



Universiteit  
Leiden  
The Netherlands

## **The ecologic mafia? An analysis of the fuzziness of green crime and its regulation in Italy**

Cattaneo, Natascha

### **Citation**

Cattaneo, N. (2021). *The ecologic mafia? An analysis of the fuzziness of green crime and its regulation in Italy*.

Version: Not Applicable (or Unknown)

License: [License to inclusion and publication of a Bachelor or Master thesis in the Leiden University Student Repository](#)

Downloaded from: <https://hdl.handle.net/1887/3240084>

**Note:** To cite this publication please use the final published version (if applicable).

---

# THE ECOLOGIC MAFIA? AN ANALYSIS OF THE FUZZINESS OF GREEN CRIME AND ITS REGULATION IN ITALY

---



Student ID: S1600508

Student name: Natascha Cattaneo

Master and track: Public Administration, Economics and Governance

Supervisor: Dr. Shivant Jhagroe

Second Reader: Dr. Dovile Rimkute

Date: 6-8-2021



Universiteit  
Leiden

## TABLE OF CONTENT

ACKNOWLEDGEMENTS .....	4
CHAPTER ONE: INTRODUCTION .....	5
CHAPTER TWO: THEORETICAL FRAMEWORK .....	9
2.1 ILLEGAL WASTE TRAFFICKING EXPLAINED .....	9
2.1.1 THE WASTE INDUSTRY .....	9
2.1.2 THE THREE PHASES OF THE WASTE CYCLE .....	10
2.1.2.1 WASTE ORIGIN .....	10
2.1.2.2 THE TRANSIT PHASE .....	11
2.1.2.3 THE FINAL STAGE .....	12
2.1.3 ECOLOGIC ORGANIZED CRIMINALS .....	13
LITERATURE REVIEW .....	15
2.1 TRADITIONAL LITERATURE .....	15
2.2 FUZZY CRIMINALS .....	16
2.2.1 WHITE COLLAR CRIME .....	17
2.2.2 LEADING AND SUPPORTING ACTORS .....	18
2.2.3 ORGANIZED CRIME .....	19
2.2.4 SHADOW ECONOMY AND CORRUPTION .....	20
2.3 DISPLACEMENT .....	22
2.4 GREEN CRIMINOLOGY .....	23
2.5 ENVIRONMENTAL REGULATION AND FUZZY ENFORCEMENT .....	25
2.3 CONCEPTUAL FRAMEWORK .....	27
2.3.1 CONCEPTUAL GRID .....	28
CHAPTER THREE: METHODOLOGY .....	29
3.1 GENERAL RESEARCH STRATEGY .....	29
3.2 SAMPLE SELECTION: METHOD AND SIZE .....	30
3.2.1 CASE STUDY SELECTION: SCOPE, METHOD AND SIZE .....	30
3.2.2 SELECTION OF DATA AND SOURCES: METHOD .....	31
3.5 LIMITATIONS OF THE RESEARCH .....	33
3.3 OPERATIONALIZATION .....	34
3.3.1 THE FOUR KEY EXPLANATORY CONCEPTS .....	34
3.3.1.1 FUZZY CRIMINALS .....	34
3.3.1.2 DISPLACEMENT .....	35

3.3.1.3 GREEN CRIMINOLOGY .....	36
3.3.1.4 ENVIRONMENTAL REGULATION AND FUZZY ENFORCEMENT .....	36
3.3.1.5 OPERATIONAL MATRIX .....	36
CHAPTER FOUR: CASE STUDY ONE .....	39
4.1 LOMBARDY TRAFFICKING .....	40
4.2 THE BRE-BE-MI HIGHWAY: CASE INTRODUCTION .....	41
4.2.1 LOCATION .....	42
4.2.2 NETWORK.....	42
4.2.3 MOTIVE .....	43
4.2.4 MODUS OPERANDI.....	44
4.2.5 ENFORCEMENT RESPONSE .....	44
4.3 CASE ANALYSIS.....	46
4.3.1 DIFFERENT LAYERS OF CRIMINALITY .....	46
4.3.2 GREEN CRIMES HIDDEN UNDER THE BREBEMI'S ASPHALT .....	48
4.3.3 DISPLACEMENT IN THE BREBEMI CONSTRUCTION? .....	49
4.3.4 FUZZY ENFORCEMENT AND REGULATORY RESPONSE.....	50
4.3.5 ADDITIONAL REMARKS .....	50
4.3.6 HIGHLIGHTS OF THE CASE .....	51
4.4 VISUAL MAP OF THE KEY STAKEHOLDERS .....	52
CHAPTER FIVE: CASE STUDY TWO.....	53
5.1 LOMBARDY: THE NEW LAND OF FIRE.....	53
5.2 THE FIRE OF VIA CHIASSERINI: CASE INTRODUCTION.....	54
5.2.1 LOCATION .....	54
5.2.2 NETWORK.....	54
5.2.3 MOTIVE .....	56
5.2.4 STRATEGIES AND MODUS OPERANDI .....	56
5.2.5 ENFORCEMENT RESPONSE .....	58
5.3 CASE ANALYSIS.....	59
5.3.1 FUZZY CRIMINALS ON FIRE .....	59
5.3.4 THE MOTIVE BEHIND THE FLAMES.....	62
5.3.2 DISPLACEMENT ENDING IN A ROGUE .....	63
5.3.5 CATCHING UP WITH THE ENFORCEMENT AND REGULATIONS.....	64
5.3.6 ADDITIONAL REMARKS .....	65
5.3.6 HIGHLIGHTS OF THE CASE .....	65
5.4 VISUAL MAP OF THE KEY STAKEHOLDERS' NETWORKS.....	66
5.5 CASE COMPARISON .....	67

5.5.1 NETWORK.....	67
5.5.2MOTIVE.....	67
5.5.3 MODUS OPERANDI.....	67
5.5.4 ENFORCEMENT RESPONSE.....	68
5.5.5 VISUAL SUMMARY OF THE HIGHLIGHTS.....	68
CHAPTER SIX: CONCLUSION.....	70
BIBLIOGRAPHY.....	73

## ACKNOWLEDGEMENTS

I would like to thank my supervisor Shivant for his exceptional guidance, patience and support during this process. Thank you for believing in this project, for the time and the energy you have invested in it.

My expressed gratefulness to my sister Anne for keeping my moral up, all the late-night calls, the tears and laughter that we have shared on this road. The best sestra I could wish for.

A special thank you to my girlfriend Femke, for all the love and support she has given me.

To my dear friend Maria, thank you for your valuable advice and guidance.

To my closest friends Isa, Yvette, Joseph and Marije, thank you for being there for me and helping me through hard times.

To my roommate Jão (Inside joke): Jão che fare? You, me, Franciscu, yes?

To my colleagues and friends thank you for your help and support.

To my grandfather watching me from above, I miss you and thank you for encouraging me, your kind words have always served me well.

## CHAPTER ONE: INTRODUCTION

The current situation in Italy's waste management practices elicits quite some question marks. In the past decades a worrisome flow of illegal waste between northern and southern regions has been the concern of Italy's environmental authorities (Germani et al., 2018). On average, 11 million tons of industrial waste disappear each year in Italy. This provides an indication of the quantity of waste that is being trafficked and disposed of. The costs of the damage caused by illegal waste dumping has been estimated to surpass the hundreds of billions of euros, but the so far spoiled territories that have been discovered are a mere fraction (Edmondson & Carlisle, 2003). Especially in the period between 2018 and 2020 there has been an increasing amount of infractions involving illegal waste trafficking and disposal (Interpol, 2020). The illegal waste business is a very lucrative sector with estimated gains over 300 billion euros, accumulated in only two decades. Specifically, in 2011 the profits made amounted to 16.6 billion euros, from the 13.3 million tonnes of waste that were "confiscated" by ecologic organized criminals (Cannavò & Cullati, 2012). Italy has shown a particular intricate system in which notorious mafia organizations, such as the 'Ndrangheta (based in Calabria), the Camorra from the Campania region and Cosa Nostra from Sicily play an important role (Europol, 2013). Their main involvement is the embezzlement and trade of hazardous waste with profits above \$8.8 billions from illegal activities. (Liddick, 2010). However, the presence of the mafia in illegal waste trafficking activities is not as essential as has been depicted in academic literature (D'Amato and Zoli, 2012). In fact, when talking about green crimes it is more appropriate to address the actors involved as ecologic organized criminals. This term better describes the intricate network of (criminal) actors that are involved in the trafficking of waste.

In this respect, the Italian case can be defined as atypical, as not only mafia-type criminals, but also local governments, large firms, small businesses, politicians, environmental authorities, entrepreneurs, landfill owners, waste management plants, farmers and drivers can all be identified as ecologic organized criminals (D'Amato and Zoli, 2012; Bonzanni, 2019). Therefore, the mafia is but one pawn in the whole criminal network around illegal waste practices. Intermediaries are also partly the actors mentioned as organized criminals who hold a legal appearance (and direct ties with mafia groups) and are essential in connecting seemingly innocent entrepreneurs and waste producers (sometime without direct ties to criminals) to the whole underground waste network. The reason for this is that the latter are simply attracted in

saving costs and time for the treatment and disposal of their waste (Bonzanni, 2019). The cooperation generates benefits for the intermediaries as well (landfill owners are included in this category as well), in that they gain profits from the illegal waste disposal, whereas mafia groups profit in a parasitical manner from the main transactions (Bonzanni, 2019). Hence, there are many factors that encourage illegal waste operations, yet the very nature and the consistency of some types of refuse already increase the presence of ecologic organized criminals: waste can be easily mixed and sold as a regular kind of waste (when in reality it might be toxic) and can be altered into other kinds of products that end up being sold in the legal market. The large trade in recyclable and non-recyclable materials has been an easy and alluring target, as it allows waste traffickers to mingle dangerous refuse with regular recyclable materials (Liddick, 2010). Furthermore, the increased engagement of criminal groups can be justified by the inelasticity of the demand for waste disposal. A surge in prices does not reduce demand for waste disposal. Consequently, mafia groups and criminal organizations are attracted to enter the waste market and offer their cheaper services. Clearly, the incentives for industries to dispose of waste safely and legally are quite limited compared to the monetary gains of dumping (the often untreated) waste illegally (Baird et al., 2014; Liddick, 2010; D'Amato and Zoli, 2012; Germani et al., 2015).

The regulation of the environment is clearly inappropriate as we can deduce from the number of violations that occur each year. Surprisingly, environmental offenses are not regulated by the Italian Penal Code and they have only been included in the Environmental Code from 2006. Illegal trafficking of waste has become an official violation with the introduction of it as Article 259 of the Environmental Code (decreto legislativo 152/2006), concerning mainly the trafficking of illegal shipment of waste (Germani et al, 2015). For decades waste crimes were not taken seriously enough to punish violators, until in 2001 article 22 of the Law 93/2001 applied article 53-bis of the Ronchi decree (formally known as d.lgs. 22/1997), which introduced organized crime activities in the context of waste trafficking as a felony. Yet, the real turnover for waste crimes took place in 2006, when organized activities for illegal waste operations got integrated in the Environmental Code (Germani et al, 2015). As Germani et al. (2015) note, “in particular, art. 260 of the Environmental Code punishes by imprisonment from one to six years any person who, in order to gain unfair profit through operations and preparation of means and organized continuing activities, sells, receives, transports, exports, imports or otherwise improperly handles large quantities of waste” (p.370).



The definition of illegal waste practices, as they are intended in this specific context refer to the illegal waste disposal in fields, natural caves, coasts, the sea, road-side, etc. it also refers to the stockpiling of waste in large abandoned warehouses (usually in peripheries) and ultimately the incineration of these (Bisschop & Huisman, 2018). Waste that ends up in fields sometimes also meets the same fate, abandoned and burnt. Moreover, the definition also includes the transformation of the same illegally acquired waste into finished products such as asphalt or fertilizers, which produce significant revenues (Bisschop & Huisman, 2018; Sahramaki et al., 2017; Sahramäki & Kankaanranta 2017; Massari & Monzini, 2004 ). It is necessary to mention that these illegal practices have a deep connection to a broader network that includes a second economy, better known as “shadow economy”. As we have seen, for many years it was possible to commit crimes against the environment and make significant gains from it, without being punished. However, even when regulations were set in place, the number of green crimes and illegal waste trafficking did not decrease meaningfully, thereby leaving the question on whether enforcement was ineffective (and perhaps not strict enough) or if the punishments held little deterrent power. Over the years criminal organizations have been infiltrating the waste management industry by blurring the lines between what is legal and what is not, thereby creating a fuzziness in the nature of the crimes, but arguably also in the response of the regulations and enforcement to them (Germani et al., 2015; Bonzanni, 2019; D’Amato and Zoli, 2012).

The specific focus on organized ecologic crime within this thesis lays in its intricate connection with legal companies and activities (Bisschop & Huisman, 2018) and the fuzziness that results from it. Therefore, this research will analyse illegal waste practices and their management by authorities in the specific context of Lombardy. However, the interest of this research will not be solely on illegal waste trafficking, but also the environmental regulatory and enforcement response to these. The perspectives that will be employed range from a criminological to an enforcement and regulatory point of view. Moreover, numerous newspaper outlets have been continuously reporting on the ecological issues caused by organized criminals in the North of Italy, but on the academic front it still seems to be somewhat less discussed and researched (Bonzanni, 2019). As Cantoni (2016), observes however, “much less academic interest has been shown towards illegal waste disposal activities by Northern and Central Italy’s entrepreneur” (p.103). What makes this region so interesting from an academic and societal point of view, is not only the frequency, amounts and types of green crimes that have been committed, but also the fact that the waste often times originates from producers or

intermediaries based in Lombardy. Moreover, in the majority of cases the illegal waste is frequently disposed of in this very region. Whenever illegal operations are tracked by authorities, the strategy employed by organized criminals is to change course of action by displacing the waste practices to southern regions of Italy, where they can continue uninterrupted and dispose the northern acquired waste in natural caves, fields, lakes, etc. In the event of discovery of the southern-end practices, the whole business is moved back to the north. This way, it is difficult for enforcing authorities to keep track of the movement of waste, the actors affiliated with it and the exact practices at hand (Bonzanni, 2019; Cannavò & Cullati, 2012). For this reason, it is the goal of this very research to shed light on the issue of fuzzy criminals who have been infiltrating the waste industry in Lombardy and the response from the enforcement and regulation. The question this thesis poses and investigates is the following:

*How are illegal waste practices in Northern Italy related to environmental regulation and enforcement, and how can this relationship be explained?*

## CHAPTER TWO: THEORETICAL FRAMEWORK

For the scope of this research, it is important to understand the elaborated mechanisms that Italian ecologic organized criminals have developed in waste trafficking. These illegal practices will therefore be thoroughly explained in the following section. Moreover, a literature review on traditional explanations of crime will be provided, followed by the concepts and ideas that will structure the theoretical lens. The concepts presented will ultimately culminate in the conceptual frame that will help analyse and structure the case studies later on.

### 2.1 ILLEGAL WASTE TRAFFICKING EXPLAINED

The phases of waste management will be explained in the following sections, as it is relevant to understand why they are vulnerable (and alluring) for organized ecologic criminals. Moreover, the techniques that these criminals employ in illegal waste trafficking will also be explained, as they will help understand the mechanisms in the case studies later on in this thesis.

#### 2.1.1 THE WASTE INDUSTRY

Waste can be disposed of with ease as it is a versatile product that allows for displacement at any time (Bisschop and Huisman, 2018). For the scope of this thesis, waste is intended as a product or substance resulting from the consumption or production of something for which there is no more purpose (Bisschop and Huisman, 2018). There are many forms that waste can take, depending on its composition, for instance glass, paper, organic material, textiles, metal, etc. Moreover, the origins of waste may also differ, dividing it into different categories, such as construction waste, household waste and agricultural waste; even illegal activities generate waste, for example the production of drugs and illegal weapons. Moreover, some types of waste are classified as hazardous, as they contain substances that are toxic for humans and for the environment and represent a health risk. The latter category of waste needs special treatment to render it non-hazardous and safe for the environment. This, however, is a costly process that not all corporations and businesses are willing to pay for, which leaves this stage vulnerable to illegal parties. In this respect, illegal waste disposal can be 200 to 300 times cheaper (van Wingerde and Bisschop, 2019). The second phase in the waste cycle, is thus waste treatment, in which litter is processed in order for it to get a second purpose or treated in such a way that it becomes not (or less) harmful and easier to dispose of. Moreover, in this stage it is also

possible to extract secondary raw materials and recycle them. The final stage of the waste cycle is the disposal of it, which can happen by incineration, landfill or dumping (Bisschop and Huisman, 2018). This last phase is also susceptible to illegal activities, as organized crime may offer its services at a cheaper price and dispose of waste in an illegal manner (dumping in the sea, in natural caves, etc.) or traffic the waste and gain even more money. Disposal, trade and/or treatment of refuse in any way that violates international laws and represents a hazard for the environment or a health threat, is described as a waste crime. Environmental crimes can be elicited by non-compliance or negligence from administrative entities and as such they are known as crimes of omission. Deliberately causing environmental harm, is regarded as a crime of commission and is also frequent in the spectrum of crimes against the environment. Moreover, crimes of commission include falsifying documents, as well as illegal waste dumping and illegal waste trafficking (Bisschop and Huisman, 2018).

The phases in the waste cycle entice illegal entities as some of its phases offer openings to illegal activities. Yet, waste itself can also be considered crime facilitative, as it is easy to mix to create “second-hand products” such as fertilizer or to mix non-hazardous waste with hazardous waste (Bisschop and Huisman, 2018). In particular, products and materials that can be recycled are favoured for this “mixing” technique as it is easy to disguise toxic waste and then dispose of it. Labelling hazardous waste as non-toxic is also one of the techniques often implemented by violators. Considering that the costs for waste treatment can be significant, it is not surprising that businesses and industries look for cheaper ways to dispose of the waste. Moreover, “In contrast to many other industries, waste treatment companies are paid before they incur any costs for treatment and/or disposal. This makes it very tempting to limit the costs and maximize the profits without regard for regulation” (Bisschop and Huisman, 2018, p.5). Therefore, because of its versatile and varied nature, waste is a product that is prone to be a target of criminal activity as it presents low risks and significant profits.

## 2.1.2 THE THREE PHASES OF THE WASTE CYCLE

### 2.1.2.1 WASTE ORIGIN

Massari and Monzini (2004) identify three phases in waste procedures: origin, transit and destination. For starters, waste originates from many sources, for instance hospitals, steel industries, cement factories, households, etc. “Dust from smoke abatement in iron and metal

industries, incinerator ashes, sludge from water treatment processes in the chemical industry, acid sludge, sludge from tanneries, transformers containing contaminated oil, de-oiled earth, and miscellaneous waste made up of plastic” (Liddick, 2010, p.139). Each year all these kinds of refuse are subject to illegal trafficking by criminal organizations. According to Italian law, when the waste is hazardous and the producer does not hold the means to treat it, it must be transferred to special intermediaries that can treat it, to special landfills or in other cases, to incinerators. The producer pays the managing company for the service and provides all necessary documentations, thereby also transferring responsibility of disposing the special waste. It is important to note that the choice of the intermediary company is often not considered a priority by the producers, as long as the most convenient option is selected. Environmental damage and affiliation with the mafia or criminal organizations is therefore often not a concern.

Moreover, producers engage in illegal practices by documenting less waste than what they truly have generated, or by labelling their waste as allegedly recyclable. To avoid the monitoring of authorities, fake documents are forged and codes are falsified. Massari and Monzini (2004) report of a leading Italian chemical company who saved up to 400% of their disposing costs by choosing alternative illegal ways. Disposing of waste in the proper legal manner is expensive, especially when it comes to special toxic and hazardous waste that needs to be treated. Purely from an economic point of view it is logical that companies opt for the illegal options which evidently spare a significant amount of money and time. In fact, the popularity of the options offered by the illegal market have been growing along with the increasing prices for safe (and legal) waste disposal (Massari and Monizini, 2004).

#### 2.1.2.2 THE TRANSIT PHASE

Following the origin, the transit phase finds itself to be vulnerable to illegal activities. Storage and transport phases are both vulnerable to illegal procedures. False documentations are provided to transporters, who are an essential link for the movement of waste between various locations. There are more than 200.000 waste disposal sites in Italy which, according to the authors, are not all subject to close inspections (Massari and Monzini, 2004). Intermediary sites are preferred to final disposing sites by producers. As the percentages show: 87 % of waste ending in disposal sites have been first processed by intermediaries. These “waste brokers emerged as a mechanism to help the industry deal with more stringent environmental regulations” (Dorn et al. 2007, p. 136). Interestingly, these individuals are likely

to circumvent regulatory control as they never buy ownership of the toxic waste traded (Dorn et al., 2007). There are mainly two strategies employed by intermediaries to process illegal waste: falsifying documents (commonly known as giro bolla or invoice switch) or dumping part of the waste collected. The first, and widely common method, entails falsifying documents in such a way that hazardous waste suddenly becomes ordinary refuse on paper, without undergoing actual proceedings or special treatments. Intermediaries employ false certificates or change codes so that waste will be identified as non-hazardous when it arrives at its final destination. Falsifying documents is crucial to the illegal cycle, and can be done in many ways, one of which is collaborating with cooperative laboratories, who change codes or provide false analyses of the waste. The second method simply entails collectors declaring that part of the waste has been received when really it has been dumped illegally (Massari and Monzini, 2004). The giro bolla is possible only because transportation documents are in paper forms, therefore falsifying information data is quite easy for traffickers. There are a few suggestions that De Rosa (2016) makes to solve this issue. First off, digitalizing the three main forms for waste could generate significant results. These three forms are the template of environmental statement (MUD), the registration of loading and unloading waste and the most important one, the identification form (FIR), stating the type of waste. Once all these documents are verified on an online platform, the chance of falsification would be significantly lowered. Furthermore, there would be more transparency as controlling the forms would be easier. Secondly, installing a GPS system on trucks carrying waste would allow an overview of the trips, tracing every path taken by the drivers. Therefore, any suspicious stop or even a wrong destination could be traced by authorities. The SISTRI (sistema di controllo della tracciabilità dei rifiuti), was ruled by decree in 2009, representing a system for the traceability of special waste. It is composed of a “black box” that records every movement of the trucks and a USB token that carries a software for electronic signature (identifying the waste transported). Unfortunately, the Italian government delayed its implementation eight times, and still, there is no clear date for the official launch of the system (De Rosa, 2016).

### 2.1.2.3 THE FINAL STAGE

The final stage of the cycle, the actual disposal of the waste, can be performed in many ways. Waste is dumped in the sea, (illegally) in legal disposal sites, underground, in lakes, sewers, mines, caves, fields and many other locations, frequently it is even mixed with construction materials (such as asphalt) or simply burnt. There are many sinister practices that

the mafia has employed to get rid of the toxic waste, such as scrapping and dumping in legal sites with illegal documentation, as previously mentioned. The most common method is simply dumping the waste in or on the ground, such as on the roadside, or filling mines and natural caves. Illegal waste (including toxic waste) is also smuggled in recycling centres where waste is normally transformed into fertilizers or construction materials. This is possible because recycling centres formally process waste, which makes these kinds of destinations very vulnerable to the works of the ecologic mafia. It is evident that fraudulent documentation is essential (Massari and Monzini, 2004). Farmers have been involved as well in the process of unloading (toxic) waste in fields, as they are paid to turn a blind eye. Often times they lack the knowledge to identify the waste as possibly hazardous. As a matter of fact, the individuals that allow illegal disposal onto their properties are complicit in illegal activities but cannot evaluate the danger posed by the disposal on themselves or on their land. Water sources and the land become poisonous, which also affects crops that grow on them and ultimately the health of consumers (likely including the farmers themselves) (Massari and Monzini, 2004).

Illegal waste disposal is one of the most viable and foremost employed techniques amongst illegal waste activities. This activity does not only include the disposal of waste, but also its transportation and its trading. In the past decades, the amounts of waste produced has been steadily growing, proportional to the consumerist culture that has become our reality (Crofts et al., 2010). Moreover, the rising costs for waste disposal and the stricter regulations around it, provided a profitable opportunity for organized crime to become involved. Large corporations seeking more convenient alternatives and corrupt public agents who seek profits are also attracted to the illegal trafficking of waste. Furthermore, it is common for government officials and authorities in high levels to be involved in corrupt practices as to facilitate the illegal trade and disposal of waste (Cesi et al., 2019). What renders illegal waste disposal such a lucrative business is the main characteristic of waste, namely its manipulation. An example of this would be the mixture of toxic waste with non-hazardous waste and its export to countries abroad (van Winegarde and Bisschop, 2019).

### 2.1.3 ECOLOGIC ORGANIZED CRIMINALS

To depict the sophistication that ecologic organized criminals have reached: night time transportation with several small vans is becoming ever more strategic, as movements with large trucks would catch authorities' attention. The waste is also never transported without the

proper documentation. It is mainly the north-south route that is chosen for the illegal trafficking, as most waste producers are located in the Northern regions (especially Lombardy) and most dumping sites are located in the South. Interestingly enough, Puglia, Calabria and Campania are usually the preferred final destinations, however, illegal dumping sites have also been recently found in the northern regions, such as Lombardy, Piedmont and Lazio. These are therefore not only sources of waste but also final destinations. An explanation for this is that the traditional trafficking routes to the south have become ever more complex and risky, as law enforcement has become more sophisticated.

To sum up, the collusion between the industries producing waste and the ecological organized criminals has demonstrated a very complex secretive network that has far reaching connections, involving producers, managers of dumping sites, storage firms, chemists and specialised laboratories and as previously mentioned, even farmers. The structure of such an organisation tends to be quite simple, involving three to four individuals. Often times it originates with simple entrepreneurs gathering to agree on the illegal disposal of their waste; these individuals have usually no criminal precedent or any criminal record. The main collaborating parties are white collars, which are identified as entrepreneurs, brokers, chemists, etc. They operate along with blue collars, truck drivers, other kinds of transporters, and other unskilled workers. The most important figures in the field are the intermediaries (also known as middlemen or brokers), they contact the waste producers and connect them to the right businesses, who sell their services at the lowest prices. Intermediaries are also the ones that bridge producers, entrepreneurs (or receptors), transporters, etc. and are essential for facilitating the whole process. (Massari and Monzini, 2004).

Waste producers along with the first waste receivers (“recettori”) are usually people or businesses that hold the proper permits and are therefore difficult to prove their cooperation with criminal organizations, as their operations are not illegal on the surface. These individuals are usually on the lookout for a more convenient and economic way to dispose of large amounts of waste (Melley, 2020). In a later stage the producers contact entrepreneurs who hold permits for waste treatment. Handing over the waste to the latter is formally not illegal, however, instead of bringing the waste to legitimate dumping sites, it is disposed of in illegal ones or stored in illegal and abandoned depots. This is representative of the modus operandi of these entrepreneurs and businesses, who are registered under a nominee (so called “prestanome”). The lifespan of these criminal societies is usually quite short, as they only exist for the purpose of dumping waste illegally. Another important party at work are the individuals who search for abandoned depots and offer them to waste producers or receptors. Often times, the people



engaged in these operations are foreigners, who are willing to work illegally for minimal compensation (Melley, 2020).

## LITERATURE REVIEW

### 2.1 TRADITIONAL LITERATURE

In the traditional Anglo-Saxon literature, most of the regarding illegal waste trafficking in relation to organized crime and enforcement include theories such as deterrence, situational crime prevention and rational choice theory (Gibbs, 1975; Apel and Nagin, 2015; Brooker, 1972; Stafford, 2015; Friesen, 2012; Lynch et al, 2016; Shimshack and Ward, 2005; Stafford, 2002). For the scope of this thesis, these theories have been considered non satisfactory in explaining the complex mechanisms that are distinctive of Italian ecologic organized criminals. Deterrence, situational crime prevention and rational choice theory are intended as typical Anglo-Saxon literature. These three are valuable in the explanation of the classical drivers of crimes and the possible solutions to them. Deterrence theory has a valuable contribution in defining what elements are essential for crimes to be deterred (Gibbs, 1975; Apel and Nagin, 2015; Brooker, 1972; Stafford, 2015; Friesen, 2012). What can be taken from this theory is that the severity, celerity and certainty of a punishment influence the probability of a crime to occur and therefore whether the enforcement of a regulation can deter potential criminals. The definition of deterrence is quite ambiguous, since it is rather difficult to observe the omission of an act by an individual out of fear and risk for punishment (Gibbs, 1975). The body of literature on deterrence theory is mostly centred around experiences from the Northern American continent, which are in this case incompatible in explaining the atypical Italian case. The research on the effects of environmental enforcement and its deterrence has provided contrasting results. In fact, the deterrent effects of an environmental policy and environmental social control depend on the type of sanction that is analyzed, the year and country in which the data is collected from, the industry and the type of penalty studied. Moreover, the units of analysis employed are not the common metrics used for deterrence, therefore making it difficult to produce deductive results. The effect of environmental deterrence is at times only observable for specific laws and therefore the research on environmental deterrence cannot be generalized (Lynch et al, 2016). However, there have been many studies for the analysis of several kinds of criminal penalties and the correlation with their deterrent effects on environmental crime.

Environmental offenders are rational individuals and are deterred when committing a crime implies higher losses than potential benefits. The cost of the incurred penalty might deter the criminal directly, and it might indirectly deter other potential offenders who are observing the responses of environmental social control (Lynch et al, 2016).

Situational crime prevention theory is also a very appealing theory from an enforcement point of view. However, while it proposes an interesting solution to the problem of criminality in general, it fails to provide an instrument of analysis for the complex Italian situation. Similar to deterrence theory, situational crime prevention theory (SCPT) focuses on inhibiting potential offenders from committing crimes. Moreover, both theories are concerned with the choice an offender makes before violation. Similarly to rational choice theory, SCPT also assumes that individuals that engage in criminal activities will choose rationally basing their decision on a cost-benefit evaluation. They will be likely to commit crimes if they expect the benefits to be greater than the costs of investing their time and resources otherwise (Crofts et al., 2010; Clarke, 1995; Huisman and van Erp, 2013; Sahramaki et al., 2017). Tailor-made measures are necessary as decision-making processes amongst criminals may differ, therefore requiring adaptation to the type of offense that could take place. Moreover, after introducing ad hoc measures, the opportunities for violations should become more difficult and riskier, therefore making it less rewarding for individuals to still commit a crime (Sahramaki et al., 2017; Sahramaki and Kankaanranta, 2017).

Both deterrence and SCPT are very interesting at providing possible solutions to the problems of criminality, however, they offer insufficient explanations for the intricacy of the problem, especially in the context of organized ecologic criminals in Italy, whose fuzziness and adaptability can be considered atypical compared to the Anglo-Saxon cases.

## 2.2 FUZZY CRIMINALS

As previously mentioned, conventional literature and its approach to crime is not suitable to explain the complexity of the mechanisms at work in Italian illegal waste practices. The idea conveyed in the concept of a “fuzzy criminal” however, provides a more fitting explanation. The term “fuzzy” in the context of illegal waste trafficking, emulates the blurred lines between what is legal and what is not (Bisschop and Huisman, 2018; Korsell, 2018. This is the definition

that will be employed throughout this research. Furthermore, the fuzziness of these criminals is but one of the main characteristics that this concept conveys. In the following paragraphs the elements that are typical of fuzzy criminals will be thoroughly outlined.

### 2.2.1 WHITE COLLAR CRIME

The diverse backgrounds and nature of fuzzy criminals generate the intricacy and deep rootedness of their network. Frequently, it is white collars that represent the legal counterpart of the criminal network, thereby providing a significant opening for illegal practices. As Anderson (2017) observes, elite deviance is the most difficult category to research amongst offences, in that corporate criminals are sophisticated individuals that have the knowledge and connection to stay off the radar and leave almost no traces of their crimes. White-collar crime can be defined as the combination of legit business activities, that are exploited by illegal activities connected to them (Huisman and Erp, 2013). These crimes are thus mainly motivated by financial incentives and involve governmental agents or businesspeople as potential criminals. White collars crimes against the environment have not only been significantly harmful in terms of air, soil and water pollution, therefore posing great health hazards for humans, but also cause significant financial damage. Again, white collar crimes elicit great damages financially and environmentally, yet it is difficult to make a precise estimate of the impact; it is however argued that in terms of damage they have a greater impact than street crimes (Huisman and Erp, 2013). It is moreover difficult to recognize a white-collar crime as victims often time are unaware they are being victimized or cannot identify who or what the source is of their troubles. Insurance fraud and tax evasion type of crimes represent a large financial loss for society but still can be unnoticed by ordinary citizens, compared to a common street crime. Reporting such crimes, even when it is a corporation disposing of illegal waste, might be troublesome. There is no specific individual, or time or place that can be indicated for a white crime, but often multiple of those (again, even involving government officials), but identifying them can be nearly impossible. White collar crimes, also known as dirty collar crimes, make use of the reliability of the public sphere instead of engaging in private markets. Because of this they can ensure their own financial stability and in case of failure, they can request funds and help from the state (Huisman and Erp, 2013).

Environmental crime is often cited as crime of omission (Huisman and Erp, 2013; Sahramaki et al., 2014), it is a distinguished crime in that violations occur when there is no

action taken. Building on that, we find white collars playing a significant role in committing this very specific type of crime. However, as Huisman and Erp (2013) note, there should be a distinction between predatory and regulatory white-collar crime. Predatory crime, as the name suggests, concerns the attack of a certain target, such as identity theft. Regulatory crime on the other hand, applies better to environmental crimes as it is often a lack or failure to comply to regulations. Yet, a particular category within environmental crimes, illegal waste trafficking (and dumping), is an exception to the distinction, as it requires fraud and disguise, therefore it is not per se a crime of omission. Omission in this case also entails that preventive measures might purposely neglected, or that there is a lack of compliance to certain rules (Huisman and Erp, 2013). White collar crime is often calculated and does not generate from a criminal intention per se, there is also not a tangible object that is targeted, but rather an opportunity. The profession of white collars also grants them easier access to their objective as they already possess the knowledge, network and skills , giving them a significant advantage, “They are in a position to commit fraud by virtue of their legitimate job, and are therefore unlikely to be suspected as being “out of place”: their camouflage is already there “ (Huisman and Erp, 2013, p.1181).

### 2.2.2 LEADING AND SUPPORTING ACTORS

For the scope of this thesis, fuzzy criminals will be divided into two categories, leading and supportive actors. This distinction is important, as not all individuals play the same role in certain crimes, although their essentiality may be disregarded by the authorities. In their study, Sahramaki et al. (2017), observed that for the three countries they studied (Italy, The Netherlands and Finland) there was a distinction between leading and supporting actors. Leading actors could be categorized as those criminals who appear to be most engaged and often the prime suspects of a crime. Often, they are owners of import-export enterprises or recycling businesses, ranging in size from small to very large companies. An example from one of the Dutch cases they analyzed, involves a director and his employee of an import export business who committed the crimes; another, from an Italian case, concerns business owners whose common interest is saving costs and making profits through illegal waste trafficking. Supporting actors, on the other end, are often involved either willingly or not and are complicit in committing the offense, sometimes unaware of the illegality of it. An example of this is a supporting actor in Italy, who believed he was donating his electronic waste to a charity, when

in reality the waste was part of a larger illicit trafficking business (Sahramaki et al., 2017). On the other side of the spectrum, supporting actors who deliberately play a role in crimes can be of essential importance in illegal activities, covering the logistics or preparations of the crime. It should also be noted that in most judiciary cases, supporting actors are not the prime suspects, therefore, enforcing and preventive measures that should also be directed to these individuals are disregarded (Sahramaki et al., 2017). The idea of leading and supporting actors enriches the concept of fuzzy criminals, as the different backgrounds that characterize fuzzy criminals, divide them into the two categories.

### 2.2.3 ORGANIZED CRIME

Proceeding to another ramification of criminal actors, the next characteristic of fuzzy criminals that will be analyzed is their organization. Unfortunately, there is no clear-cut definition of organized crime its notion has changed over time. It is settled however that there are two components that define organized crime: firstly, the “who” part, namely cooperating criminals who create stable partnerships and partake jointly in criminal activities in a systematic manner (Vagliasindi, 2015). Secondly, the “what” component refers to crimes with a certain significance performed by less organized structures (Bisschop and Huisman, 2018). The type of illegal activities in organized crime range from human trafficking, waste trafficking, money laundering, extortion, embezzlement, etc. Requiring the most varied kind of actors to be involved. These individuals do not constitute a criminal organization by themselves but do so by interacting with one another. Moreover, organized crime is often deeply connected to legal entities and activities, often succeeding at blurring the lines between what is legal and illegal, creating a fuzzy environment to facilitate illegal activities (Bisschop and Huisman, 2018; Korsell, 2018). As Bisschop and Huisman (2018) observe, “Organized crime is often defined as complex criminal organizations that aim to control illegal markets - and even branch out to legal markets – and attain control by means of violence and/or corruption. However, it changes with new criminal opportunities arising and its definition thus requires flexibility” (p.5).

In sum, organized crime is a series of systematically committed offenses that are organized by a cooperating body of criminals. Any changes in regulations can create opportunities for these organized criminals to seize, such as new restrictions or new taxes. An example from Korsell (2018) would be the restriction on alcohol in the US during World War II, incentivizing organized crime. The advantage organized crime holds when new regulations restrict or prohibit certain goods or actions, is that it can provide what is lacking for a more

suitable price or even provide what cannot be found in the legal market. Services provided by organized crime are often more convenient compared to legal services of the same kind (Korsell, 2018). Therefore, regulations can represent an important factor in creating a viable environment for crime. Taken to an extreme level, one can say that regulatory schemes are the trigger for crimes to occur (Korsell, 2018). In addition, waste crime can also be defined as organized crime as the individuals involved are engaged systematically in violating environmental regulations. Moreover, these offenders often create organizations for these intentions only and combine waste crime with money laundering, corruption and tax evasion. Organized crime and waste violations, thus, go hand in hand, and it is often the case that serious crimes have been connected to legal actors; once more, it can be observed how the distinction between legal and illegal becomes unclear and fuzzy (Bisschop and Huisman, 2018).

#### 2.2.4 SHADOW ECONOMY AND CORRUPTION

The focus of this section is the analysis of specific aspects of a shadow economy, such as the significant opportunities that it offers to fuzzy criminals and the difficulty to track illegal activities. Moreover, corruption is a complimentary concept that characterized both fuzzy criminals and a shadow economy. For this reason, it will be included in this section as well. As Korsell (2018) observes, most of the illegal economic transactions do not per se involve transactions of money, but rather savings made when circumventing the legal and bureaucratic system. Time and money are costs that can be avoided, both important resources for large businesses. What this means for a company are increased earnings because of the reduction of costs and losses (Korsell, 2018). A shadow economy, or informal economy, comprises all illegal activities that involve monetary transactions that are not reported for taxation. Moreover, other kinds of illegal activities are frequent in the underground economy, such as offering illegal services and products, stolen goods and drug dealing. A shadow economy is fluid, constantly evolving and changing, it adapts to new policies and actors. Its size is also difficult to calculate as illegal activities are performed in secrecy, therefore authorities do not know when or what kind of illicit transactions take place. As a result, it is also difficult to allocate resources knowing that they might be stolen or taken advantage by corrupt individuals (Schneider and Enste, 2002). According to data extracted from the OECD, Italy's shadow economy represents 30 percent of its GDP, making it the largest in Europe. The introduction

of more and stricter regulations followed by increasing tax rates cause the shadow economy to grow, as individuals find ways to evade taxes and make profits (Schneider and Enste, 2002).

In their study, Dreher and Schneider (2010) conclude that corruption and shadow economy are complements in high income countries. It is very specific individuals and small firms that usually go underground in the informal economy, as it is hidden from authorities, in particular tax officers. Bribes are the main means for corruption and it is common in the public sector to exploit officials to obtain contracts for large scale projects, frequently in the construction department. The contracts obtained are, however, legal as they have been stipulated in the formal economy. Therefore, corruption is performed to obtain benefits in the official economy, such as easier access to economic activities (Dreher and Schneider, 2010). Corruption in its more general definition is the misplaced employment of power and resources by individuals in the public sector, which is frequently combined with illegal waste trafficking (Cesi et al., 2019). There are ever more reports of white collars and local bureaucrats that operate in the waste sector and are involved in illegal practices. As Cesi et al., (2019) observe, “by the late twentieth century, increasing costs of legal disposal as a consequence of tighter waste regulation have stimulated organized transnational criminals, corporate polluters, and corrupt public officials to engage in an illicit traffic, whose scope and profitability are rivalling the international drugs trade. In several cases, illegal waste disposal is enabled by conniving local authorities, and also corrupt practices at high levels of government” (p.66). Illegal waste trafficking and corruption thus go hand in hand, however this relationship still lacks research. Organized criminal groups that are involved with traditional crimes (drugs, arm dealing, etc.) are increasingly getting involved with illegal waste practices, as it is a profitable practice that also includes businesses (who derive financial benefits from disposing waste illegally). There is evidence of the presence of illegal networks that employ large-scale corruption to forge certificates for imports and exports of waste and that enable illegal trade (Martini, 2012).

Hence, corruption can be employed to obtain large contracts in the formal economy, to derive financial benefits from waste disposal but it can also involve specific processes in the movement of waste, for example the import and export of it (authorizing the movement of it while ignoring restrictions or lacking controls), authorizing individuals to illegally transport toxic waste, corruption at border controls (lack of control of the documents); even in the monitoring and detection of illegally disposed waste the authorities involved can be bribed to look the other way (Martini, 2012).

### 2.3 DISPLACEMENT

A complimentary concept to the ideas of fuzzy criminal, which has been building this theoretical framework so far, is displacement. This concept is useful in explaining the question of why violations are so reoccurring, even when there is seemingly appropriate enforcement in place to prevent and punish crimes. If we consider that criminals are rational individuals that can bypass crime prevention, it is not strange that they can also devise strategies to anticipate those preventive measures taken by authorities (Ekblom and Tilley, 2000). Displacement can be defined as the event that criminals are prevented from achieving their target, they will search for similar goals in different locations, periods and might change their tactic (Ekblom and Tilley, 2000). From this definition we can assume that crime gets transferred to different places and different targets in the short run if we consider the 'basic' kind of criminals. On the long term however, we will find the more intelligent and calculated type of criminals that adapt their strategies to bypass preventive actions and still commit the crime by developing new techniques. However, on the side of enforcement and crime prevention there is also an evolution in new forms of defense and opportunity reducing measures. Therefore, we can observe a constant evolution in a cat-mouse type of relationship with innovations occurring from both sides (Ekblom and Tilley, 2000). These last assumptions will also be adopted in this research, namely those of calculated fluid criminals and their agile counterparties on the enforcement side.

The creativity in the strategies adopted by criminals depends on the changes in their opportunities for violating. The specific measures that are employed for prevention of these crimes have different results and their preventive potential will also alter. Yet, adaptation in criminals's behaviors, strategies and innovative preventive measures are not sufficient to explain displacement. It is also a matter of contextual changes, or better yet, secular changes as Ekblom and Tilley (2000) describe them; an example of this is the computerization of processes, which automatically nullified hand-written false documents. Therefore, certain skills acquired by criminals became useless and new skills were necessary for them to still be able to falsify documents. In the light of this, authorities need to take preventive methods to a more dynamic level as to anticipate the instruments that offenders may employ for a new crime and to avoid adaptation by criminals. It is thus important to identify patterns of crime, especially those that exploit new openings for violations (Ekblom and Tilley, 2000).



Given the wide range of possibilities displacement offers, it is a rising concern for authorities when it comes to illegal waste dumping. This can be explained by the ease with which waste can be disposed of and the many possibilities this type of crime conveys. Crofts et al. (2000) propose secondary crime prevention as a solution to this phenomenon. The working of secondary crime prevention is through education and disruption of the way individuals perceive waste dumping. This way, the justifying reasoning behind illegal waste disposal and other criminal behaviors is removed. Furthermore, by educating would-be-offenders, the sense of responsibility towards society will be greater and social surveillance in illegal waste dumping will also increase. (Crofts et al., 2010). Just as the previously mentioned situational crime prevention theory, secondary crime prevention could be a suitable solution to the phenomenon of illegal waste trafficking.

## 2.4 GREEN CRIMINOLOGY

It is useful to start with the distinction between two fields of study, green criminology and environmental criminology as they can be confused as pertaining to the same topic. The underlying theories are very different, in fact, environmental criminology concerns the study of the spatial distribution of crime, for example the number of felons divided across neighborhoods, cities, etc. The characteristics of each environment are, according to this theory, valuable in explaining why the distribution of crime is as it is (Bruinsma and Johnson, 2018). “Put more explicitly, environmental criminologists see variation in the environment as shaping the likelihood that crime will actually occur as well as where it might do so” (Bruinsma and Johnson, 2018, p.3).

In order to answer the research question of this thesis, however, the concept of green criminology is most suiting. Green criminology was founded as an extension of political-economic analysis and radical criminology by Lynch in 1990. According to some researchers, the focus of green criminology lies on the economic foundation of crimes against the environment, in other researcher’s views, it pertains to environmental violations. There is thus agreement that green criminology studies the destruction of the ecosystem (Lynch et al., 2017). Lynch et al. (2017), however, adopt a political-economic approach to green criminology, focusing on “human behaviors that cause ecological destruction and ecological

disorganization". Hence, the focus lies on political and economic structures in a society, which cause environmental degradation (Lynch et al., 2017, p.10). This same approach will be employed for the interpretation of green criminology in this thesis. There are no proper theories in the developing discipline of green criminology, since there is not a precise theoretical focus and because there is no concise definition of the concept of green crime. The field is therefore drawing on traditional criminology for theoretical inspiration. Some researchers have adopted green crime categories from previous studies on green criminology. Lynch et al.'s (2017) frame of green crime is based on political economic theory, assuming that the types and amounts of environmental issues and damages are influenced by society's economic organization. Again, this perspective on green crime will be employed in this paper as well.

Rational choice theory (RCT) can be an important explanatory tool in the context of ecologic organized crime. For this purpose, it does also merge well with green criminology, as it can be considered a supporting theory in explaining potential criminal behavior, especially when it comes to making the decision of either commit a crime or not. With the application of rational choice theory to the fields of criminology and criminal justice, many current crime problems have been resolved more cost-efficiently and effectively (Hayward, 2007). RCT directs the focus to the behavior of individuals and assumes that all individuals are rational beings who make rational choices. Until its application to criminology, RCT was employed in economic literature and was referred to as 'self-regarding preference' as it was assumed that individuals acted in their self-interest. Adam Smith believed that within a free market it was this very self-regarding competition that guided what he called "the invisible hand". This theme was later reinstated by Becker in the context of neoclassic economic theory of crime, which "applied the traditional expected utility model of choice to offending, suggesting crime is an outcome of an agent's rational consideration of the risks and pains of punishments as well as the gains of crime" (Paternoster et al., 2017, p.848). Finally, Cornish and Clarke introduced rational choice theory to criminology and applied its framework on criminal activities (Paternoster et al., 2017). Criminologists claim that RCT is a theory based on the assumption that offenders are acting out of self-interest only, evaluating the cost-benefits of alternative possibilities, choosing the option that gives the most utility (Paternoster et al., 2017). Therefore, the predictions of rational choice theory will reinforce those of green criminology. The assumption this thesis will emulate is that of rational criminals who in their self-economic interests, induce damage to the environment. These individuals are influenced by the economic organization of the society they live in, therefore their behaviour is rationalized in a strictly

economic manner, which leads to the ultimate destruction of the environment (Lynch et al., 2017).

## 2.5 ENVIRONMENTAL REGULATION AND FUZZY ENFORCEMENT

It is relevant to also consider the counterparty of ecologic organised criminality, namely environmental regulation and enforcement. Environmental crimes can be defined as crimes of omission due to the violation of regulatory requirements. It is difficult for environmental regulation and enforcement to establish whether a certain type of activity should be considered illegal or not, as the values and morals might differ from person to person. Therefore, what is an important environmental issue for someone may not be as important for another individual (Sahramaki et al., 2019). An example from Sahramaki et al. (2015) is the pollution and damage to the environment that large corporations elicit; yet it is accepted by societies who care for economic development more. Environmental legislation is deeply connected to the development of a country's economy. Specifically, it can be employed as an instrument for a government to influence the competition within a specific sector of the economy. Environmental policy can be an effective tool to also affect the international division of labor and trade policies. Related to this are the environmental regulations a government can choose to support its own firms on the national and international market. To achieve this sometimes a government can choose to neglect strict environmental standards thereby applying lax regulations instead. This phenomenon is one of the definitions of environmental dumping by governments (Rauscher, 1994). The issue with ecological dumping is that the government, allows its businesses to neglect environmental regulations for the purpose of selling their products at a cheaper price. The costs for the pollution are therefore lowered, as treatment of the waste is not necessary nor checked for by authorities. Therefore, environmental standards are lowered for the sake of competitive advantage (Rauscher, 1994).

In opposition to the previous theory, that governments allow for more pollution as a trade-off for more competitive advantage, there is a theory that suggests that trade liberalization actually benefits the environment. Bommer and Schulze (1999) created a model of political optimization in which regulations and policies were selected to gain the support of those interest groups that are particularly concerned about environmental issues. This can be explained by the wish of governing parties to maximise their supporter base and to ensure their

re-election. Furthermore, in their study they show how environmental regulations become stricter in the process of trade liberalization as a trade-off for more polluting exporting sectors, whilst environmental policies are relaxed for polluting importing industries. Moreover, open economies have proved to be less polluting and more environmentally responsible than closed economies, because of trade liberalization (Bommer and Schulze, 1999).

A very important topic discussed by De Rosa is the development of criminal justice system in illegal waste trafficking in Italy (2016). Up until 2001 there were no real penalties for ecological felons, the only risk these criminals would encounter was an administrative sanction. Only in 2001 illegal trade of waste became a real penal felony, as the Italian legal system created article 260 in the legislative decree 152/60 with the crime of organized trafficking of waste. The first comprehensive environmental law on ecological crimes, n.68/15, was approved fourteen years later by the Italian Parliament. This law codified five new environmental crimes with regard to pollution, traffic and disposal of radioactive waste, environmental disaster and negligence, and finally, obstruction of control. Unlike the punishments before 2011, these recognised penal felonies charge criminals with imprisonment, 2 to 15 years, combined with substantial monetary fines. However, these improved punishments raised significant discussions, as environmental activists and magistrate associations point out that environmental criminals can circumvent punishment if they ensure reclamation. Moreover, they criticise the fact that the prescribed terms after which the crime is not punishable anymore are not long enough (De Rosa, 2016).

It can be deduced that traditional environmental enforcement is at times not sufficient to deter ecologic crimes from being committed. In such instances, the enforcement becomes fuzzy, responding (or not) to the complexity of illegal waste practices. To elaborate, new techniques for monitoring, investigating and counteract illegal waste practices are constantly sought and developed. An example of this is the employment of drones and gps tracking devices on trucks to monitor illegal waste practices (De Rosa, 2016). Moreover, in the case of weak enforcement there can be a stimulation for organized ecologic criminals to seek ways to evade regulations. In particular, in an environment characterised by strict and 'expensive' regulations, individuals will seek alternative ways to continue their activities with less expenses. With this in mind, it is important that the components of environmental enforcement (judicial system, police officers, etc) are aware of the opportunities that stricter regulations create in the underground economy (Baird et al., 2014). An example from the Italian situation in waste trafficking is the failure of adequate enforcement due to a scarcity in economic

resources necessary for the prevention and monitoring of crime. In addition to that, the deep ties between political actors and industrial lobbyists creates an intricate situation for enforcement to prevail (Germani et al., 2015).

### 2.3 CONCEPTUAL FRAMEWORK

In the previous sections four key concepts have been thoroughly analysed. Together they sketch a picture of the cat-mouse game that is the relationship between the illegal practices of ecologic organized criminals and the response from the regulation and enforcement side. The concept of fuzzy criminals is relevant in answering the research question in that it helps mapping out the types of criminals that are typical of ecologic organized criminals, their characteristics and it also helps understanding the hierarchical structure within such an organization. The concept of displacement on the other hand is different in that it explains the strategies employed and their modus operandi, which is necessary in order to understand the underlying mechanisms of waste trafficking. The concept of green criminology also takes a different approach in that it portrays the underlying economic motives for which the organized criminals decide to engage in green crimes. Finally, the concept of environmental regulation and enforcement concept sheds light on the regulatory and enforcement response to the fuzziness created by the organized ecologic criminals.

The key concepts of fuzzy criminals, green criminology, displacement, environmental regulation and fuzzy enforcement, will jointly structure the conceptual framework that will be employed to analyse the cases later on in this research. Furthermore, these key concepts are connected to one another in that they portray the set up of the (a)typical criminal network, its motives and its modus operandi. Linked to this, is of course the counter response from the environmental enforcement entities. Hence, fuzzy criminals are the key players that commit systematic ecologic crimes in an organized manner (given their dense and variegated network that is structured in leading and supporting actors with various functions). The green crimes that they commit are motivated by economic profits, strict regulation and the presence of fuzzy and weak enforcement. Their modus operandi is highly adaptable, agile and very difficult to track for enforcement authorities, as it can be easily displaced. The environmental regulations and enforcement thus need to deal accordingly, employing fuzzy techniques to intervene and stop illegal waste activities. The four key concepts can be thus clustered according to their

essence into the following dimensions: the network, the motive and the strategy (or modus operandi) and the enforcement's response.

### 2.3.1 CONCEPTUAL GRID

A conceptual grid has been created to explain the link between the concepts and their connection to the cases. The essence of the four key concepts has been presented in the left column of the table and the corresponding key concept in the right column. The essence of the key concepts will be employed in the case studies to structure the information that will be presented.

**VISUAL REPRESENTATION OF THE CONCEPTUAL GRID:**

<b>ESSENCE</b>	<b>KEY CONCEPTS</b>
<b>NETWORK</b>	<b>FUZZY CRIMINALS</b>
<b>MOTIVE</b>	<b>GREEN CRIMINOLOGY</b>
<b>MODUS OPERANDI</b>	<b>DISPLACEMENT</b>
<b>ENFORCEMENT RESPONSE</b>	<b>ENVIRONMENTAL REGULATION AND FUZZY ENFORCEMENT</b>

## CHAPTER THREE: METHODOLOGY

### 3.1 GENERAL RESEARCH STRATEGY

This research adopts a nested case design, in that two case studies have been selected for their similarity but also for their contrasting elements. This type of design allows for more accurate inferences in explaining the unique and atypical situation in Italy. Both the complexity of the Italian waste trafficking problem, criminal networks around it and regulatory and enforcement response will be portrayed in these large case studies. In general, the two large cases present similar issues (illegal waste trafficking). However, they prove to be different in terms of the specific events, problematics and response to them. To be precise, the first case presents a large-scale construction project, in which the structure and diversity of the criminal network is quite simple compared to the complexity of the network in the second case study. Moreover, the regulation and enforcement in the first case are, in a sense, organized more traditionally (the criminal organization and its proceedings are investigated in a traditional manner. In the second case, due to the intricacy of the illegal operations and fuzziness of the stakeholders, the response from the enforcement side is also in a way, fuzzy. Hence, the empiric diversity makes these cases interesting from an analytical perspective. The diversity also allows for valid inferences. In sum, it can be said that the empiric diversity permits a systematic observation (facilitated by the conceptual frame and the matrix), producing a sound analysis and conclusion. The reasoning behind the selection of these specific two cases among many others will be further explained in the following section.

This thesis can be categorized as a qualitative study as it bases its results on the comparison and analysis of the two cases, the design is therefore small-n. The cases are systematically described, following the four dimensions elucidated in the conceptual grid. Moreover, the analytical section of both cases is also systematic in that the structure is based on the conceptual frame provided in the second chapter. The operational questions in the matrix (that will be presented later on in this chapter) guided the selection of the information that has been analysed. This structure allows for a sound analysis that culminates in the comparison of the two cases. Moreover, the information regarding the modus operandi of the criminal network of both cases has been structured following the three phases of the waste cycle (origin, transit

and final stage). This allows for consistency between the two cases, connects the cases to the theoretical framework and grants a systematic presentation of the information.

A combination of inductive and deductive reasoning has been applied throughout the case analyses. The key concepts selected in the previous chapter helped generating inductive inferences of the criminal (sometimes hidden) mechanisms that emerge in the cases, in particular the structure of the networks and the complexities of the illegal operations. In addition, the cases can be categorized as interpretive as their complexities make it necessary to employ the theoretical framework and provide an evaluation of the key concepts. (Vennesson, 2008). Deductive reasoning on the other hand, emerged while analysing the cases, as they present themselves as unique situations to Italy, which have not been researched as much in academic literature, especially in the Anglo-Saxon-centred body of literature. Moreover, the conceptual framework cannot account for eventual irregularities and peculiarities that emerge in the cases. For this reason, deductive assumptions have been made based on the events, networks and contradictions that emerged in the case studies.

## 3.2 SAMPLE SELECTION: METHOD AND SIZE

### 3.2.1 CASE STUDY SELECTION: SCOPE, METHOD AND SIZE

As previously mentioned, the cases are small-n, selected because of their similarity but also because of their relevant differences. These two specific cases have been chosen for they are representative of the most occurring and exorbitant ways of illegal waste disposal practices by ecologic organized criminals. Moreover, the cases are, in their own category, also most interesting to study, given the extent of their environmental, social and financial impact. The illegal trafficking practices are therefore most evident in these two cases and can be analysed accordingly. The choice of a nested case design allows for inferences based on the similarity and differences between the two cases; this accounts for empirical diversity and validates that these cases can represent other similar cases.

There has been a deliberate choice in the time period of both case studies, in the sense that the temporal focus has been limited to the years between 2011 and 2018 as to limit the size of the case studies and this research. The choice of the second case study was also justified in that in the year 2018 (as will be further explained in the case study chapter) the Chinese



government imposed restrictions in the import of waste. This caused a surge in illicit waste trafficking and in particular in the number of fires that occurred (Brooks et al., 2018). Moreover, the area of interest for both cases is the region Lombardy. The reasoning behind this selection is that it is a region in which most waste is produced and trafficked. It is also often the starting point of illegal waste routes that end in the southern regions.

### 3.2.2 SELECTION OF DATA AND SOURCES: METHOD

The data that has been selected for this research been extracted from the following secondary sources, local Italian newspaper articles, international newspaper articles and national Italian newspaper article, books and academic articles. One book in particular, “Otre Gomorra” by Nunzio Perella, has been a valuable resource in unravelling the intricate networks and mechanisms of Italian ecologic organized criminality. This book also specifically reported information regarding the first case of this research. The newspaper outlets were of diverse scale and political orientation. This diversity renders the information collected more valid. Specifically, Italian national right-wing newspapers, such as ‘corriere della sera’ and center-left wing national newspapers such as ‘la Repubblica and la Stampa’ have been employed. Local newspapers were also included as the reports on the cases were more detailed, these include ‘Milanotoday, l’eco di Bergamo, il fatto quotidiano and il giorno’. There have also been online news outlets that have been included because of their societal involvement, such as ‘POLITICO and Report Difesa’. The academic articles that have been selected provided valuable insights and validity to the information that the rest of the secondary data presented.

For empirical accuracy the data has been triangulated with international and national official documents, namely Italian official government reports (Regione Lombardia Consiglio Regionale), reports and statistics from an Italian NGO specialized in environmental crimes (Legambiente), Europol, Interpol, ARPA (the Regional Agency for Environmental Protection-Agenzia), the investigative agency specialized in the Italian mafia DIA (direzione investigativa antimafia) Milano. Another important source for triangulation has been the Italian environmental NGO, Legambiente, which collects data and reports every year specifically on illegal waste trafficking.

The search for sources was performed through internet-based search engines. Predominantly, the selected search engines were Google, google scholar and the online search

catalogue of Leiden University. These search engines were selected for their broad reach and extensive amount of sources. Specifically, Google was employed in searching for online newspaper articles, official governmental and non-governmental documents, statistics and for some academic articles. Google scholar and the Leiden catalogue were also employed for the search of academic articles and official documents. To find articles and documents that were specifically needed for this research, it was necessary to insert specific keywords (for instance organized crime, environmental enforcement, Italian organized crime, etc.). Moreover, some academic sources and books were found through cross-referencing of other academic articles that discussed the same thematic. Some official documentation has been found by inserting keywords in the google search engine, this applied for both governmental and non-governmental documentation. In the case of non-governmental official governments, the information had been traced through data bases of Europol, Interpol and Legambiente. Moreover, certain newspaper articles referenced to other newspaper articles that had been written on the same topic in different time periods. This way it was also possible to trace additional information.

Once the data was collected it was analysed, triangulated, often also translated from Italian to English (many newspaper articles are written in Italian) and finally organized based on the thematic, scope and following the conceptual framework. Because there were numerous avenues of information, only the ones that had a certain degree of validity were selected. Specifically, the national and local newspapers that have been chosen are the most notorious in Italy and are therefore credible sources of information. For empirical diversity, multiple political orientations have been included, as already mentioned. This means however that other secondary sources were excluded. The reason for this, is that the data could not be validated by means of triangulation. Moreover, multiple other newspaper outlets repeated the same information; hence for the scope of content selection, only the most credible newspapers have been selected.

Finally, the information that has been presented in the cases has also been selected based on its relevancy for the case analyses. An example of this is the selection of the key stakeholders for the cases. While researching, numerous actors that were involved in the illegal waste trafficking and in the enforcement thereof emerged. However, only the ones that were considered key stakeholders have been selected in the cases as they were valuable in providing context, clarifications and connections. They were also relevant for the analysis of the cases.

### 3.5 LIMITATIONS OF THE RESEARCH

As mentioned in the previous section, this research is a qualitative study and therefore considers two large case studies. Therefore, a limitation that must be acknowledged is the selection bias. There needed to be a selection of data and number of cases. The latter, is compensated by the representativeness of the cases in their empirical diversity (size and scope), which validates their choice. For this reason, a nested case design has been applied. Moreover, the case studies that have been selected are representative of the most common strategies of illegal waste practices. In their own way, the case studies are unique in terms of the scale of the operations, networks and mechanisms analysed. For further research it might be interesting and valuable to compare the Italian cases, which are considered atypical in this context, with more 'traditional' (or Anglo-Saxon) cases. Perhaps even a comparison between the Italian case and another European country would also bring valuable insights in the context of environmental enforcement and regulation. This way, not only criminal mechanisms and networks can be compared, but also the regulatory response can bring valuable insights.

Moreover, because the details of the case studies' investigations are not open for the public to read, the main empirical information has been extracted from newspaper articles, books and academic papers. Tracing the authors of some newspaper articles was at times difficult or impossible, it can be assumed that this was for safety reasons (the nature of such work implies that there are safety risks involved). To compensate this lack of specific details the empirical diversity has been covered by triangulating the data (as has been previously explained). Some sensitive information had been kept classified for safety reasons and because some investigations were still ongoing in the period in which the articles were published. Unfortunately, it was not possible to access the classified information. Hopefully in further research this will be possible. Moreover, the information presented in the newspaper articles was at times incomplete. This can be explained by the fact that the authors of the articles either were not granted access to certain classified information at the time and that certain developments in the investigations were only known after a certain time. Again, this lack of information while researching has been compensated by triangulating the data and by searching for other newspaper articles presented on other outlets and in different time periods. This way the information of the cases was completed and organized in a structured manner. The employment of the conceptual framework and conceptual grid proved to be especially useful.

### 3.3 OPERATIONALIZATION

#### 3.3.1 THE FOUR KEY EXPLANATORY CONCEPTS

The operationalization of the concepts that will follow is structured according to the conceptual framework. Thus, the five key concepts have been defined in a concise manner so that they fit the purpose of this thesis and help produce a systematic analysis later on.

##### 3.3.1.1 FUZZY CRIMINALS

The idea of fuzzy criminals that this research adopts encompasses various aspects of criminality. These are specifically applicable to the context of ecologic organized criminals in Italy. The characteristics of fuzzy criminals coincide with those typical of white collar criminals. The fuzziness of these criminals is rendered by their positions in the public sphere. This enables them to blur the lines between what is legal and illegal. By relying on their public function and the benefits that come with that, they have the power to facilitate illegal activities. This can either be done by providing a seemingly legal facet to the operations or by legalizing certain illegal activities. The political influence of some white collars sometimes even obstructs monitoring of authorities. The position of these types of fuzzy criminals in the public sphere thus allows for the collaboration between criminal individuals and seemingly legit public figures. Fuzzy criminals are not drawn to a particular goal, but rather find themselves creating opportunities to gain significant amounts of money (Huisman and Erp, 2013; Anderson, 2017).

Corruption is another characteristic of fuzzy criminals. It is intended as the exploitation by white collars (but also individuals that hold certain powers, authority and position) of their position in the public sphere. This entails that the individual abuses of his or her position for illegal purposes. Corruption can take place in various stages of waste management, disposal and transportation (Cesi et al., 2019; Dreher and Schneider, 2010; Schneider and Enste, 2002)

Even though fuzzy criminals stem from different kinds of professions, backgrounds and positions within society, there is a certain hierarchy in their organization that gives it structure. They can be divided in leading and supporting actors. Leading actors are in this case individuals that are assume the role of ‘leaders’, they organize and plan the illegal activities, take decisions

and make the necessary networking connections. They are usually the first individuals suspected of committing crimes or who already hold a criminal past. Supporting actors on the other hand are not the primary suspected criminals as they are often complicit in some way. They can either participate willingly or become involved unwillingly and their role in the criminal scheme can be essential as well (Sahramaki et al., 2017). Lastly, fuzzy criminals are in the context of this research organized criminals. This entails that multiple individuals (again with different backgrounds, positions, etc) are interacting with one another, operate in an organized manner (the hierarchy of leading and supporting actors facilitated this organizational capacity), create stable partnerships and systematically participate in criminal activities. Because of their organization, they again blur the lines between what is legal and is not, thereby creating a favourable condition for criminal activities (Bisschop and Huisman, 2018; Korsell, 2018). The networks created within such an organization and the mechanisms at hand are very complex and often difficult to uncover. In sum, the idea of fuzzy criminals that is intended in this research is that of organized criminals with a specific hierarchical structure (leading and supporting actors) and specific (but also fuzzy) characteristics (these include white collar crime and corruption). The complexity of the network can be measured in the amount of key stakeholders involved and their organization and their structure (leading and supporting actors). The fuzziness of such a network can be measured based on the diversity of the key stakeholders and the level of corruption present.

### 3.3.1.2 DISPLACEMENT

The concept of displacement holds significant explanatory power when applied to this research. It is understood as the switch from a certain target or location or even from a well calculated scheme, to the best alternative option, due to the discovery of the opposing party (this applies for both criminals and enforcement). The assumption with this specific definition is that criminals are versatile and fluid, they thus adapt to disruptive situations and in the long term even anticipate preventive actions from authorities. The same assumption holds for the other party, however only to a certain extent. Waste trafficking and disposal are subject to displaced activities and ecologic criminals are therefore assumed to be exceptionally innovative in creating new opportunities (Ekblom and Tilley, 2000; Crofts et al., 2010).

### 3.3.1.3 GREEN CRIMINOLOGY

This research will adopt the political-economic definition of green criminology by Lynch et al. (2017), who suggest environmental destruction and degradation are caused by existing economic and political structures in society, that dictate human behaviour. Furthermore, green crime is intended as a crime of ecologic nature, performed out of economic interest for profits, which causes any kind of environmental damage and degradation. Damage to humans and animals caused by ecologic crimes are also considered as green crimes. At the level of the individual criminal or at the level of the organized criminal group, the decision to commit the crime is solely based on a cost-benefit assessment. The commitment to the crime is a display of rational choice after weighing its benefits against the punishment. Moreover, the assumption that criminals act on their self-interest and choose the option that raises the most utility, as suggested by Cornish and Clarke, is applied to the cases as well (Paternoster et al., 2017).

### 3.3.1.4 ENVIRONMENTAL REGULATION AND FUZZY ENFORCEMENT

The assumption this research adopts is that the government adopts stricter environmental regulations to safeguard the environment. This however creates opportunities for organized criminals that to make profits and it encourages individuals that are directly affected by these strict regulations to seek alternative ways to save costs. Moreover, environmental enforcement is assumed to be fuzzy, as it needs to respond to the complexity that characterise ecologic criminal networks and their illegal activities (De Rosa, 2016; Baird et al., 2014).

### 3.3.1.5 OPERATIONAL MATRIX

In this section the four ideas that form the conceptual framework have been operationalized in a matrix that will provide an instrument for the structural analysis of the cases.

KEY CONCEPT	OPERATIONAL QUESTIONS	TYPE OF DATA EMPLOYED
<b>FUZZY CRIMINALS</b>	<ul style="list-style-type: none"> <li>-In what ways can the key stakeholders be identified as fuzzy criminals?</li> <li>-Which stake holders are benefitting from corruption?</li> </ul>	<ul style="list-style-type: none"> <li>-newspaper articles</li> <li>-books</li> <li>-documentation from NGO's</li> </ul>

	<p>-In what stage of waste management has there been display of corruption?</p> <p>-Are there any instances in which a shadow economy can be identified?</p> <p>-To what degree is the criminal network fuzzy?</p> <p>-How can the key stakeholders be categorized in leading and supporting actors?</p> <p>-In what ways are the key stakeholders categorized as organized criminals?</p> <p>-To what degree is the criminal network complex?</p>	<p>-documentation from Italian regional environmental protection agency</p> <p>-academic articles</p>
<b>DISPLACEMENT</b>	<p>-In what instance is there a display of displacement?</p> <p>-How can we divide the basic from the more calculated criminals?</p> <p>-In what ways can we see displacement from two sides (criminals vs authorities)?</p>	<p>-newspaper articles</p> <p>-books</p> <p>-documentation from NGO's</p> <p>-documentation from Italian regional environmental protection agency</p> <p>-academic articles</p>
<b>GREEN CRIMINOLOGY</b>	<p>-What crimes committed by the key stakeholders can be categorized as green crimes?</p> <p>-In what instances are individuals acting in their self interest?</p> <p>-What is the economic motive behind the crimes committed? What is the cost-benefit evaluation in the crime committed?</p> <p>-Can any crimes be retraced by the economic system in Italy? (costs for treating the waste for instance)</p> <p>-Why can we consider the key stakeholders to be rational individuals?</p>	<p>-newspaper articles</p> <p>-books</p> <p>-documentation from NGO's</p> <p>-documentation from Italian regional environmental protection agency</p> <p>-academic articles</p>

<b>FUZZY ENVIRONMENTAL REGULATION AND ENFORCEMENT</b>	<p>-What agency holds responsibility for the enforcement of the environmental regulations?</p> <p>- What instruments are available to enforce the environmental regulations?</p> <p>-Is there a display of fuzzy regulation?</p>	<p>-newspaper articles</p> <p>-official Italian legislation documentation</p> <p>-books</p> <p>-documentation from NGO's</p> <p>-documentation from Italian regional environmental protection agency</p> <p>-academic articles</p>
---	--	--



## CHAPTER FOUR: CASE STUDY ONE

Illegal waste trafficking has been a profitable business for many decades in Italy. The flexibility of environmental regulations, along with corruption and benefits derived from illicit waste disposal have provided violators the opportunity to gain large sums of money (Germani et al., 2018). The market demand in waste disposal is said to be inelastic, suggesting that a surge in prices will not affect the demand for the service. This allows for more competition regarding the supply of the services, including an opportunity for fuzzy criminals as service suppliers. Illegal traffickers enter the market offering their cheaper services, thereby alluring many producers of waste to participate in deviant behaviour (Baird et al., 2014). Therefore, the actors involved in illicit waste trafficking are not only criminal groups, but also waste producers, storage firm owners, truck drivers, white collars and, as we will see later in this chapter, sometimes even farmers (Liddick, 2010). According to the research performed in 2011 by one of the most influential non-governmental organizations for the protection of the environment, “Legambiente”, the number of illegal activities concerning the environment have increased by 10% compared to 2010. In two years the numbers have increased by 17,5 % (Cannavò & Cullati, 2012). 2011 was a year of extraordinary activity in the areas affected by the illegal disposal of waste with more than 97 arrests in Campania and 4 in Lombardy. The latter earned itself the first position in 2011 within the North of Italy, with more than 1442 denounced people. The illegal cement cycle has also been particularly relevant in 2011 and 2012. More than 18 daily infractions mainly involving the four regions Campania, Sicily, Calabria and Puglia. More than 13.5% of the illegal cement activities were concentrated in the Lombardy region, making it the most targeted region in northern Italy in 2011 (Cannavò & Cullati, 2012). In 2011, there were 455 people investigated and 23 arrested. These people can be categorized as fuzzy criminals, as they included public servants, working in municipalities, public administrators, entrepreneurs and local politicians looking for electoral support. Corruption and affiliation with mafia is therefore quite common (Cannavò & Cullati, 2012). The groups Cosa nostra, Camorra and ‘Ndrangheta once again are in the spotlights, especially the latter has insinuated itself in Lombardy’s economic and social fabric. In 2010 the “Infinito” inquiry highlighted the pervasiveness of the mafia and their main investment sectors (cement, construction and waste). Legambiente made a note on how “permeable” local politics are to criminal organizations, meaning that there is compliance with illegal activities (Cannavò & Cullati, 2012).

#### 4.1 LOMBARDY TRAFFICKING

The writings and confessions of the former mafia boss Nunzio Perella in the book “Oltre Gomorra”, reveal many kinds of illegal operations that have led him to become a so called “white collar criminal”. The confessions start in 1992 as he became a collaborator of justice (as former criminals are called in Italy). (Coltro and Perella, 2017). According to Perella, illegal waste disposal was a practice that had started among the waste disposing businesses self, in fact, the revenues were unimaginable. Billions of euros were gained by hiding waste in caves or holes under the ground (Coltro and Perella, 2017). The mafia entered the scene many years after the exodus of the illegal waste activities, identifying an opportunity to make large profits, not only by joining the criminal network, but by taking the upper hand in some of the companies involved. More importantly, controlling public administration and politicians was essential to ensure the longevity of the illegal operations (Coltro and Perella, 2017).

In the 2011-2012 rankings by Legambiente, Lombardy was the fourth region with most waste disposal infractions. The region in the first place was Campania, followed by Calabria and Puglia, all regions with the highest mafia presence. In Lombardy, the cities in which most hearings took place were Bergamo, Brescia, Lodi, Milan, Monza, Pavia and Voghera. There were 30 judicial inquiries in Northern Italy and 30 in the South. This gives an indication of how the illegal waste activities in the North were just as intense as the ones in the South (Cannavò & Cullati, 2012). In 2014 the newspaper “Corriere della sera” reported that waste from Australia and other regions of the world had been smuggled in the country and buried in Lombardy (De Simone, 2014). The article claims that the mafia had been dumping illegal waste for decades: since the Second World War more than 30 million tonnes of waste had been hidden in the area around Brescia, one of Italy’s richest industrial cities (De Simone, 2014). In fact, Northern Italy has been nominated the new Land of Fire, (referencing the famous “terra dei fuochi” in southern Italy, in the Campania region between the provinces of Naples and Caserta). To give an impression of the impact these illegal disposals had on the landscape: flatlands have been transformed into hills as the waste got stacked up and buried. There are about twelve of these hills now in the Pianura Padana in Northern Italy (De Simone, 2014).

The city of Brescia and the Lombardy region at large have been the preferred destination for the mafia’s illegal waste activities. This can be explained by the optimal location

of the region, as it is easy to reach, especially by train, which is one of the preferred means of waste transportation, along with transportation by trucks. Moreover, due to Brescia's long history of illegal dumping and because of its large territory, it is an easy target for illegal landfills (De Simone, 2014). There are numerous people affected by chronic diseases and cancer. The causal relationship with the illegal toxic waste accumulated in the areas near the affected people is not yet confirmed; however, the sudden increase in cancer patients is hardly coincidental according to critics (De Simone 2014, Van der Ploeg, 2017). Moreover, traces of hexavalent chromium have been detected, which is a substance known for its elevated toxicity (De Simone, 2014).

The long-lasting operation "Infinito" (infinity) has investigated criminal activities in the context of large-scale projects. The entrepreneurial spirit has once and again proven to be a peculiar characteristic of organized criminality in the region, its penetration in the public administration demonstrates how well the fuzzy criminals have adapted and are able to infiltrate the political sphere (Cannavò & Cullati, 2012). The mafia represents just a small part in the larger criminal organizations that operate Lombardy's illegal waste practices. One of the investigations that constitute the Infinito operation has been selected as the first case study because of the many kinds of fuzzy criminals that are protagonists.

## 4.2 THE BRE-BE-MI HIGHWAY: CASE INTRODUCTION

The method that has been employed to structure the case study is predominantly inductive, in that the conceptual framework had been employed for analytical purposes. Therefore the four large thematics (network, motive, modus operandi and enforcement response) that represent the essence of each key concept (fuzzy criminals, green crime, displacement and environmental response) will be guiding in presenting the information of the case. Moreover, the information that has been presented in the case that does not resonate with the conceptual framework has been deduced from analysing the case self.

#### 4.2.1 LOCATION

The Brescia-Bergamo-Milano highway, in short the “Brebemi” highway was officially opened on 23rd July 2014, with its finalization in the summer of 2019. What makes this highway peculiar is that it has been completely financed by private investors, with a total cost of 320 million euros. For this reason, the costs for the tolls have been exceptionally elevated. What stroke the public and the authorities even more was the discovery of tons of illegal waste, buried in the subsoil below the highway. The highway self was found to be composed by a mixture of toxic waste and asphalt (Di Landro, 2011). The highway has been part of the investigations in the large ‘Infinito’ operation, in which multiple grand-scale projects, such as the Expo of 2015 in Milan, have been exposed to the infiltrations of organized criminals. The highway was not the only location affected by illegal waste practice, in fact a landfill in Calcinante and the two construction sites for the highway, located in Fara Olivana con Sola and in Cassano d’Adda were also part of the investigations (Di Landro, 2011).

#### 4.2.2 NETWORK

One of the actors that has been nominated multiple times in this case is the owner of the waste disposal business, Pierluca Locatelli, who has been accused of corruption and illicit waste trafficking activities. The other players involved were Franco Nicoli Crisitani, vice-president of the regional council and Giuseppe Rotondaro, the staff coordinator of Arpa, (the regional environmental protection agency), and the assessor of the partito democratico liberale (center-left wing party) Marcello Moro (Giuzzi, 2012). Crisitani was arrested for granting environmental permits for the disposal of illegal waste in an asbestos landfill in Capella Cantone, for the illicit construction works related to the Brebemi highway and for the disposal of illicit waste in Bergamo (Stefanoni, 2014). The vice-president also was accused to hold connections of hegemonic predominance with mayors and other political figures across the region (Stefanoni, 2014). Marcello Moro, assessor of personnel of the municipality of Bergamo and local administrator, was another key figure in the access of construction grants for Locatelli (Ubbiali, 2018). Rotondaro was another essential player as he would obstruct and slow down the monitoring on the construction sites, thereby facilitating all the illegal operations (Corriere della Sera-a, 2011; Stefanoni, 2014). Other technicians and experts for the construction of the highway were also involved in the illegal waste network (Stefanoni, 2014). Moreover, Locatelli’s wife along with his consultants were arrested as well. Ten people in total, four of which in prison, the rest house arrest. (Di Landro, 2011). As previously mentioned, one of the

main actors in the illegal waste activities of the Brebemi, was company president Pierluca Locatelli of the Locatelli di Grumello del Monte group (a holding). Two of the companies of the group, “Locatelli Geometri Gabriele” and “Cavenord srl” were active in the case. The Locatelli group had been contracted in 2011 to provide raw and processed materials by the Bbm consortium, the organization that monitors the construction of the Brescia Bergamo Milan highway. The presence of the mafia group ‘ndrangheta has also been essential in the Brebemi case, as it played the facilitator role in trafficking illegal waste between companies and administrators and public officers. The ‘ndrangheta has appeared multiple times and in various manners in the Milan scene. Yet, it is the first time that an organized criminal group of such proportions has infiltrated the public administration with such an impact and in such a large-scale public project, therefore becoming politically and economically involved (Giuzzi, 2012; Di Landro, 2011). Other actors that were involved in the illegal waste traffic were Locatelli’s collaborators, Walter Rocca, Egidio Grechi and Giovanni Battista Pagani, an employee of his, Giorgio Oprandi and an environmental consultant, Andrea David OLdrati (L’eco di Bergamo, 2014).

#### 4.2.3 MOTIVE

When it comes to large projects of national scale, it is often a palatable opportunity for criminal organizations that wish to infiltrate and offer their cheap illegal products and services for the disposal of waste (Giuzzi, 2012). The construction materials could derive from landfills and Locatelli owned one at Calcinate. However, the supplies needed to be properly treated and rendered safe for the environment and for humans. Only after a long processing treatment for the cleansing of toxic components (“ripulitura”), the materials are deemed inert and can be employed for the construction of the highway (Di Landro, 2011). Hence, the costs for these waste treatment procedures were saved by simply mixing the waste with asphalt and then employing it for the construction of the road, or simply burying it underneath it. The waste practices elicited a win-win situation for the companies that handed over the waste for cheap prices and for the company that did not treat them but immediately used it to construct the highway instead (Bonzanni, 2019)

#### 4.2.4 MODUS OPERANDI

The following section is structured according to the waste cycle phases: origin, transit and final destination (described in chapter two). This will allow for an organized display of how the criminal network in the Brebemi case has infiltrated the waste cycle stages and will bridge a connection to the theoretical chapter.

The practice of employing residuals and refuse of a steel mill is not illegal nor uncommon, however, they need to be treated and rendered safe before they can be sold as a finished product or disposed of. In the Brebemi case, the untreated illicit waste that was utilized for the highway represented a health hazard and could have had dangerous consequences for the fresh water sources that flow nearby conditions (Di Landro, 2011; Giuzzi, 2012). There have been findings of hexavalent chromium in the construction works for the highway, especially in the areas of the highway through Milan and Bergamo. This material is highly dangerous, as exposure to it is carcinogenic for humans, meaning that not only the construction workers but also and the drivers that have been exposed to it are facing a great health hazard (Di Landro, 2011). Multiple waste producers (especially numerous still mills) approached Locatelli to contract very profitable options for the disposal of their waste (Bonzanni, 2019). Once the criminal network received the waste, the illegal operations started: the waste was transported to the Calcinate dumping site and bypassed all the treatment procedures with the technique of Giro Bolla (Eco di Bergamo, 2014). Technically, the legal documents authorized Lcatelli to transfer the waste from the Steel Mills to his landfill in Biancinella. However, with the giro bolla, the forged documents granted the company to transport the ‘treated’ waste to the construction sites (Eco di Bergamo, 2014). The untreated waste was mixed with components of asphalt and was then utilized for the construction of the road. The waste that needed to be properly treated was formally presented as a finished product (Bonzanni, 2019). The untreated material then exited the landfill and got transported to the construction sites, where it was mixed with asphalt or directly buried under the highwayt (Di Landro, 2011; Stefanoni, 2014). The illegal mechanisms were possible because of the stability and organised structure of the criminal network (Bonzanni, 2019).

#### 4.2.5 ENFORCEMENT RESPONSE

Even though there are regulations and enforcement in place for illegal waste trafficking, the deterrent power of these is not strong enough, a penalty of 50,000 euro against a profit of 900,000 is evidently not deterrent. Moreover, if we consider that Locatelli, one of the individuals arrested in the Brebemi case, had already been accused in the past for similar crimes and still was not deterred from committing another environmental crime, it indicates that the severity and perhaps the certainty of punishment were not adequate. Stricter regulations in the monitoring of the construction sites could have prevented the crimes. However, this was not performed because of the infiltration of the organized criminals in the surveillance and transportations operations. In fact, monitoring and inspections were obstructed as key governmental agents were corrupted and Environmental authorities such as Rotondaro were corrupted (Gadola et al., 2016). The official accusation involves article 260 of the waste law of 2006, on illegal waste trafficking and fraud of public provision (Di Landro, 2011). The toxic waste that was employed for the construction could have potentially harmed countless lives (Di Landro, 2011). The parts of the highway that are built upon the toxic waste ought to be removed, the waste to be extracted and rebuilt in safer conditions (Di Landro, 2011; Giuzzi, 2012). In the Brebemi case, the penalties for illicit activities were still not deterrent enough for criminal organizations. To give an idea of the appeal of environmental crimes, the sanction that is foreseen in case of damage to the environment is a fine between 50.000 and 100.000 euros, whereas the penalty for drug trafficking amounts to a minimum of 26.000 and a maximum of 260.000 euros (Soria, n.d.; Camera dei deputati Servizio Studi, 2019). Evidently, the penalties for environmental crimes hold significantly less deterrent power compared to “traditional” crimes (such as drug and arms dealing and profits made off prostitution).

The environmental authorities intercepted phone calls between the actors of the criminal network, shadowed the trucks that moved the waste from the landfill to the construction sites and monitored the area surrounding the highway (Corriere della sera-a, 2011; Eco di Bergamo, 2014). The local military police force were following the trucks of Locatelli's company from the Steel Mill in Mazzano towards the construction sites in Cassano d'Adda and Fara Olivana, with the intermediate stop at Calcinate (Locatelli's landfill). The authorities noticed how the waste was stopping very shortly in this location and then got transported to the final destination, the construction sites. This indicated that the waste did not get treated, as the time of the stop was very short (L'Eco di Bergamo, 2014). The agency Arpa claimed that the duty to investigate and monitor the highway construction sites was not their responsibility, as

they did not hold any judicial power to investigate on construction sites nor the expertise for the analysis of the materials that were employed. In fact, according to the agency, this responsibility falls on the director of the construction site, in this case the consorzio Bbm (Corriere della sera-b, 2011).

### 4.3 CASE ANALYSIS

For the analytical part of the case study that follows, both inductive and deductive reasoning have been employed. The conceptual framework has provided the analytical lens that is needed for to understand the underlying mechanisms and apply them to the case, through the practice of inductive reasoning. Deductive reasoning will help making sense of the information extracted from the case that cannot be analysed through the conceptual framework.

#### 4.3.1 DIFFERENT LAYERS OF CRIMINALITY

The ‘legal’ partners that operated in the illegal waste traffic of the Brebemi highway reveal the intricacy and deep rootedness of the criminal network. Legal counterparts helped the criminals to slip under the radar and to seemingly legitimize their operations, thereby creating a fuzziness between what is legal and illegal. As we have seen in the Brebemi case, regional counsellor Nicola Cristiani and the regional coordinator of Arpa, Giuseppe Rotondaro, were both corrupted ‘legal’ actors. Their roles were as essential in facilitating the operations of Locatelli and the rest of the criminal group (Giuzzi, 2012). Specifically, their contribution of creating a legal facade and the necessary authorisations for the illegal waste traffic. The regional counsellor Cristiani was an essential pawn in granting all kinds of authorizations and access to Locatelli for the construction of the highway (Stefanoni, 2014). The Arpa officer was also a crucial actor in obstructing and delaying inspections by authorities (L’eco di Bergamo, 2014). Moreover, Locatelli, another key stakeholder in the network, was seemingly a legit entrepreneur, owning permits for the transportation and disposal of waste. The municipality assessor Marcello Moro’s contributions also blurred the lines of legality and illegality. The characteristics of the key stakeholders thus resonate with those of fuzzy criminals, namely they are organized, corrupted and were predominantly white collars or held important governmental functions.



Corruption benefitted all key stakeholders. There was a particular display of corruption among the political figures Crisitani and Moro. Moreover, the Arpa agent that played an important role in the facilitation of the illegal operations is also a straightforward example of corruption and why it was so important in the development of the illegal operations (Corriere della Sera-a, 2011; Stefanoni, 2014). However, the rest of the criminal network also abused of their public positions and figures for illegal profits made off the waste traffic. Furthermore, all three stages of the waste cycle were potentially an easy target for corruption. Nonetheless, the transit phase was the most susceptible, as all leading actors were corrupt public figures that enable the transit of the waste. Even though there is not straightforward evidence of a shadow economy, it can be assumed that the corruption of Crisitani, Moro and Rotondaro were encouraged by illegal money transactions that would involve untraceable black money (Corriere della Sera-a, 2011; Stefanoni, 2014; Giuzzi, 2012).

The criminal network was particularly fuzzy as it presented a certain diversity of key stakeholders, most of which are white collars. Therefore, the blurring of illegality and legality is particularly evident. There has also been remarkable display of corruption, again due to the amount of white collars.

The division into leading and supporting actors will be useful in understanding the hierarchical structure of the criminal network. The leading actors that were essential in the making of the criminal network and illegal operations were the landfill owner Locatelli, the vice-president of the regional council Crisitani and of course, Rotondaro, corrupt agent of Arpa. Moreover, Moro can also be identified as leading actor. These key figures allowed for the illegal operations to be kept under the authorities' radar, as they could provide a legal facet to their operations. The seemingly legal company of waste transport and management of Locatelli provided a legal cover to the underground operations that took place. Moreover, the authorisations and permits that Locatelli owned were granted by the corrupted politician Crisitani and governmental agent Moro. Rotondaro also covered an essential role in the criminal network, as his position as an enforcing agent allowed him to delay inspections by the agency of the construction sites. This facilitated the illegal operations (Giuzzi, 2012; Di Landro, 2011; L'eco di Bergamo, 2014).

The supporting actors that can be identified in the Brebemi case are the landfill employees and the truck drivers, who helped with the movement of waste. Furthermore, another essential role was played by the individuals that forged the giro bolla for the

transportation of the untreated waste to the construction sites. Lastly, the waste producers (mostly steel mills) can also be categorized as leading actor, in that they provided the waste and benefitted by saving costs for its disposal (L'eco di Bergamo, 2014; Giuzzi, 2012; Di Landro, 2011).

The stakeholders present characteristics of organized criminals in that they operate in a systematic and organized manner. The whole waste traffic had been carefully planned, all the necessary actors were involved and the 'legal' documents and authorisations had been collected in case of investigations. The diversity of the key stakeholders, especially that of the leading actors are characteristics of organized criminals. All the actors interacted with one another and were connected to each other by a stable partnership (for instance between Locatelli, Cristiani and Rotondaro) (Bonzanni, 2019; Giuzzi, 2012; Di Landro, 2011).

Based on the amount of leading and supporting actors, the network does not seem to be particularly complex. However, the organization of the network in carefully planning ahead in regard of possible investigations and monitoring from authorities still seems to give the network a certain degree of complexity.

#### 4.3.2 GREEN CRIMES HIDDEN UNDER THE BREBEMI'S ASPHALT

The criminal networks' illegal activities can be categorized as green crimes in that they mixed and buried untreated illegally acquired waste in and under the Brebemi highway. Following the assumptions of green criminology, the key stakeholders, in this case Locatelli and the waste producers, invested in whatever provided them most gains, in this case illegal trafficking. The costs of treating the waste and disposing of it in the proper landfill were much more elevated compared to the illegal management of it (Giuzzi, 2012; Bonzanni, 2019). Furthermore, the practice of mixing untreated waste with asphalt and presenting it as a finished, granted Locatelli a double profit, which also can be categorized as a green crime. The key actors involved in green crimes can be assumed to act in their self interest to profit from the illegal activities.

Hence, these are instances of green crimes in which the organized criminals make a rational choice based on a cost-benefit evaluation. In addition, the cost of getting caught in this case were significantly inferior compared to the gains of illegal waste trafficking. Compared

to traditional crimes, the sanctions assigned to environmental crimes are significantly inferior. Moreover, the weakness of the environmental enforcement also lowered the probability of a punishment. Therefore, it can be assumed that the key players in the case were rational individuals who based their choice to partake in illegal activities after a benefit-cost evaluation.

There could be a possible connection between the green crimes and the Italian economic system. The stricter restrictions and regulations on waste management raised the costs of its treatment and disposal. Therefore for waste producers it is very profitable to engage with organized criminals and save costs for the disposal of their reuse.

#### 4.3.3 DISPLACEMENT IN THE BREBEMI CONSTRUCTION?

In the Brebemi case, there is particular evidence of the inventiveness, intelligence and adaptability of the organized criminals. Mixing the untreated waste with asphalt is a good example of this. Not only did the waste go ‘unnoticed’, it also is saved costs for its treatment and it elicited even more profits by being sold as asphalt (Eco di Bergamo, 2014; Bonzanni, 2019). Hiding the waste under the highway is also an illustration of the creativity of the criminal network. This also shows that, in this sense, how versatile waste is and why it is such an easy target for criminals. Pierluca Locatelli, and the other key stakeholders show a certain degree of adaptability in the forging of fake documents, as they could bypass the authorities’ radar. Moreover, the presence of the political actors in the network permitted another degree of agility. However, there are no instances in which the illegal waste activities have been interrupted by the environmental authorities and were displaced elsewhere.

In this case there are only calculated criminals, in that they collected all the fake documents and received all the authorisations needed (from the corrupt political actors) in order to prevent the illegal operations from getting revealed to the authorities. This carefulness shows long-term type of thinking.

There was no display, that emerged in the case, of displacement from the enforcement side, nor can it be deduced by the enforcing actions that took place.

#### 4.3.4 FUZZY ENFORCEMENT AND REGULATORY RESPONSE

There were several enforcing entities that were involved in the investigations of the Brebemi highway. However, Arpa apparently did not hold the responsibilities to monitor the construction sites. The only entity that was held responsible for monitoring the construction sites and material was the Consorzio BBM (Corriere della sera-b, 2011). The latter did not show any particular instance of enforcement. The police force was also involved in the case. The latter shadowed the trucks entering and exiting construction grounds and Locatelli's landfill. Moreover, they intercepted the telephone calls between the criminals.

There is no display of fuzzy enforcement in his case.

#### 4.3.5 ADDITIONAL REMARKS

While the conceptual framework has been useful in structuring the analysis of the case and in understanding the mechanisms and networks, there are still some findings that cannot be explained through this analytical lens. Looking at the environmental enforcement it is surprising how the authorities responded to the organized criminal network's activities. First off, the criminal infiltration within the Arpa agency indicates the vulnerability of the enforcement authorities to corruption. Moreover, it is questionable how the inspections of the construction sites were delayed as much as they were even though the police force had been monitoring the truck movements from one location to the other. The weakness of the enforcement response has probably been an incentive for the organized criminals to continue their operations and not displace them elsewhere.

Adding to this, it is suspicious that the monitoring of the sites was not assigned to any enforcement entity in particular. Especially considering the vulnerability of large-scale projects such as the Brebemi highway to the infiltration of organized criminals (Di Landro, 2011). The expectation from the enforcement would be a certain degree of preparation and prevention. Moreover, it is also interesting that after the illegal waste activities had been discovered, the responsibility for monitoring the construction sites and materials was assigned to the BBM consortium, the company that financed the project. The was thus expected make checks of the

materials and monitor the construction sites. However, it can be deduced that it did none. This would raise some question marks, as it could be possible that the consortium also took part in facilitating the illegal practices. This, however, remains only an assumption.

The last observation that occurs while analysing the case is the remarkable large amount of white collars that were leading actors in the criminal network. This increases the fuzziness of the organized criminals. In contrast, the presence of the mafia in the case quite limited. The possible explanation of such a great number of white collars could be the need for more bureaucratic procedures in order to dispose of waste and obtain the license for the highway construction sites. However, it is unclear whether it was the landfill owner Locatelli or the corrupted politicians that initiated the criminal connections.

#### 4.3.6 HIGHLIGHTS OF THE CASE

##### **NETWORK**

The organized criminal network does not present a high level of complexity. However, it is remarkably fuzzy, due to the high amount of white collars.

##### **MOTIVE**

The economic profits are the main drivers behind the crimes. The weak enforcement facilitated the choice of committing the crimes.

##### **MODUS OPERANDI**

There seems to be a certain degree of displacement in terms of inventiveness. However, neither the criminal network, nor the enforcing authorities show particular displacing activities.

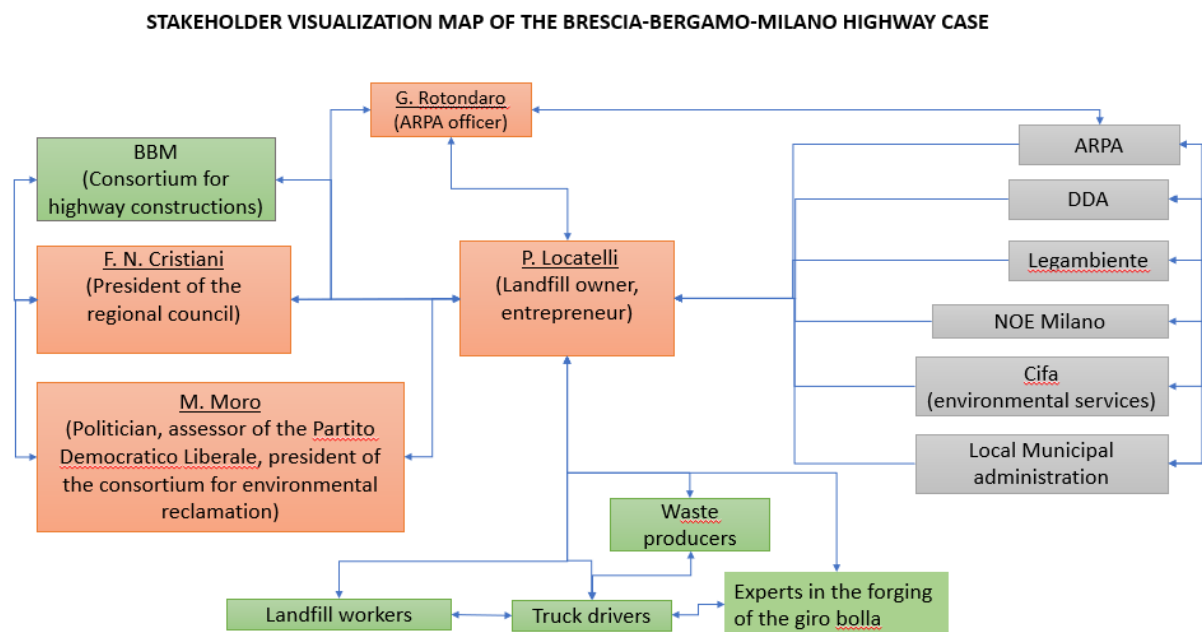
##### **ENFORCEMENT RESPONSE**

The response of the enforcement cannot be said to be fuzzy. In fact, it can be classified as rather a weak display of enforcement.

<b>PECULIARITIES</b>	Most of the leading actors were white collars. There was thus a high level of fuzziness because of this.
----------------------	---

#### 4.4 VISUAL MAP OF THE KEY STAKEHOLDERS

The visual map connects the key stakeholders that were involved in the Brebemi case. The actors in the orange boxes were the leading actors, who interacted with each other and were important for logistics and bureaucracy. The actors in the green boxes were the supporting actors who performed the actual ‘dirty work’. Both leading and supporting actors are fuzzy criminals and as a whole they constitute the organized criminal network. The grey boxes represent all enforcement instances that were investigating and monitoring the key stakeholders.



## CHAPTER FIVE: CASE STUDY TWO

### 5.1 LOMBARDY: THE NEW LAND OF FIRE

The focus will now be directed to a case that stands out because of the fluidity demonstrated by the individuals engaged in illicit activities. According to ARPA there has been a sudden increase in illegal waste depots lit on fire starting from 2017, with a significant peak in 2019 and a decrease in 2020 (Broglia & Grillo, 2021). The data shown by this agency not only shows the amounts of fires that were ignited during a year, but also compares the different provinces in Lombardy. It is remarkable how Milan, Brescia and Mantova have been the most targeted, with a total of 65 fires throughout the region in 2019. Specifically, 12 in Milan, 11 in Brescia and 6 in Mantova (Grillo & Broglia, 2019). The increase in fires could be explained by the Chinese ban in 2018, prohibiting exports of waste originating from Europe (Brooks et al., 2018). Consequently, the waste that was normally sent abroad, remained inland, causing producers to find other ways to dispose of it. Criminal organizations seized this opportunity by stashing the waste in large depots and warehouses and ultimately setting it all on fire to dispose of it rapidly and cost-efficiently. This would offer a cheaper and more convenient alternative to the northern industries (Marsi, 2020). However, in 2020 we see a decrease of 16% in the total amount of fires set, a probable result of the Covid-19 pandemic and the increased monitoring by the most targeted municipalities (Broglia & Grillo, 2021). The employment of drones has certainly given the NGO's and government officials an advantage. After reports from police and other authorities of isolated or suspicious areas where waste had been accumulated and abandoned, drones were engaged by ARPA to monitor and explore. This way, illegal incineration of waste has been prevented (Broglia & Grillo, 2021). The most occurring types of fires set to waste, involved waste stemming from production activities of various kinds. This holds true for all the years analyzed in the Arpa report, namely from 2015 until 2020. In 2020 the category "Fires set to plants for waste treatment and management" was created, as the numbers of the latter were notably increasing (Broglia & Grillo, 2021).

## 5.2 THE FIRE OF VIA CHIASSERINI: CASE INTRODUCTION

The method that has been employed to structure the case study is predominantly inductive, in that the conceptual framework had been employed for analytical purposes. Therefore the four large thematics (network, motive, modus operandi and enforcement response) that represent the essence of each key-concept (fuzzy criminals, green crime, displacement and environmental response) will be structuring the information of the case.

### 5.2.1 LOCATION

On October 14th of 2018 a large warehouse in the periphery of Milan was set aflame, the depot of “Via Chiasserini”. It took fire fighters three days to subdue the fire because of the size of the warehouse and the materials that were stored in it (Milanotoday, 2018; Il giorno, 2019). This event is connected to another large rogue that occurred the same year in January to a warehouse in Corteolona. Both events are connected by the same type of waste trafficking mechanisms and similar structuring in the network of the criminal organization. Moreover, they both have been investigated by environmental authorities in an investigation called ‘Fire Starter’, part of the large ‘Feudo’ operation (Regione Lombardia Consiglio Regionale, 2019). It is necessary to mention that the depot of via Chiasserini was not the only location affected by the illegal operations. Specifically, the waste management plants in Como had also targeted along with the natural cave in Lamezia Terme (located in the southern region Calabria). Hence, a whole inter-regional operation had been uncovered after the fire took place in the warehouse (La Repubblica-b, 2019). This thesis focuses only on the fire of via Chiasserini, because of the similarity and connection between the two rogues. Moreover, this case in particular wakes an interest in that it shows an incredible agility from a criminology point of view as much as from a regulatory and enforcement perspective.

### 5.2.2 NETWORK

One of the masterminds behind the illegal waste operations was the administrator of the company Ipb Italia srl, Aldo Bosina. This individual possessed a far-reaching criminal network, with connections all over Italy. Moreover, he held a criminal record for fraud, criminal association and calumny, as he once framed a foreign employee as being responsible for the



trafficking of illegal waste. Bosina's company rented the depot in via Chiasserini in March 2018 from the company Ipb Srl. Mauro Zonca and Giancarlo Galletti (the former an administrator of Ipb Italia srl and the latter the director of the depot) were also involved in the scheming of the illegal operation (La Repubblica-b, 2019; Melley, 2018). A key actor in the transportation of the waste was Valentino Bovini, truck driver of the company Gea Log, who was tasked to drive the loaded trucks of waste from one location to the other and helped searching for new sites to bring the waste to (Guarino, 2019; La Repubblica-b, 2019).

Two other important characters in the criminal network were Massimo Sanfilippo and Joskwa Colombo, the administrators of the Winsystem Group srl, a company that had the function of intermediary in the illegal waste traffic to the depots of via Chiasserini and the depots located in Verona and Lodi. There were two more intermediaries identified in the investigation of the fire of via Chiasserini: Diego Giro (who received the longest prison sentence, 4 years and 8 months) and Mauro Zonca, legal representative of the companies Ipb Italia and Smr Ecologia, who got a sentence of 3 years and 4 months in prison. Moreover, the suspects were charged with the monetary compensation of 170 thousand euros for the damages caused (Milanotoday-b, 2019). Another company that functioned as intermediary was the Waste Solution srl, administered by Pietro Ventrone from Caserta. The same individual was also head of the logistics company Gea Log srl, that provided the criminal ensemble with trucks transport the waste to the illegal locations. Ventrone also held a criminal record for the illegal disposal of toxic substances and for the unauthorized management of waste (La Repubblica-b, 2019). Interestingly, another key figure among the culprits was an environmental consultant who had been advising the criminal network in the best practices for waste disposal (La Repubblica, 2019; Gaita 2019). These suspects were just the starting lead to discover the whole dynamic behind the operations of dumping waste and setting it on fire. Maurizio Assanelli was one of the intermediaries in the whole operation and an essential pawn. Owner of a logistics company, he provided for trucks and coordinated the transportation of the waste to the warehouse in via Chiasserini (Fivedabliu.it, 2020; Melley, 2018).

Workers from abroad were paid black money either to stock the waste in the depot or to be the 'prestanomi', so that it would have been difficult to retrace the illegal operations to the criminal network. These individuals were selected in that they were in financial difficulty and could not complain about the terms in which they were 'hired'. The main communication platform employed for the operations were either WhatsApp or telephone calls (Serra, 2020). Other actors involved in the illegal waste trafficking were the technician that held the expertise

to forge fake documents for the bureaucratic part of the operations. Moreover, there were employees that worked for the company charged with the loading and unloading of the waste. Last but not least, drivers were also essential for the movement of the waste from one location to the other (Regione Lombardia Consiglio Regionale, 2019)

### 5.2.3 MOTIVE

The criminal organization targeted businesses and companies who were experiencing financial difficulties and offered very favourable conditions for waste disposal. The costs of (legal) landfills and incinerators are elevated which makes the market demand for illegal ways infinite. 14 thousand tons of waste were collected, with a worth amounting to 1 million and 400 thousand euros. These were significant gains for waste producers who disposed of it via this criminal channel instead of treating it properly, which would have costed 150 euros per ton with the additional regional tax of 10 euros per ton (Reportdifesa, 2019; la Repubblica, 2019). The company Ipb Italia Srl contacted the waste management plant in Como and contracted them for the 'treatment' of the waste, paying them 150 euros per ton of waste that they allegedly received. Furthermore, the transportation of the waste to a waste-to-energy plant costs 280 euros per ton, illegally stocking them in an unauthorised dumping site (abandoned warehouse in this case) costed 140 euros to the waste producers (Regione Lombardia Consiglio regionale, 2019). This way, the company Ipb Italia srl saved costs for the transferring of the waste to a waste to energy plant. The company made profits of 1 million and 86 thousand euros by trafficking 37 thousand tons of waste originating from southern regions (Guarino, 2019).

### 5.2.4 STRATEGIES AND MODUS OPERANDI

This section presents the information regarding the infiltration of the criminal network in the waste cycle stages. It is structured in the following order: origin, transit and final destination (according to the three phases of the waste cycle in chapter two). Moreover, the strategies that will be explained are similar in all the fires that had been ignited in Lombardy between 2015 and 2020 (Broglia & Grillo, 2021).

The illegal operations preceding the fire of via Chiasserini started with the legal facet provided by the waste management plant that was formally authorised to treat special waste (the company was called Smr Ecologia, located in Como) (Gaita, 2019). The warehouse of via Chiasserini (among many others) had been scouted and rented by the company Ipb Italia Srl, who immediately proceeded to stocking it with large amounts of illegal waste. The actual

owners of the warehouse, Ipb Srl, were totally unaware of the illegal operations that the renter, the company Ipb Italia (the two companies are completely unrelated) had been performing (La Repubblica-c, 2019). The warehouse had been dismissed and lacked any fire-fighting equipment. At the 'Sportello unico', an entity that needs to be involved for administrative procedures and authorisations, a procedure had been started in order to obtain the simplified authorisation for the collection of non-hazardous waste. The whole process was meant to provide a legal administrative facade of simply stocking waste. This way, less suspicions and attention were drawn to the underground operations, as the 'legality' of it all bypassed the monitoring of authorities (Serra, 2020; La Repubblica-c, 2019). The organized criminals used a fake coding for the (toxic) waste, which was then counterfeited as plastic waste and other kinds of recyclable materials (Serra, 2020)

The waste, of industrial and household origin, was produced in Calabria and other southern regions and was stocked in northern warehouses or buried in Calabria. Specifically, the most targeted locations were Como, Varedo, Gessate and Cinisello Balsamo, where 60 tons of waste were abandoned. On the southern end of the waste disposal journey, the preferred dumping sites were a cave in Catanzaro, in the town of Gizzeria, and the cave Parsi in Lamezia Terme. The damage to the environment was so severe it devastated the whole territory around the afflicted areas. The cave in Lamentino had already been in the radars of authorities as it had been confiscated following the discovery of hidden arms and drugs (Reportdifesa, 2019). The significant number of confiscations in the northern territories along with the scarcity of new dumping sites, led the criminal organization to change its course of action and displace to southern destinations by using its connections there (Reportdifesa, 2019; la Repubblica, 2019).

The waste cycle started in the north of Italy where they filled abandoned warehouses and then buried the residuals in an abandoned cave in Lamezia Terme, in the southern region Calabria. Four other businesses and waste management plants have been investigated in the northern provinces of Como and Trento and in the southern Napoli and Catanzaro (La Repubblica-c, 2019). Soon after, authorities confiscated four vehicles that had been employed to carry the illegal waste, which was displaced by a company based in Naples. Its role was essential, as it acted as an intermediary to locate seemingly legit areas to ship the non-treated waste to. This was all possible because of trusted drivers and the authorised plant for waste treatment in Como, which ultimately provided a legal facet to the whole operation as it seemed as if the waste would be transferred to a proper facility for treatment and disposal. Clearly, the waste never really got treated and ended up being abandoned in the big depot in via Chiasserini.

There were people assigned to guide the drivers to the illegal dumping site that was being filled at that very moment (Report Difesa, 2019). From a cooperative dynamic with the waste treatment plant in Como, the Calabrese criminal organization became ever more invasive, until they started to take over offices, fuel and vehicles and eventually authorisations and the company self (laRepubblica-a, 2019). Even though there were police investigations ongoing (the preceding fire in Corteolona set some motion among the authorities) and there had been some monitoring before the fire in via Chiasserini, the suspects still searched for new locations to illegally stock their waste. Through the investigations other illegal warehouses have been found in Venice, in Verona and in Lodigiano. Once again, the adaptability of these criminals was displayed. The waste that had been found was marked with the code indicating its origin was in Naples and Salerno. Moreover, the coding of the waste indicated that it was destined to be either treated in waste-to-energy plants or at special landfills. Instead, the waste ended up in Lombardy, stashed in the depot of via Chiasserini (among many others), thereby saving significant costs for its disposal (La Repubblica-c, 2019).

#### 5.2.5 ENFORCEMENT RESPONSE

Following the event, a closer collaboration between the forestry corps of northern and the southern provinces of Italy was consolidated. The DDA (Direzione Distrettuale Antimafia Milano, a governmental organ that specifically deals with eradicating the mafia in Milan), followed up an investigative operation called “Fire Starter”, part of the ‘Feudo’ operation, which led to the arrest of six people suspected of starting the rogue of the warehouse in Corteolona a few weeks before (La Repubblica-b-c, 2019). The experts of the Città Metropolitana di Milano (entity responsible for the strategic planning of city of Milan and its environmental protection) and the local police force had been to the depot three days before the fire was ignited. They had been inspecting the perimeters because of a legal action started by the owner of Ipb srl against the company Ipb Italia srl, denouncing the presence of unauthorized waste stocked inside the warehouse. On the other end, Giancarlo Galletti the director of Ipb Italia srl claimed that the waste had been left in the depot before they rented the building. Upon investigations, the authorities had found 16 thousand tons of illicit waste. Surprisingly they did not confiscate neither the waste nor the entire area, as the employee of the Città Metropolitana did not hold qualifications and the police officers decided that they needed to verify the validity of what the representative of Ipb Italia had claimed (Giuzzi, 2019;

La Repubblica-c, 2019). Furthermore, the authorities could not identify the person who had been responsible for igniting the fire. However, the suspicions were that the fire had been the perfect way to dispose of the waste and get rid of any proof that could have possibly led to the criminal network and their illegal practices (Giuzzi, 2019).

The authorities had employed various techniques to investigate on the illegal waste trafficking preceding the fire of the depot in via Chiasserini: with the assistance of drones they monitored areas that could have been an easy target for illegal waste trafficking, especially empty warehouses. Moreover, video surveillance and photo traps were employed to keep track of the trucks moving the waste in and out of the depot (Primapavia, 2019). The latter proved to be significantly helpful in keeping logs of illegal landfills. Moreover, there were GPS devices installed in the trucks, which were also useful in tracking their movements (Gaita, 2019). Lastly, authorities had people shadowing some individuals of the criminal network, following them as they moved from one location to the other. They also intercepted their phone calls and WhatsApp conversations (Gaita, 2019).

## 5.3 CASE ANALYSIS

This part of the case study is partly deductive and partly inductive in reasoning, as the conceptual framework has provided a lens through which the case makes sense in its networking, modus operandi and motive. However, the explanations provided by the conceptual frame did not cover certain elements that emerged while analysing the case. The sections are divided according to the concepts that constitute the conceptual frame. The guiding structures for their content are the operational questions that have been presented in the matrix in the methodology chapter.

### 5.3.1 FUZZY CRIMINALS ON FIRE

The key stakeholders in the fire of Via Chiasserini can be identified as fuzzy criminals in that the positions they held (as company owners, administrators, environmental consultants, etc.) were formally legit. However, the operations that were performed were illegal, involving, illegal waste stocking, dumping and incineration, accompanied by informal transactions and

corruption (Report Difesa, 2019; la Repubblica, 2019; Fivedabliu, 2020; Gaita, 2019). Thus, there are multiple instances in which the line between what is legit and what is not has been blurred. In addition, the involvement of the plant in Como and the administrative and authorisation procedures inquired at the Sportello Unico, provided a legal facade for the illegal operations (Serra, 2019). Because of the vast diversity of the key actor, it can be deduced that there is a high level of fuzziness. Moreover, the stakeholders present characteristics of fuzzy criminals, such as organized crime, white collar crime, corruption, illegal transactions and the semi-structure of leading and supporting actors.

There have been several instances in which corruption (a characteristic instrument employed by fuzzy criminals) has been displayed to facilitate the illegal operations. Corruption benefitted the producers of waste, who for a small sum could dispose of their waste. Moreover, the technicians that were forging fake documents for the ‘legalization’ of the operations are also another instance of corruption and another beneficiary of it. The waste management plant of Como provided by another actor. The transportation companies and the drivers were also subject to corruption, as they deliberately partook in the waste trafficking. The last and most exemplificatory display of corruption is the environmental consultant who aided the criminal organization in the best practices to circumvent monitoring from authorities and dispose of their waste safely (Gaita, 2019).

The stages in waste management in which there have been opportunities for corruption are the origin, transit and final stage. As previously explained, waste producers were approached by intermediaries, and they were offered their more economic services for the disposal of waste (Serra, 2020). The transit phase was also prone to corruption, as not only the intermediaries themselves were already part of the criminal network, the companies for waste transport and the waste management plant were also corrupted. Moreover, the forging of fake documentations is also characteristic of the transit phase, as the documents are needed for the transportation of illegal waste and for the disposal in the last stage (Gaita, 2019). The final stage of the waste management cycle also provided ample opportunity for corruption, as the depot of via Chiasserini and the cave in Lamezia Terme were both targeted for the waste disposal. Therefore, the employees that were aware of the illegality of their work (moving the waste from one location to the other, loading it, unloading it and and stocking it), but were corrupted to do so.

There are a few instances in which there is a clear display of informal transactions, which in return alimented the shadow economy behind all illegal waste trafficking operations. An example of this is the payment of the foreign employees with black money. Another would be the black money paid by the waste producers to intermediaries for the disposal of their waste. This last assumption is based on deductive reasoning, as there is no explicit information on how the transferring of the money took place. However, since it is an illegal transaction and the mechanisms of illegal waste trafficking need to be hidden from authorities, it is safe to assume that the remaining transactions were executed with black money, as to make them untraceable (Report Difesa, 2019).

As it has been portrayed in the previous section, the fire that took place in the large warehouse in Via Chiasserini has been the result of an intricate network of fuzzy criminals. The key stakeholders can be classified in leading and supporting actors. As such, the category of leading actors includes the ‘masterminds’ behind the fire, namely Aldo Bosina, Maurizio Assanelli, Massimo Sanfilippo and Mauro Zonca (Milanotoday-b, 2019; La Repubblica-b, 2019; Melley, 2018; Guarino, 2019). These particular individuals not only provided the ‘legal’ facet for the illegal operations, but they also additionally planned and promoted the illegal waste traffic (la Repubblica, 2019). The environmental consultant can be classified as a leading actor as well, as her role was to advice the leading actors on the best practices to dispose of the waste and therefore evade monitoring from authorities (la Repubblica, 2019; Gaita 2019). Moreover, the intermediaries in the process can also be defined as leading actors in that their work and networking skills set the whole illegal process in motion. They have been identified as the prime suspects in the investigations as they are owners of seemingly legit enterprises. Therefore, the classification of these fuzzy criminals into leading actors regards those who held the roles of director(s), administrators, owners, intermediaries, and waste producers.

The supporting actors that have been involved in the fire of Chiasserini filled various kinds of roles, such as transportation, forging fake documents (girobolla), waste producers, workers for the stocking of waste and prestanome. Moreover, the mafia group in Melto Porto di Salvo had also a supporting function in enlarging the networks in the Southern end of the operations (Serra, 2020; Fivedabliu.it, 2020; Melley, 2018). The companies in financial difficulty provided the physical instruments (warehouse, waste management plant, vehicles for transportation, etc). Waste producers tool on the role of supportive actors, as they have been complicit in the operations as they handed their waste to the intermediaries (while being unaware or partly aware of the illegality to it). (Serra, 2019). Drivers of the vehicles

transporting the waste from one location to the other were also essential pawns in the whole illegal network, along with those individuals who were assigned to guide them to the locations in use. Moreover, the plant for waste treatment located in Como also played an important role as to present a legal facet to the authorities (la Repubblica-a, 2019). The supporting actors thus still held significant positions in the illegal waste traffic scheme but were however of support to leading actors (Sahramaki et al., 2017).

The key stakeholders can be classified as organized criminals in that all parties were cooperating in an organic and systematic manner, thereby creating a stable partnership. The network was composed by entrepreneurs, waste producers, drivers, etc. Hence there were different levels of ‘power’ authority among the individuals that enabled the network to function in an organized manner. The two sub-divisions of leading and supporting actors also enable a certain hierarchy, which allowed for the operations to proceed smoothly. The organized criminals interacted with one another (via whatsapp or telephone calls) and partook in criminal activities in a systematic manner: first the scouting of waste dumping locations, then connecting the waste producers to the entities that took care of the waste, finally the actual disposal of the waste (Serra, 2020; Regione Lombardia Consiglio Regionale, 2019).

The amount of key stakeholders involved, their organization and their hierarchical structure indicate that this criminal network is particularly complex. Therefore, it is particularly difficult for authorities to untangle such an intricate network and respond accordingly.

#### 5.3.4 THE MOTIVE BEHIND THE FLAMES

The crimes committed in the case can be categorized as green crimes in that the reason behind the illicit waste practices is based on economic profits. The producers of waste were interested in saving costs and time by making contracts with the criminal organization. Moreover, as mentioned before, the Chinese ban on waste imports might have also contributed in the amounts of waste that needed to be disposed of and that waste management plants suddenly needed to treat. Stricter regulations on waste disposal that caused a surge in prices also played a role in waste producer’s search for cheaper options to dispose their waste (Reportdifesa, 2019; la Repubblica, 2019). Another green crime that emerged in the case was the disposal of the



waste in the cave of Lamezia Terme and in the depots in northern Italy. The economic reason behind this resonates with the concept of green crime, as significant waste disposal and treatment costs are saved, with the consequent negative impact it had on the environment. In these instances it can be expected that the actors were all acting in their self-interest. Even the companies and employees that were experiencing financial difficulties resorted to the illegal practices to make profits.

The cost-benefit evaluation that actors considered included the economic benefits mentioned above (significant profits), and the penalties incurred in case they were discovered by the authorities. However, considering that some actors (Bosina and Ventrone for instance) who held criminal precedents for similar crimes were not deterred from committing the same crimes again. The gains that were made by engaging in the illicit trafficking of waste were more profitable than the costs and penalties that they could potentially incur. For this reason it can be deduced that the key stakeholders were rational criminals (Reportdifesa, 2019; la Repubblica, 2019; Regione Lombardia Consiglio regionale, 2019).

### 5.3.2 DISPLACEMENT ENDING IN A ROGUE

In the case of the fire of via Chiasserini there have been several moments in which displacement was the clear mechanism at hand. Within the criminal network the agility and adaptability of the actors (especially the leading actors) was displayed by the involvement of the environmental consultant to advise on how to bypass any monitoring from authorities and by the individuals tasked to forge the fake documents (Serra, 2020; La Repubblica-c, 2019). The fake coding given to the illegal waste also prevented the operations from getting uncovered. This shows that the organized criminals were anticipating the enforcement' strategies to uncover their illegal trafficking. Moreover, the presence of logistic company's owners and employees facilitated the re-routing of the waste's final destination (either from the South to the North, or the other way around) and movement thereof. Whenever the environmental authorities were investigating an illegal landfill or depot filled with waste, the organized criminals displaced their operations elsewhere (Reportdifesa, 2019; la Repubblica, 2019). In the final stage of their illegal operations they set fire to the depot of via Chiasserini to cover their tracks. As mentioned in the case, while the investigations of the latter were ongoing, the criminal network where already scouting for other empty depots. Again, the incredible adaptability of the criminal organization is displayed. Furthermore, the strategic technique of

the ‘prestanome’, in which foreigners were the nominees of the ghost companies that functioned as intermediaries (Serra, 2020). In the event that the operation would get discovered, the actual owners of the companies were unlikely to be investigated.

The conceptual frame makes a distinction between basic and calculated criminals. In this case the criminals can be assumed to be calculated, as the strategies employed were such that in the eventuality of getting caught, they would still manage to continue their operations elsewhere or in different manners. Therefore, the planning of the illicit practices and the types of stakeholders that have been selected to be part of the network indicate that the criminals are calculated individuals.

From the opposing party, the environmental authorities, there has been an attempt to keep up with the changing strategies and adaptability of the organized ecologic criminals. The use of drones to anticipate what areas were likely to be targeted and the video surveillance to monitor sudden movement of large quantities of waste was also an instant of displacement. The GPStracking devices on the trucks were also an efficient way to discover the preferred routes of the criminal network (Giuzzi, 2019; La Repubblica-c, 2019; La Repubblica-b, 2019; Primapavia, 2019).

### 5.3.5 CATCHING UP WITH THE ENFORCEMENT AND REGULATIONS

There were several environmental institutions that took part in the investigations and monitoring of the illegal waste practices of the case. A cooperation had been initiated between authorities in the Northern and Southern regions of Italy. Moreover, different entities, such as the forestry corps, the local police force, the Città Metropolitana di Milano, etc. Were all collaborating on the same case.

The enforcement instruments at the disposal of the authorities were sometimes not optimal. In this respect, the lack of judicial power for the technician of the Città Metropolitana di Milano has been a setback for enforcement, as a restraining order on the depot could have prevented the rogue a couple of days later. Moreover, the stalling from the side of the local police also showed a certain degree of ‘sloppy’ enforcement. Given that there had been numerous precedents of fires set to depots in 2018 (the fire of Corteolona for example) and the fact that the police had been monitoring waste movement, one would assume that enforcement would be more strict and acting in anticipation perhaps. Of course, the intricacy of the criminal

network and their underground activities make it difficult to prevent such a fire from happening. Nonetheless, the cooperation between different entities shows that there are substantial advantages, a shared database for example, but also disadvantages, intercommunication issues, lack of certain authorizations or power to intervene.

### 5.3.6 ADDITIONAL REMARKS

There are some mechanisms that cannot be explained by the conceptual framework. These have emerged from a deductive analysis of the case.

The environmental enforcement that has been displayed in the case shows a certain degree of laxity (the delay by the local police force for a restraining order), which contrasts to the innovative techniques that have been employed to monitor and investigate the criminal network (drones, gps tracking, etc.). This contradiction is quite strange.

Moreover, the fact that there were some leading actors with criminal precedents in waste trafficking indicates that the punishments for such crimes are not deterrent enough. Therefore, the choice to commit to green crimes could also be encouraged by the lack of deterrence of the punishments and laxity of the environmental enforcement.

### 5.3.6 HIGHLIGHTS OF THE CASE

#### **NETWORK**

The criminal network is particularly fuzzy and complex, in that it is diverse but still holds a precise organization and hierarchy of leading and supporting actors connected to one another.

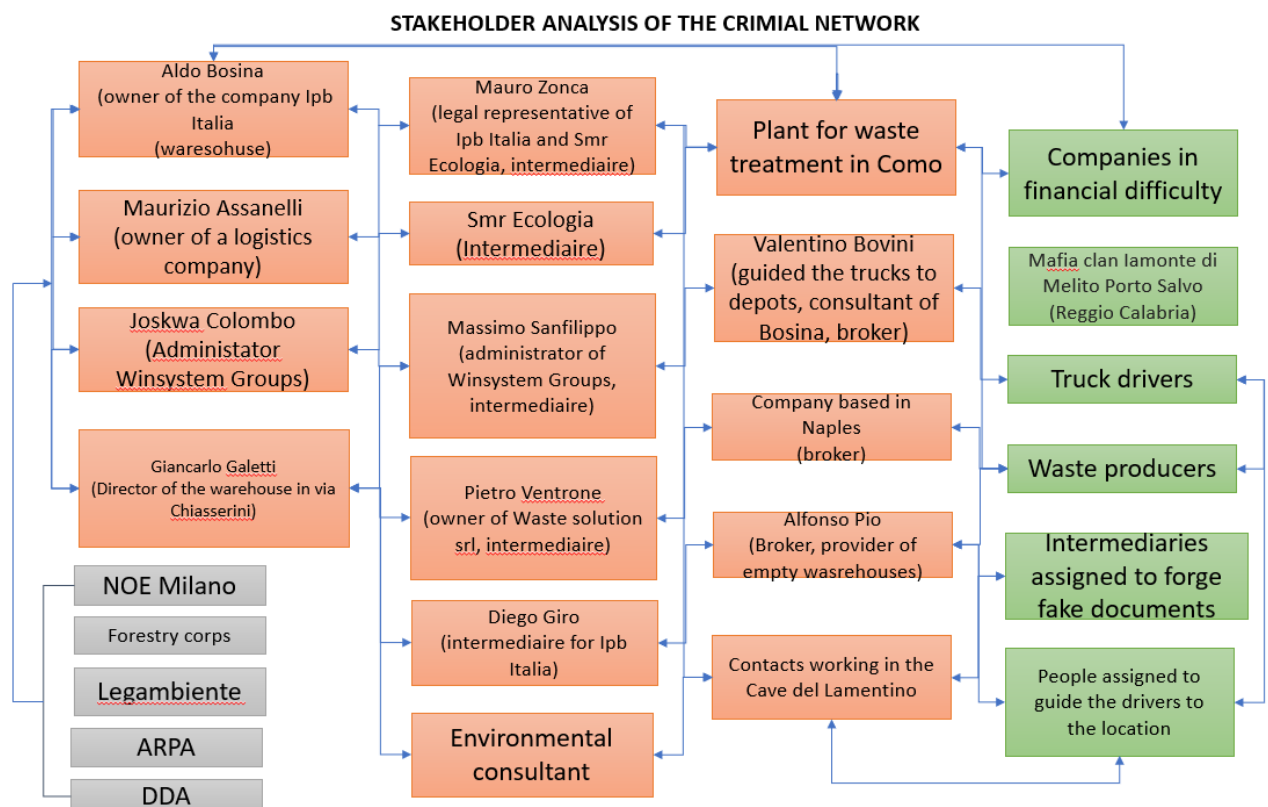
#### **MOTIVE**

The economic profits are the main drivers behind the crimes. The weak enforcement facilitated the choice of committing the crimes.

<b>MODUS OPERANDI</b>	Displacement from both the organized criminals and the environmental enforcement authorities
<b>ENFORCEMENT RESPONSE</b>	Fuzzy enforcement techniques have been applied. However, there was a certain degree of laxity that favoured the criminal network.
<b>PECULIARITIES</b>	It can be deduced that the enforcement measures have not been deterrent enough to stop the green crimes.

#### 5.4 VISUAL MAP OF THE KEY STAKEHOLDERS' NETWORKS

The visual map connects the key stakeholders that were involved in the case of the rogue in via Chiasserini. The actors in the orange boxes were the leading actors, who interacted with each other and were important for logistics and bureaucracy. The actors in the green boxes were the supporting actors w. Both leading and supporting actors are fuzzy criminals and as a whole they constitute the organized criminal network. The grey boxes represent all enforcement instances that were investigating and monitoring the key stakeholders.



## 5.5 CASE COMPARISON

In this section, a comparison of the main analytic results of both cases will be presented. The structure that the comparison follows, similar to the one employed in the case analysis, is that of the conceptual framework.

### 5.5.1 NETWORK

In terms of fuzziness, both case studies present a certain degree of diversity. The first case study presents a network in which the majority of leading actors are white collars. Therefore, there is a high level of corruption and consequently also a remarkable level of fuzziness. In the second case study in contrast, the high level of fuzziness is due to the particular diversity of the actors, and the level of corruption involved.

In both cases there is a certain degree of complexity of the criminal networks. This intricacy is due to the amount of key stakeholders involved, their organization and the hierarchical structure. However, in the second case study the criminal network is far more complex (due to the large amount of leading and supporting actors involved and their organization) compared to the first case study, in which there were fewer key stakeholders involved. However, the first case study still holds a certain degree of complexity if the organization of the criminals is considered (the careful planning ahead for prevention against environmental authorities).

### 5.5.2 MOTIVE

In both case studies the green crimes committed were a result of a rational evaluation of the costs and the benefits tied to the crimes. It was evident that economic profits were the main drivers behind the green crimes. However, the weak level of enforcement (and the low deterrence resulting from that) also contributed in the decision to commit the crimes.

### 5.5.3 MODUS OPERANDI

Both case studies display a certain degree of displacement. Yet, only the organized criminals in the second case show high levels of adaptability, creativity and ability to change course of action when disrupted. The relation with the enforcement is very dynamic, as the authorities also showed innovativeness and agility in responding to the evolution of the criminal network. The first case study in contrast only shows displacement in terms of creativity of the type of illegal waste crimes (mixing and burying the waste). There is no change in course of action upon discovery by authorities. From the enforcement side there is no sign of displacement.

#### 5.5.4 ENFORCEMENT RESPONSE

The enforcement response is similar in both case studies in that there are some weaknesses that emerged. In particular the laxity in investigating the affected areas seemed to be a particular issue. Nonetheless, there was a certain degree of fuzziness in the enforcement response to the criminals of the second case. The new adapted techniques that were employed by the police force was a great step at prevention.

#### 5.5.5 VISUAL SUMMARY OF THE HIGHLIGHTS

KEY CONCEPT	CASE ONE	CASE TWO
<b>NETWORK</b>	The organized criminal network does not present a high level of complexity. However, it is remarkably fuzzy, due to the high amount of white collars.	The criminal network is particularly fuzzy and complex, in that it is diverse but still holds a precise organization and hierarchy of leading and supporting actors connected to one another.
<b>MOTIVE</b>	The economic profits are the main drivers behind the crimes. The weak enforcement facilitated the choice of committing the crimes.	The economic profits are the main drivers behind the crimes. The weak enforcement facilitated the choice of committing the crimes.
<b>MODUS OPERANDI</b>	There seems to be a certain degree of displacement in terms of inventiveness. However, neither the criminal network, nor the	Displacement from both the organized criminals and the environmental enforcement authorities

	enforcing authorities show particular displacing activities.	
<b>ENFORCEMENT RESPONSE</b>	The response of the enforcement cannot be said to be fuzzy. In fact, it can be classified as rather a weak display of enforcement.	Fuzzy enforcement techniques have been applied. However, there was a certain degree of laxity that favoured the criminal network.

## CHAPTER SIX: CONCLUSION

This research introduced the issue of illegal waste trafficking in Northern Italy. It explained the motives that drive ecologic organized criminals to engage in illegal waste activities and the impact that these produce on the environment. It also described the extent to which there are regulations and enforcement in place to safeguard its citizens and the environment. Therefore, the research question this thesis posed was *‘How are illegal waste practices in Northern Italy related to environmental regulation and enforcement, and how can this relationship be explained?’*.

The traditional theories on crime prevention that have been considered, revealed that the Italian case can be identified as atypical because of its complexity and cannot be analysed through the analytical lens provided by Anglo-Saxon literature. Therefore, academic literature on the concepts of fuzzy criminals, green criminology, displacement, environmental regulation and fuzzy enforcement has been presented instead. The essence of these four key-concepts has been condensed into four dimensions: network, motive and modus operandi of Italian organized ecologic criminals and the enforcement’s response. Together these four dimensions built a conceptual framework that provided a suitable analytical lens for the atypicality of the Italian case along with a guiding structure for the presentation, analysis and comparison of the case studies.

The research design that has been selected for the specificity of the Italian case was a nested case design. This way, a qualitative study could be provided by comparing two cases on their similarities and differences. As a result, the empirical diversity accounted for the external validity of this research. Moreover, both inductive and deductive reasoning have been selected as to for the presentation and analysis of the cases. Therefore, the conceptual framework was connected to the two case studies, which provided the research with a consistent and structured analysis. Finally, to operationalize the four dimensions, the four-key concepts have been given a concise definition. This ultimately resulted in a matrix of the four dimensions, in which the questions posed could structure the analysis of the cases in a consistent manner.

The case studies that have been selected to test the analytical validity of the four dimensions showcased two large events that were most representative of the networks, the motives and the modus operandi of ecologic organized criminals and the response of the environmental enforcement. The analysis that resulted from this elucidated the explanatory



validity of the four dimensions. Moreover, the comparison between the two cases produced interesting results that helped producing an answer to the research question. That is, the relationship between illegal waste practices in Northern Italy and the respective environmental regulation and enforcement is dynamic, complex and evolving. The dynamicity of the relationship can be translated into a cat and mouse game in that both sides are continuously evolving. As new techniques are schemed by ecologic organized criminals to continue and enlarge their illegal waste trafficking, there is also a simultaneous development by environmental authorities of new methods for prevention and enforcement. The intricacy and fuzziness of Italian ecologic criminal networks and their complicated illegal waste practices make the distinction between what is legal and what is not very difficult. It is therefore a difficult issue for Italian environmental regulation and enforcement to solve and for authorities to untangle this fuzziness and produce appropriate responses.

The conclusion on the analytical validity of the conceptual framework and its four dimensions is that they held significant explanatory power in understanding the complexity of the Italian atypical case. The four key-concepts proved to be appropriate in analysing the intricacy of organized ecologic criminals and their illegal waste activities. The concepts were also meaningful in understanding why environmental enforcement is at times not appropriate and evolved enough. In this respect, this research has provided a valuable contribution to the existing environmental crime and deterrence literature as it enriched its theories by presenting a conceptual framework that better suits the atypicality of Italian organized ecologic criminals. However, this study has been limited in size and scope, therefore a perhaps quantitative study could have produced different conclusions. Moreover, the research has also been limited by the range of sources available in that the access to detailed investigations was not possible. The strength of this research however, is represented by the empirical diversity that emerged through the comparison of the two case studies.

The findings that emerged in the analysis of the cases could help Italian policy makers perhaps in taking a different approach to future environmental enforcement and regulation. What can be learned from the results is that the economic drive and the faulty environmental enforcement were a constant in both cases. Perhaps tackling the problem of waste management at its root (the costly treatment and disposal of waste in terms of money and time) could partly help solve the issue. A reflection that originated from this is that is difficult to regulate waste management and treatment in such a way that it is more fruitful for fuzzy criminals to choose for the legal way of waste disposal. It might be interesting to investigate on this issue in future

research, in that it could be an effective way of preventing illegal waste activities. Moreover, a comparison between the Italian approach to illegal waste trafficking and other European countries could also deliver interesting results.

## BIBLIOGRAPHY

Anderson, L. (2017). *Deviance: Social Constructions and Blurred Boundaries*. Oakland, California: *University of California Press*.

Apel, R. and Nagin, D. S. (2015). Deterrent Effect of Police and Prisons. *International Encyclopedia of the Social & Behavioral Sciences*. Vol. 6., 260-265.

Baird J., Curry R. And Cruz P. (2014). An overview of waste crime, its characteristics, and the vulnerability of the EU waste sector. *Waste Management & Research*. Vol. 32(2) 97–105.

<https://pubmed.ncbi.nlm.nih.gov/24519223/>

Bisschop, L. & Huisman, W. (2018). Waste crime from three criminological perspectives: Implications for crime control and harm prevention. In Spapens, T., White, R., van Uhm D. & Huisman, W. (Eds.) *Environmental Crimes and the Money, Green Criminology Series, Routledge*, pp. 148-176. file:///C:/Users/huawei/Downloads/wastecrime\_Finaal.pdf

Bonzanni, L. (2019). Ecomafie, oggi: l'inversione della rotta dei rifiuti illeciti. *Diacronie. Studi di Storia Contemporanea: Mafia e storiografia. Premesse culturali e prospettive attuali*. 1-17. [https://www.studistorici.com/wp-content/uploads/2019/10/03\\_BONZANNI.pdf](https://www.studistorici.com/wp-content/uploads/2019/10/03_BONZANNI.pdf)

Cannavò, S. and Cullati, A. (2012). Ecomafia 2012 Lombardia. *Legambiente*. Retrieved from: [https://rep.legambiente.it/sites/default/files/docs/ecomafia\\_lombardia\\_2012\\_def\\_0.pdf](https://rep.legambiente.it/sites/default/files/docs/ecomafia_lombardia_2012_def_0.pdf)

Bommer, R., and Schulze, G. G. (1999). Environmental improvement with trade liberalization. *European Journal of Political Economy*, 15(4), 639-661.

Brooker, F. (1972). The deterrent effect of punishment. *Criminology*, 9(4), 469-490.

Bruinsma G. U.N. and Johnson S. D. (2018). Environmental Criminology: Scope, History, and State of the Art. *Criminology and Criminal Justice, Criminological Theories*.

Cantoni, R. (2016). The waste crisis in Campania, South Italy: A historical perspective on an epidemiological controversy. *Endeavour (New Series)*, 40(2), 102-113. <https://pubmed.ncbi.nlm.nih.gov/27180606/>

Cesi, B., D'Amato A., and Zoli, M. (2019). Corruption in environmental policy: The case of waste. *Economia Politica*, 36(1), 65-78. <https://link.springer.com/article/10.1007%2Fs40888-017-0087-x>

D'Amato, A., & Zoli, M. (2012). Illegal waste disposal in the time of the mafia: a tale of enforcement and social well-being. *Journal of Environmental Planning and Management*, 55(5), 637–655. <https://www.tandfonline.com/doi/abs/10.1080/09640568.2011.620324>

De Rosa, Salvatore. (2016). Ending illegal trafficking and disposal of hazardous waste in Italy: knowledge and solutions from impacted local communities. [file:///C:/Users/huawei/Downloads/DeRosa\\_PolicyBrief\\_Final\\_03-02-2016.pdf](file:///C:/Users/huawei/Downloads/DeRosa_PolicyBrief_Final_03-02-2016.pdf)

Dorn N., Van Daele S., Van der Beken T. (2007). Reducing vulnerabilities to crime of the european waste management industry: the research base and the prospects for policy. *European Journal of Crime, Criminal Law and Criminal Justice*, 15(1), 23-36. <https://biblio.ugent.be/publication/393314>

Dreher, A. and Schneider, F. (2010). Corruption and the shadow economy: An empirical analysis. *Public Choice*, 144(1/2), 215-238 <file:///C:/Users/huawei/Downloads/SSRN-id886490.pdf>

Edmondson, G. and Carlisle, K. (2003). Italy and the Eco Mafia. *Bloomberg Businessweek*. Retrieved from: <https://www.bloomberg.com/news/articles/2003-01-26/italy-and-the-eco-mafia>

Europol (2013). Threat assessment Italian Organized Crime. [file:///C:/Users/Lenovo/Downloads/italian\\_organised\\_crime\\_threat\\_assessment\\_0.pdf](file:///C:/Users/Lenovo/Downloads/italian_organised_crime_threat_assessment_0.pdf)

Fivedabliu.it (2020). Traffico illecito di rifiuti: maxi operazione del NOE di Milano anche nell'area Expo. *Fivedabliu*. <https://fivedabliu.it/2020/10/21/traffico-illecito-di-rifiuti-maxi-operazione-del-noe-di-milano-anche-nellarea-expo/>

Germani A.R., Pergolizzi A, Reganati F. (2015). Illegal trafficking and unsustainable waste management in Italy: evidence at the regional level. *Journal of Security and Sustainability Issues*, 4(4): 369–389. [file:///C:/Users/huawei/Downloads/Germanietal\\_JSSI\\_2015.pdf](file:///C:/Users/huawei/Downloads/Germanietal_JSSI_2015.pdf)

Germani, A. R., Pergolizzi, A., & Reganati, F. (2018). Eco-mafia and environmental crime in Italy. *Green Crimes and Dirty Money*.

Gibbs, J. P. (1975) Crime, Punishment and Deterrence. *The University of Chicago Press Journals*. <https://www.journals.uchicago.edu/doi/abs/10.1086/226534>

Interpol. (2020). Strategic analysis report. Emerging criminal trends in the global plastic waste markets since January 2018. *Interpol*.

file:///C:/Users/Lenovo/Downloads/INTERPOL%20Report%20\_criminal%20trends-plastic%20waste.pdf

La Repubblica-b. (2019). Rifiuti da Napoli a Milano smaltiti con il fuoco per ‘fare il botto’, scattano gli arresti dopo il maxi rogo. *La Repubblica*.

[https://milano.repubblica.it/cronaca/2019/02/27/news/traffico\\_illecito\\_rifiuti\\_rogo\\_ipb\\_milano\\_arresti-220241967/](https://milano.repubblica.it/cronaca/2019/02/27/news/traffico_illecito_rifiuti_rogo_ipb_milano_arresti-220241967/)

La Repubblica-c. (2019). Milano, quattro condanne fino a 6 anni per il maxi rogo di rifiuti nel deposito alla Bovisasca. *La Repubblica*.

[https://milano.repubblica.it/cronaca/2019/10/10/news/milano\\_quattro\\_condanne\\_per\\_il\\_maxi\\_rogo\\_di\\_rifiuti-238162347/](https://milano.repubblica.it/cronaca/2019/10/10/news/milano_quattro_condanne_per_il_maxi_rogo_di_rifiuti-238162347/)

L’eco di Bergamo (2014). Rifiuti illeciti sotto la Brebemi. Rinviato il processo a Locatelli. *L’eco di Bergamo*. [https://www.ecodibergamo.it/stories/Cronaca/rifiuti-illeciti-sotto-la-brebemi-rinviato-il-processo-a-locatelli\\_1057527\\_11/](https://www.ecodibergamo.it/stories/Cronaca/rifiuti-illeciti-sotto-la-brebemi-rinviato-il-processo-a-locatelli_1057527_11/)

Liddick, D. (2010). The traffic in garbage and hazardous wastes: an overview. *Trends in Organised Crime*. <https://link.springer.com/article/10.1007/s12117-009-9089-6>

Lynch M. J., Barrett K. L., Stretesky P. B., and Long M. A. (2016): The Weak Probability of Punishment for Environmental Offenses and Deterrence of Environmental Offenders: A Discussion Based on USEPA Criminal Cases, 1983–2013. *Deviant Behavior*, Vol. 37. <https://www.tandfonline.com/doi/abs/10.1080/01639625.2016.1161455>

Martini, M. (2012). Environmental Crime and Corruption. U4 anti-corruption resource center. <https://www.u4.no/publications/environmental-crime-and-corruption/pdf>

Massari, M. and Monzini, P. (2004). Dirty Businesses in Italy: A case-study of Illegal Trafficking in Hazardous Waste. *Global Crime*.  
<https://www.tandfonline.com/doi/abs/10.1080/17440570500273416>

Regione Lombardia Consiglio Regionale (2019). Indagine Conoscitiva ‘Stoccaggio e traffico illecito di rifiuti in relazione all’aumento dei casi di incendio e con particolare attenzione alla presenza delle organizzazioni criminali nel ciclo dei rifiuti’. *Regione Lombardia Consiglio Regionale*. [http://www.antimafia365.it/wp-content/uploads/2019/09/Indagine\\_conoscitiva.pdf](http://www.antimafia365.it/wp-content/uploads/2019/09/Indagine_conoscitiva.pdf)

Renke, W. (2001). Criminal Deterrence and Sentence Severity: An Analysis of Recent Research, A. von Hirsch, A. E. Bottoms, E. Burney and P-O. Wikström (Portland, Oregon: Hart, 1999). *Alberta Law Review*, 39(2), 597.  
<https://www.albertalawreview.com/index.php/ALR/article/view/1415/1404>

Sahramäki, I., Favarin, S., Mehlbaum, S., Savona, E. U., Spapens, A., and Kankaanranta, T. (2017). Wasting opportunities: Prevention of illicit cross-border waste trafficking. *European Journal of Policing Studies*, 5(2), 61- 85.

Sahramäki, I. and Kankaanranta, T. (2017). Waste no money - reducing opportunities for illicit waste dumping. *Crime, Law and Social Change*, 68(1), 217-232.

Stefanoni, F. (2014). *Le mani su Milano: Gli oligarchi del cemento da Ligresti all’ Expo*. Editori Laterza.

Vagliasindi, G.M., Lucifora A., Bianco, F. (2015). Fighting Environmental Crime in Italy: A Country Report. Study in the framework of the EFFACE research project, Catania: *University of Catania*.  
[https://www.ecologic.eu/sites/default/files/publication/2015/efface\\_fighting\\_environmental\\_crime\\_in\\_italy.pdf](https://www.ecologic.eu/sites/default/files/publication/2015/efface_fighting_environmental_crime_in_italy.pdf)