



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

In the normal parlance, the term “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 illegally burnt and buried. Organized crime plays a significant role in illegal waste trafficking, however, organized mafia-like criminals are not the only players. Indeed, in the public domain often a simplistic vision prevails according to which the waste dumping is due only to the mafia clans, a more substantial explanation of the phenomenon is articulated around the interplay of organized mafia-like crime, businessmen, firms and administrative officers. The weak enforcement power at both national and regional levels has also been used to explain this widespread illegal situation. Environmental laws and, in particular, the sanctions related to misconduct in the waste management are not stringent enough and do not at all represent a deterrent for criminals. Most of the violations are considered misdemeanours; the first waste-related crime was introduced in 2001 and the second in 2014 after a massive mobilization of Campania citizens. According to the Italian Anti-mafia National Prosecutor, firms commit most of the waste-related environmental crimes, often without any direct connection with organized group mafia-like; however there is no norm that convict juridical person. The consequences of such weak enforcement have been the increasing number of contaminated hot spots in the Campania region and profound concerns for the health consequences of such contamination.

In the last 20 years, tens of thousands of citizens have been denouncing the disastrous results of the authoritarian implementation of the urban waste plan, the complete lack of intervention of the authorities against the illegal waste dumping, the lack of effective remediation of the thousands of contaminated sites and, last but not least, the superficial and unsatisfactory responses coming from the national healthcare system to the health alarm of the Campania population. Many of those citizens maintain the status of being victims of the illegal waste trafficking and most of the grassroots movements, which fight against the waste related environmental crime, composed a social coalition called “Stop Biocide”. With the present report, we show the important role the victims are playing to implement socio-political and judicial actions that contribute to combatting the illegal waste practices.

More specifically, this analysis intends to show the importance of engaging the victims of environmental crime in the implementation of environmental policies and the enforcement of laws to better combat the environmental crimes. Indeed, the results show that since 2008 the consolidation of grassroots organizations has been increasing public awareness on the impacts of illegal waste disposal, thus, shedding light on the capacity of the civil society to influence policy changes and decision makers at different institutional levels. 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 make stronger efforts to increase public participation in environmental decision-making (e.g., public hearings for environmental impact assessments, citizens’ control of tenders for remediation of contaminated land and waters, direct involvement of citizens in the implementation of the precautionary principle) and to empower citizens by giving them greater access to pollution and health information.



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LIST OF ABBREVIATIONS

SNA	Social Network Analysis
PFAN	Pollution Fighters' Affiliation Network
PCS	Potentially Contaminated Site
ARPAC	Agenzia Regionale Protezione Ambientale Campania
PCIWCCIA	Parliamentary Commission of Inquiry on Waste Cycle and the Connected Illicit Activities
DNA	National Anti-mafia District

1 Introduction

Organized crime is widespread in any branch of economic activity, and environmental related businesses are not an exception (UN Resolution 2012/19). Environmental crime is a highly profitable endeavour; according to the UN's former Executive Director of the Office on Drugs and Crime, the environmental destruction due to the trafficking of hazardous waste, the illegal logging and the appropriation of natural assets all over the world represent huge gains for some people (Costa 2008). According to Interpol's estimation, organized crime groups earn tens of billions of dollars per year from environmental crimes (Interpol 2006). Illegal waste trafficking is a major environmental crime that is increasingly raising authorities' interests at different levels. It is not by chance that UNICRI staff (United Nations Interregional Crime and Justice Research Institute) is strongly engaging in environmental crime issues through applied research, awareness, and capacity-building initiatives¹.

With the present report, we focus on illicit waste trafficking in Italy and, in particular, we investigate the socio-environmental consequences of this trafficking on Campania's citizens and how this southern Italian emergency is changing the way in which the Italian government faces environmental crimes.

Campania and its capital city, Naples, have become renowned worldwide as the biggest waste management failure in Europe (D'Alisa and Armiero 2011). However, simplistic views of the issue at stake have prevailed in the public domain, which have served as a foundation for policies that did not really address the roots of the problem and eroded democracy (D'Alisa et al., 2010). Campania citizens had called the state of emergency² supposedly to tackle the urban waste crisis, but, once the emergency was declared ended in 2009, the real socio-environmental disaster emerged. Indeed, the illegal disposal of industrial waste, which started earlier in the '80s (Scalia 2000), never stopped during the waste emergency regime and persisted six years after the national government deemed the emergency overcome.

A specific area in Campania has been particularly exposed to illegal waste practices. Legambiente members, a prominent environmental Italian NGO, came to define that area as "Land of Fires" (hereafter LoF). The first time they used the term, they referred to three municipalities in the province of Naples: Giuliano in Campania, Qualiano and Villaricca, where thousands of tons of toxic wastes have been (buried and) burnt (Legambiente 2003). Since then, grassroots movements have been debating that the affected area was larger and encompasses more than the three stated municipalities. In light of similar practices in other parts of the world (e.g. in Great Britain, see Taylor et al. 2014) we maintain that, more than a geographical area, the LoF should be understood as a phenomenon, namely a practice through which the actual economy discards the wastes in order to lower its own costs. The present investigation sheds light

¹ UNICRI in 2011 also promoted a conference in Rome titled "Illicit Trafficking in Waste: A Global Emergency".

² In Italy the Council of Ministers declares the state emergency in accordance with art. 2 of the law 225/1992, which specifies that Civil Protection intervention occurs when: natural disasters and catastrophes or any other events that, due to their intensity and extent, need extraordinary means and power. There are cases when the full powers are not delegated to the Head of the Civil Protection Department, but to a special commissioner; so it was in 1994 when for the first time the Committee for the Waste Emergency in Campania was nominated. The declaration of the state of emergency guaranteed the Commissioner power to bypass laws and procedures on account of the urgent need to deal with the lack of a waste management plan and the diminishing availability of landfill capacity in the region. For more info about waste emergency in Campania, see D'Alisa et al. (2010) and D'Alisa and Armiero (2012).

on this phenomenon mainly through the lens of the victims of this environmental crime.

Reporting on this case study, we unveil the existing link between the waste-related environmental crime and the role of organized crime, which acts as an actor of an opaque web of entrepreneurs and bureaucrats who have been able to secure cheap dumping strategies for hazardous waste. Our analysis reinforces what Europol agents stated in 2013: the illegal trafficking is “*intrinsically linked to legal economy and benefits from a drive to reduce costs during the economic crisis*” (Europol, 2013 p. 3).

Secondly, we discuss the main weaknesses of the enforcement procedures in Italy. Most environmental offences provided by the Italian legislation are misdemeanours, which typically entail very low criminal sanctions and terminate after a short statute of limitation (Fröhlich, 2003). As a matter of fact, in Italy, prosecutors fight most waste related environmental crimes using art. 260 of the Legislative Decree 152/2006, a unique waste related environmental crime norm in the Italian legislation until the end of 2014,³ which condemned the organized activities of illegal waste trafficking (Roberti, 2014).

Last but not least, we delineate how the results of this study can help implement a coherent framework to effectively fight environmental crime at the national as well as at the European level.⁴ We will do so specifically looking at the role of victims in waste related environmental crimes in Campania, being aware that environmental criminal law often fails to recognize and give a voice to them (Skinnider, 2011). Looking at the phenomenon from a victim’s perspective empowers the affected person, in a way, to become an enforcer of the laws. We have a closer look at those who suffer from the illegal waste dumping and conducted 30 interviews with the opinion leaders of those grassroots movements that are fighting against the burning and burying of waste in Campania. Then, we explore how and why some local associations and grassroots organizations have become a reference point for the victims of the waste-related environmental crimes. In this way, we are also able to show how illegal dumping not only damages the environment and affects people, but also contributes to generating corruption and eroding trust.

In the next section, we review the main theoretical and empirical literature on waste and organized crime. In section 3 we discuss the methodology and methods used to analyse the case. In section 4 we extensively describe the case study presenting statistical information on Campania, a brief history of the mismanagement in the region, and the health conundrum provoked by the environmental contamination of illegal waste dumping. In section 5 we delineate the role of organized crime in waste-related environmental crime; in section 6 we discuss the weaknesses of environmental law in regard to its enforcement; and, then, in section 7 we show the main results of our research. In section 8, we conclude with some critical considerations based on the results that emerged from the empirical evidence and offer some policy suggestions.

2 The Campania waste disaster in context

The complex and globalized economy generates an increase in societal metabolism, thus,

³ In 2014 the Decree Law (132/ 2014) the so-called Land of Fire Decree introduced a new crime in the Italian legislation, i.e. the illegal burning of waste.

⁴ With the present development of our study we will contribute to the following research questions of the EFFACE general framework: 1. How does the case study contribute to understanding the link between environmental crime and organized crime? 2. To which extent are the enforcement procedures for discouraging environmental harmful conducts in your case study effective? 3. Why is your case study relevant to implement a coherent framework that can effectively fight environmental crime at EU level?

intensifying the use of resources and waste generation (Martinez-Alier, J., et al., 2010); this is the context in which environmental crime occurs.

The international concern about the illegal trafficking of hazardous waste and toxic products can be traced back to the '80s when the export of hazardous waste, above all from industrialized countries to non-industrialized ones, was mounting. The Basel Convention⁵ is the most important international regulation with the aim of “*protecting human health and the environment against the adverse effects of hazardous waste [traffic]*”.⁶ All European countries adopted the Basel Convention, moreover the EU adopted a specific regulation (CE n. 1013/2006) to limit the waste traffic inside and outside Europe, but 25% of the trans-boundary movement of hazardous waste systematically violated the legislation, with no exception among the Member States (La Rocca, 2014).⁷ Violations of waste management legislation account for around 20% of EU environmental infringement cases, however EU officers cannot directly monitor the actions taken by regions and municipalities, since monitoring is left to Member States, and often the Commission is unaware of environmental misconducts until an environmental disaster appears (INECE, 2012). Currently, Italy is facing 20 environmentally related infraction procedures, 5 of which are related to waste. The poor implementation of environmental regulation in Italy is accompanied by a vast array of environmental crime.

Legambiente, an Italian NGO, coined the term “Ecomafia” to define all business activities (mining, public works, waste trafficking, trafficking of endangered species, agribusiness etc.) that apply disruptive use of environmental resources and in which organized mafia-like crime has a prominent role. Campania has been the region where Ecomafia has been mostly active in the last 20 years, particularly in regard to illegal waste trafficking (Legambiente 2003, 2008, 2012). The industrial waste market is a major sector of organized crime activity given the smaller infrastructure needed and the high profits gained from it. Some authors argue that criminal organizations exploit opportunities in the waste markets mainly due to the absence of appropriate sanctioning instruments (Greyl et al., 2013).

According to one of the latest reports by Legambiente (2013), from January 2010 to May 2013, there were 135 investigations relating to environmental violations. The quantities of material seized at Italian harbours in 2012 doubled compared to 2011, rising from 7,000 to 14,000 tons, 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 of it. Legambiente 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).

The role of this mafia-like organized crime in waste business is well documented by several reports made by the Parliamentary Board of Inquiry on Waste Cycle and the Illegal Activities related to it (Scalia 2000, 2001, Barbieri e Paglionica 2007). Even though the Italian case is famous worldwide, the role of organized crime in waste management is also documented in other countries; among others, Block and

⁵ It was approved in 1989 and entered into force on 5th May 1992.

⁶ <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>.

⁷ For a close examination of the international evolution and contents of the norms contrasting illegal trafficking of waste internationally see La Rocca (2014).

Scarpitti (1985) and Rebovich (1992) analyse toxic waste disposal in the US, while Liddick (2010) examines the role of organized crime in the international trafficking of hazardous wastes.

Strictly connected to the illegal disposal of industrial waste in Campania has been the mismanagement of the urban waste in the region for decades. Both, illegal industrial waste disposal and the failure of urban waste planning have transformed Campania into the world's icon of waste mismanagement in Europe (D'Alisa and Armiero 2011). 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.

D'Alisa et al. (2010) maintained that the complex picture of the Italian political disaster emerges only if different studies and dimensions of analysis are taken into account. The literature on waste in Campania has indeed been increasing enormously in the last years, and very diverse analyses are offered. Such a diversity encompasses; the importance of the toxic waste trade between corporations and camorra (Fontana et al., 2008), as well as the role of Italian Freemasonry in connecting these two actors (Iaculli, 2007), the abuse of legal power by the national government in issuing the waste emergency in Campania (Lucarelli, 2007a, b, c and Raimondi, 2007), the contrasting results that health risk analyses and epidemiological studies have presented on the relation between the increasing mortality and morbidity in the vicinity of legal and illegal waste facilities (Capocaccia et al., 2012; Fazzo et al., 2008; Martuzzi et al., 2008; Comella, 2007; Senior and Mazza, 2004), the diverse impacts of legal and illegal landfill sites on the environment (de Medici, 2007; and Ortolani, 2008), the institutional responsibilities of the waste mismanagement (Rabitti, 2008), the lack of management expertise by the political establishment in the Campania region (Pulito, 2010), the links between society and nature in environmental conflicts (Armiero 2008), the role and the claims of activists in their fight against illegal waste dumping (Musella, 2008; Armiero and D'Alisa, 2012; Armiero and D'Alisa 2014, Di Costanzo and Ferraro, 2014, Capone, 2014), the importance to frame the waste struggle in Campania as an environmental injustice case (Armiero and D'Alisa 2012), the inconsistency of database related to waste flows in Campania (D'Alisa and Armiero, 2013), the specificity of waste metabolism in the Campania region (D'Alisa et al. 2012, D'Alisa and Di Nola 2013), the socio-political analyses offered by the parliamentary commission of inquiry on illegal waste trafficking (Scala 2000, 2001; Barbieri and Pigionica, 2007).

Strongly related to our research is the longstanding debate about the correlation between the presence of legal and illegal waste facilities and dumps and the increasing mortality and morbidity rates for different diseases. According to some scholars, 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). Moreover, 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). As confirmed by a study done by Maselli (2010), in some area of Campania where waste misconduct has occurred, a specific type of frog⁸ suffered severe DNA damage. The effect of incineration on human health has also been

⁸ The author investigated the edible frogs' erythrocytes, which are considered a good bio-indicator for detecting genotoxic effects of chemical environmental hazards.

discussed. In the 1990s, some scholars suggested that men living near a municipal solid-waste landfill site in Montreal were at a higher risk of developing cancer (Goldberg et al. 1995; Goldberger et al. 1990). More recently, in Italy several studies have shown that living close to a waste incineration plant will increase the incidence of cancer. Comba et al. (2003) 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. The results suggested a pollution related risk for the women, but in men the results were confused by occupational exposure and a greater tendency to smoke.

Senior and Mazza (2004) were among the first to speculate about the link between the high level of cancer mortality in an area of the province of Naples and the level of pollution caused by illegal waste disposal; an area that the two scientists came to call the “triangle of death”. Even if their report had been criticized for not being sufficiently rigorous (Bianchi et al., 2004; Terracini, 2004), the “triangle of death” became a reference for many grassroots activists when it came to denouncing the health risk of living in some areas of the Campania region (D’Alisa et al. 2010). In 2004, the results of another study showed the increase in cancer mortality in the LoF area; however the authors clarified that for better describing the health consequences of the environmental burden in the area new and more precise studies were needed (Altavista et al. 2004). In order to verify the impact that the waste cycle in the hot spots of the Campania region have on health, the Civil Protection Department commissioned the World Health Organization to conduct an epidemiological study. The results showed; a) high rates of mortality for all the causes and for specific cancers in 24 municipalities between the province of Caserta (11) and the province of Naples (13), but the main determinants of such high rates were the poor life styles (diet, tobacco-smoking and infections) and occupational exposure, more than the vicinity to waste facilities (legal and illegal), b) high rates of malformations in the same area, but no causal relation between those rates and the practices of waste dumping was found because of the presence of other intensive industrial and agriculture activities existing in the area (Martuzzi et al. 2005). Other studies followed and detected anomalies in health conditions in those municipalities in Campania where illegal disposal of waste was more frequent, but they also confirmed the lack of causal relation between the mortality and morbidity rates and the presence of waste malpractices (Fazzo et al. 2008). Recent studies commissioned by the national government reaffirm that the causal link between health and illegal waste dumping is not demonstrable (Capocaccia et al 2012). Meanwhile, international observer settles on the explanation according to which the unhealthier condition of Campania’s citizens is due to their lifestyle (see Abbott, 2014); however, this does not explain why thousands of sheep in the province of Naples have been slaughtered due to contamination, even if they neither smoke cigarettes nor drank alcohol (D’Alisa et al., 2014).

There is an evident mismatch between the daily perceptions of Campania citizens in regard to their unhealthy condition, the poor health of their relatives and their friends that live in the vicinity of waste sites and the main conclusions of the studies commissioned by public authorities. The controversy continues to fuel the perceptions of those affected of not being protected by public institutions. It also confirms that, often, there is a tendency for weak legal protection for environmental crime victims in the national regulation (Lynch & Stretsky, 2003). In contrast, scholars have argued in favour of the

potential benefits of victims' participation in criminal justice in a variety of forms including decision-making process, consultation and information provision (Cardwell, 2011).

In order to look at the role of victims in the waste related environmental crimes committed in the LoF, we employ a Social Network Analysis (SNA) approach and focus on the role of various organizations upon activists' self-perception as victims. To this end, we aim at illustrating the Pollution Fighter Affiliation Network (PFN) taking into account two sets of agents; one consisting of the victims of the illegal waste disposal in the LoF, the second consisting of the organization through which victims react and interact over time. The importance of studying affiliation networks rests on the theoretical relevance of people's memberships in society. Simmel (1950, 1955), one of the first social theorists who examined the theoretical implications of individuals' affiliation with collectivities, argued that individuals' affiliation (e.g. with family, political parties, trade unions) is crucial in outlining their beliefs and perceptions.

3 Research design and methodology

The present study takes three lines of argument: a) the delineation of the role of organized mafia-like crime in illegal waste trafficking at the national level; b) the enunciation of the main weaknesses of the enforcement procedures in Italy; c) the discussion of the role of the victims in fighting waste related crime in the LoF. Each of these themes allows us to respectively address three main issues under the EFFACE theoretical framework: 1) the link between environmental crime and organized crime; 2) the effectiveness of enforcement procedures to discourage environmental harmful conducts; and 3) the relevance of the LoF case to implement a coherent framework for fighting environmental crime at EU level.

In order to do so, we developed two different research strategies. Firstly, the two first themes are analysed by means of secondary research (or desk research). We looked at dossiers of environmental NGOs on Ecomafia, reports of police organizations such as Europol and Interpol on environmental crime; research publications about waste management and illegal trafficking; official reports and hearings of special parliamentary commissions on waste trafficking in Italy, interviews with national anti-mafia prosecutors and articles by district prosecutors that investigate waste trafficking, and part of the widespread grey literature (newspapers, documents and flyers produced by grassroots movements, etc.) on the LoF.

Additionally, the research about victims resulted from a collection and analysis of primary data. The investigation was conducted during a six month fieldwork in Campania, in particular, in those municipalities which fall in the perimeter of the LoF as defined by the national government (see Figure 4 in section 4.1.3). From August to December 2014, D'Alisa participated in demonstrations, assemblies, local marches, seminars and meetings organized by grassroots movements and NGOs, which fight against illegal burning and burying of waste in the Campania region. Thirty-two face-to-face semi-structured interviews were conducted with opinion leaders,⁹ which were part of the archipelago of associations that emerged out

⁹ 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.

of the twenty last long environmental conflicts in Campania. The sample of interviewees was built following the snowball technique. We started by interviewing three classes of activists: 1) those that act as “the face” of the local mobilization with relevant coverage on regional and national media (newspapers and broadcasts); 2) those who appealed to the President of the Italian Republic; 3) those who resorted to courts denouncing the serious environmental conditions of the LoF and the consequent negative impacts to human health. Then, we asked each interviewed activist to suggest other names and contacts that, according to her/him, were very relevant in the waste struggle occurring in Campania. The questionnaire consists of four parts and is designed to provide: (1) general information about the respondents (i.e. age, education, employment, etc.); (2) information about environmental behaviours and attitude of the interviewed people, their level of engagement in grassroots activities for combating waste trafficking and mismanagement, and their self-perception as victims of environmental crime; (3) information on the kind of relationships that, as activists, have been established with informal and formal institutions, such as local associations and grassroots committees (e.g. 29th August Committee, Campania Network health and Environment, Coordination Committees Fires, etc.); regional, national and international NGOs (e.g. Legambiente, Italia nostra, Rete Lilliput, WWF, Greenpeace, ISDE, etc.); research and health centres (e.g. CNR, ENEA, WHO); and public authorities (e.g. Commissioner to Waste Emergency in Campania, the Department of Civil Protection, Prefects, etc.).¹⁰ We investigate the existing ties across what we consider the turning point¹¹ of the waste struggle in Campania and, finally, (4) we developed open questions on how the interviewed activists define the environment, what kind of actions they consider an environmental crime and what does it mean personally to be victims of such offenses.

In this report, we present mainly the outcomes of the third section of the questionnaire, which allow us to address the following research questions: how and why do some organizations become a reference point for victims of waste-related environmental crimes? In particular, how do the victims interact over time with different organizations in order to reinforce their socio-political and judicial actions and try to stop the illegal practices that considerably affect their lives. In order to study the evolution of the interactions overtime and reveal the different properties that networks had before and after our turning point (2008), we asked the respondents to specify the kind of interactions experienced with different organizations from the 2004 to 2008 and in the period from 2008 to 2014. More specifically, following Morone et al. (2014), we distinguished three kinds of possible ties between the activists and the organizations: the activist can be a member of such organizations; and/or they can exchange information with them; and/or they can exchange forms of knowledge with them. As a consequence, three different kinds of networks emerge: “membership networks”, “information exchange networks”, and “knowledge exchange networks”. The first network represents tight ties, being a member (and/or a cofounder) of an organization means to be actively involved in most of its initiatives (e.g. meetings, demonstrations,

¹⁰ The interviewees were free to also suggest different organizations from those listed.

¹¹ We set 2008 as the turning point. The reasons for this choice are mainly two; firstly, on the bridge of 2007 and 2008, tons of waste were piled in the streets and the images of those mountains of garbage on the roads and submerging Naples and tens of surrounding municipalities circulated all around the world by means of different media; secondly, in 2008 the national government issued the Decree 90/2008 (converted in Law 123/2008), which imposed ten landfills and four incinerators in Campania and established that any demonstrations in the vicinity of a waste facility would be judged as a penal felony, weakening for some years the waste grassroots movements in the region.

seminars, public assemblies, writing letters to newspapers and authorities, writing and organizing press releases, drafting reports and/or dossiers, informing on environmental crimes to judicial authorities). The second network represents a less intense tie and deals with a different kind of cooperation involving waste related issues. Indeed, an activist can participate in the initiatives of some organizations even if he or she is not a member of it or, for example, if the organization the activist is a member of co-organizes a march, demonstration, seminar, conference etc., with another organization during which activists belonging to different organizations exchange information about environmental and, in particular, waste issues. These settings of mutual interactions are very relevant for the circulation of information among activists. Finally, the knowledge networks depict a loose interaction among activists and organizations.¹² Putting it simply, activists can be considered very relevant to acquire studies, researches, epidemiological studies, dossiers and documents from organizations that they do not trust on a political level or that are organizations that they do not directly interact with. For example an activist can use the waste management plan drafted by the Regional Government even if they do not trust regional authorities (politicians, technicians, etc.) that run the region, or they can read epidemiological reports by the World Health Organization, but they do not have any opportunities to meet and debate with the researchers that conducted the study. However, it does not mean that they are less relevant for mobilization aims. Indeed, the documents that circulated in the network are extremely relevant when it comes to assessing activists' self-perception of being victims of environmental crime.

3.1 A brief explanation about how the Social Network Analysis works

In a nutshell, Social Networks (SNs) are graphs used to represent the structure of interactions/relationships among people, or any type of entities (Pan, 2007). Understanding the nature of relationships and connections between entities is a key aspect for studying a variety of phenomena in many disciplines. The concepts of how a virus is transmitted, or how people behave within a specific environment are just some examples of the need to disentangle and analyse interactions and relationships among actors of a specific social network.

Nodes and edges compose a SN; each node, also called a vertex, identifies an actor (e.g. a person, association, etc.); each edge, also known as a tie, denotes a particular relationship (e.g. friendship, sexual relation, membership, paper co-authorship, etc.) existing between the two nodes connected by the tie. Finally, the term "mode" is used to refer to a distinct set of nodes characterized by a certain kind of tie. The most common type of network is a one-mode network. A network data set containing two different sets of nodes is known as a two-mode network. A special type of two-mode network that arises in SN studies is the affiliation network. Although affiliation networks are two-mode, they have only one set of actors. The second mode in an affiliation network is the set of *events* (such as organizations) to which actors belong. Indeed, "in affiliation network data the two modes are the actors and the events. In such data, the events are defined not on pairs of actors, but on subsets of actors" (Wasserman and Faust, 1994:30). Specifically,

¹² It does not mean that knowledge relevant to mobilization cannot emerge out of organizations that are also central to the information network and membership network.

the first mode is the set of agents N , the second mode is the set of events M . The number of agents in the network is n and the number of events is m . An agent can be related to 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 .

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

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

In our case, we want to study the interactions existing between activists (the actors) fighting against environmental crime in the LoF and the organizations (the events) they are members of and/or use to gain knowledge about waste management, illegal waste trafficking, and the health consequences of the waste related contamination.

We call our affiliation network the Pollution Fighters' Affiliation Network (PFAN). According to the analysed data up to now, the PFAN is composed of 54 actors, 21 of which are citizens¹³ (actors) and 33 organizations (events), 15 of which are local associations, 3 national associations, 4 international organizations, 3 research centres, 2 healthcare institutions and 6 public institutions.

Actors are also characterized by attributes. In our case we focus on two specific attributes, namely the lifestyle, i.e. a way of life that reflects people's habits and their attitudes, and health condition, i.e. serious illness contracted at individual, family and friends level.

The SNA method provides an explicit, formal way to: (i) well define the key actors forming the PFAN, (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 organizations involved in the formation of victims' self perception and how their influence has changed over time.

4 Case presentation

4.1 Statistical information

Campania is a region of the South of Italy (Figure 1). It is the most densely populated and among the poorest regions of the Nation. Its GDP per capita in 2009 was less than €13,000 per year, the average in Italy was more than €20,000, in the South of Italy the GDP was almost €13,500 (Istat).¹⁴

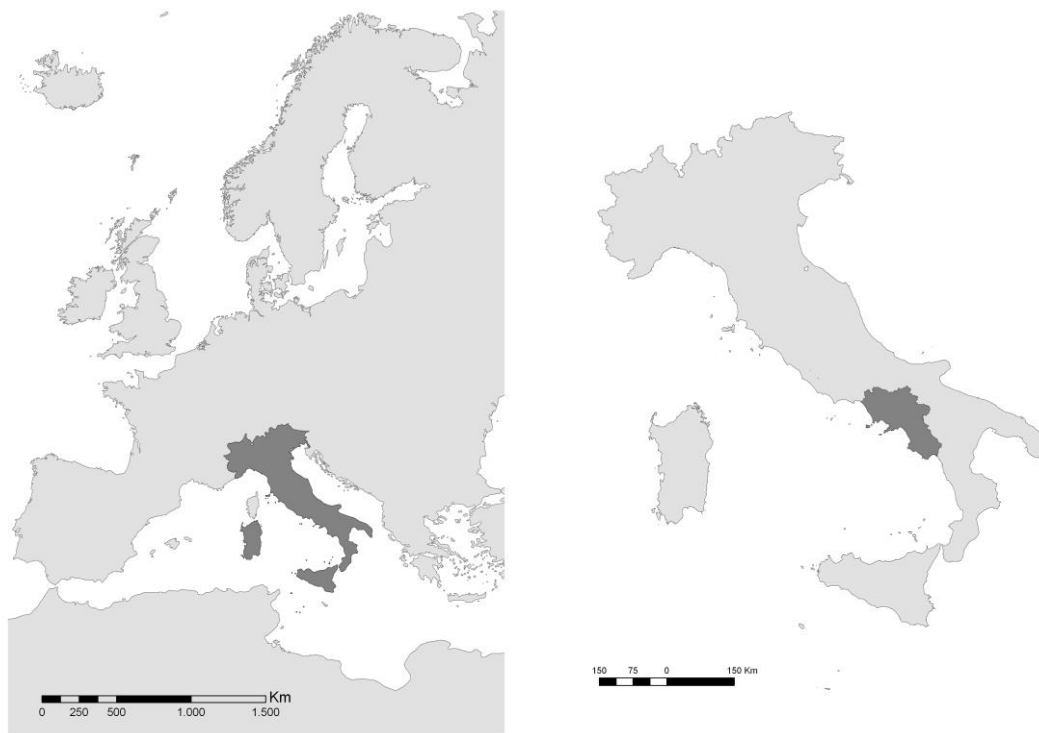
Campania comprises five provinces: Avellino, Benevento, Caserta, Naples and Salerno. Its total population amounts to almost 6 million people, mostly concentrated in the metropolitan city of Naples

¹³ We report here the results of only 21 interviews of the 32 D'Alisa conducted during fieldwork.

¹⁴ <http://sitis.istat.it/sitis/html/>

(more than 3 million people),¹⁵ which represents less than 9%¹⁶ of the total territory of the region (1,170 km² and 13,590 km², respectively¹⁷). The Metropolitan city of Naples has the highest population density in Italy and one of the highest in the EU. Its average population density is more than 2,500 inhabitants per km²; the municipality of Naples reaches 8,000, which holds no more than one million inhabitants (Istat, 2011).¹⁸

Figure 1: Geographical position of Campania Region.



Source: elaborated by Burgalassi (2010)

In an old study commissioned by SVIMEZ (Smarrazzo, 1999), a nonprofit research association with the aim to promote economic development in the South of Italy, a 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). In this area 80% of the region's population is concentrated in an intricate network of urban territories, agriculture lands and industries; in particular,

¹⁵ The metropolitan city of Naples has been instituted with the Law 56/2014, and since 1st January 2015 it substitutes the Province of Naples.

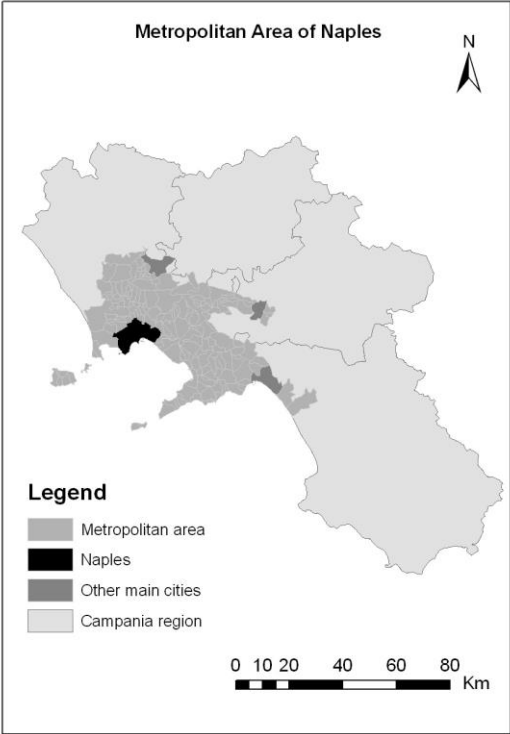
¹⁶ The surface of all the Metropolitan City of Naples is smaller than the only Municipality of Rome (1.285 km²).

¹⁷ <http://www.statistica.regione.campania.it/>

¹⁸ <http://dati-censimentopopolazione.istat.it/?lang=it>

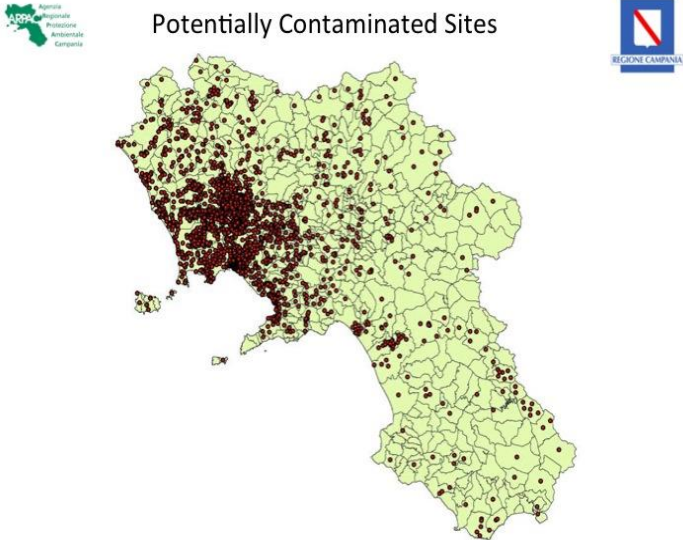
the presence of several waste treatment and disposal facilities, legal and illegal, submit the area to very high waste-related biophysical pressure (D'Alisa et al., 2012).

Figure 2: Metropolitan area of Naples.



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

Figure 3: Potentially Contaminated Sites in Campania.



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

The area also coincides with the densest surface of Potentially Contaminated Sites (PCSs), (Figure 3). The technicians of the Regional Agency for the Protection of the Environment in Campania, namely ARPAC, spotted more than 2,500 PCSs in the entire region; only in the northern area of Naples were 1,117 PCSs located, 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 the illegal disposal of toxic waste since the '80s. Later on, this area between the north of Naples and the south of Caserta, became known as the LoF (Legambiente 2003, Saviano, 2007).

4.2 Waste emergency in Campania: looking at urban waste

During the '80s, worldwide awareness of the potentially harmful effects of waste trafficking forced many industrialized countries to tighten their domestic regulation (La Rocca, 2014). Stricter laws and increasing production of special waste transformed illegal waste disposal into a very lucrative business. In the '90s, the illegal waste business in Italy thrived;¹⁹ 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 15 years ago was worth more than €7.5 billion per year and caused a loss for the treasury of €1 billion every year (Scalia, 2000) and that nowadays is worth almost €17 billion (Legambiente, 2013). The turnover in 15 years has more than doubled.

Several strategies are used to illegally dispose of industrial waste, such as a) dumping hazardous waste directly in the countryside, b) dumping hazardous waste in illegal quarries and construction sites of infrastructural public works, c) burning special waste in the countryside and along low-traffic roads, and d) mixing toxic with domestic waste for disposal in legal landfills and incinerators (Scalia, 2000; Barbieri and Paglionica, 2007; Fontana et al., 2008; Iacueli, 2008). Campania has become the main target zone of such strategies and the biggest final dumping ground in Italy.²⁰ The impact of such business has been politically, economically and ecologically disastrous for the entire region. Indeed, even when prosecutors tried to stop the flourish of waste trafficking by shutting down some landfills because of their precarious sanitary conditions, the main consequence of those actions proved to be no detriment to the illegal disposal, but instead caused interruption of the urban waste collection. The diminishing capacity of landfills (D'Alisa and Armiero, 2011) and the absence of a regional waste management plan was justification in 1994 for the central government to declare a state of emergency for the Campania region and delegate the waste management to an ad hoc Commissioner (Armiero and D'Alisa, 2012). The national government focused

¹⁹ According to the Parliamentary Commission of Inquiry on Waste Cycle and the Connected Illicit Activities (PCIWCCIA), every year almost 30% of national special waste is illegally disposed of (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.

²⁰ Campania generates a small amount of the special waste compared to the rest of Italy, not only in absolute terms, but also relative to its contribution to the national GDP. For example, in 2009 the production of special waste in Italy was about 134 million tons, of this more than 10 million tons were hazardous (7.5% of the total production). Campania produced slightly more than 6.4 million tons, of them 0.35 million are hazardous (5.8% of the regional production) (ISPRA, 2012). It means that Campania contributes only 4.7% of the total special waste in Italy and only 3.5% of the national production of hazardous waste, even if the contribution to the national GDP is 6.25% (<http://sitis.istat.it/sitis/html/>).

its authoritarian intervention on the urban waste and completely dismissed the mounting and more problematic issue of the illegal dumping of hazardous waste. The state of emergency regime caused an increase in civil conflicts and facilitated the proliferation of the camorra's businesses, which also infiltrated the urban waste management. The result was a crisis of democracy in Campania (D'Alisa et al., 2010). Only with the resurgence of the local grassroots movement in 2012, when the waste emergency had been declared ended three years prior, did the LoF become again visible.

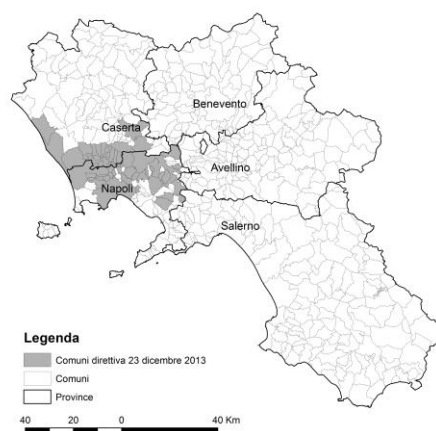
4.3 Land of Fires: the unknown

As explained in previous sections, the term Land of Fires was used for the first time in a dossier 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 (Legambiente, 2003). The Italian citizens started to be familiar with the term LoF after Saviano's publication titled Gomorrah (2006), a best seller that describes the businesses of camorra as an organized criminality able to compose a web of local black economy interests and play a key role inside the Italian economy as well as abroad. In 2007, an activist of Villaricca in Campania created a website called the Land of Fires and, since then, new videos are uploaded everyday on this very popular online platform that show columns of toxic smoke as a result of illegal burning. Currently, more than 800 toxic smoke sightings have been mapped.²¹ In the last years, several grassroots committees were born and many of them flowed into a social coalition called Stop Biocide,²² which denounces the illegal trafficking of industrial waste in Campania, the mounting contamination of air, aquifers, soil and subsoil and the increase of cancer diseases and mortality in the area.

Fig. 4 Map: Land of Fires

²¹ The map is available at <http://www.laterradeifuochi.it/>. Last visit: 12th August 2014.

²² <https://it-it.facebook.com/stopbiocidio>



The clamour about the LoF exploded after a 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 Campania clans). In 2009 his protection program, which is guaranteed to all informers by the Italian State, ended. Since then he has been issuing a series of interviews to local and national newspapers (Di Chio and Martini, 2009)²³ and broadcasts.²⁴ The Casalesi boss revealed links between politicians and the mafia and spoke about the economic interests of his family and the huge amount of money they gained from the illegal toxic waste dumping business. In 2013, his hearing of 1997 to the Parliamentary Commission was declassified and the media gave wide coverage to the declaration. Despite politicians', journalists' and activists' criticism of Schiavone for his alarmism and colourful interviews (Musella, 2013;²⁵ Televomero broadcast 2014;²⁶ LivioTV²⁷), no one denied that his stories contributed to spreading the gravity about the LoF. Several massive popular protests at the end of 2013 prompted the national government to issue a Law Decree 136/2013, converted to Law 6/2014 a few months later. With this law, the national government recognized the extreme seriousness of the environmental, health and economic conditions of many municipalities in Campania and declared the illegal burning of toxic wastes a crime. Furthermore, the national government committed to a) investing money and resources for mapping the agriculture territory in the region for controlling and prohibiting cultivations in the most contaminated area, and b) to coordinating the necessary interventions for 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 appointed a special commissioner to oversee waste burning in Campania²⁸ with a task to

²³ 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.

²⁴ 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

²⁵ <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/>

²⁶ <https://www.youtube.com/watch?v=iBX-VwX8-eA&feature=youtu.be>

²⁷ https://www.youtube.com/watch?v=6QowyoN-o_E

²⁸ Spagnolo 2012, Lotta ai roghi tossici c'è un commissario, www.avvenire.it/Cronaca/Pagine/roghi-tossici-la-mossa-del-commissario.aspx

steer the police, the prefectures of Naples and Caserta and other interested authorities (Decree 12/11/2012). However, only by legislating Law 6/2004 was the LoF area institutionalized and the intervention systematized. In 2013, the national government²⁹ extended the LoF up to 1,076 km², which consists of 57 Municipalities: 33 in the Province of Naples and 24 in the Province of Caserta (Fig 4). As already mentioned, the LoF should be interpreted as more than a geographical area; more notably it is a phenomenon of illegal waste dumping and burning implemented to cut waste disposal costs for legal and illegal businesses. The phenomenon escapes to a strict perimeter.³⁰ Indeed, in 2014, the government commissioned a technical investigation to verify the contaminating effects of the illegal disposal for 88 municipalities³¹ 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 memorandum of understanding among several municipalities and the Commissioner for the prevention of waste burning in order to promote coordinated activities of control, prevention, and repression of the illegal disposal of waste.³²

5 The role of organized crime in waste trafficking

In the Italian legal system a definition of organized crime does not exist,³³ however the Italian legal tradition considers “organized crime groups”: a plurality of individuals that join together with a continuing criminal program and a permanent organizational structure (art. 416 Penal Code). This is consistent with the definition that the international community adopted with the ratification of the so-called Palermo Convention: the United Nations Convention against Transnational Organized Crime and the Protocols Thereto. However there is a significant difference between the two, while for the Palermo Convention individuals can be considered participants of an organized crime group if the group commits only one crime and has no developed structure; on the contrary if more than three people commit just one crime they are not considerable as an organized crime group for the Italian legal system, in order to be considered as such the group has to have a criminal program and its organizational structure has to be durable and complex. The activities of organized crime groups can be regarded as a particular economic crime because they fundamentally aspire to obtain illegal economic benefits. The main difference with the organized mafia-like crime is the peculiar mafia methods. The Italian legislation defines those methods in art. 416bis of the penal code; the organized mafia-like group performs their illegal and entrepreneurial activities thanks to their force of intimidation and the code of silence associated with it (Turone, 2007). In Italy in the last 30 years, mafia families have been increasingly involved in environmental disruptive businesses. In particular waste business is very lucrative while the sanctions are very loose (Persi 2014); no other business offers this double incentive. Ecomafia has become the name that identifies those mafia organizations that have infiltrated in the development of unauthorized building, cement cycle and illegal

²⁹ 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

³⁰ The phenomenon cannot be restricted to the Campania region, It is a national as well as an international occurrence.

³¹ 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

³² For an updating of the list of participants to the Pact for the Land of Fire visit:

http://www.utgnapoli.it/public/rogghi2013/cabina_regia_2014.php

³³ <http://www.governo.it/GovernoInforma/Interventi/dettaglio.asp?d=74501#22>

mining, forest fires and arsons, waste trafficking, wild species trade, agro investments, and archaeological artefacts trade. A series of very different businesses compared to traditional mafia interests of trafficking drugs, army and people. The role of organized mafia-like crime in these new activities is certified by the tens of dossiers that Legambiente has produced since 1997.³⁴ In the numerous dossiers are listed: a) the name of the mafia clans involved in such businesses; b) the inquired offences, the reported and incarcerated people, the realized seizure. The role of organized crime in the Italian waste trafficking business has also been revealed by many of those affiliated with mafia organizations, which significantly contributed to the developing of criminal investigations related to waste. The first famous informer was Nunzio Perrella, brother of a powerful boss of a neighbourhood in Naples. In 1992 he declared that the “waste is gold”, indicating why organized crime has been attracting increasing interest in the waste business, since 1988. Collaborating with prosecutors, he offered a first map of the main eco-criminals in Campania and the connections they had with enterprises in northern Italy, which needed the help of organized crime to get rid of the waste they produced. In the mid '90s, a very important figure of the Casalesi clan, one of the most powerful mafia-like organizations of the Campania region with interests, above all, in the cement cycle and waste trafficking, become an informer. During his hearing, in 1997, for the Parliamentary Commission on Waste Cycle and the Illicit Action Connected to it, he filed a detailed documentation about the Casalesi's interests in waste trafficking. The hearing was declassified in 2013; more than 25 years ago Carmine Schiavone depicted the network of actors that made money out of waste, only for his clan it was about €300,000 per month.³⁵ However, the same Commission in the final report in 2,000 recognized that blaming only the organized mafia-like crime for illegal waste trafficking was a big error. Legal businesses without criminal clan associations have a very important role in the illegal trafficking of waste. Indeed, camorra is a key actor of an intricate web of legal entrepreneurs and governmental officers that secured a cheap dump for: a) myriads of small illegal business in the Campania region, b) the hazardous waste of northern Italy, and c) other toxic waste coming from some European countries (Scalia, 2000³⁶). Despite the public's opinion that organized mafia-like crime is responsible for the illegal trafficking of waste, authorities have been trying to emphasize that corporations much more often commit waste related environmental crimes with no mafia organization relations (de Falco, 2014). The state's attorney, Franco Roberti who interrogated Nunzio Perrella at the beginning of the 90s and is nowadays the National Anti-mafia Prosecutor, tirelessly supports the view that waste related crimes more than mafia crimes are corporate crimes.³⁷ Also Giuseppe Peleggi, director of the Customs and Monopoly Agency, the most important public institution that fights cross-borders waste traffic in Italy, during his hearing in November 2014 for the above-mentioned Parliamentary Commission, told that the lack of sanctions to corporations doesn't allow agency officers to stop the crimes committed. As an exemplary case, he said to have discovered four times in the same year a Chinese corporation illegally trafficking

³⁴ <http://www.legambiente.it/contenuti/dossier/rapporto-ecomafia>

³⁵ Audizione del collaborator di giustizia Carmine Schiavone. Commissione Parlamentare d'inchiesta sul ciclo dei rifiuti e le attività illecite ad esso connesse. XIII legislature.

³⁶ 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/nochiosco.asp?pagina=/_bicamerale/rifiuti/home.htm

³⁷ Audizione del Procuratore Nazionale Antimafia Franco Roberti. Commissione Parlamentare d'Inchiesta sulle Attività illecite connesse al ciclo dei rifiuti. XVII legislatura

waste but he could not stop the firm's business. As a matter of fact, the same firm often commits the same crime in different harbours of Italy and each time agency officers can arrest the legal representative, but they cannot stop the running of the business.³⁸ Finally, Pennisi, prosecutor of the Ecomafia section of the National Anti-mafia District,³⁹ ascertained that the environmental disaster that occurred in Campania was not created by the camorra, which basically offered a service to all business actors who wanted to lower the price of waste disposal. These findings are in line with Europol's assessment of illegal waste practices in Europe. The illegal waste trafficking generates high profits and it is a low risk activity, which both, organized mafia-like groups and legal companies, engage with; the latter increasingly asking for illicit disposal services to the former in all European Member States (Europol 2013).

6 Waste crimes in Italy and the weaknesses of its enforcement

There is no definition of environment in the Italian legislation. However for the Italian Constitutional Court the environment is a primary value imposed by other precepts expressed in the art. 9 and 32 of the Constitution; the former underlines the importance for the Italian Republic to protect the landscape and historical and artistic wealth of the Nation, the latter recognizes the right to health as a fundamental right, both, for the individual and the society as a whole (Giove, 2008). As for the environment, a definition of environmental crime is not clearly stated in the Italian Penal Code. The environmental criminal law in Italy is an ensemble of petty crimes because of its paltry sanctions, its short statute of limitations and the possibility to extinguish most of the felonies by paying a certain amount of money before a sentence is issued. Thus, the incentives for committing environmental offences are very attractive (Fröhlich, 2003; La Rocca, 2014).⁴⁰ Most of the illicit cases end up with fines and rarely with arrests. The existing sanctions for illicit waste activities are exemplificative of the weakness of the environmental criminal legislation to repress illicit conducts. The Legislative Decree 22/1997⁴¹ introduced several types of offences such as illegal abandonment of waste (art. 50), unauthorized waste management activities (art. 51), lack of land remediation of contaminated sites (art. 51bis introduced by Legislative Decree 389/1998), violation of notification requirement, record keeping and required forms (art. 52), and illicit waste trafficking. All of these are misdemeanours. Only in 2001 (Law 93/2001) did the national government recognize the first waste-related environmental crime, and consequently punished the

³⁸ Audizione del direttore Agenzia delle Dogane e Monopoli. Commissione Parlamentare d'Inchiesta sulle Attività illecite connesse al ciclo dei rifiuti. XVII legislatura

³⁹ Since 2010 (art. 11 Law 136/2010) the National District of Anti-mafia has the responsibility of prosecuting all the criminal activities in violation of the art. 260 (Legislative Decrees 153/2006), the norm that sanctions the organized illegal trafficking of waste.

⁴⁰ It is worth noting that in the 80s and much of the 90s legislation governing waste management (including the management of toxic waste) did not include criminal charges. This hole offered organized crime the opportunity to gain huge returns by offering industrialists a solution to their waste disposal at a fraction of the usual costs (Pasotti, 2010).

⁴¹ The Decree issued in 1997 is known as Ronchi Decree, the name of the Ministry of Environment in those years. It incorporated the main principles and prescriptions of European waste management regulations into Italian law and allocated the related responsibilities among different institutional levels. It introduced the principle of "self-sufficiency", which implies that each region should be responsible for the management, and thus of its disposal, of urban waste generated on of its own territory. The Ronchi 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 trafficking of waste and environmental fraud.

organized activity of illicit waste trafficking. It means that until 2001 there was no possibility to contrast organized mafia-like criminal activities, because in Italy an association with the mafia charge cannot be made if the criminal's offences are simple misdemeanours. In 2014 with the Law Decree 136/2013 (converted in Law 6/2014) a new crime was introduced: illicit combustion of waste (art. 256bis Legislative Decree 152/2006). With the Law Decree 136/2013 the legislation aggravates the norms for waste-related environmental offences, instead instating judiciary policy activities for the prevention and repression of waste burning, as well as seizure of the area and penal charge for those responsible for the environmental offence. However, for most environmental offences enforcement authorities cannot use investigation techniques, which are fundamental to inquire into organized crime cases (Fröhlich, 2003). In 2006, the Legislative Decree 152/2006 was approved. It is known as the Environmental Code, it tried to systematize all the Italian environmental norms such as the Environmental Impact Assessment, the Strategic Environmental Assessment, soil and water protection, atmospheric pollution and waste management. Concerning sanctions related to waste management, the Environmental Code transposes those prescribed by Law Decree 22/1997 and its subsequent modifications (see table 1), in some cases attenuating the penalties, e.g. the type of offence of art. 257 (Leg. D. 152/2006) is less severe than that described in art. 51bis (Leg. D. 22/1997) for two reasons; firstly it is illegal for the former to merely pass the pollution threshold, while for the latter the simple existence of a pollution hazard is also illicit; secondly for art. 257 there exists a fine and arrest penalty for the offender only if the contamination is caused by dangerous substances, while in article 51bis this specification is not present. The soft penal sanctions have also made the illegal waste activities particularly appealing for organized crime, and made effective actions difficult for enforcement bodies. The enforcement bodies in Italy are several and we offer only a simplified view in Figure 6. At national level, practically all the police corps have a role in repressing environmental offences; however the Environmental Protection Command of Carabinieri and the Central Investigative Unit of Forest and Environment Police of the State Forest Corp as well as the Customs and Monopoly Agency have had a prominent role in the investigations and the repression of environmental crime and in fighting transnational illegal waste trafficking in recent years.

Table 1. Waste-related offenses in Italy

Sanctions	Leg. D. 22/1997	Leg. D. 152/2006
Illegal abandonment of waste	Art. 50	Art. 255
Unauthorized waste management activities	Art. 51	Art. 256
Illicit burning of waste		Art 256bis
Land remediation	Art. 51bis	Art. 257
Violation of notification requirement, record keeping an required forms	Art. 52	Art 258
Illicit waste trafficking	Art. 53	Art. 259

Organized activities for illicit waste trafficking	Art. 53bis	Art. 260
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These three institutions strictly collaborate with the National Anti-Mafia District (DNA); the pool of prosecutors that coordinate investigations on mafia organizations in Italy. In 2010 the DNA became responsible for the investigative body for persecuting criminals using art. 260 (Table 1). Since 2002, the year after art. 260 was introduced in the waste legal system, more than 4,000 people and 700 corporations have been reported, 1,300 persons have been arrested, and 19 regions and 26 extra European States have become involved (Legambiente 2013). At regional level, the coordination role that the Commissioner of the Land of Fires is assuming is becoming relevant in Campania. The latest initiative, the commissioner together with grassroots committees have been participating to Coheirs, a European initiative to train civic observers all around Europe, which are responsible for monitoring the application of the precautionary principle in member states. This is partly in line with the idea of Campania's activists to institute environmental sentinels with the power to denounce illegal waste disposal and track the interventions of the police corps, which follow their warning.

It is worth noting that Franco Roberti, the National Anti-mafia Prosecutor, and his collaborator Roberto Pennisi maintain that many of the investigations they have been running for the last three years very rarely involved mafia components. Meanwhile the firms have been the main actors of the illicit waste trafficking, thus, more than mafia-like organized crime, waste-related crimes have to be considered as corporate crimes. They lamented that a) the inadequate attention given to those cases where the mafia member is not present, even if those crimes imply criminal organization; and b) the short period of time covered by the statute of limitations impedes the prosecution of many offences. In line with the first criticism, the member of the intelligence office of the central anti-fraud and control directorate, Antonio Rocco Burdo suggests inserting in the waste-related environmental legal system precautionary and interdiction measures and the suspension of the VAT number to the firms, otherwise, even if the legal representative of the firms is incarcerated the firms can continue their business (public hearing of PCIWCCIA, 4th November 2014).

The limitations of the environmental legal system in Italy are widely recognized (Fröhlich, 2003; Giove, 2008; La Rocca 2014). Since the '90s, Italian legislation has recognized the necessity to adequately adjust penal sanctions to the severity of the committed environmental crime (Scalia, 2000); however, even if a series of bills have been discussed, they have never been approved. Currently, the Italian parliamentarians are discussing a new bill (1345⁴²), which should introduce a new title in the Italian penal code entirely dedicated to environmental crimes. There are several critics, some commenters sustain that the formulation of the bill will worsen the norms of the penal code concerning environmental crimes, thus favouring the offenders. In particular, they maintain that even if it is true, then the legislation explicitly specifies the crime of environmental disaster (art. 452ter Bill 1345), while before it was only indirectly considered in art. 434 of the Penal Code,⁴³ the new formulation recognizes the crime only if the prosecutor

⁴² It is possible to follow the procedure of the bill here:
<http://www.senato.it/leg/17/BGT/Schede/Ddliter/44045.htm>

⁴³ Two important sentences have been issued according to the current postulate of art. 434 of the Penal Code: the conviction of Francesco Bisognetti, a boss of the Casalesi family, one of the most powerful mafia groups in Campania, for having illegally disposed of

ascertains that the environmental damage is directly connected with the misconduct of the accused, and now the prosecutor can also ask for a conviction if there is simply the danger of damages occurring (Marescotti, 2014; Mackinson, 2014). On the other hand, a vast majority of activists and many environmental NGOs have been pushing to hasten the approval of the bill, and Legambiente members have organized a national petition to lobby parliamentarians.⁴⁴ According to them, it is necessary that the Italian legislator defines a series of environmental crimes, because it is intolerable that most environmental offences are punished with fines. The new bill inserts four new classes of environmental crimes in the penal code: environmental contamination (452bis), environmental disaster (452ter), traffic and abandonment of highly radioactive materials (452quinquies), and obstacle to controls (452sexies). Other important features of the bill are the prevision of aggravating factors (art 452speties) for both organized crime groups and organized mafia-like crime, and extension of the described period of the crime, since the currently short statute of limitations is considered a major impediment for the prosecution of many environmental crimes.

Figure 5 Enforcement bodies in Italy



The presence of organized mafia-like crime in environmental crime, and particularly in waste related illicit activities, is confirmed in many dossiers (Legambiente 2003, 2008, 2013) and by the depositions of many informants who were previously bosses of mafia families. In Italy, the segment of the environmental crime businesses that involves the Mafia is known as Ecomafia. The presence of mafia in such a business in 2010, led the Italian government to entrust the National Anti-Mafia District the coordination of all the investigations related to the organized activities of illegal trafficking (art. 260 Leg. Decree 152/2006). However, after three years, the National Anti-Mafia Prosecutor, Franco Roberti, and his collaborator, responsible for the Ecomafia section of the DNA, assert that most investigations and trials involving art. 260 do not involve mafia members, but instead identify legal representatives of legal firms. Thus, the

hazardous waste in a landfill in Giugliano in Campania, province of Naples, which caused contamination of the groundwater in the area (Trocchia 2013); and more recently the conviction of three brothers, two entrepreneurs who for years have been spreading toxic mud in the countryside leading the farmer to believe that it was compost, and a Carabinieri marshal that helped them avoid controls by authorities (Marocni and Geremicca, 2015).

⁴⁴<https://www.change.org/p/sen-pietro-grasso-in-nome-del-popolo-inquinato-subito-i-delitti-ambientali-nel-codice-penale>

prosecutors concluded that waste related environmental crimes have to be considered as corporate crimes.⁴⁵ This result has also been confirmed by recent empirical economic studies about the prominent role of firms in the organized activity of illegal trafficking of waste (Germani et al., 2014). However, in the Italian legal system criminal liability cannot be ascribed to a company (art. 27 of the Italian Constitution), which can only be charged with administrative liability (Leg. Decree 231/2001). The ineffectiveness of the sanctions against the firms and the massive cost reductions attained from the illegal disposing of waste provide a doubly attractive incentive, which becomes an even stronger temptation during periods of economic crisis. Indeed, the turnover of waste related environmental crimes continued to increase during the crisis, reaching the value of almost €17 billion in 2013 (Legambiente, 2013), double its value since 2000.

The Italian legislation has been too feeble towards the thriving illegal waste trafficking business, making the work of enforcement bodies almost irrelevant. The first waste related crime (art. 53bis 22/97, now art. 260 152/2006) was introduced in 2001 (Law 93/2001), thus, until 2001 if a prosecutor or a police corps officer discovered a mafia organization trafficking waste, they could not state aggravating grounds foreseen by the penal code against organized mafia-like crime, because those aggravating grounds cannot be applied when the indicted is accused of a misdemeanour. Practically, legislation did not provide enforcement bodies with any tools to combat mafia in waste trafficking until 2001, even if it was known that mafia organizations were conducting lucrative business with hazardous waste since the beginning of the '90s. The same is true for the burning of waste, since 2003, when environmental organizations and grassroots movements were denouncing the practices of toxic smokes (Legambiente 2003), however, only after the mobilization of almost a hundred thousand people in Naples, in November 2013, did legislation declare that the burning of waste was a crime (Law Decree 136/2013). Currently, the risk is that legislative responses against firms' practices of illegal trafficking could come in ten years from now, leaving firms' activities undisturbed. Indeed, even Bill 1345 foresees no specific norms to combat the corporations that commit environmental crime. However, a longer statute for all crimes is provided for in the bill. The previously short defined periods were a deterrent for many prosecutors that often stopped investigations on environmental crimes, since statute barred for environmental crimes was too short.

6.1 The role of victims in the Land of Fires

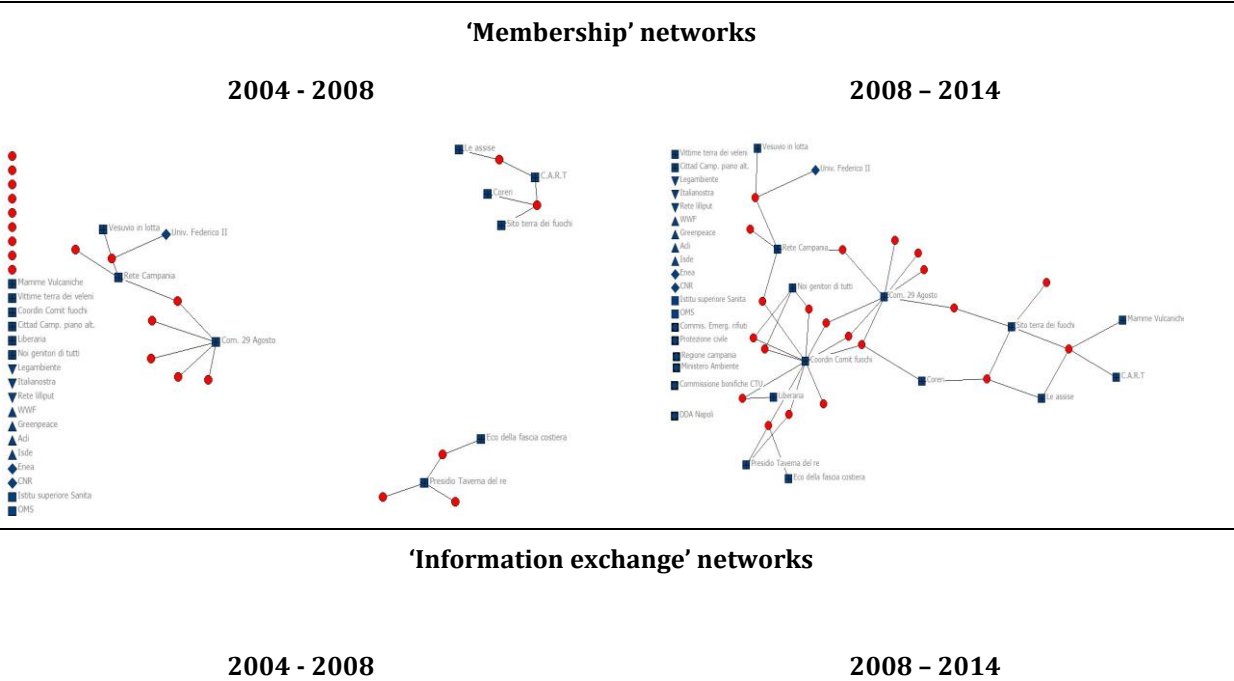
The interviewees are 32 (56% men and 44% women) with an average age of 43, the youngest being 23 and the eldest 62. The number of family members is on average 3, more than 50% hold a bachelor degree, 64% of them live in a flat owned by the family, but more than 30% declare a family wage of less than €15,000. All declare to do partake in environmentally friendly activities such as participating in environmental NGOs or the grassroots movement (94%); sorting waste (100%), endeavouring to not waste energy, water and food (97%), or using public transport or bicycle instead of the car; however, almost all respondents declared that the environmentally friendly activities that they did most was

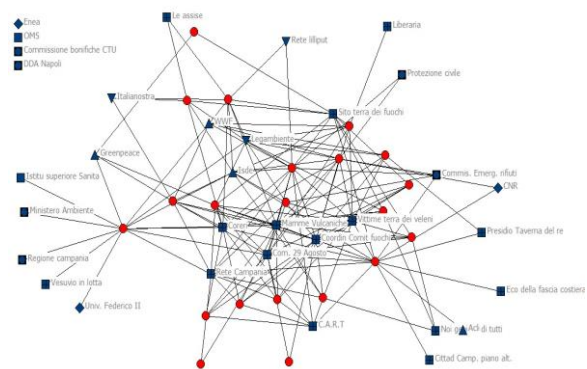
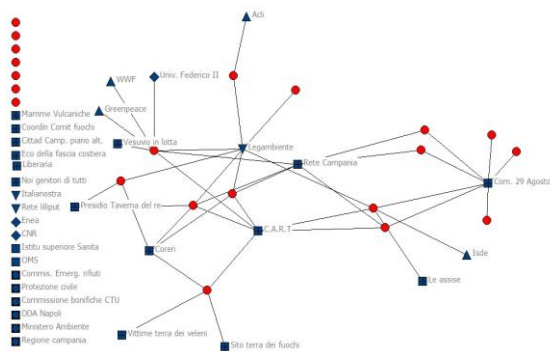
⁴⁵ This is line with the content of Europol report (2013) that highlights the relevant, autonomous and propulsive role of legal firms in environmental crime activities.

relaying information about waste related issue (59%) and monitoring (19%). About 80% have no trust in political organizations at different levels (from municipalities up to the European Union), almost 88% declared to live close by waste facilities and 99% identified as victims of an environmental crime, those that associated the feeling of being victims with their own bad health or of that of a relative have become activists only recently (after the 2011). For the vast majority of the respondents, being a victim means living under conditions of psychological pressure and always being worried about the state of the environment in which one lives.

Looking at the affiliation network in figure 5, it can be observed that the density of the network increases after 2008 for all three networks. 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. Before 2008, however, three clusters of grassroots movements and NGOs existed, but then disconnected from each other. After 2008 the Coordination of Fires Committees occupies the central point of the network; a grassroots movement, with the main objective to precisely coordinate the myriads of local committees that want to fight against the toxic smokes and the illegal burying of hazardous waste.

Fig. 5. *The pollution fighters’ affiliation networks (multi-relational networks)*

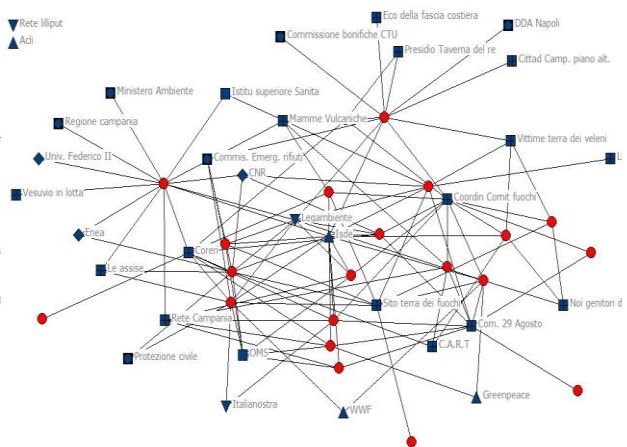
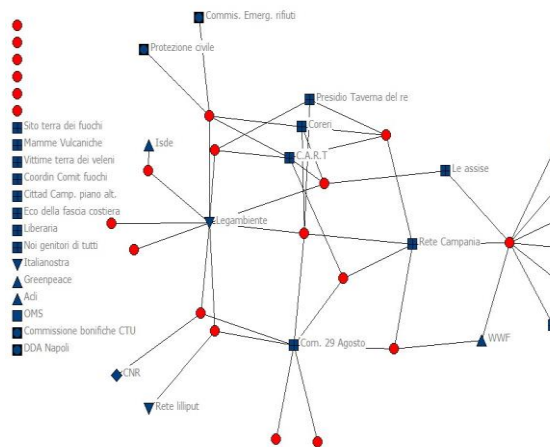




'Knowledge exchange' networks

2004 - 2008

2008 - 2014



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

During the period 2004-2008, the 'membership network' was represented by three completely disconnected sub networks and consisted of a few actors, however after 2008 an increasing number of organizations, generally local, and their members entered the network by actively interacting with each other and thus forming a unique membership affiliation network.

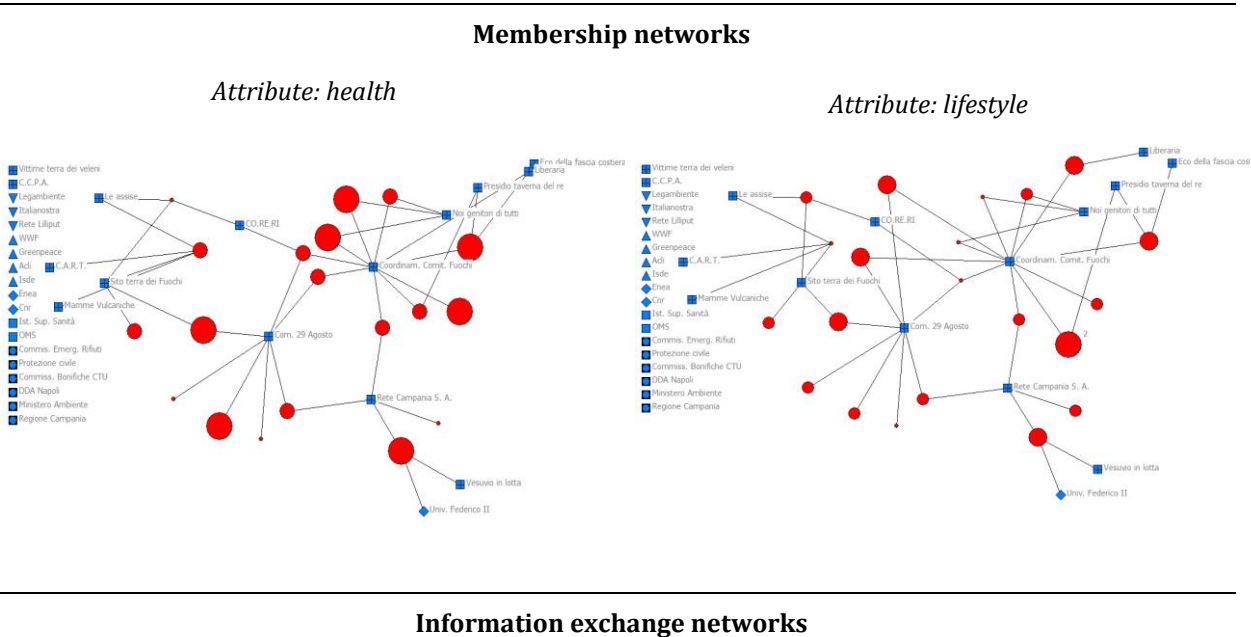
Historical committees such as Co.Re.RI. (Waste Regional Coordination) and the August 29th Committee occupied the central area in the information network, before and after the 2008. This illustrates that those groups that accumulated information about urban waste mismanagement and illegal waste trafficking in Campania remain the point of reference for new emerging committees, which are the main attractors of new activists, as shown by the 'membership network'.

Finally, Legambiente and ISDE (International Society of Doctors for the Environment) occupied the central point of the 'Knowledge network'. Indeed, the former with its numerous dossiers published on Ecomafia spread around data and information about the hidden flows of hazardous waste, the mafia

families involved in the business and the results of enforcing activities by police corps and prosecutors; the latter with its report about the toxicity of certain materials and the relative effects on health has become a reference point for activists to learn more about the health consequences of illegal waste disposal practices. This finding shows that by overcoming the turning point (see note 12), 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, who are indirectly or not only involved in the waste related issues in Campania, play a central role in the knowledge and information exchange.

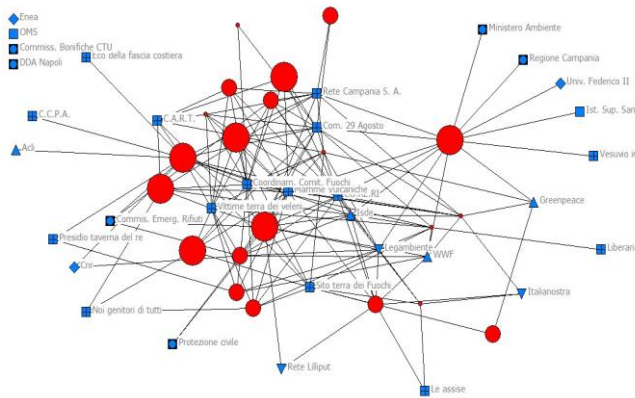
Before 2008, the struggle among activists and regional and national governments was prevalently focused on urban waste plans and the unwanted incinerator in Acerra, even if there were activists who, since 2005, have been trying to turn the spotlight on hazardous waste.⁴⁶ After 2008, the movements and existing committees were weakened by a decisive intervention by the national government to impose ten new substantially large landfills, program three more incinerators and declared as penal felony all acts of dissent in the vicinity of a waste facility (D’Alisa et al 2010). In 2011/2012, the new contested ground became the correlation between the presence of illegal waste facilities and the increasing rate of diseases such as cancer and asthma. Putting it simply, there are activists that associate the increasing rate of mortality and morbidity for cancer and other diseases with the presence of illegal waste sites, and there are government officers who correlate the increasing rate of disease to the poor lifestyle of Campania’s citizens. In order to contribute to this debate we have decided to look at the effects of two attributes of the three ‘affiliation networks’: life style and health.

Fig. 6 The pollution fighters’ affiliation networks (attribute networks)

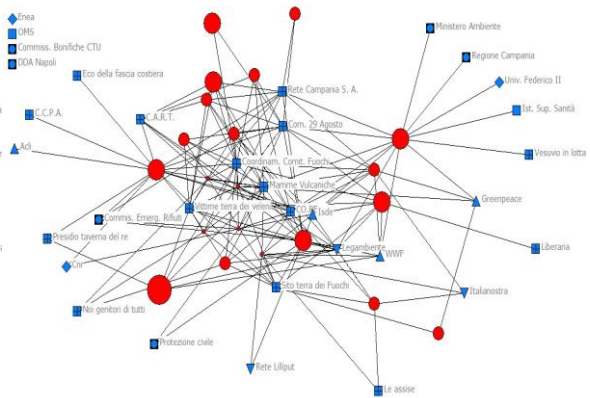


⁴⁶ For info about the Committee Warning Hazardous Waste please see the website http://www.allarmerifiutitossici.org/rifiutitossici/indices/index_11.html

Attribute: health

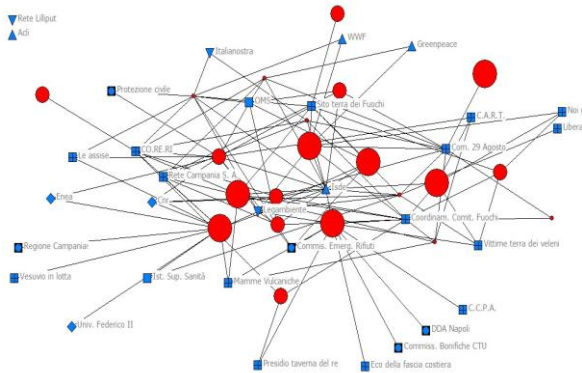


Attribute: lifestyle

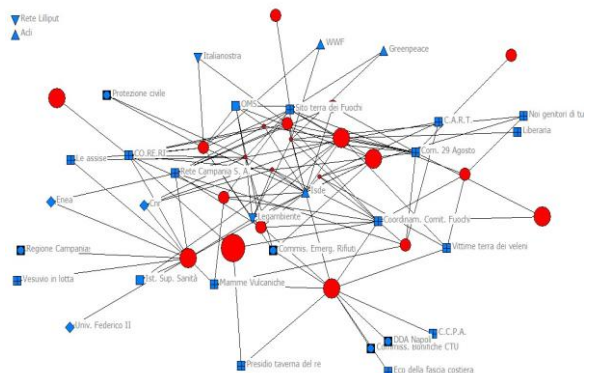


Knowledge exchange networks

Attribute: health



Attribute: lifestyle



Legend 2-mode networks: Red = Agents; Blue = Events (Circle = persons; Box = local associations; Upside down triangle = national organizations; Up triangle = international organizations; Diamond = research centers; 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 membership, information and knowledge networks related to both health and lifestyle of the respondents. At first glance, we notice that the people occupying a central position in the networks experience an unhealthy environment in their everyday lives, i.e. they are ill, and/or someone of his/her relative is ill, and/or some of his/her friends are ill. At the same time, if we take into account the lifestyle attribute with regard to information and knowledge networks, we can observe a group of people who claim to have a good lifestyle occupying a central position in the networks, i.e. the interviewees have declared they have a healthy diet, that he or she does not smoke or drink alcohol very much. Thus in Campania, the more you are sick or live surrounded by ill people the less active you are, conversely, the healthier your lifestyle is, the more active you are.

7 Conclusions and policy implications

Organized crime plays a significant role in the waste management industry and in particular in the area of illegal dumping and international illegal trafficking of hazardous waste. However, organized criminals are not the only players. Although in public opinion the mafia clans are the most important subjects involved in illegal waste trafficking, recent empirical research has shown that firms often directly strive to eliminate illegally the waste they generate or, alternatively, they employ the service of mafia-like organizations. However, Italian waste legislation has not had any applicable criminal charges in relation to environmental dumping until 2001. This hole has offered organized crime the opportunity to gain huge profits and has provided an opportunity for firms to enormously lower their dumping costs. This double incentive of very high gains and lack of criminal sanctions has also been the cause of the socialization of indirect costs of illegal waste dumping, such as the cost of remediation and the cost of diseases associated with the contamination. Moreover, the economic crisis acted as a multiplier of illegal disposal of waste, because economic difficulties can further push the decision by firms to illegally dispose of the waste they generate. This is reflected in the increasing value of the turnover of this business (€7,5 billion towards €17 billion from 2000 to 2013). It is therefore necessary that a more stringent legislation, with more severe punishments for environmental offences be instated. Such legislation should be sufficiently stringent to act as a deterrent against both organized mafia-like crime and corporations. Moreover, effective measures should be applied to impede recurring illicit behaviour of legal person, which according to Italian legislation, cannot be liable for criminal offences. At the same time, new tools for tracking hazardous waste flows should be implemented. Currently, less than 10% of all Italian enterprises are obliged to declare the quantity and quality of special waste they generate and every year huge amounts of waste escape the official statistics. To this end, it could be useful to give inspection functions to the environmental protection agency officers, which could act as administrative police and control those firms that, despite being obliged to declare their generated waste, do not. In parallel, it would be useful to develop pilot studies with firms that, despite not being obliged to declare their generated waste, want to collaborate with the environmental protection agency to develop technical coefficients useful for achieving more effective evaluations of the waste they generate. For those firms that decide to join the pilot study, specific rewards and incentives could be granted.

If victims of environmental crimes are recognized and protected as such, they could be more likely to combat the crime and to contribute to investigations. If they are not, then the criminal justice system loses important evidence and their enforcement of the relative laws against criminals becomes less effective. The increasing level of victims' organizational activities in the Land of Fires from 2008 up to now is creating public awareness of 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 the national level. There is still room in Italy for major changes in terms of preventing future environmental injustices. Since the enforcement of waste control regulations remains weak, it is desirable that legislators and institutions 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. Indeed, the role of activists and victims has been particularly important to push the Italian legislation to issue more stringent laws. The first waste related environmental crime was

introduced in the legislation only years after environmental NGOs were reporting on the role of organized crime in environmental business. The burning of waste has become an environmental crime only after years of denunciation of activists and massive demonstrations in the city of Naples. A more pro-active role by activists and victims could speed up the implementation of efficient and effective environmental crimes legislation. Opening the decision making process to citizens could also be an obstacle for the development of corrupt practices. Examples like the one of Coheirs can be a pioneer of effective enforcement policies. Civic observers with a recognized role as enforcers and supported by an immediate intervention task force could be more effective than the traditional patrolling initiative, moreover currently, for lack of resources, only partially practiced. Last but not least, the role of victims of environmental crimes as guarantors of the firms and authorities compliance with precautionary principle could save enormous costs to the public health sector and to public works related to the necessary land remediation. The constitution of the environmental justice unit in the wake of those currently constituting the American Environmental Protection Agency could help to facilitate a more defined role of citizens in fighting environmental crime in Italy and Europe.

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Annex A: Questionnaire

"SURVEY OF PERSONS SUFFERING FROM CONTINUING OPERATIONS AND DISPOSAL OF WASTE IN CAMPANIA ABOUT THEIR PERCEPTION OF THEMSELVES AS VICTIMS OF 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 analyze the evolution of individuals' perception as victims who feel affected in some way, directly or indirectly, as a result of 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 by 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 how many years you have lived there permanently; if you have changed city, indicate where you have previously lived):
 _____ . (____), _____

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

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

7. **HOW MANY MEMBERS COMPOSE YOUR FAMILY?** _____

7.1 **UNDER THE AGE OF 14 YEARS:** _____

7.2 **ABOVE THE AGE OF 65 YEARS:** _____

8. **LEVEL OF EDUCATION:**

- None 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 ASSETS 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 about the level of knowledge and about the interviewee's personal experiences related to environmental issues and to define 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 DO YOU PARTAKE IN? (multiple answers are possible)

- I participate in cultural, religious or environmental associations
- I separate waste disposal
- I endeavor to minimize water, energy and food waste
- I use public transportation and/or bicycle
- I buy organic products or those 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 landscape hiking

13. DEFINE AN ENVIRONMENTAL ACTIVITY THAT YOU PARTICIPATE IN

- _____
- None

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

- 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 DECADE?

- If yes, which one? _____
- No

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

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

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

- 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 THE QUANTITY OF CIGARETTES SMOKED - 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 ALCOHOL (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 WORSE 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 A 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"/>	<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"/>	<input type="checkbox"/>
Strongly agree	<input type="checkbox"/>	<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 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 behaviors 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 IN INITIATIVES AIMED AT SOLVING ENVIRONMENTAL PROBLEMS IN YOUR CITY?

YES → Which one? _____

In which way?

- Letters to newspapers
- Signature for popular petitions
- Participation in meetings
- Protests
- I formed a new committee or I took part in existing committees
- I launched a blog on the subject
- I create a Facebook page
- I create a webpage
- Other _____
- NO

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

YES → Which one? _____

NO

32 CAN YOU IDENTIFY AN EVENT THAT GAVE RISE TO YOUR STATUS AS VICTIM?

_____, year _____

33 HOW DID YOU REACT TO THIS 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

PERIOD		Which of the listed actors do you know? Can you indicate any others?			How did you know about them?
		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

PERIOD		Whom did you interact with?			In which way? With which practices?
		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				
RES EA RC H CE NT	ENEA				

	CNR				
HEALTHCARE	OMS,				
PUBLIC BODIES	Commissario Emergenza Rifiuti				
	Dipartimento Protezione Civile				

COMMUNICATION

PERIOD		With whom did you establish relations in exchange for information or ideas related to environmental issues?			In which way? With which practices?
		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			
		Before 2004	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				

SECTION IV: This section is composed of 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, to you, to be a victim of an environmental crime?

