations; Down triangle = national organizations; Up triangle = international organizations; Diamond = research centres; Square = healthcare institutions; Circle in box = public bodies)

Looking at the evolution of the three networks reported in Figure 5, the fact that the network density increases significantly from 2008 to 2014 for all networks is immediately noted. This is particularly evident with regard to the 'membership network' where the architectural features of the system change drastically and the overall structure becomes totally connected (2014). While during the period 2004-2008 'membership network' was represented by three sub networks completely disconnected and consisting of few actors, after 2008 an increasingly number of organizations, generally local, and their members enter the network by actively interacting each other and thus, forming a unique membership affiliation network. This preliminary finding shows that as a result of the turning point the networks gather a larger number of interactions with also some national and international organizations gaining a central role in sharing information and knowledge. This suggests that, along with a core group of local

organizations, other actors (not directly involved in the waste related issues in Campania) play a central role in the knowledge and information exchange.

Fig. 6 *The pollutions' fighters affiliation networks (attribute networks)*





Legend 2-mode networks: Red = Agents; Blue = Events (Circle = persons; Box = local associations; Down triangle = national organizations; Up triangle = international organizations; Diamond = research centres; Square = healthcare institutions; Circle in box = public bodies.
Attribute levels: the greater the size the worse the health or lifestyle.

In figure 6, we report the attributes of information, knowledge and membership networks related to both health and lifestyle of the respondents. At a first glance we can notice, looking at information and knowledge exchange networks and health attribute, the presence of a group of persons occupying a central position in the networks but with a low level of health. At the same time, if we take into account lifestyle attribute with regard to information and knowledge networks, we can observe a group of people who claim to live a healthy life occupying a central position in the networks. This is indeed a relevant feature of the network since it seems that people who lived on their skin the consequences of the waste related issues in Campania are those involved more actively in the mechanisms of information and knowledge exchange. A similar picture comes out if we look at membership network where the majority of people directly involved in activities promoted by local organizations strongly perceive the environmental issues that characterize their land.

5 Conclusions and policy implications

The territory of Campania has been plagued by waste for twenty years; as emphasized by Greyl et al. (2013) in addition to Mafia infiltrations in the legal waste management operations, but there is also a parallel illegal hazardous waste market, which handles waste coming from northern industries. Throughout the 1980s, legislation governing waste management (including the management of toxic waste) did not include criminal charges. This hole offered organised crime the opportunity to gain huge returns by offering northern industrialists a solution to their waste disposal at a fraction of the usual costs (Pasotti, 2010). Today, one of the most affected areas of the province is the so-called 'Lands of Fires', an area between Giugliano, Qualiano and Villaricca, which is sadly notorious for its columns of smoke from illegal waste burning. In Campania, there are dozens of illegal fires every day.

The waste problem in the Campania region has been probably inadequately addressed by official decision-making bodies. For Legambiente, the waste management system in Campania was developed on the basis of the four "i"s: illegality, inefficiency, irresponsibility and indecision. The role of organised crime

and corruption in creating this situation cannot be underestimated. Politicians, public authorities and media have disseminated a simplistic view of the problem, which has served as a foundation for policies that do not really address the roots of the problem and erode democracy. The persistence of the illegal waste management market, which started decades ago with the treatment of harmful toxic waste produced by northern Italian industries, the lack of power to enforce the law and corruption (Massari, 2004; Massari and Monzini, 2004), has created a crisis of democracy (D'Alisa et al., 2010) rather than a case of waste emergency.

Organised crime plays, as a matter of fact, a significant role in the waste management industry, and in particular in the area of illegal dumping and international illegal trafficking of hazardous special waste. However, organized criminals are not the only players. Although in the public opinion the mafia clans are the most important subjects involved in the illegal waste trafficking, recent empirical research (Germani, Pergolizzi, Reganati, 2014) has shown that a significant role is also played in this field by many businessmen and firms. Corruption is a crucial element that connects all these actors in the waste sector, characterized by the grant of public licenses and authorizations. Moreover, this sector needs large economic investments and has to face a huge bureaucratic machine, which makes the ground even more fertile for corruption. All these conditions hamper the competition and facilitate the creation and the development of oligopolistic forces, where the strength of mafia intimidation turns out to be particularly effective. The weak (or the absolute lack of) enforcement power at both national and regional levels has been used to explain this widespread illegal situation, but responsibilities actually lie at various governance levels, spanning from inefficient bureaucracy to political patronage and criminal malfeasance. Moreover, the lack of adequate (and effectively enforced) waste management policies has created institutional and regulatory uncertainty which fosters the illegal market of waste.

On these premises, the present report analyses the role of various types of organisations upon the formation of victims' self-perceptions assessing how their influence has changed over time. By means of an ad hoc designed questionnaire, we collected data from the opinion leaders part of the archipelago of movements emerged out of the 20 last long environmental conflict about waste mismanagement in Campania region. Data were employed to compare the time periods 2004-2008 and 2008-2014 through two-mode network methodology to describe the structural composition of the pollution fighters' affiliation network and how the victims interacted over time with different organizations in order to reinforce their socio-political and judicial actions and try to stop the illegal practices that affect considerably their lives. With this insight, the social network analysis carried out, provides us with the following findings:

- i) 'membership network', during the period 2004-2008, was represented by three sub networks completely disconnected and consisting of few actors;
- ii) the architectural structure of the 'membership network' changes drastically and the overall structure becomes totally connected (2008-2014);
- iii) looking at 'knowledge exchange' network some national and international organizations gaining a central role in flowing knowledge despite they do not have members;

- iv) taking into information and knowledge exchange networks and health attribute, we can notice the presence of a group of persons occupying a central position in the networks but with a low level of health;
- v) at the same time, if we consider lifestyle attribute with regard to information and knowledge networks, we can observe a group of people who claim to live a healthy life occupying a central position in the networks.

These preliminary findings show that, as a result of the turning point, all the investigated networks gather a larger number of interactions suggesting that our hypothesis regarding the existence of a turning (year 2008) point appear to be, so far, consistent.

This analysis intends to show the importance of proper protection for the environment and enforcement of laws; if victims of environmental crimes are recognized and protected as victims, they could be more likely to combat the crime and to contribute to investigations. If they are not recognised as such, criminal justice system then loses important evidence and is unable to enforce laws against criminals. The results show that the increasing level of victims' organizational activities in the land of fires from 2008 up to now is creating public awareness on the impacts of illegally disposing and burning waste, thus, shedding light on the capacity of the civil society to influence policy changes and decision makers at national level. There is still room in Italy for major changes to occur in terms of preventing future environmental injustices; since the enforcement of waste control regulations remains weak, it is desirable that legislators and Institutions would make stronger efforts to increase public participation in environmental decision-making (e.g., public hearings for environmental impact assessments) and empower citizens by giving them greater access to pollution information.

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Annex A: Questionnaire

"SURVEY ON PERSONS SUFFERING FROM CONTINUING OPERATIONS AND DISPOSAL OF WASTE IN CAMPANIA ABOUT THE PERCEPTION OF THEIR STATE OF VICTIM WITH REGARD TO THESE ACTIVITIES"

This questionnaire is administered by a researcher of the University of Rome "La Sapienza" in the context of the E.U. research project "European Union Action to Fight Environmental Crime" (EFFACE - <http://efface.eu/>).

The research team aims to analyse the evolution of the perception to be a victim by people who feel affected in some way, directly or indirectly, from the legal and illegal management and disposal of waste produced in Campania.

Further information on the management of the questionnaire and the processing of data can be obtained contacting:

Dr. _____
 Researcher/professor _____
 Department _____
 Tel. _____ (office)
 Tel. _____ (mobile)
 e-mail: _____

The questionnaire is anonymous.

Agreeing to participate in the questionnaire does not oblige you to answer all the questions.

The data collected will be used anonymously and exclusively for the purposes of academic research.

At any time you will be entitled to access the results of research in the format in which they will be produced.

Thank you in advance for your participation.

SECTION I (10 questions): survey of the general characteristics of the interviewee.

1. **SEX:** ☐ Female ☐ Male ☐ Other

2. **AGE:** _____

3. **ETHNICITY:** _____

4. **RESIDENCE** (indicate city and province of residence and since how many years you live there permanently; if you have changed city, where you lived previously):
 _____ . (____), _____

5. **ADDRESS (if this differs from residence):** _____

6. **PLACE OF WORK (in case this differs from the city of residence):**

7. **BY HOW MANY PEOPLE IS COMPOSED THE FAMILY IN WHICH YOU?** _____

7.1 UNDER THE AGE OF 14 YEARS: _____

7.2 ABOVE THE AGE OF 65 YEARS: _____

8. **LEVEL OF EDUCATION:**

- ☐ No one ☐ Elementary/high school ☐ Secondary high school
☐ University degree ☐ Ph.D./post graduate diploma

9. **WHAT IS YOUR OCCUPATION?**

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> Housewife | <input type="checkbox"/> Entrepreneur |
| <input type="checkbox"/> Artisan | <input type="checkbox"/> Merchant |
| <input type="checkbox"/> Worker/technician | <input type="checkbox"/> Student |
| <input type="checkbox"/> Public/private employee | <input type="checkbox"/> Unemployed |
| <input type="checkbox"/> Public/private official | <input type="checkbox"/> Retired |
| <input type="checkbox"/> freelancer | <input type="checkbox"/> Other _____ |

10. **AVERAGE FAMILY INCOME (wages, salaries, pensions) OF THE LAST TEN YEARS.**

- | | |
|--|--|
| <input type="checkbox"/> up to €7.000 | <input type="checkbox"/> €7.000 - €15.000 |
| <input type="checkbox"/> €15.000 - €25.000 | <input type="checkbox"/> €25.000 - €45.000 |
| <input type="checkbox"/> €45.000 – €75.000 | <input type="checkbox"/> over €75.0000 |

11. **AVERAGE FAMILY PATRIMONIAL ASSET OF THE LAST TEN YEARS.**

- ☐ Real estates (indicate an approximate value if possible) _____
☐ Lands (indicate an approximate value if possible) _____
☐ Financial activities (indicate an approximate value if possible) _____

SECTION II (10 questions): It aims to collect information on the level of knowledge and on the interviewee personal experiences related to environmental issues and to define, therefore, the self-perception of her/his status as a victim with regard to legal and illegal management and disposal of waste activities in Campania.

12. WHICH OF THE FOLLOWING ACTIONS YOU USUALLY MAKE? (even more answers)

- ☐ I participate in cultural, religious or environmental associations
- ☐ I differentiate waste disposal
- ☐ I pay attention to the waste of water, energy and food
- ☐ I use public transportation and/or bicycle
- ☐ I buy organic products or with environmental brand/certification (eg, products with Ecolabel products from companies certified to ISO 14001, EMAS, etc.).
- ☐ I visit national parks
- ☐ I do mountain walks or landscaped hiking

13. DEFINE AN ENVIRONMENTAL ACTIVITY THAT YOU USUALLY MAKE

- ☐ _____
- ☐ No one

14. THE HEALTH OF PERSONS DEPENDS DIRECTLY FROM THE QUALITY OF THE ENVIRONMENT IN WHICH THEY LIVE? – with respect to this statement you are:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly agree

15. HAVE YOU CONTRACTED SERIOUS DISEASES SUCH AS ASTHMA, RESPIRATORY DIFFICULTIES, DISORDERS OF THE CIRCULATORY SYSTEM, CANCER, IN THE LAST DECADES?

- ☐ If yes, which one? _____
- ☐ No

16. SOMEONE OF YOUR FAMILY HAS CONTRACTED SERIOUS DISEASES SUCH AS ASTHMA, RESPIRATORY DIFFICULTIES, DISORDERS OF THE CIRCULATORY SYSTEM, CANCER, IN THE LAST DECADES?

- ☐ If yes, who (children, adults, elders)? Which one? _____
- ☐ No

17. SOMEONE OF YOUR FRIENDS HAS CONTRACTED SERIOUS DISEASES SUCH AS ASTHMA, RESPIRATORY DIFFICULTIES, DISORDERS OF THE CIRCULATORY SYSTEM, CANCER, IN THE LAST DECADES?

- ☐ If yes, who (children, adults, elders)? Which one? _____
- ☐ No

18. DO YOU LIVE IN THE VICINITY OF A WASTE TREATMENT PLANT?

- ☐ Yes,
- ☐ Incinerator
 - ☐ Landfill
 - ☐ Treatment plant
 - ☐ Recycling plant (composting)
 - ☐ Storage plant
 - ☐ Illegal landfill
- ☐ NO

19. THE QUALITY OF THE PLACE YOU LIVE IS VERY BAD - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly Agree

20. HEALTH DEPENDS DIRECTLY ON PEOPLE'S DIET, ON DRINKING ALCOHOL AND ON QUANTITY OF CIGARETTE SMOKING - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly Agree

20.1 THE DIET YOU FOLLOW IS HEALTHY - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly Agree

20.2 **DO YOU DRINK ALCHOLIC** (could you please specify, a glass of wine, a bottle of wine, beer, liquors)?

20.3 **DO YOU SMOKE** (could you please quantify, 5 cigarettes, 10 or more than 20)?

21 THE QUALITY OF THE ENVIRONMENT IN WHICH I HAVE LIVED IN THE LAST 10 YEARS HAS WORSEN - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly Agree

22 THE ENVIRONMENT WHERE I LIVE IS WORST THAN THE NATIONAL SITUATION AS A WHOLE - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree
- ☐ Agree
- ☐ Strongly Agree

23 TO ADDRESS ENVIRONMENTAL ISSUES THERE IS THE NEED TO TRUST INSTITUTIONS

	LOCAL	REGIONAL	NATIONAL	EUROPEAN
Strongly disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disagree		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neither agree nor disagree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agree		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly agree		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24 CONFIDENCE IN SCIENCE AND SCIENTISTS IS NECESSARY TO ADDRESS ENVIRONMENTAL PROBLEMS - with respect to this statement you:

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neither agree nor disagree

- ☐ Agree
- ☐ Strongly Agree

25 WHICH ARE, IN YOUR OPINION, THE MAIN ISSUES OF THE PLACE IN WHICH YOU LIVE:

- ☐ Landfills ☐ Incinerators
- ☐ Burning waste ☐ Polluting industries
- ☐ Problems of deforestation and fires ☐ Marine pollution
- ☐ Illegal buildings ☐ Traffic/transport
- ☐ Other _____

26 TO IMPROVE THE ENVIRONMENTAL CONDITIONS, IT IS NECESSARY (more answers are allowed):

- ☐ To set tougher penalties for polluters
- ☐ To ensure compliance with current environmental legislation
- ☐ To introduce more stringent environmental legislation
- ☐ To introduce economic incentives and tax reduction for businesses and individuals who adopt behaviours with low environmental impact
- ☐ To increase taxation for polluters
- ☐ To simplify legislation

27 DO YOU TAKE PART IN POLITICAL ACTIVITIES?

- ☐ YES, in the past → what kind? _____
- ☐ YES, currently → what kind? _____
- ☐ NO, but I would like → what kind? _____
- ☐ I do not care

28 ARE YOU A MEMBER OF A POLITICAL PARTY?

- ☐ YES, in the past → what kind? _____
- ☐ YES, currently → what kind? _____
- ☐ NO, but I would like → what kind? _____
- ☐ I do not care

29 ARE YOU ENROLLED IN ANY ENVIRONMENTAL GROUPS?

- ☐ YES, in the past → what kind? _____
- ☐ YES, currently → what kind? _____

☐ NO, but I would like → what kind? _____

☐ I do not care

30 HAVE YOU EVER TAKEN PART ACTIVELY TO INITIATIVES AIMED AT SOLVING ENVIRONMENTAL PROBLEMS IN YOUR CITY?

☐ YES → Which one? _____

In which way?

☐ Letters to newspapers

☐ Signature for popular petitions

☐ Participation to meeting

☐ Protests

☐ I formed a new committee or I took part to the existing committees

☐ I launched a blog on the subject

☐ I create a Facebook page

☐ I create a webpage

☐ Other _____

☐ NO

31 DO YOU FEEL VICTIM OF ANY ENVIRONMENTAL PROBLEM WHICH AFFECTS YOUR CITY, PROVINCE OR REGION?

☐ YES → Which one? _____

☐ NO

32 CAN YOU IDENTIFY AN EVENT WHICH GAVE RISE TO YOUR STATUS OF VICTIM?

_____, year _____

33 HOW DID YOU REACT TO SUCH EVENT?

☐ Letters to newspapers

☐ Letters to institutions → Which institutions? _____

☐ Protests

☐ Meeting Participations

☐ Legal actions → Such as _____

☐ Illegal actions → Such as _____

☐ I formed a new committee or I took part to the existing committees

☐ I launched a blog on the subject

- ☐ I create a Facebook page
- ☐ I create a webpage
- ☐ Other _____
- ☐ No reaction _____

SECTION III: This section aims to collect general information in order to map the network of social relations that you had with other people who have reacted in different ways to the mismanagement of waste in Campania.

You will be asked to report the change of social relations with the listed actors as a result of the interaction that took place before 2004, between 2004 and 2008 and after 2008.

If there are any other actors with whom you had a relation, they should be specified in the table below.

WHO KNOWS WHO

		Who of the listed actors do you know? Could you indicate any other actor?			How did you know it?
PERIOD		Before 2004	Before 2008	Today	
LOCAL ASSOCIATIONS	Comitato 29 Agosto				
	Rete Campania Salute Ambiente				
	Comitato Allarme Rifiuti Tossici				
	Comitato Terra dei Fuochi				
	Co.Re.Ri.				
	Mamme vulcaniche				
	Vittime Terra dei veleni				
NATIONAL ORGANIZATIONS	Legambiente				
	Italia nostra				
	Rete Lilliput				
INTERNATIONAL ORGANIZATIONS	WWF				
	Greenpeace				
	ACLI				
	ISDE				

RESEARCH CENTERS	ENEA				
	CNR				
HEALTHCARE	OMS				
PUBLIC BODIES	Commissario Emergenza Rifiuti				
	Dipartimento Protezione Civile				

GENERIC INTERACTION

		Whom did you interact with?		In which way?	
				With which practices?	
PERIOD		Before 2004	Before 2008	Today	
LOCAL ASSOCIATIONS	Comitato 29 Agosto				
	Rete Campania Salute Ambiente				
	Comitato Allarme Rifiuti Tossici				
	Comitato Terra dei Fuochi				
	Co.Re.Ri.				
	Mamme vulcaniche				
	Vittime Terra dei Veleni				
NATIONAL ORGANIZATIONS	Legambiente				
	Italia nostra				
	Rete Lilliput				
INTERNATIONAL ORGANIZATIONS	WWF				
	Greenpeace				
	ACLI				

RESEARCH CENTERS	ISDE				
	ENEA				
	CNR				
HEALTHCARE	OMS,				
PUBLIC BODIES	Commissario Emergenza Rifiuti				
	Dipartimento Protezione Civile				

COMMUNICATION

		With whom did you establish relations in exchange of information or ideas related to environmental issues? In which way? With which practices?			
PERIOD		Before 2004	Before 2008	Today	
LOCAL ASSOCIATIONS	Comitato 29 Agosto				
	Rete Campania Salute Ambiente				
	Comitato Allarme Rifiuti Tossici				
	Comitato Terra dei Fuochi				
	Co.Re.Ri.				
	Mamme vulcaniche				
	Vittime Terra dei veleni				
NATIONAL ORGANIZATIONS	Legambiente				
	Italia nostra				
	Rete Lilliput				
INTERNATIONAL ORGANIZATIONS	WWF				
	Greenpeace				

	ACLI				
	ISDE				
RESEARCH CENTERS	ENEA				
	CNR				
HEALTHCARE	OMS				
PUBLIC BODIES	Commissario Emergenza Rifiuti				
	Dipartimento Protezione Civile				

KNOWLEDGE EXCHANGE

With which of them did you exchange ideas and knowledge about the effects of pollution, regulation, policies, etc. in defining your perception of environmental crime?

In which way?
With which practices?

PERIOD		Before 2004	Before 2008	Today	
LOCAL ASSOCIATIONS	Comitato 29 Agosto				
	Rete Campania Salute Ambiente				
	Comitato Allarme Rifiuti Tossici				
	Comitato Terra dei Fuochi				
	Co.Re.Ri.				
NATIONAL ORGANIZATIONS	Mamme vulcaniche				
	Vittime Terra dei veleni				
	Legambiente				
	Italia nostra				
	Rete Lilliput				
INTERNATIONAL ORGANIZATIONS	WWF				

	Greenpeace				
	ACLI				
	ISDE				
RESEARCH CENTERS	ENEA				
	CNR				
HEALTHCARE	OMS				
PUBLIC BODIES	Commissario Emergenza Rifiuti				
	Dipartimento Protezione Civile				

SECTION IV: This section is composed by three definitions.

1. Could you please provide a definition of environment?
2. Could you please indicate, according to your view, when an action becomes an environmental crime?
3. Could you tell us what does it mean, for you, to be a victim of an environmental crime?

