

THE IMPACT OF TRUST RELATIONSHIPS ON ENVIRONMENTAL MANAGEMENT IN NORTH LEBANON

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UNIVERSITY OF TWENTE.

**THE IMPACT OF TRUST RELATIONSHIPS ON
ENVIRONMENTAL MANAGEMENT IN NORTH LEBANON**

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Table of Contents

Table of Contents	i
List of Illustrations	v
List of Abbreviations	vii
Acknowledgements	ix
Chapter 1: Introduction	1
1.1. Background.....	2
1.1.1. Lebanon’s political system and history of its armed conflicts.....	2
1.1.2. Environmental degradation and conditions for environmental management in Lebanon.....	3
1.1.2.1. Solid waste management.....	5
1.2. Research puzzle: The impact of Trust relationships on environmental management in Lebanon.....	6
1.3. Research objective and research questions	7
1.4. Stakeholders involved in environmental management.....	8
1.5. Thesis outline.....	10
Chapter 2: Analytical framework	13
2.1. Main conceptual theories used in this research.....	13
2.1.1. Definition of trust.....	13
2.1.2. Trust and the armed conflicts.....	15
2.1.3. Social and political trust.....	16
2.1.4. Trust and cooperation relationships.....	17
2.1.5. Trust and its link to government legitimacy and citizens’ participation.....	19
2.1.6. Trust and past experiences.....	20
2.1.7. Trust and its link to management and decision-making process.....	20
2.1.7.1. Role of citizens’ participation in decision making.....	21
2.1.8. “Wasta” concept and its relation to trust.....	22
2.2. Gap in knowledge.....	23
2.3. The general analytical model used.....	24
2.4. Empirical chapters and its link to the conceptual model.....	27
Chapter 3: Methodology	31
3.1. Research design and methodological approach.....	31
3.2. Selecting the study sites.....	33
3.2.1. Coastal areas of north Lebanon.....	33
3.2.2. Al-Fayhaa Union.....	34
3.3. Data collection.....	35
3.3.1. Primary data collection.....	36
3.3.1.1. Survey.....	36
3.3.1.2. Interviews.....	37
3.3.1.3. Fuzzy cognitive mapping.....	38
3.3.2. Secondary data collection.....	38
3.3.2.1. Existing literature.....	38
3.4. Data analysis.....	39
3.4.1. Survey.....	40
3.4.2. Interviews.....	40
3.4.3. Fuzzy cognitive mapping.....	40

3.4.4. Document analysis.....	40
3.5 Validity and reliability.....	41
3.6 Challenges	42
3.6.1 Position of the researcher.....	43
Chapter 4: Citizens’ perceptions of trust and cooperation relationships in the environmental management process in North Lebanon.....	45
4.1. Abstract	45
4.2. Introduction	45
4.2.1. Research aims, objective and approach.....	47
4.2.1.1. The stakeholders.....	47
4.2.1.2. Types of trust	48
4.3. Theoretical background.....	49
4.3.1. Social and political trust.....	49
4.3.2. Trust and its link to government legitimacy and citizen participation	50
4.3.3. Trust and cooperation.....	50
4.4. Methodology.....	51
4.4.1. Study site	51
4.4.2. Data collection and survey method.....	51
4.4.3 General characteristics of the respondents.....	53
4.5. Findings and discussion.....	54
4.5.1. Citizen perceptions of trust relations.....	54
4.5.1.1. Correlation between the trust relations.....	55
4.5.2. What variables are considered predictors or have a correlation with the trust relations studied?.....	55
4.5.2.1. Socio-economic variables.....	55
4.5.2.1.1. Binary logistic regression	56
4.5.2.2. Other variables (statements) investigated in the survey.....	57
4.5.2.2.1. Binary logistic regression	57
4.5.2.2.2. Correlation.....	59
4.6. Conclusions.....	61
Chapter 5: Perceptions from the public and private sector on trust relationships in the field of environmental management in Lebanon.....	65
5.1. Abstract	65
5.2. Introduction	66
5.2.1. Stakeholders in environmental management	67
5.2.2 Objective.....	68
5.3. Theoretical background	69
5.3.1. Definition of trust.....	69
5.3.2. Trust and cooperation relationships.....	70
5.3.3. Trust relationships and endurance of organizations.....	70
5.4. Methodology.....	71
5.4.1 Primary data from interviews	71
5.4.2. Secondary data.....	74
5.5. Results and discussion.....	75
5.5.1 Trust and cooperation relationships among public sector stakeholders.....	75
5.5.2. Trust and cooperation relationships between public and private sector stakeholders.....	78
5.5.3. To what extent is citizens’ participation in environmental management initiatives dependent on trust.....	80
5.6. Conclusions.....	81

Chapter 6: Positive and negative trust and cooperation relationships in environmental management in Lebanon.....	83
6.1. Abstract	83
6.2. Introduction	84
6.3. Theoretical background.....	86
6.3.1 Definition of trust.....	86
6.3.2. Trust and cooperation relationships.....	86
6.3.3. The ‘wasta’ concept and its relationship to trust.....	86
6.4. Methodology.....	87
6.4.1. Survey.....	88
6.4.2. Interviews.....	89
6.4.3. Secondary data.....	89
6.5. Results and discussion.....	90
6.5.1. Citizen perceptions of trust relationships with public sector stakeholders.....	90
6.5.2. Stakeholder perceptions of trust and cooperation in the relationships between stakeholders in the public and in the private sectors.....	90
6.5.3. Current trust and cooperation relationships hinder environmental management.....	92
6.6. Conclusions.....	94
Chapter 7: Analyzing linkages between trust and solid waste management using the fuzzy cognitive mapping approach: Case study of Al-Fayhaa Union, Lebanon.....	97
7.1. Abstract	97
7.2. Introduction	97
7.3. The case study area.....	99
7.4. Method.....	100
7.4.1 Fuzzy cognitive mapping	100
7.4.1.1 Introduction to fuzzy cognitive mapping.....	100
7.4.1.2 Pilot Study.....	101
7.4.1.3 Prompting stakeholders’ views.....	102
7.4.1.4 FCM data analysis.....	104
7.5. Results and discussion.....	105
7.5.1. Map indices.....	105
7.5.2. The most central variables.....	106
7.5.3. The “Lack of trust relations” variable.....	107
7.5.4. The aggregated “social” map.....	111
7.6. Conclusions.....	113
Chapter 8: Conclusions and recommendations.....	117
8.1. Conclusions from empirical chapters.....	117
8.2. Policy relevance.....	120
8.3. Contribution to the applied theoretical frameworks.....	121
8.4. Closing remarks and areas for future research.....	122
References	125
Appendices	141
Appendix 1: Summary of Laws related to solid waste management in Lebanon.....	141
Appendix 2: Five main areas and number of surveys completed in each of the sub areas.....	142
Appendix 3: Survey filled by the citizens (in Arabic)	143
Appendix 4: List of some joint ventures projects between public and private sector in EM	148
Appendix 5: Interview questions for municipalities (in Arabic).....	149
Appendix 6: Interview questions for ministries (in Arabic).....	154
Appendix 7: Invitation letter for FCM workshop (in Arabic).....	160
Appendix 8: FCM workshop agenda (in Arabic)	161
Appendix 9: Notes for the FCM facilitators	162

Appendix 10: Some pictures of the FCM workshop.....	164
Appendix 11: The FCM with all the variables representing the public stakeholders' perceptions.....	165
Appendix 12: The FCM with all variables representing the private stakeholders' perceptions.....	166
Appendix 13: The FCM with all variables representing the grassroots stakeholders' perceptions..	167
Appendix 14: The full aggregated FCM map with all the 49 variables	168
Summary	169
Samenvatting (Summary in Dutch)	173
About the author	177

List of Illustrations

Tables

Table2.1	The link between the empirical chapters and the theoretical conceptual model..	28
Table3.1	Data collection strategy.....	39
Table4.1.	Survey Statements And Questions: With Proportion Of Respondents Who Agree Or Disagree.....	52
Table4.2.	Binary logistic Regression showing Educational level as a predictor for the citizen-municipalities trust and citizen-private sector trust (Model 1 and 2).....	56
Table4.3.	Binary Logistic regression with other variables for Model 3 and 4 investigated in the survey.....	59
Table4.4.	Correlation matrix between trust relations and other variables.....	61
Table5.1.	List of the stakeholders who were interviewed representing the public and private stakeholders involved in the EM process in Lebanon (North).....	71
Table5.2.	List of the questions asked in these interviews.....	72
Table7.1.	List of predefined variables that have cause-effect relations with the solid waste management in Al-Fayhaa Union.....	101
Table7.2.	List of the participants in the FCM workshop.....	102
Table7.3	Indices of the three sectoral maps.....	105
Table7.4	Top ten variables in terms of centrality in each sector.....	106
Table7.5	Indices of the aggregated map.....	111
Table7.6	Ten variables with the highest centralities.....	112

Figures

Figure1.1	Schematic diagram of the research.....	10
Figure1.2	Chapters of the thesis.....	11
Figure2.1	The reciprocated trust and cooperation relationships among stakeholders.....	18
Figure2.2	Overview of the trust and cooperation relationships studied between and among the various stakeholders involved in environmental management in Lebanon.....	19
Figure2.3	The analytical framework module used in this research.....	25
Figure2.4	Trust and cooperation relationships used as a means to both enhance and hinder environmental management in Lebanon.....	27
Figure3.1	Organization of the different chapters of this thesis.....	32
Figure3.2	Data collection methods for primary data.....	36
Figure 6.1	Shows the effect of “wasta” on EM in Lebanon.....	94
Figure 7.1.	Showing some FCM maps drawn by the participants.....	104
Figure7.2.	All neighboring concepts directly connected to the “Lack of trust relations” factor and their linkages for the public sector group.....	108

Figure7.3. All neighboring concepts directly connected to the “Lack of trust relations” concept and their linkages for the private sector group.....	109
Figure7.4 All neighboring concepts directly connected to the “Lack of trust relations” concept and their linkages for the grassroots group.....	110
Figure7.5 Ten parameters with highest centralities in the aggregated map.....	113

Maps

Map3.1. Map showing villages and cities in coastal North Lebanon, including the Al –Fayhaa. Union.....	35
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List of Abbreviations

BLR	Binary logistic regression
EM	Environmental Management
FCM	Fuzzy Cognitive Mapping
IMAC	Integrated Management of East Mediterranean Coastlines: North Lebanon project
SWM	Solid Waste Management

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Chapter 1: Introduction

Sustainable environmental management is one of the biggest challenges of the 21st century, in any country. Unfortunately, this is often not achieved, particularly in situations where conditions are far from conducive, such as in areas of armed conflict. Many researchers have discussed the impact of trust as one of the variables that shapes environmental management and affects its outcomes (Idrissou *et al.*, 2013; Baral, 2012). The environmental management process is defined in this research as the development of strategies or activities with the goal: “to maintain and improve the state of an environmental resource affected by human activities” (Pahl-Wostl, 2007, p. 561).

The notion of trust has received increasing attention in the last two decades and its relationship with concepts of cooperation and resource management (Dietz *et al.*, 2003; Pretty, 2003; Levin, 2006). Before this, attention was given to models of rational behavior, such as the “tit for tat” model in game theory (Gilmour, 2013). This simple strategy observed that it requires a party first to cooperate, and thenceforth to imitate the other’s behavior (Axelrod, 1984). Nevertheless, these models provided limited understanding of the social and strategic interactions of resource users. In institutional economics¹, trust, along with institutional complexity, is considered to be one of the most important factors in reducing transaction costs² (North, 1990). During the last two decades, scholars have focused more on the role of social factors, such as trust, reputation and social norms (Gilmour, 2013), and the human dimension in management processes.

Hoffman *et al.* (2001) even state that the human dimension of project management is the single most important determinant of any project success. Similarly, Good (1988) argues that: “...without trust, the everyday social life which we take for granted is simply not possible” (Good, 1988, quoted in Sztompka, 1999). Sharp *et al.* (2013) argue that trust is a crucial element in enhancing and sustaining relationships between agencies that implement environmental programs and policies and those communities who are affected or served by these programs and policies (Sharp *et al.*, 2013). Other researchers indicate that trust contributes, cements and reinforces the success of relationships among stakeholders involved in any project thus determining its success (Bresnen and Marshall, 2000; Chan *et al.*, 2003; Lewicki, 2006; Lijebblad *et al.*, 2009). This factor is also perceived to be essential for the implementation of public programs among stakeholders (Tyler, 2003; Gilson, 2003; Tsang *et al.*, 2009).

Several scholars have argued also that there is a strong link between trust and cooperation relationships (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007), through

¹ Institutions here are defined as the formal and informal laws and social norms that provide the incentive structures that govern human behaviour. Organizations, such as firms, governing bodies, schools etc, arise as a function of the institutional arrangements (North, 1990).

² Transaction costs are the costs associated with interactions between individuals or organizations under institutional frameworks and include the costs associated with negotiation, bargaining, seeking information, enforcement and monitoring (North, 1990).

different mechanisms. First of all, trust is one of the factors that explains why participants choose to cooperate or not (Ostrom and Walker, 2003). Secondly, enhancing trust relationships is a means to reduce insecurity and conflict in the relationships between different actors (Shahbaz *et al.*, 2008). Trust between parties also helps to overcome disagreements (Tennberg, 2007), as it facilitates negotiation and conflict management between stakeholders (Tomlinson *et al.*, 2009). Finally, the outcomes of environmental management processes are also affected by mutual trust, the interdependence between stakeholders, and the history of cooperation (Eshuis and Van Woerkum, 2003; Kelman, 2005). These are particularly important for environmental management in situations that require multi-stakeholder cooperation. Trust as a factor for promoting good environmental management has not been systematically studied in Lebanon.

1.1 Background

1.1.1 Lebanon's political system and history of its armed conflicts

Lebanon's society has a number of distinct features that are relevant in the context of this research. First of all, it has 18 different religious (sectarian) communities. Each community has its own regional and local strongholds, as well as social institutions and political parties (Faour, 2007; Stel and Naudé, 2013). As a result, each citizen depends mainly on its own sectarian leader for protection (Ziadeh, 2006). In this thesis, this phenomenon is referred to as 'sectarianism'³. Trust relationships between communities are, at least to some extent, shaped by the sectarian nature of the Lebanese society (Ghosn and Houry, 2011).

Second, and related to the first, the Lebanese State is built upon on a consociational political system; the power is shared based on an inter-sectarian sharing formula. All the public office positions are guided by a corresponding sectarian quota (Stel and Naudé, 2013). Since its independence in 1943, and based on the 1932 census, Lebanon governmental power was distributed as a confessional system with a ratio of six Christians to five Muslims (Maktabi, 1999, p. 220; Ghosn and Houry, 2011). This political system failed over time with demographic changes in the country. The growth of the Muslim population made this community believe that this 5:6 ratio was no longer effective leading to growing political and social tensions.

Therefore, at the end of the 1980s, the Lebanese parties moved to the negotiation table and the Taif agreement was signed under the supervision of Saudi Arabia. This agreement reformed the power sharing system and gave Muslims a greater role in Government. The political system became divided equally between Christians and Muslims with a ratio of 6:6. Also, the Taif agreement called for a gradual abolishment of confessionalism. The Lebanese Constitution, specifically article 95(1) states: "The first Chamber of Deputies, which is elected on the basis of equality between Muslims and Christians, takes the appropriate measures to realize the abolition

³ "Sectarianism" means the same thing as "confessionalism" within the context of this research.

of political confessionalism according to a transitional plan". This was, however, never implemented. Sectarianism remains a strong characteristic of Lebanese society to present day.

Third, both internal (e.g. weak Lebanese Government, economic disparities among the citizens) and regional tensions (e.g. the Israeli-Palestinian conflict which made Lebanon particularly vulnerable because of its strategic location) led to the outbreak of civil war in 1975 that lasted for approximately 15 years. This war dramatically affected Lebanon and its people: more than 144,000 were killed; 184,000 were injured; 175 towns were destroyed; and, 750,000 citizens were displaced (Ghosn and Khoury, 2011). Other problems also followed which included, for example, economic crisis, social problems, and environmental degradation. Lebanon has faced many conflicts in the 19th, 20th and early 21st century. Examples of such conflicts are the war between Druze and Christians in Mount Lebanon in 1860, the civil war (1975-1990), the repeated armed conflicts with Israel, such as the Israeli War on Lebanon in 2006; the Nahr-el Bared Clashes (2007); and the ongoing clashes in Tripoli. All these confrontations caused social fragmentation (Bazzi, 2007), further weakened governmental institutions, and increased corruption. The armed conflicts and corruption in Lebanon has resulted in a low level of trust from the Lebanese society in Government and politicians (Haddad, 2002) and vice versa (Najmeddine, 2011).

Fourth, as a result of repeated episodes of armed conflict and due to the fragmented (sectarian) nature of society, it has been difficult for the Government to take decisions or to develop strategic plans; including those required for environmental management. Even if policies and a regulatory framework are in place, the Government is often unable to enforce existing laws (Kisirwani, 1992; Zakka and Ghattas, 2011; Haase, 2014). Moreover, as indicated by Rault (2009), the public administration is seen as corrupted, working for private interests instead of the common good. All this has negatively impacted the management process in Lebanon in general, and on the environment in particular (Haase, 2014).

The next section will position Lebanon's environmental degradation within the context of repeated episodes of armed conflict, reconstruction, and the failure to address these challenges.

1.1.2. Environmental degradation and conditions for environmental management in Lebanon

Lebanon is a country that is rich in natural resources. Nevertheless, it has long been threatened by environmental degradation and threats which, not only affect the natural environment, but also people's health and economic development (Sarrafi *et al.*, 2004; Geara-Matta *et al.*, 2010), their well-being (Khagram *et al.*, 2003), and human security (Shambaugh *et al.*, 2001; Khagram *et al.*, 2003; Huseynov, 2011).

Despite these impacts of environmental degradation on peoples' health, development, and human security, Lebanon's environment has been, and still is neglected (IMAC, 2007a). Only few

initiatives or programs are implemented to reduce or prevent environmental deterioration. The most serious problems include: air pollution; the uncollected and unsafe waste disposal of municipalities; industrial waste and hazardous waste, destruction of coastal and marine habitats, soil erosion, desertification amongst others (European Commission, 2006; MOE, UNDP and ECODIT, 2011). In 2000, the cost of the environmental degradation on Lebanon was estimated to be 3.4 percent of GDP with a mean estimate of close to US \$ 565 Million per year (Sarraf *et al.*, 2004).

Lebanon's environmental degradation can be attributed to three broad factors. First of all, part of the environmental degradation should be seen in the context of armed conflict and periods of relative calm in between. During the civil war (1975-1990), there was uncontrolled development in many areas in Lebanon. Unregulated construction grew and ruined many agricultural and public lands. Uncontrolled development also contributed to pollution, especially along the coastline (El Asmar *et al.*, 2012). Another example was the July 2006 war between Israel and Lebanon, which had a devastating impact on the country's environment. The massive destruction of infrastructure left enormous amounts of debris and rubble. Bombing of the power plant in Jiyeh caused an oil spill of about 12-15,000 tons into the Mediterranean Sea, affecting more than 150 km of the 220 km Lebanese coastline, including that of north Lebanon. Widespread fires and burning oil led to deterioration in air quality, which significantly affected people's health (World Bank, 2007). According to the Ministry of Environment, the negative effects of the 2006 Israeli War on Lebanon on the natural environment continued even after the ending of hostilities, due to reconstruction and rebuilding of that which was demolished requiring extensive quarrying (Ministry of Environment, 2006).

Second, human activities in the agricultural, fisheries, industrial and tourist sectors also contributed to environmental deterioration of the coastal area in North Lebanon. These human activities resulted in soil erosion; depletion of underground water resources; pollution from pesticides, fertilizers and agricultural by-products; and, seawater pollution from unregulated industrial waste disposal (IMAC, 2007a). Clean water has become scarce in Lebanon due to industrial and agricultural pollution, and poor sanitation (Haase, 2014).

Finally, environmental deterioration has also resulted from political and institutional weaknesses. The ongoing instability of Lebanon greatly hinders environmental protection (McCornack, 2012). The Government is said to be unable to take proper decisions, to propose necessary laws to protect the natural environment (Bazzi, 2009; Kisirwani, 1992) and to enforce existing laws. Masri (2009) argues that the main reason behind several environmental issues is poor management and inadequate enforcement of existing laws. For example, disregard for construction laws has resulted in much illegal building (El Asmar *et al.*, 2012). Furthermore, repeated cabinet reshuffles cause further delay and jeopardize the policy making processes as new governments. Ministries tend to drop previous policies and start all over with a new team of

advisors. This negatively affects the continuity of policies, and the state of the natural environment (MOE, UNDP and ECODIT, 2011).

Recent Lebanese Government development plans for the coastal areas have focused primarily on tourism and economic growth, on construction and reconstruction. The policies largely disregarded the agricultural and industrial sectors (Republic of Lebanon, 1997; Salam, 1998; Verdei, 2003) and the interests of communities (El Asmar *et al.*, 2012). Moreover, the top-down approach adopted by the Government in its urban planning favored local elites, mainly politicians and landowners. This approach has left the biophysical environment more exposed to degradation.

Historically, little or no consideration was given to potential environmental impacts whenever planning or implementing projects in Lebanon, and most planning was based mostly on economic feasibility (El-Fadel *et al.*, 2000). However, in the last two decades, and because of Lebanon's reliance on external funds from international organizations, more attention started to be given to Environmental Impact Assessment as part of planning or implementing projects. International pressure, as well as internal concerns, led Lebanon to some improvement in environmental management and protection, such as establishing an environmental ministry in 1993 (Sarraf *et al.*, 2004; El-Fadel *et al.*, 2000).

Sarraf *et al.* (2004) and the European Commission (2006) list a number of conditions which are required to further reduce degradation and protect the environment. These are (a) the strict enforcement of environmental laws and legislation; (b) partnerships between public and private sectors (c) a clear distinction between the roles of the public and private sectors; and (d) environmental awareness among the citizens (Sarraf *et al.*, 2004; European Commission, 2006). Many of these conditions do not exist adequately in Lebanon. The Ministry of Environment, for example, still faces many challenges, not only in terms of public private partnerships, but also in terms of cooperation within the public sector. Several reports refer to an overlap of mandates; lack of cross-sectoral planning and management; inefficient coordination with Government agencies (IMAC, 2007b; European Commission, 2006); duplication of responsibilities with other Lebanese bodies; lack of financial resources; and limited human resources (El-Fadel *et al.*, 2000; MOE, UNDP and ECODIT, 2011). This directly affects the effectiveness of the environmental projects funded by international donors. These are reported to be largely ineffective due to limited progress or a lack of cooperation among the stakeholders involved (IMAC, 2007a). Cooperation among the organizations involved remains a complex and difficult process and, if it exists, it is based on ad-hoc requests (European Commission, 2006; Al-Sairawan *et al.*, 2012).

1.1.2.1 *Solid waste management*

To make this more visible, one case study area (solid waste) is selected for more detailed analysis. Solid waste is chosen, because it is one of the most common environmental problems in North Lebanon and solid waste problems affect not only the environment, but also peoples'

health and human wellbeing. Solid waste is discarded mainly in open dumps in many villages or cities (McCornack, 2012). Most disposal sites are uncontrolled dumps (METAP, 2005; McCornack, 2012). In Lebanese rural areas alone over 700,000 tons of municipal solid waste and over 100 Mm³ of raw municipal sewage are disposed of directly into the environment every year (ELARD, 2004). This situation has a negative effect on a range of environmental, public health and socio-economic impacts. For example, contamination of water resources, increased health problems among the population, and a negative impact on local economic activities such as those related to tourism or agriculture sectors (Ibid). This research explores, from the perceptions of the various stakeholders, the variables that affect, or are affected by, solid waste management practices in North Lebanon. Trust is one of these variables, but not the only one.

Although solid waste management is gaining more attention, there is still no well-defined national policy on waste management in Lebanon and no long-term vision for solid waste management solutions (European Commission, 2006; MOE, UNDP and ECODIT, 2011). Instead of a long-term vision, the Government has been relying on emergency response measures (MOE, UNDP and ECODIT, 2011). A number of actors are involved in solid waste management in Lebanon from the public and private sector. Yet, there is no clear distribution of responsibilities among the different stakeholders involved in the solid waste management. This contributes significantly to the insufficient management of the sector (European Commission, 2006).

In contrast to the absence of a well-defined national policy, Lebanon does have numerous solid waste management laws (See Appendix 1 for a Summary of Laws related to solid waste management in Lebanon). Nevertheless, due to the civil war and unstable conditions, many laws are not being enforced, such as the ones related to open dumping and burning (ELARD, 2004). There is no legal reporting system about waste generated or waste collected or the treatment facilities (Al-Sairawan *et al.*, 2012). Lebanon faces an increase of waste production and minimal availability of lands for waste storage and disposal. The conditions for effective environmental management mentioned earlier, are also absent in the area of solid waste management: limited development, if any, of proper strategies and policies (McCornack, 2012); lack of human and financial resources in public agencies (Al- Sairawan *et al.*, 2012); and the lack of cooperation between the stakeholders involved.

1.2 Research puzzle: the impact of trust on environmental management in Lebanon

The above has shown the environmental degradation and the poor environmental management in Lebanon, and the factors that have contributed to this situation. It has shown that cooperation between multiple stakeholders in the area of environmental management is still a challenging task. Since the cooperation among and between stakeholders in the public and private sector is reported to be such a constraint to environmental management in Lebanon, this research examines the link between trust and cooperation relationships between citizens, stakeholders in the public and private sector. It assumes that trust and cooperation relationships are necessary conditions for effective environmental management. Research with regard to the link between

trust, cooperation and environmental management in Lebanon has not been undertaken before. This research attempts to fill this knowledge gap. It takes the perceptions of citizens, and stakeholders in the public and private sector as point of departure, because it is the perception of trust that will affect their willingness to cooperate with other stakeholders in the area of environmental management.

Two main assumptions are underlying this research: first, that *trust and cooperation*, between/among the public and private sector stakeholders themselves involved in environmental management, and the citizens in Lebanon (North), *are reciprocated*. Second, that a *lack of trust* relationships will *decrease cooperation* and will have a *negative effect on environmental management* in Lebanon.

1.3 Research objective and research questions

Based on the above research puzzle, this thesis seeks to demonstrate the importance of trust in environmental management in North Lebanon. The main objective is to study, from the perceptions of the main stakeholders involved, the trust and cooperation relationships in Lebanon between public and private sector stakeholders who are involved in environmental management and between each of those stakeholders and the citizens. Also this study aims to observe the effect and influence of these relationships on environmental management in Lebanon (North) taking into consideration the complex reality of conflict in this area.

The main research question is:

“From the perception of citizens and the public and private sector stakeholders involved in environmental management, how is the cooperation in environmental management in Lebanon (North) shaped by trust relationships between the public and private sector stakeholders, and between each of those stakeholders and the citizens; taking into consideration the complex reality of conflict in Lebanon (North)?”

This research question is further divided in four sub-questions. In the sub-questions below, ‘stakeholders’ should be read as ‘those stakeholders who are involved in environmental management’.

SQ 1: “From the citizens’ perspective, how do trust relationships between the citizens on the one hand, and between them and the public and private sector stakeholders on the other hand, shape the level of cooperation among citizens in the environmental management process taking into consideration the complex reality of conflict? How does this relationship of cooperation and trust affect the environmental management process of North Lebanon?”

SQ 2: “From the viewpoint of the public and private sector stakeholders, how are cooperation and trust relationships shaped between public stakeholders themselves and between public and private sector stakeholders, and how are they mutually affecting each other and the environmental management process of North Lebanon? What are the public and private sector stakeholders’ perceptions of citizens’ cooperation and to what extent do they depend on trust?”

SQ 3: “From the perception of the various stakeholders involved in environmental management, how can we distinguish between trust and cooperation relationships among the stakeholders as a factor which *hinders* environmental management, and trust and cooperation relationships as a means to *enhance* environmental management in Lebanon?”

SQ4: “From the perception of the various stakeholders involved in solid waste management, how can the previous findings be used to assess how trust and cooperation relationships influence the solid waste management, taking into consideration the complex reality of conflict in (North) Lebanon?”

Research Site

This research is carried out in the coastal areas of north Lebanon (Akkar, Minieh- Dinnieh, Tripoli, Koura and Batroun). This area includes the greater Akkar area which is one of the poorest and most deprived areas of the country. North of Lebanon is home for 46% of the Lebanese population defined as extremely poor and 38% of the total poor (Das and Davidson, 2011). This region, in particular Akkar, Minnieh- Dinnieh and Tripoli, witness many environmental pressures and problems; and the area is marginalized and neglected by the Lebanese Government (Volk, 2009). The environmental problems have been exacerbated by a large inflow of refugees and the ongoing armed conflicts. More details about the research area can be found in Chapter 3.

1.4 Stakeholders involved in environmental management

The definition of stakeholders adopted in this research is that of Freeman who states: stakeholders are "those groups who can affect or are affected by the achievement of an organization's purpose" (1984, p. 49). Natural environmental problems are complex and multi-scale and require multiple actors and agencies (Reed, 2008). In Lebanon, three broad categories of stakeholders are involved in the environmental management process, whether directly or indirectly: stakeholders in the public sector; stakeholders in the private sector; and, citizens.

The environmental management process primarily is in public sector hands. The public sector at a national level consists mainly of policy makers, ministries, Government and its institutes

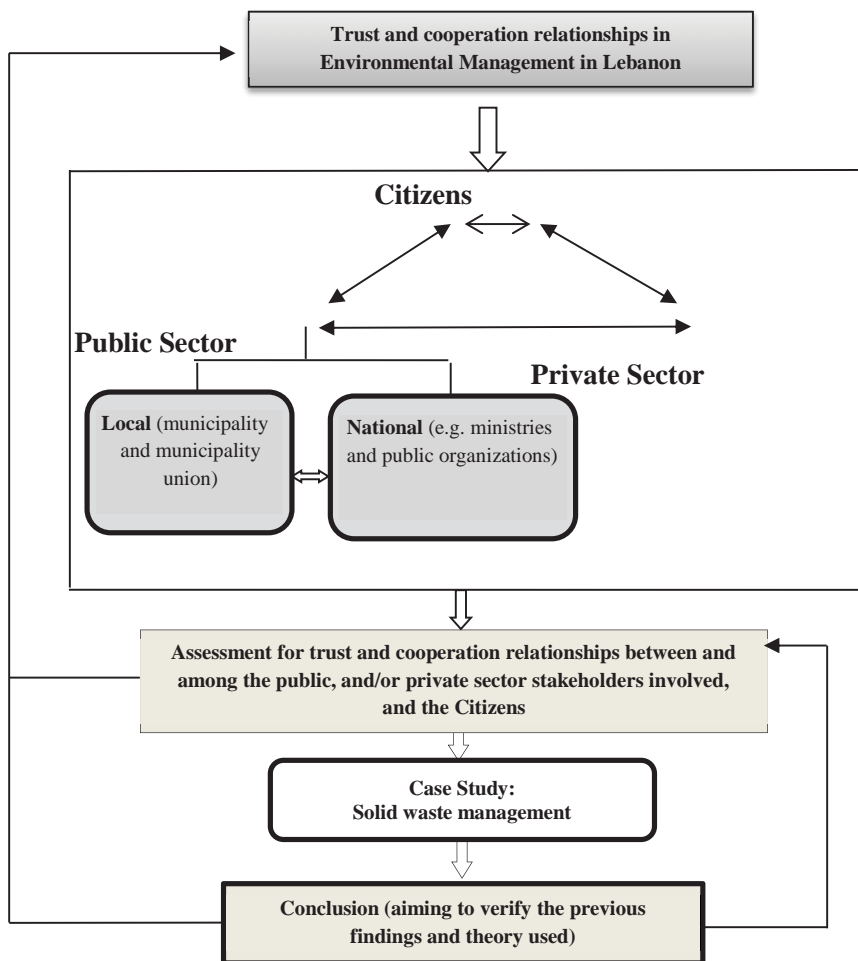
(MOE/UNDP/ECODIT, 2011). Politicians, normally outside the public sector, are key-decision makers within the ministries. Therefore, they are included in our category of the public sector. It is the municipality that is charged by law to oversee and implement environmental projects benefiting communities within its area of jurisdiction at the local level (IMAC, 2007b). Nevertheless, many public organizations, at both local and national levels, are administratively weak and are not able to implement developmental projects or provide adequate services to the citizens (Atallah, 2012).

In addition, and significantly, the private sector, which is considered a secondary stakeholder, also plays an important role in environmental planning and management in Lebanon (IMAC, 2007a). The private sector broadly includes private companies, but also academic or research centers, and experts (to the extent these are being paid for their services). Private companies work as consultants for the public sector, as contractors, or as providers of specific services, such as collecting solid waste or water supply. The public and private sector are closely related and, to some extent, interwoven. Various forms of ‘cooperation’ between the public and private sectors in environmental management are:

- (a) cooperation in project implementation;
- (b) cooperation through advisory work or consultation;
- (c) cooperation through contracting; or,
- (d) cooperation through service provision.

A number of ‘councils and funds’ play a key role in the disbursement of funds from public to private sectors. A number of joint-stock ventures were also established. These funds, councils and joint-stock ventures have played a crucial role in rehabilitation and reconstruction of major infrastructure. Thereby, they have an impact on the natural environment. Last, but not least, citizens can play a crucial role in the environmental management process through complying with laws and regulations, by volunteering in environmental initiatives, or by resisting new plans.

Figure 1.1: Schematic diagram of the research



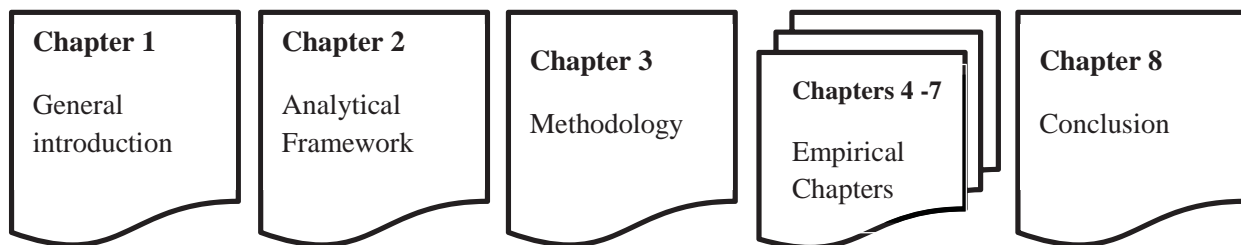
1.5 Thesis outline

This section describes the general outline and a summary of what each chapter includes and presents the logic followed in order to obtain the results.

The research uses a number of theories to analyze the reciprocal relationship between trust and cooperation in North Lebanon. The theories used are social exchange theory (Axelrod, 1984); the cultural theory of political trust; social capital theory (Putnam, 1993); corruption-trust theory (Rothstein, 2013); history-dependence (Ferrin *et al.*, 2008); and the altruistic theory described by Levi that people are willing to engage in cooperation for common goals, even if they do not personally benefit from the result materially (1998). These theories are discussed in more detail in Chapter 2. Chapter 3 describes the methodological choices made, and how these methods were applied to attain the thesis objectives and answer the research questions.

The empirical chapters are Chapters 4, 5, 6 and 7. Chapter 4 studies trust and cooperation relationships from citizens’ perceptions. In Chapter 5, these relationships are studied from public and private sector stakeholders’ perceptions. Then, in Chapter 6, the perceptions of all the stakeholders involved in environmental management (the citizens, public and private sector stakeholders) are examined to see how trust and cooperation relationships hamper or hinder environmental management in Lebanon. Chapter 7 explores how the perceptions of citizens, public and private sector stakeholders involved in the solid waste management are related to the factors that affect, or are affected by, solid waste management in the Al-Fayhaa Union, Lebanon and the role of trust among these factors. Chapter 8 synthesizes the conclusions from the empirical chapters by answering the main research question. This chapter also summarizes the empirical and theoretical contributions of this research, and provides some recommendations and suggestions for future research.

Figure 1.2: Chapters of the thesis



The thesis, by its nature, means that the reader will find some overlaps and repetition between the empirical chapters (4 through 7) and the other chapters. For instance, there is some repetition found in the “concepts” from Chapter 2 and the “theoretical framework” sections of the empirical chapters. The main reason for this unavoidable repetition is because most of the empirical chapters were based upon articles that were already published or were under review in scientific journals. They were kept in this form so that they can be read independently.

NOTE:

This research is part of the project titled: ‘Conflict and Environment in North-Lebanon: A longitudinal study of environmental and socio-economic mitigation processes in conflict-affected areas’ which is funded by the Netherlands Organization for Scientific Research (NWO), WOTRO Science for Global Development (grant number: W 01.65.318.00). This project studies the impact of armed conflict on the natural environment in the region of North Lebanon from economic, social, geographic and political perspectives. It also uses some information collected from a previous project titled: ‘The Integrated Management of East Mediterranean Coastline’ (IMAC). The overall objective of IMAC was to stimulate sustainable development of coastal zones in Lebanon with positive effects for standard of living and ecosystem health.

This thesis was carried out at the Department of Governance and Technology for Sustainability (CSTM) at the University of Twente, the Netherlands and the Institute of the Environment (IOE) at the University of Balamand, Lebanon. Both institutions provided exceptional technical and academic support which allowed the successful completion of this study.

Chapter 2: Analytical framework

This chapter presents the analytical framework developed for this research to study trust relationships and their role in environmental management in Lebanon. The overarching assumption adopted by the research is that there is a reciprocal relationship between trust and cooperation, and that sustainable environmental management is only possible under conditions of trust. This chapter describes how an analytical framework was developed by referring to several conceptual theories related to trust relationships in order to explore the research questions outlined in Chapter 1. The conceptual theories outlined in this chapter form the theoretical underpinning for the different components of research undertaken for the thesis, these are:

1. Social exchange theory. This is used in Chapters 4, 5, 6 and 7 by asking respondents if they have confidence, or trust, that there is the ability that services will be delivered according to stated intent and have a beneficial result.
2. Social capital theory and cultural theory of political trust. People, who are more likely to trust each other, are more likely to be actively engaged in politics or have a greater confidence in political institutions. This is explored mainly in Chapter 4.
3. Corruption-trust theory. This is used in Chapter 6 to examine the extent to which the perceptions of citizens that cooperation is best gained through agreements that are outside legally defined institutional arrangements, in other words illegal or corrupt; this is leading to the use of 'wasta' concept.
4. Altruistic theory described by Levi. People are willing to engage in cooperation for common goals, even if they do not personally benefit from the result materially. There are considered to be three conditions for this to be achieved and these searched for in the case of Lebanon in Chapter 6.
5. History-dependence. This assumes that present levels of trust or cooperation are dependent on past experiences of trust or cooperation. This is examined in Chapter 4 and 5.

This chapter describes each of these theoretical concepts in more detail. The chapter then goes on to identify the gaps in knowledge relating to reciprocal trust in natural environmental management in North Lebanon. These gaps in knowledge are then used to formulate the methodological framework presented in Chapter 3.

2.1 Main conceptual theories used in this research

2.1.1 Definition of trust

Trust is not something that is easy to define or to measure. Although many experts have studied trust, there is no common definition (Kramer, 1999; Fulmer and Gelfand, 2012). Trust has been studied in many ways and it has been studied by many scholars such as sociologists (Misztal

1996; Sztompka 1999), philosophers (Baier 1986; Seligman 1997), psychologists (Rotter 1980; Yamagishi 2001), and political scientists (Fukuyama 1995; Hardin 2002).

Scholars have linked trust to many things as illustrated in this list: to expectations (Luhmann, 1979; Rousseau *et al.*, 1998; Becker, 1996); to past experiences (Offe, 1999); to performance (Semaan *et al.*, 2010); to risk (Currall and Judge, 1995; Uslaner, 2005; Das and Teng, 2004; Boon and Holmes, 1991; Deutsch 1960a; Mayer *et al.* 1995); to economic conditions (Fukuyama in Brewster, 1998); to friendship and love (Seligman and Rorty in Uslaner, 2002); to trustworthiness (Kiyonari *et al.*, 2006); among others.

A recent systematic review of academic literature on trust by Fulmer and Gelfand (2012) found three dominant concepts, as follows:

- Those that refer to ‘positive expectations of trustworthiness’
- Those that refer to a ‘willingness to accept vulnerability’, and
- Those that refer to both.

According to Fulmer and Gelfand, the positive expectations of trustworthiness are related to “perceptions, beliefs or expectations about the trustee’s intention and being able to rely on the trustee”. Meanwhile, “willingness to accept vulnerability [which] generally refers to suspension of uncertainty (Möllering, 2006), or an intention, or a decision to take risk and to depend on the trustee” (Fulmer and Gelfand, 2012, p.1171). In their meta-analysis of literature on trust, Fulmer and Gelfand further distinguish between ‘generalized expectations’ and ‘specific expectations’ that the trusted individual, group or organization is able (competent) and has integrity (reliable, fair, just and consistent) to behave in a ‘benevolent’ way (2012, p.1172). In this study, we asked respondents to respond to statements that referred to both general and specific expectations of trustworthiness.

This study has adopted a conceptual definition of trust that can be applied to the various actors involved, i.e. the citizens and the public and private sector stakeholders:

‘Trusting another person/organization to produce a beneficial event X, or to *provide a service*, amounts to an individual/organization having confidence that the other individual/organization has both the ability and intention to produce it’ (adapted from Deutsch, 1960b, p. 125).

When we asked the citizens and some stakeholders involved in environmental management in a pilot study: “what do you mean by trust?” many linked trust to the intention and ability of the trustee. This was one reason that convinced us to choose this definition in our research. Also, this definition was chosen in the belief that it could be applied to both interpersonal and inter-organizational trust and could be applied to people in the public and private sector, and from the political domain. However, the definition was adapted to explain “event X” as “a specific service”. Although this definition may be dated, we found it is still relevant and applicable to our target stakeholders involved in the environmental management process in Lebanon. The

definition focuses on specific expectations of trustworthiness as it refers to ability; to benefits (the event or service provided); and, to the intention of the trustee (benevolence to do well). It refers to expectations of trustworthiness (the first dominant concept), but not to the willingness to accept vulnerability (the second dominant concept) (Fulmer and Gelfand, 2012).

Our research can be positioned within social exchange theory (Axelrod, 1984; Deutsch, 1958) which argues that citizens will be willing to comply with rules and regulations and to adjust their behavior provided they have confidence that the private or public sector organizations are able to produce a beneficial event or to provide beneficial services. One way to gain confidence is by having more trusting relationships. Similarly, actors in the private sector will be willing to invest in cooperation with organizations in the public sector, or with actors in the political domain, if they expect this relationship to be beneficial on the short, medium or longer term.

2.1.2 Trust and the armed conflicts

The repeated armed conflicts in Lebanon since 1976 have affected Lebanese society very badly. The result of the terrible social, environmental, economic and political conditions have led to increasing fragmentation of separate communities living side by side. There has been little or no attempt at integration resulting in each community showing more allegiance to its religious and political leaders than to the State (Bazzi, 2007). The lack of trust is recognized very well locally, but is rarely mentioned in academic studies as a characteristic of interactions between various actors in Lebanese society (Ker Rault, 2009; Allen, 2011).

The Country Studies Program entitled "Lebanon—the Society", reports that military armed conflicts have widened the political distances between the different sects in Lebanon. It has sparked demographic change resulting from the eviction of members of whole sects from one region to another. This movement has affected not only Christian-Muslim relations, but also sects of the same faith (the Country Studies Program). The war in Lebanon is described as having "destroyed the common playground which allowed for minimum exchange between communities" (Benedetti, 2002-2003). The sectarian mistrust itself is the most important factor driving current and past tensions (Haddad, 2008). The results of war have left the Lebanese State with weak institutions and a total loss of control over Lebanon's security; both weakening any trust relationships in Lebanon (Takieddine, 2010). Conflicts among the Lebanese society have led to lack of trust and vice versa (Najmeddine, 2011).

Trust has been identified as a key element of successful conflict resolution and peace building (Lewicki and Tomlinson, 2003). Trust and conflict transformation are closely linked. Notter argues that trust is a key factor in any analysis of a conflict, and it is "fundamental to the relationship building process between the practitioner and the parties in conflict" (1995, p. 3). As each party is given repeated and increasingly opportunities to earn the trust of the other, the individual episodes of trust will transform into a trust relation (Ibid: 7). This research starts from the basic assumption that developing trust relationships is one of the vital steps that assist in

peace building in Lebanon, and that this will in turn lead to effective and sustainable environmental management.

2.1.3 Social and political trust

In our research we have distinguished between social trust and political trust. Social trust is defined as the general trust in society (Putnam, 1993). Thus, social trust reflects the general expectation of trustworthiness; without any specific reference to the way in which this can manifest itself. Trust between citizens is a horizontal trust relationship; in our research we refer to it as citizen-citizen trust. This includes citizen's trust in other citizens and citizens' general trust in society (in line with Putnam's definition). Social trust emphasizes peoples' general disposition to trust or distrust of others. Social trust can be measured, to some extent, by a citizen's involvement in the local community and in voluntary activities (Newton, 2001).

Lühiste argues that there is a spill-over effect of social trust into trust in political institutions in liberal democracies (Newton, 2001) and in post-communist countries (Dowley and Silver, 2002). This is referred to as the cultural theory of political trust (CTPT). Social trust is seen also as a mutually reinforcing phenomenon. According to Aumann and Dreze, a person's trust or distrust others in society will occur because he/she considers that others trust/distrust him/her (2005 in Rothstein and Eek, 2009). Jones *et al.* (2011) argue that the influence of trust can be used to explain environmental behaviors. The higher level of social trust can affect positively the perception of the environmental behavior of citizens (Wagner and Fernandez-Gimenez, 2008). A citizen's behavior is influenced by his/her perception of how other citizens act in an environmentally responsible manner (Corral-Verdugo and Frias Armenta, 2006). Individuals who trust their fellow citizens show an increased environmental awareness and express a greater tendency to participate in activities to help resolve natural environmental problems (Lubell, 2012).

Political trust is defined as "an evaluation of the extent to which the public authorities representing the government are operating effectively and according to the people's expectations" (Hetherington, 1998). This is referred to also as the institutional theory of political trust (ITPT). This takes the effectiveness or 'performance' of government institutions as a point of departure to explain trust in government institutions. 'Political trust', according to Newton (2001), can be measured by citizens' confidence in political institutions, trust in politicians, and citizen participation (Newton, 2001).

The behavior of the public authorities evidently influences citizens' trust in them. The more citizens trust the institutions involved in environmental policy procedures and management, the more they may be willing to cooperate, to accept changes sought in environmental policies (Cvetkovich and Winter, 2003), and to exhibit positive environmental behavior (Beierle and Cayford, 2002; Jones *et al.*, 2009).

This research investigates the social and political trust in Lebanon through the case study of the environmental management process and shows that there is a link between both these kinds of trust.

Four levels of trust are distinguished in this research to make the investigation of social and political trust easier and clearer, as follows:

- “citizen-citizen” trust; - which measures generalized trust among citizens in the society; this reflects the social trust in this research.
- “citizen - public sector” trust; - this measures trust between citizens and public authorities *at national level*, specifically the decision makers within ministries and other governmental organizations at national level.
- “citizen- municipalities” trust; - this measures trust between citizens and public authorities *at local level*, the municipalities. The “citizen- public sector” trust and the “citizen- municipalities” trust reflect the political trust in this research.
- citizen-private sector trust; - which measures trust between citizens and those stakeholders in the private sector involved in environmental management processes.

We faced limitations in the use of this approach due to the fact that: citizens may trust one company, but not the other; they may trust one ministry at national level more than another ministry; and/or they may trust particular persons within the public sector more than others. However, with the added use of qualitative questions in our method we were able to get respondents to give more specific and clarifying information.

2.1.4 Trust and cooperation relationships

The problem of trust has come "to the fore of sociological attention" (Sztompka, 1999) in recent times. The question of how to have more trust in a society and how to sustain it has become a central issue among social sciences scholars. A good example is the sociologist Barbara Misztal. She states that the questions of “how social trust is produced and what kinds of social trust enhance economic and governmental performance increasingly becomes the central set of theoretical issues in social sciences” (Harrison *et al.*, 2003, p. 19). There are many reasons why trust gained such great interest. Sztompka (1999, p. 12) argues that this is because of the growing interdependency of our world; “as our dependence on the cooperation of others grows, so does the importance of trust in their reliability”.

A variety of scholars have claimed a link between trust and cooperation, yet, scholarly opinion remains unclear as to which is a result or a cause. As Nahapiet and Ghoshal, observed: “trust lubricates cooperation, and cooperation itself breeds trust” (1998, p. 255). “Trust” and its different dimensions was considered central to a study of environmental cooperation (Tennberg,

2007) and various scholars have stated that trust enhances cooperation on different levels (Ferrin *et al.*, 2007; Lundin, 2007; Woolthui, 1999; Edelenbos and Erik-Hans, 2007). One reason is that when parties recognize and feel bound by certain values (such as fairness, cooperation, and reciprocity), then these will encourage the parties toward greater cooperation (Koeszegi 2004; Parkhe, 1993). A party that has earned another's trust will feel bound to that trust and will work to honor it. As a result, they will behave cooperatively, rather than competitively, toward the other (Ferrin *et al.*, 2007). Perceptions of trust play an essential role in the development of mutual cooperation in both inter-group and inter-personal interactions (Ferrin *et al.*, 2008). Trust is expected to decrease resistance to regulation and policies (Pautz and Wamsley, 2012) and increase voluntary compliance (May and Wood, 2003).

Ferrin *et al.*, (2008) observed that the development of perceptions of mutual trust can be based on cooperative behavior. Such behavior is said to play a significant intervening role by transmitting one party's view of trust to another and there was clear evidence that cooperation "is a critical intervening variable in the development of mutual trust perceptions between individuals and groups" (Ferrin *et al.*, 2008, p. 171).

Trust and cooperation relationships are reciprocating by nature. Ferrin *et al.*, (2008) mention that, whenever there is originally a low trust perception and/or cooperation between different actors, this will result in lower successive trust perceptions and/or cooperation. This research shows that a prerequisite for improving environmental management in Lebanon is improvement of trust relationships between the stakeholders involved, which will lead to more cooperation and reciprocity. This, in return, will develop mutual trust among these multiple stakeholders as is illustrated in Figure 2.1.

Figure 2.1 Reciprocated trust and cooperation relationships among stakeholders

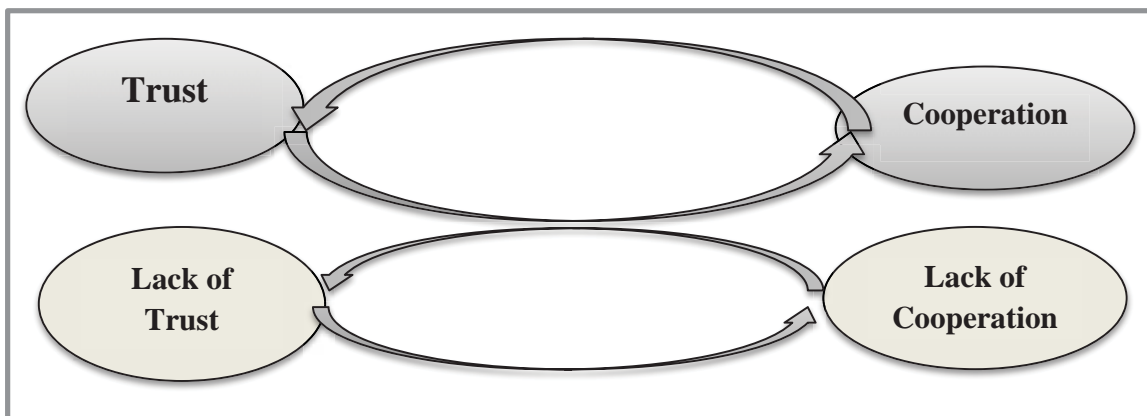
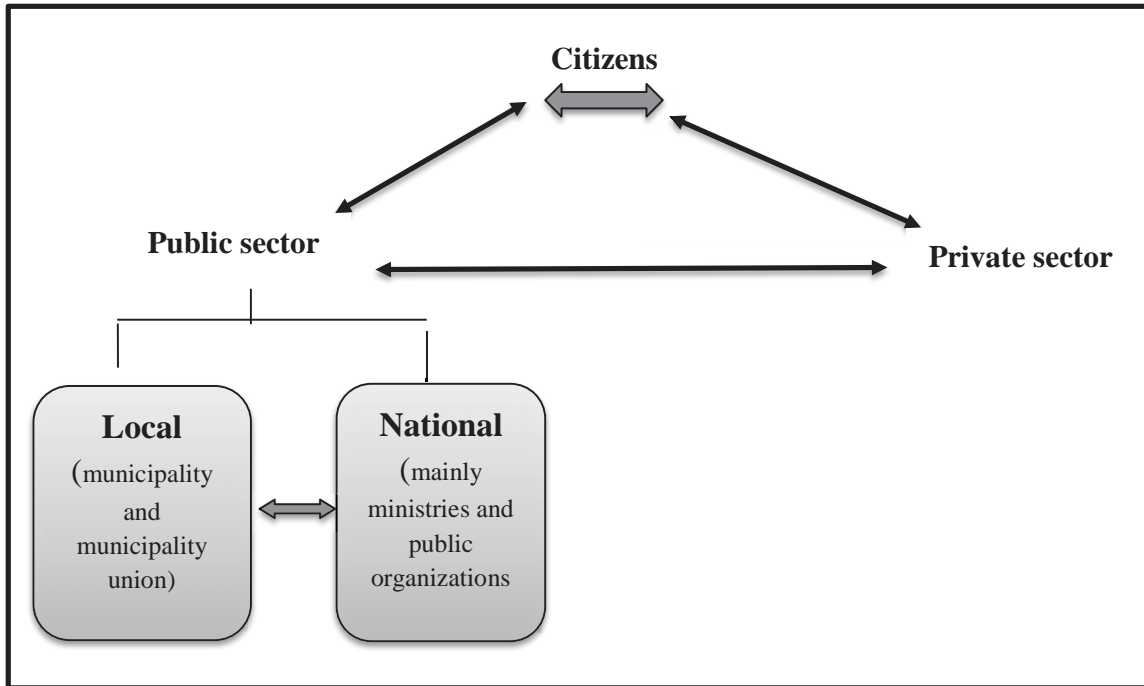


Figure 2.2 below shows the various trust and cooperation relationships that are studied between and among the stakeholders of this research.

Figure 2.2 Overview of the trust and cooperation relationships studied between and among the various stakeholders involved in environmental management in Lebanon



2.1.5 Trust and its link to government legitimacy and citizens' participation

Christensen *et al.* (2011) argue that citizens' acceptance of, and trust in, the government's approach to problem solving is very important in a democratic system. Government derives its legitimacy from the support it takes from its citizens (Schaeffer and Loveridge, 2002). The system must facilitate public participation in decision-making process in order to create legitimacy and to create the feeling that citizens' interests or preferences are taken into account and are reflected in the system (Prohl, 2004). At the same time, citizens' participation can enhance the effectiveness of government policy because citizens are said to have undeniable knowledge resulting from their daily experiences (Elias and Alkadry, 2011). Thus, trust is identified as an essential element of effective public participation processes (Sharp *et al.*, 2013). The low level of trust in the government and public organizations may reflect citizens' skepticism in government's management (Beierle and Konisky, 2000). The decrease of citizens' trust in the institutions and organizations responsible for solving environmental problems will result in serious circumscribing of their ability to solve those same problems (Ibid). It is argued that one means for those organizations or agencies to obtain more trust is by providing the public

with more opportunity to participate in the decision-making process (Schneider, Teske, and Marschall, 1997).

The link between trust and citizen's participation is related directly with the concept of legitimacy (Jin, 2013) and deliberative democracy (Kim, 2010). Several studies suggest that citizen-public sector trust eases collective action as a means through which it can boost environmental performance and also provide legitimacy to public organizations (Tsang *et al.*, 2009; Tyler, 1998). Social capital theory provides another contribution. It argues that people who are more likely to trust others (social trust) are also more likely to be politically engaged, active and have greater confidence in political institutions (Putnam, 1993); similar to the cultural theory of political trust. Combined, these two effects can provide legitimacy to public organizations (Tsang *et al.*, 2009; Tyler, 1998). Additionally, if citizens participate in the environmental decision-making process the process gains more legitimacy in the eyes of the public (Solitare, 2005). According to Webler and Tuler, people need to feel that they were listened to and that their input made a difference (in Ginger, 2013).

2.1.6 Trust and past experiences

Many scholars observed a crucial link between past experiences and knowledge, on the one hand, and trust or cooperation relationships, on the other. According to Ferrin *et al.*, (2008, p.167) in the inter-personal and inter-group spirals, trust perceptions were "positively related to past and future trust perceptions and cooperation, and cooperation was positively related to past and future trust perceptions and cooperation". According to Ferrin *et al.*, and as was similar to Sztompka in this point, a trust perception can be observed as a history-dependent process (2008). Also, cooperation can be predicted, to some extent, based on trust and past cooperation (Ferrin *et al.*, 2007). It is argued that a party's views about the other partner's trustworthiness can be based on the knowledge of a partner's past cooperative behavior (Ibid).

In short, several trust theories argue that trust between individuals is largely built on past behavior (e.g., Lewicki and Bunker, 1996; Mayer *et al.*, 1995). Also, Ring and Van de Ven argue that inter-organizational trust develops "from partners' history of successful transactions with each other" (Ferrin *et al.*, 2008, p. 168). Our research investigates if perception of trust (or lack of trust) relationship is related to past experiences in Lebanon.

2.1.7 Trust and its link to management and decision-making process

Social exchange theory requires that participants in an exchange have the confidence, or trust, that there will be cooperation and compliance with the institutional arrangements, and this results in beneficial environmental management implementation. This assumes that having more trust in general between the parties involved is essential to obtaining effective co-management arrangements (Berkes, 2009). According to Hoffman *et al.* (2001), the human dimension of project management one of which is trust, is recognized to be the single most important

determinant of any project success. Literature has pointed to the importance of trust in building positive relationships among project stakeholders (Pinto *et al.*, 2009). In respect of projects, trust can operate on different levels, both intra- and inter-organizationally. In an organization, trust is said to be essential as it seeks to develop projects by providing positive team atmosphere (Delisle, 2004), and better relationship between hierarchical levels and between departments within organizations (Pinto *et al.*, 2009). Likewise, in the inter-organizational setting, trust is vital since it has a positive influence on the different organizations which are needed to work in partnership as they are required to develop a project of mutual benefit (Kadefors *et al.*, 2007; Chan *et al.*, 2003).

It is claimed that an effective decision process must concentrate, not only on the quality of decisions but, more importantly, it should focus on the impact of these decisions based on the responses of the people. These responses can be observed mainly through their commitment, trust and cooperation (Korsgaard *et al.*, 1995). This research argues that there is a relationship between trust and cooperation, on the one hand, and the effective decision-making process specifically related to environmental management, on the other hand.

2.1.7.1 Role of citizens' participation in decision making

Recent literature about governmental policy is increasingly emphasizing the importance of the role of public participation (Beierle and Konisky, 2000). Public participation found broad approval and became more embedded in the international agendas starting in the early 1990s. The Rio Declaration (UNCED, 1992) and the Johannesburg Declaration (UN, 2002), as well as many international conventions or conferences - represented for example by the Aarhus Convention (accepted in 1998) - indicate widespread agreement on admitting citizens and organizations to the right to be knowledgeable and informed about environmental matters, as well as to participate in the environmental decision-making (UNECE, 1998).

The increase in community participation in government decision-making produces many important benefits. Irvine and Stansbury (2004) state that citizens' participation in environmental policy formation usefully informs regulators of the real reactions of the public and help them winning the sympathies of influenced citizens. Such benefits and many others make it essential that the whole community gets involved in developing and implementing mitigation and sustainable development programs. In fact, civil empowerment is "a fundamental complement to any mitigation exercise undertaken within cities or by civil society" (UN-HABITAT, 2004, p. 3). Public involvement is considered to be an essential component in any community development project so community participation and cooperation helps projects achieve their proposed objectives (ELARD, 2004).

This research flags the important role of citizens and civil society in the decision-making process of environmental management, even if this is sometimes an indirect one. Boedeltje and Cornips

argue that involvement and participation of citizens in the policy making process will lower resistance to decisions and will make implementation easier (2004).

Our research examines if the citizens in Lebanon are participating in the decision making process and to what extent this is related to citizens' trust in the decision makers and governmental institutions, or to their participation in environmental management, such as volunteering in environmental initiatives, or complying with laws.

2.1.8 “Wasta” concept and its relation to trust

In Lebanon, as in many other Middle Eastern societies, ‘cooperation’ has two faces: one that increases the likelihood of successful implementation of policies and programs; and one that seems to achieve the opposite. Cooperation between the stakeholders in the public and private sectors, and between citizens and stakeholders in the public or private sectors, takes place through a practice referred to as ‘wasta’ which can be described as: an ‘implicit social contract that obliges those within the group to provide assistance (favorable treatment) to others within the group’ (Barnett, Yandle and Naufal, 2013, p.2). Smith *et al.* describe it as ‘the process whereby one can achieve goals through links with key persons in positions of high status (2012, with reference to Cunningham and Sarayrah, 1993). Barnett *et al.* argue that, in the Middle East, ‘It [wasta] is deeply embedded in the fabric of these societies and visible in everything from the way in which governments interact with businesses to the way in which public policy is formulated’ (Barnett, Yandle and Naufal, 2013, p.41). Wasta lowers transaction costs and increases the likelihood of successful cooperation in a similar way to trust – including when this is counter-productive for environmental protection, as was witnessed in the quarry industry, waste management, and reconstruction (Leenders, 2012).

Our research distinguishes between trust and cooperation relationships that positively affect environmental management, and “wasta” based on trust and cooperation relationships with public authorities that is successfully used to circumvent environmental regulations.

According to the corruption–trust theory, individuals recognize that, to get by in a society with corrupt officials, they will have to take part in corrupt or clientelistic practices (Rothstein, 2013). This could explain why some people use trust and cooperation relationships with public authorities effectively to obstruct environmental regulations. According to this theory, citizens who have lack of trust in public authorities and consider that they are living in a corrupted society, feel that to survive they have to take part in this corruption.

Self-interest plays an important role in how people decide how to act. Human behavior is determined based on the perception that agents depend on what they think the other agents are going to do (Rothstein, 2013). According to Levi, people are willing to engage in cooperation for common goals even if they do not personally benefit from this significantly (1998). Nevertheless, there are three conditions for this to happen and that people have to be persuaded that:

- the policy is morally justified;
- most other agents can also be trusted to cooperate;
- the policy can be implemented in a fair and just manner (1998).

The fact that there is lack of trust in the public sector stakeholders involved in environmental management, and that there is not enough, fair and just implementation for environmental policies, and according to the altruistic theory described by Levi this can explain why some stakeholders use trust and cooperation relationships for their personal interest, instead of the general interest. This is also supported by some scholars who claim that individuals who are low in trust are considered to be less likely to contribute to public goods than those who are high in trust relationships and vice versa (Parks, 1994 in Parks *et al.*, 2013).

According to Rothstein, citizens who state there is corruption or common unfairness in public administration of their country are less likely to support the idea that there should be a collective responsibility for policies for increased social justice or public goods. This is not because they are against increased public goods, but rather because they consider that their commitment will not be reciprocated (2013). The perception that there is corruption in public administration, and the lack of trust in the public sector stakeholders and public authorities, explains why the willingness of some stakeholders in environmental management to cooperate for the general interest (or public good) is much lower than trust and cooperation for personal benefit.

It is claimed that tangible benefits, such as financial rewards, in return for the establishment of a public good encourages self-interested behavior and destroys the public good (Deci, 1971, 1972 in McLure Wasko and Faraj, 2000). Thus, because of tangible benefits, such as financial rewards, some stakeholders use their trust and cooperation for their personal benefit whilst overlooking the general interest. Our research differentiates between cooperation for the general interest (or public good) and trust and cooperation for personal benefit.

2.2 Gaps in knowledge

Trust is a complex topic in Lebanon, and this makes Lebanon an excellent case study to test the reciprocal relationship between trust and cooperation. Even today, sectarianism is a strong characteristic of Lebanese society, so there are clearly defined political groups based on sectarian alignments. The sectarian nature of these alignments makes them stronger than simple membership of a political party on its own, as change in political orientation would also require a change in religious orientation. In practice this is a politically sensitive issue, and is not exposed directly in this thesis because of the wider implications. However, many feel that the most important factor entrenching sectarianism is the lack of trust between the communities (Ghosn and Khoury, 2011). As previously mentioned, many scholars see a link between trust and cooperation relationships (Ferrin *et al.*, 2007; Lundin 2007; Woolthuis, 1999; Edelenbos and Erik-Hans, 2007). The literature has already linked trust with many concepts that are related, directly or indirectly, to environmental management; such as armed conflicts; citizens'

participation; decision making process; government legitimacy; management process; and, the wasta concept.

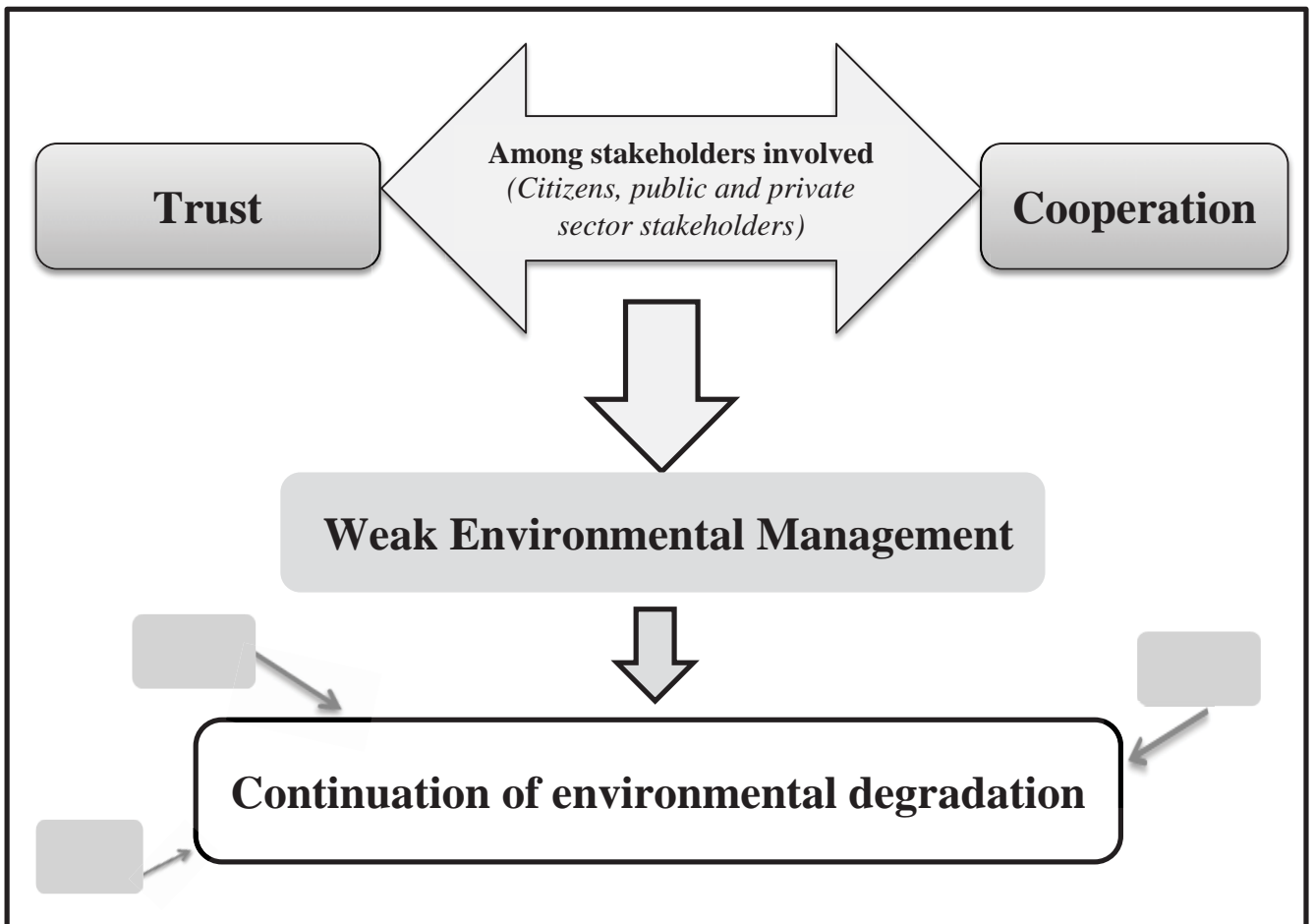
Despite their importance, our research found a dearth of knowledge about trust relationships in Lebanon. The lack of trust relationships is mentioned frequently in Lebanon by many politicians or political analysts in interviews or TV shows. Yet, in the literature, only a few scholars have studied it. Only very few academic studies have mentioned that lack of trust is characteristic of interactions between various actors in Lebanese society (Ker Rault, 2009; Allen, 2011; Najmeddine, 2011).

The literature shows that environmental protection is weak in Lebanon (IMAC, 2009; Sarraf *et al.*, 2004; Geara-Matta *et al.*, 2010) as described in more detail in Chapter 1. Some factors behind environmental degradation in Lebanon are covered already in the literature, such as human activities, armed conflicts (Maler, 1990 in Takshe *et al.*, 2010). However, knowledge of trust relationships as a factor affecting environmental management is significantly lacking. In reviewing the literature, no studies were found that explored directly the link between trust relationships and environmental management in Lebanon, or indeed in any other country. Many studies mentioned trust as an important factor in the management process in general, but did not elucidate further. This gap in knowledge created a primary motivation for the researcher to conduct this study. The analytical model of this research used the theories mentioned above to cover this gap in knowledge in the empirical chapters of this study.

2.3 The general analytical model used

This research builds its analytical framework using more than one theory about trust and cooperation relationships. The researcher examines the trust and cooperation relationship theories among the various stakeholders involved in environmental management (between and among citizens, stakeholders of public and private sectors).

Figure 2.3.The analytical framework model used in this research



Our research first investigates the perceptions of the stakeholders involved and if trust relationships exist among them asking such questions as: Are there trust relationships among the citizens themselves and between the citizens and the public and private sector stakeholders involved? Are there trust relationships between the stakeholders of public sector and between them and the stakeholders of private sector? Do the public and private sector stakeholders trust the citizens?

This research also explores if trust and cooperation relationship theories can apply among and between the various stakeholders involved. Are trust and cooperation relationships reciprocated between citizens, on the one hand, and public and private sector stakeholders, on the other hand? Are trust and cooperation relationships reciprocated between the public and private sector stakeholders?

This research studies how these trust and cooperation relationships are affecting environmental management in Lebanon, for example, through the citizen's participation or in the decision making process. Is this effect a positive or negative one? Is the trust relationship a factor that contributes to the continuation of environmental degradation in Lebanon, generally, and solid waste management, specifically – and if; why and how?

The theories discussed show that trust (or the lack of trust) can have an important affect environmental management in Lebanon. We will show that trust has a link, whether direct or indirect, with many other factors related to environmental management, such as, inter alia: citizens' participation; citizens 'compliance with environmental laws; and, successful decision making process.

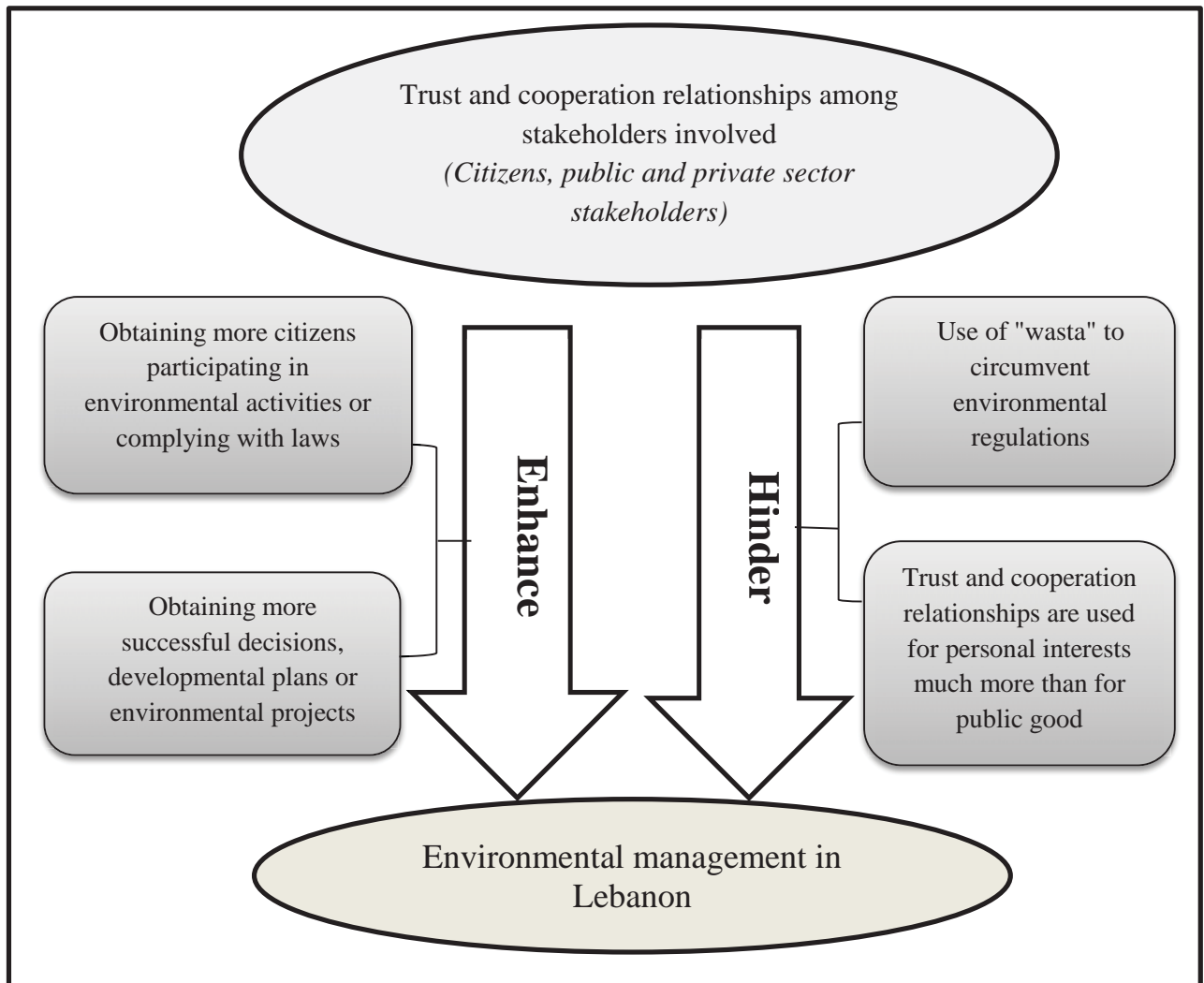
The main analytical framework of this thesis is built on the premise that there is a reciprocated relationship between trust and cooperation (or lack of them). The stronger the trust relationships among and between the various stakeholders involved in environmental management, the more cooperation will exist between and among them, and vice versa. Specifically, the more citizens trust the stakeholders involved in environmental management, the more they will participate in environmental initiatives or comply with environmental laws. Also, the more there is trust between public and private sector stakeholders, the more likely it will be that successful decisions, developmental plans or environmental projects will be obtained.

This framework is studied from different viewpoints in the four empirical chapters (4-7); those of the citizens; those of the public stakeholders and those of the private sector stakeholders. The research will show that trust and cooperation relationships affect the environmental management process in Lebanon both positively and negatively. The more we can have trust relationships the more we can have the likelihood of obtaining better management. Also, the more we have a better management, the less likely it will be that environment degradation will go on unattended.

Our research concludes that the lack of trust and cooperation relationships between and among stakeholders weakens the environmental management process. This is a factor contributing to the continuation of environmental degradation in Lebanon. In other word, trust relationships are identified to play an important role, whether directly or indirectly, in protecting the environment in Lebanon. Nevertheless, these trust and cooperation relationships are used also to circumvent environmental regulations. This research distinguished between the willingness to cooperate for the general interest (or public good) and the trust and cooperation for personal benefit.

Figure 2.4 shows how trust and cooperation relationships among the various stakeholders involved can be used as a means to both enhance (which this research concentrate on) and to hinder environmental management in Lebanon.

Figure 2.4 Trust and cooperation relationships used as a means to both enhance and hinder environmental management in Lebanon.



2.4. Empirical Chapters and its link to the conceptual model

Table 2.1 shows the link between the conceptual model, which comprises more than one theory, and the empirical chapters. This table summarizes the theories used to investigate the assumptions and answer the sub-questions of this research.

Table2.1. The link between the empirical chapters and the theoretical conceptual model questions (SQ) are derived from the overarching research question “From the perception of citizens and the public and private sector stakeholders involved in environmental management, how is the cooperation in environmental management in Lebanon (North) shaped by trust relationships between the public and private sector stakeholders, and between each of those stakeholders and the citizens; taking into consideration the complex reality of conflict in Lebanon (North)?”

Empirical chapters	Theoretical concepts used	Main Assumptions	The relation with the sub- questions
Chapter 4	Social and political trust; trust and cooperation relationships; Trust and its link to government legitimacy and citizens’ participation; Trust and past experiences; Role of citizens’ participation in decision making.	<ul style="list-style-type: none"> • Lack of citizens’ trust (social and political) is leading to a lack of citizens’ participation in environmental initiatives and/or in them failing to comply with environmental laws. • Lack of citizens’ trust in the public sector stakeholders threatens government legitimacy. 	SQ1: <i>From the citizens’ perspective</i> , how do trust relationships between the citizens on the one hand, and between them and the public and private sector stakeholders involved in EM, on the other, shape the level of cooperation among citizens in the EM process taking into consideration the complex reality of conflict? How does this relationship of cooperation and trust affect the EM process of (North) Lebanon?
Chapter 5	Trust and cooperation relationships; trust and its link to management and decision-making process; trust and past experiences; role of citizens’ participation in decision making.	<ul style="list-style-type: none"> • Lack of trust among the stakeholders in public sectors or between the public and private sector stakeholders involved in EM is leading to low level of cooperation and constraining progress of planned projects. • Lack of citizens’ trust in the public and private sector stakeholders is leading to lack of citizens’ cooperation mainly the citizens’ compliance with laws, regulations and their participation (volunteering) in environmental initiatives. 	SQ2: <i>From the viewpoint of the public and private sector stakeholders involved in EM</i> , how are cooperation and trust relationships shaped between public stakeholders themselves and between public and private sector stakeholders involved in EM, and how are they mutually affecting each other and the EM process of (North) Lebanon? What are the public and private sector stakeholders’ perceptions of citizens’ cooperation and to what extent do they depend on trust?
Chapter 6	Trust and cooperation relationships; “Wasta” concept; corruption – trust theory.	<ul style="list-style-type: none"> • Trust and cooperation relationships among the stakeholders involved enhance EM in Lebanon, yet sometimes it can be used as a means to hinder this process. • Willingness to cooperate for the general interest is much lower than trust and cooperation relationships for personal benefit. 	SQ3: <i>From the perception of the various stakeholders involved in EM</i> , how can we distinguish between trust and cooperation relationships among the stakeholders involved as a factor which hinders EM and trust and cooperation relationships as a means to enhance EM in Lebanon?
Chapter 7	Trust and cooperation relationships; trust and its link to management and decision making process.	<ul style="list-style-type: none"> • Trust has a particular role among other factors in the solid waste management in Lebanon. 	SQ4: <i>From the perception of the various stakeholders involved in SWM</i> , how can the previous findings be used to assess how trust and cooperation relationships influence the SWM, taking into consideration the complex reality of conflict in (North) Lebanon?

As Table 2.1 shows, the same theoretical approach is sometimes used in more than one chapter. For instance, theory related to trust and cooperation relationship such as the social exchange theory is used in Chapters 4, 5, 6, and 7 to study various views and different relationships. This theory in Chapter 4 looks at the views of citizens regarding the relationships among citizens themselves and between them and the public and private sector stakeholders. Chapter 5 looks at the social exchange theory from the perspective of public and private sector stakeholders and the relationships among and between them. This same theory is used in Chapter 6 which looks at the views of all the stakeholders involved together and in Chapter 7 which study the perceptions of the stakeholders involved in solid waste management, the case study of this research. Similarly, other theories are used in more than one chapter such as history-dependence.

Chapter 3: Methodology

This chapter is to present the methodological framework used to fill the gaps in knowledge and answer the research questions. The research approach was inductive rather than deductive. There was little previous research and data on the role of trust in environmental management, and in the part that trust plays in cooperation more generally in Lebanon. In consequence, the research was primarily driven by empirical field experience. The research questions were refined through an iterative analysis of the field observations and data.

Methodology is an essential component of any research effort. It provides the roadmap of how one achieves the research goals. There is no one perfect research methodology. The one chosen selects the best possible tools to obtain the information needed after having considered the benefits and drawbacks of various possible approaches. More details are given for each empirical study in Chapters 4, 5, 6 and 7.

3.1 Research Design and Methodological Approach

Trust can be a bond between individuals or organizations, and this can be measured using techniques derived from game theory, in which the strength of the bond is tested in hypothetical games (Altmann *et al.*, 2008; Ashraf *et al.*, 2006; Berg *et al.*, 1995). This thesis does not measure the strength of trust directly, but rather investigates perceptions of trust. There are three reasons for this. Firstly, North Lebanon is an area of conflict. It is difficult, if not impossible, to directly measure trust relationships because it is bound up with religious sectarianism, which itself is one of the roots of conflict. It is simply too dangerous to explore this aspect of trust in the field. Secondly, some trust relationships are intimately bound to operations outside of formal institutional arrangements; these are the so-called ‘wasta’ concept. Although this is recognized to be widespread in Lebanon, the practice is corrupt and illegal, so again difficult to measure in practice. Thirdly, the research is primarily focused on relationships between three main stakeholders: citizens, private sector and public sector. A methodological approach was needed to reveal the complexity and nuance of these relationships, rather than a reductionist approach such as game theory.

The main question is:

“From the perception of citizens and the public and private sector stakeholders involved in environmental management, how is the cooperation in environmental management in Lebanon (North) shaped by trust relationships between the public and private sector stakeholders, and between each of those stakeholders and the citizens; taking into consideration the complex reality of conflict in Lebanon (North)?

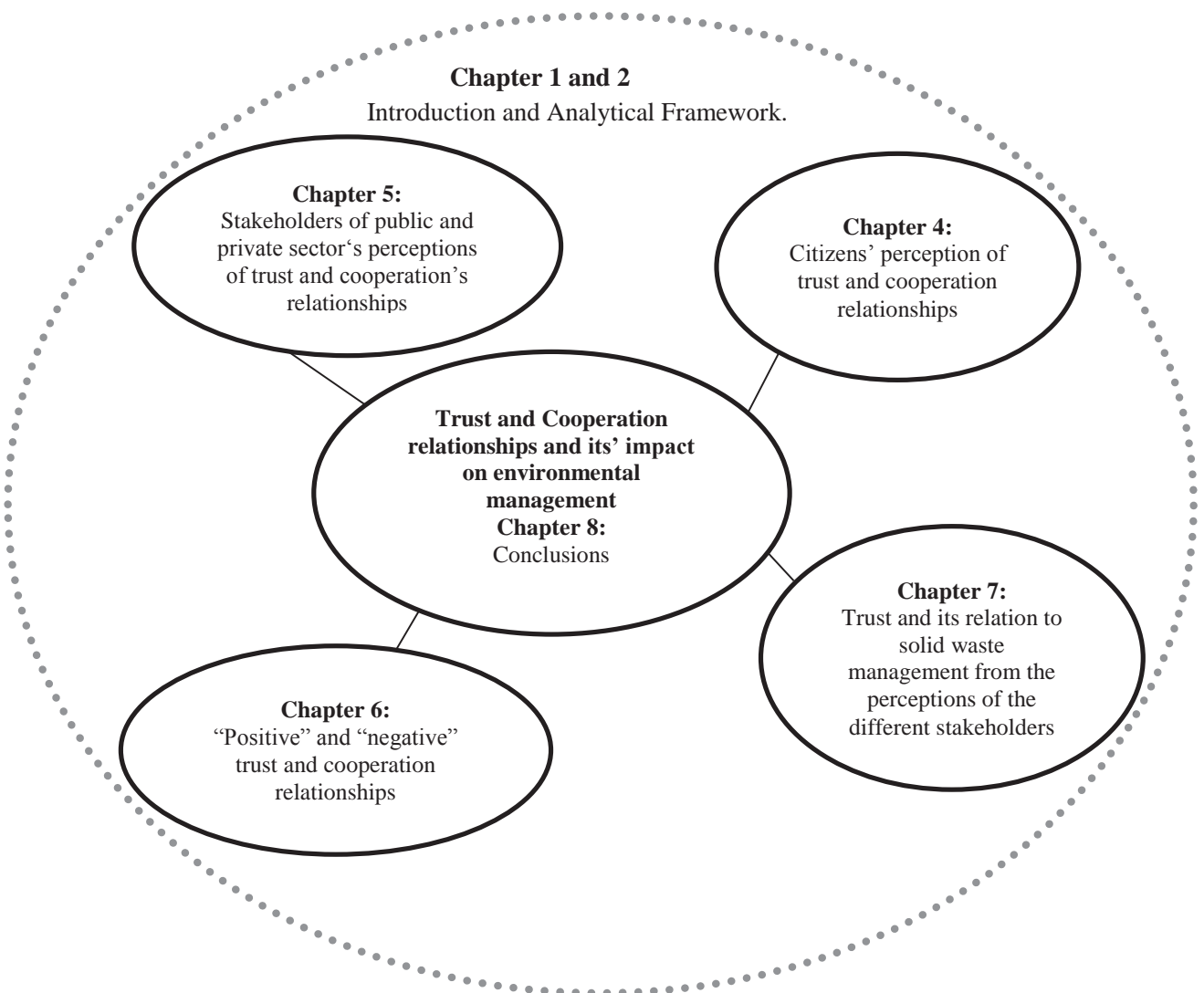
This research investigated the trust and cooperation relationships and perspectives among various stakeholders. This is discussed in more detail in Chapter 1. The research approached the

main questions through a four main sub-questions; each one respectively being the subject of the four empirical chapters.

Chapter 4 studies the trust and cooperation relationships among stakeholders from the citizens' viewpoint. Chapter 5 studies this relationship from the perspective of the public and private sector stakeholders. These two groups were considered and compared together in one chapter as their work was known to be interwoven. Chapter 6 focuses on the "positive" and "negative" relationships of trust and cooperation on environmental management from the perspective of both citizens and the public and private sector stakeholders. Finally, Chapter 7, as a case study, studies the viewpoints of the three main stakeholders and assesses how trust and cooperation, when compared to other factors, influences solid waste management.

Figure 3.1 shows the contribution of the different chapters to answer the main research questions.

Figure 3.1: Organization of the different chapters of this thesis



Our research did not start out with any rigid underlying initial thesis or theory about trust. The theoretical framework was explored and finalized after the empirical findings were appraised and could be linked to other relevant theoretical frameworks that previously have studied the relationship between trust and cooperation. Our research investigates if trust and its relationship with cooperation among the various stakeholders involved are factors that affect environmental management in Lebanon.

Our approach looked mainly to gathering primary data in order to get the information needed. Several methods were used to gather this data appropriate to draw out the perspective of each actor (i.e. citizens and the public and private sector stakeholders).

The choice of a specific method depends mainly on the purpose of the research, the resources available and the researcher's skills (Denscombe, 2003 in Kwaramba, 2012). As such, our research is based on both quantitative and qualitative methods. The quantitative methods were employed to measure the amount of trust and find out if there is a correlation or regression relations between trust and other factors involved in environmental management in Lebanon. The qualitative methods were used to study why the main stakeholders involved in environmental management in Lebanon perceive the trust relationships in a certain way; to explain these perceptions; and to describe how people experience these trust relationships. This approach is in line with scholars who argue that qualitative methodology emphasize the process and give meaning for aspects of the research that cannot be examined experimentally or in terms of quantity (Denzin and Lincoln, 2005).

To gather the perspectives of citizens on trust relationships and its effect on environmental management in Lebanon for the study in Chapter 4 and 6 we conducted a questionnaire survey with 499 citizens. We conducted 49 interviews with private and public sector stakeholders to obtain their perspectives on trust and its link to environmental management for the work detailed in Chapters 5 and 6. We used Fuzzy Cognitive Mapping approach as a participatory approach to explore the perceptions of 29 stakeholders (a case study of solid waste management in Al-Fayhaa Union) regarding factors influencing solid waste management and the role of trust as is detailed in Chapter 7.

3.2 Selecting the study sites

3.2.1 Coastal areas of north Lebanon:

This study was undertaken in the coastal areas of north Lebanon which includes the five main areas of Akkar, Minieh-Dinnieh, Tripoli, Koura and Batroun. This 100km long stretch of coastline constitutes around 40% of the Lebanese coast (Mitri *et al.*, 2012) and consists of 24 villages and cities where most of the population lives (IMAC, 2007a). The population comprises people from different backgrounds, religions, social and economic levels. Environmental pressures and problems, such as solid waste dumping and wastewater discharge, exist here and in

many other areas in Lebanon. These have been exacerbated by an inflow of refugees. North Lebanon remains affected by repeated episodes of armed conflicts which have contributed to social fragmentation and disruption (Bazzi, 2007), weak organizations, increased corruption (Leenders, 2012) and the break-down of trust between citizens and the Government. These facts make this area a good place for our research to fill the gaps in knowledge.

This research is part of a large WOTRO project, which defined the overall orientation of the research in a series of work packages. The topic of this thesis is one of the work packages. The study area, specific topics and network of contacts were derived from the Integrated Management of East Mediterranean Coastlines project (IMAC) project. Although the project framework predefined the topic and location, my local knowledge and insight helped my research, especially, the field work.

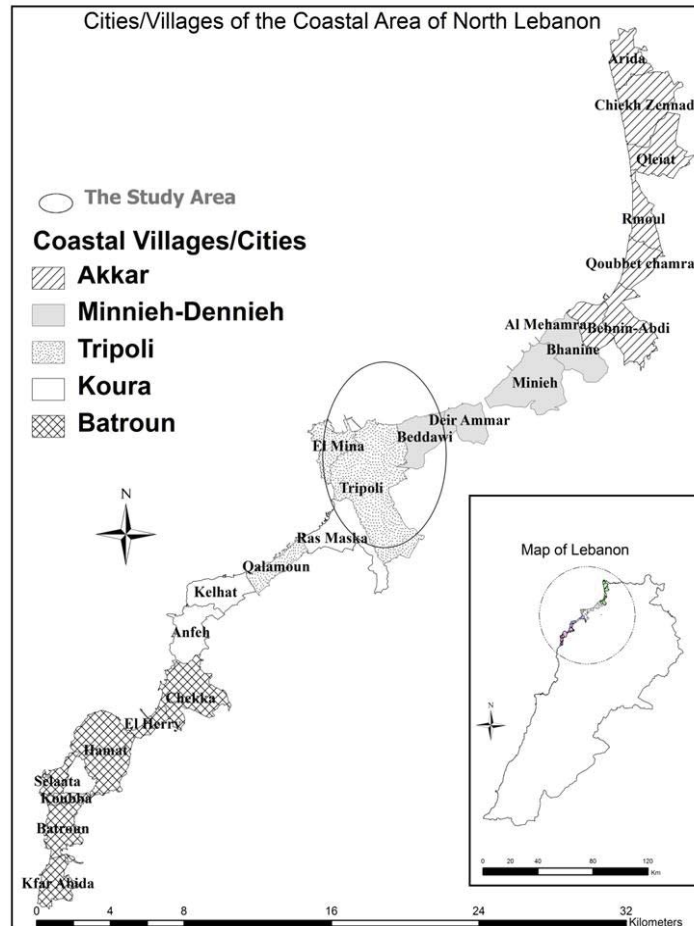
3.2.2 Al-Fayhaa Union:

The Al-Fayhaa Union of north Lebanon was chosen as the studied area for the solid waste management case study (Map 3.1) which is examined in detail in Chapter 7. The Al-Fayhaa Union includes the municipalities of Tripoli (the second largest city in Lebanon), El-Mina and El-Beddawi (see Section 7.3 for more details). This area was selected for many reasons: it has a large population (around 330,000 in 2007) in comparison with other unions in the coastal north Lebanon (UNEP, 2009). The municipality solid waste continues to be dumped in uncontrolled seafront landfills, on beaches or inland. A good example is the Tripoli site. This is the largest seafront dumpsite and receives municipal solid waste of some 400,000 people. This dumpsite continues to be a source of pollution for the area (European Commission, 2006; ELARD, 2004). A private company (LAVAJET) is responsible for the management of solid waste in the Al-Fayhaa Union covering waste collection and street cleaning.

Another private company (BATCO) manages landfill operations. The landfill of Tripoli receives around 280 tons daily from three cities in the Al-Fayhaa area; from the municipality Al Qalamoun (a village in northern coastal area of Lebanon); the slaughterhouse; the Palestinian refugee camp; and, a few resorts (UNEP, 2009). In other words, all the stakeholders of our research are involved in the solid waste management process in Al-Fayhaa Union. Since 2010, the landfill site has reached its maximum capacity and, even though it cannot accept any more solid waste (UNEP, 2009), is still open and in use, even today. This is a huge problem and a threat to the health of the people.

This study area was also chosen specifically by 499 citizens surveyed who chose the solid waste collection by Lavajet Company in this area as the most positive initiative in the coastal area on North Lebanon. Many citizens could compare solid waste collection today with earlier times when this operation was a municipality responsibility. My personal background is also rooted in Tripoli which is one of the three cities that form this union and this, also made it easier for me to choose the Al-Fayhaa Union as a study area.

Map 3.1: Showing villages and cities in coastal North Lebanon, including the Al –Fayhaa Union

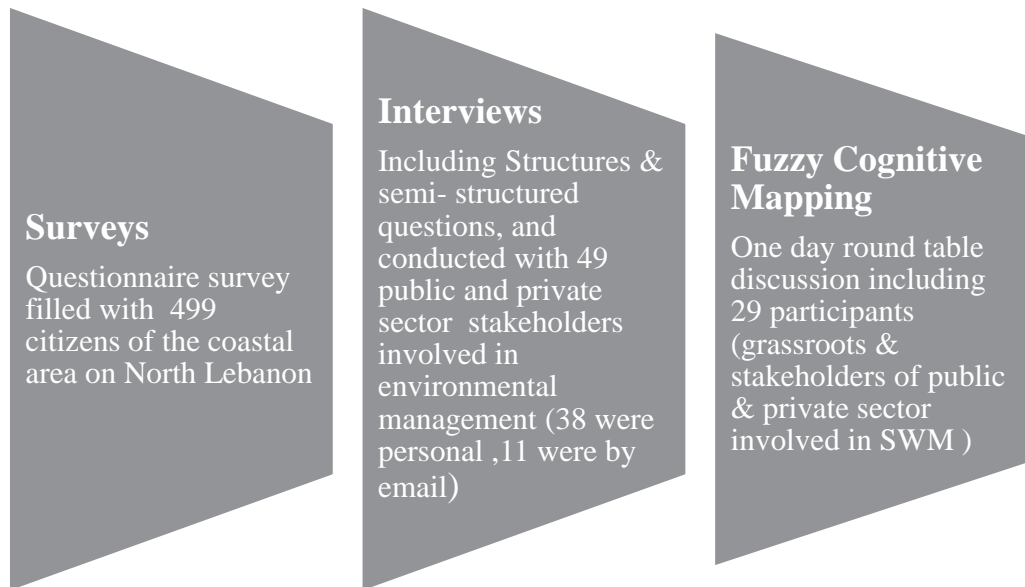


3.3 Data collection

The primary data collection process was carried out by the author between September 2011 and May 2013. The field work process was not continuous. The data collection for each method was done separately. Each method has strengths and weaknesses and more than one method was used to help provide a holistic view on the topic studied. The methods used to collect data were the most suitable ones found. This following section summarizes the methods used.

3.3.1 Primary data collection:

Figure 3.2. Data Collection Methods for primary data



3.3.1.1 Survey

The questionnaire survey of 499 citizens was administered between August to December 2011 for the five main coastal areas of north Lebanon. The number of surveys needed to be filled in each of the sub areas (villages or cities) was based on population size of each village or city as a proportion to the total population of each main area (See Appendix 2). Each participant was selected by systematic random sampling. Random sampling was appropriate as statistical data was lacking and because of the complex and unique population characteristics meaning that any attempt to stratify within different groups was very hard. All the surveys were conducted by the author.

The aim was to use direct questions to understand the perceptions of stakeholders. Although other methods (in particular experiments) could be used to measure trust, we chose direct questions for practical reasons. We believed that people answered honestly about when they did not trust others, i.e. they were not trying to hide this perception.

The main dependent variables in this survey are: (a) citizens' perception of trust relationships among citizens and (b) citizen perception of trust between them and the stakeholders of public or private sectors involved in the environmental management process. The main independent variables in the questionnaires were related, either to social and economic characteristics, such as

age, income, gender and education, or else they involved other variables, mainly questions related to government legitimacy and citizen participation. Religion was not studied as one of the socio-economic variables because of local sensitivities.

3.3.1.2 Interviews

The public and private sector interview data was collected between September 2011 and May 2013. The municipalities were interviewed first; then the national public stakeholders and, last, the private sector stakeholders. These interviews aimed to study perceptions of trust and cooperation relationships:

- (a) among the stakeholders in the public sector, and
- (b) between the stakeholders in the public and private sector.

These interviews also aimed to identify these stakeholders' perceptions of citizens' cooperation with regard to their compliance with laws, regulations and their participation (volunteering) in environmental initiatives.

These interviews included structured and semi-structured questions. The structured questions related to their perception of trust relationships and the factors that influence these trust relationships, such as cooperation. The answers were tabulated in a five-point Likert scale rating which increase the reliability across interviews and the objectivity of judging the interviewees responses (Campion *et al.*, 1988). The structured questions also ensure consistency of assessment which is further enhances as the same interviewer conducted all the interviews.

Semi-structured questions were used to gain a greater depth of insight into the trust relationships by asking open-ended questions. For example: why there is, or is not, cooperation between the stakeholders of public and private sector involved in the environmental management process in Lebanon? Or, why there is, or is not, cooperation between stakeholders of public sector?

Stakeholders were invited to comment on their trust and cooperation relationships; on their willingness to volunteer for environmental initiatives; or, their willingness to comply with environmental regulations. The reason for this approach is that, as is explained in the literature (e.g. references from psychology), testing trust relationships in an experimental setting, combined with trying to measure cooperation (i.e. its type, duration, intensity, and purpose), in a hybrid and complex policy environment, is unlikely to generate clear results.

The main public sector stakeholders interviewed were representatives of the municipalities, ministries, and public institutes involved in the environmental management process. 24 interviews were conducted with presidents or representatives of the municipalities from the target area. Representatives of seven ministries were also interviewed, whilst only three public institutes showed an interest in being interviewed.

The private sector stakeholders interviewed were representatives of private companies, academic and research centers, and experts in environment. Five private companies included consultant companies and those that provide services. Out of five industrial factories approached only one accepted to be interviewed. Three research and academic centers were interviewed. Only six out of twelve experts contacted accepted to do interviews.

3.3.1.3 Fuzzy Cognitive Mapping (FCM)

The ongoing conflict in northern Lebanon prevented extensive interviews, surveys or observation for safety reasons. Instead, the technique of Fuzzy Cognitive Mapping was used to collect participatory data from the stakeholders for the case study of solid waste management in Al-Fayhaa Union.

A round table discussion was held in May 2013 which used Fuzzy Cognitive Mapping as its approach to gather data on the solid waste management initiative in the Al-Fayhaa Union case study (see Table 7.2 for a list of participants).

29 stakeholders involved in solid waste management in the al-Fayhaa area attended this workshop. They were divided into five working groups: two groups represented the stakeholders from the public sector (municipalities, municipality union, ministries, public institutes); two groups represented the stakeholders from the private sector (private companies; experts; academic and research centers; sectors that produce waste; and chambers and syndicates related to solid waste management; and, one group represented the grassroots NGOs. Each working group consisted of a maximum of six participants and one moderator to facilitate the exercise. Every working group was asked to draw a cognitive map to answer the following questions:

- What are the factors that affect or are affected by the solid waste management in Al-Fayhaa area?
- How do these factors affect each other and what is the particular role of trust on these variables?

This method is explained in detail in Chapter 7.

3.3.2 Secondary data collection:

3.3.2.1 Existing literature:

A literature review and analysis was carried out as the first step to collect existing information relevant to the research questions. Ministry of Environment and World Bank reports among others, as well as previous published articles and studies, such as the Integrated Management of East Mediterranean Coastlines projects (IMAC) documents, were searched. This showed that the data gathered about trust relationships is very little when compared with the primary data we collected. Most of the secondary data dealt with environmental degradation and the problem of environmental management in Lebanon.

Table 3.1 summarizes the methods used to answer specifically each of the three sub questions under investigation in this study.

Table 3.1: Data Collection Strategy

Empirical chapter	Research Questions	Research Methods
Chapter 4	1. SQ1: From the citizens' perspective, how do trust relationships between the citizens on the one hand, and between them and the public and private sector stakeholders involved in EM, on the other, shape the level of cooperation among citizens in the EM process taking into consideration the complex reality of conflict? How does this relationship of cooperation and trust affect the EM process of (North) Lebanon?	Survey; secondary data
Chapter 5	2. SQ2: From the viewpoint of the public and private sector stakeholders involved in EM, how are cooperation and trust relationships shaped between public stakeholders themselves and between public and private sector stakeholders involved in EM, and how are they mutually affecting each other and the EM process of (North) Lebanon? What are the public and private sector stakeholders' perceptions of citizens' cooperation and to what extent do they depend on trust?	Interviews; secondary data
Chapter 6	3. SQ3: From the perception of the various stakeholders involved in EM, how can we distinguish between trust and cooperation relationships among the stakeholders involved as a factor which hinders EM and trust and cooperation relationships as a means to enhance EM in Lebanon?	Survey; interviews; secondary data
Chapter 7	4. SQ4: From the perception of the various stakeholders involved in SWM, how can the previous findings be used to assess how trust and cooperation relationships influence the SWM, taking into consideration the complex reality of conflict in (North) Lebanon? (case study of Al- Fayhaa union)	Fuzzy Cognitive Mapping approach; secondary data

3.4 Data analysis

The data analysis techniques varied according to the method used as is discussed in greater detail in each of the empirical chapters in which these methods were used.

3.4.1 Survey

All the data from the completed surveys was entered into an ACCESS database: five-point Likert scale and the answers to the open-ended questions. Later on all the quantitative data were analyzed using IBM SPSS Statistics 20 and the qualitative data using NVivo 10 software.

3.4.2 Interviews

The answers to the structured and semi-structured questions were entered into an ACCESS database. The structured question answers were recorded as five-point Likert ratings and, sometimes, these were converted into two categories, for example: 0 (disagree); and, 1 (agree). These predetermined answer-rating scales increase the reliability across interviews and the objectivity of judging the interviewees responses (Campion, Pursell and Brown, 1988, p. 28). The semi-structured questions were all open-ended and analyzed using IBM SPSS Statistics 20 and the qualitative data using NVivo 10 software.

3.4.3 Fuzzy Cognitive Mapping

To analyze the five maps aggregated by the workshop participants according to graph theory, the maps were transformed into adjacency matrices attributing values between -1 and 1 to the strengths of relations as mentioned by participants (Ozesmi and Ozesmi, 2003) with 0 being the value of “no relation” (Elpiniki and Areti, 2012). These matrices were processed in the FCMapper Software Solution and the Fuzzy Cognitive Mapping Aggregator Vs 0.1 (Bachhofer and Wildenberg 2010. www.fcmappers.net). These are based on MS Excel and are freely accessible for non-commercial use. All five maps were combined in one aggregated map of the three sectors showing all relations and concepts mentioned by the participants.

3.4.4 Document analysis

The researcher analysed documents gathered from exiting literature reviews related mainly to the present situation of the environmental management process in Lebanon and few related to trust relationships. The analyses of some secondary data were used as to compare or confirm some of the primary data used in the empirical chapters.

As mentioned in Chapter 1, this is an article-based thesis. All the empirical chapters were originally written as independent publications to be presented to conferences or submitted to journals for peer review but have been adapted through editing for this final thesis. Many people have contributed to the final collation of the empirical chapters. My three supervisors provided regular vital and important feedback for all the chapters. I received important remarks from people's comments or questions in conferences, or from the editors of journals or the referees. My draft chapters also benefited from revisions by other colleagues or experts or editors. This

feedback has greatly improved the quality of my work and analysis from its original drafts. It has given me the chance to see my work from different viewpoints.

3.5 Validity and reliability

Ensuring reliability and validity is essential in any scientific research. Reliability is related to the precision of the actual measuring procedure; and validity is concerned with how much the study was successful in measuring what the researcher has set for. To ensure these two concepts in this research, various measures were taken.

In the survey, I used random samples, utilized appropriate sample sizes based on a standard statistical formula, and tried to avoid biases. Using random sampling provides a probability that any respondent will be selected must be exactly equal to the probability of selecting any other. Bias was controlled not only in the random choosing of participants but also in the survey implementation process. I was the interviewer in all the surveys; I made sure I stayed open to new and different views and attempted to circumvent any influence on the perceptions of others. Also as an interviewer, I made sure that all the participants had shared a common vocabulary and understanding of the key words such as trust and environmental management.

For the interviews, participants were selected based on precise specification of who is to be selected and contacted. All of them were selected based on their level of involvement in the environmental management and their type of work, and not on their affinity or accessibility. Asking the same questions by the same interviewer, with the same wording and in the same order to all the interviewees, we attempted to ensure that any variation in answers was due to different opinions among the interviewees, and are not due to the differences in the questions asked (Barriball and While, 1994). Also I made sure that all the interviewees shared a common vocabulary and understanding of the key words. This is so that the researcher does not misunderstand the interviewees' answers. This leads to analysis that is better and more objective, especially if we want to compare perceptions (Denzin, 1989) on complex issues, such as trust, which can have many meanings.

To understand the perceptions of different stakeholders involved, many of the statements that were asked in both the survey and interviews were direct questions. Although other methods (in particular experiments) could be used to study trust, I chose direct questions for practical reasons. I believed that people answered honestly about when they did not trust others, i.e. they were not trying to hide this perception. Also they stated clearly their perception on trust and cooperation relationships. The questions in both the survey and the interviews were specific and direct, deriving the trust and cooperation relationships and its effect on environmental management from the perceptions of various stakeholders. Special attention was given to the way the questions or statements were asked. The questions of the interviewer were designed and

asked in such a ways as to not impose opinions on the respondents in order to avoid bias in the results. Clear and direct asking of the questions helped to avoid the possibility that other factors affected the results, so leading to more construct validity to the research. Sometimes, in order to confirm the direct questions or to gain a greater depth of insight into the trust relationships, the participants were asked open-ended questions.

To confirm accuracy of the data during the various phases of the study, data validation was done at the following stages: 1- Prior to data entry, 2- During data entry and 3- Post data entry. After each data entry process, I randomly chose 20 samples and all data was checked. No errors were found. I personally collected the data, entered the data and analyzed it.

To validate data obtained by the survey (citizens) and interviews (public and private sector stakeholders), the three stakeholders were gathered together in one exercise using the Fuzzy Cognitive Mapping method. Application of multiple methods to triangulate the findings supported and gave more confidence in validity of the results. The main results were found to be similar in all methods used.

The results of this research can not only be applied in coastal area of North Lebanon, but in all of the country. Most if not all the areas in Lebanon have similar variables to those used in this research such as: lack of environmental management; political tensions and armed conflicts; citizens facing economic, social, and health problems. It is highly likely that the lack of trust between stakeholders involved in environmental management can also be found also in other areas in Lebanon and that the impact of trust on environmental management can be assumed to be similar.

3.6 Challenges

This research faced many challenges. The lack of secondary data was a real challenge to initial research design as there was little or no prior empirical research concerning trust relationships and their link to the environmental management process in Lebanon, or even other nearby countries. Furthermore, the topic “trust” is a very sensitive and important issue in a country like Lebanon. Both points were a motivation to conduct this research, but also presented their own difficulties.

Armed conflict in the area was a major challenge for the field work and analysis stages. I frequently had to change my plan to react to the ongoing conflict. There were many canceled meetings when it became impossible to reach certain areas due to road closures or the route had become too dangerous. During one field trip in Badawi when conducting surveys sudden gun fire began all around the place. People were running and I was obliged to stay hidden near my car for 35 minutes until the situation became calm. Furthermore, this was at a time when I was in my 9th month of pregnancy! During the writing up phase there were many times I could not reach my

office in Balamand University because of the danger in trying to cross the roads in Tripoli where I live. As a researcher, time was always an important factor to consider.

Trust is a very sensitive topic and people's perceptions about it change a lot. My research examined and compared various stakeholder' ideas about trust relationships. Thus, it was vital to study their perceptions at the same time and when facing similar contexts. This was not easy given the armed conflict problem and the lack of interest and cooperation of some participants.

3.6.1 Position of the researcher

There is a human relationship between a researcher and the study participants. This is a very important part of field research, especially when discussing a sensitive topic - like trust. It was a real challenge and very important to enhance trust with the participants of this research to make sure they understood and believed that my work was solely for scientific research and had no other reasons, e.g. political agendas. Neuman (2000) stated that it is important in any data collection method that the researcher makes sure that respondents clearly understand the purpose of the study.

I remained aware of the effects that I could have on the participants and the research itself. During the field work I tried to stay honest and friendly with the participants but, at the same time, trying not to affect their answers. My talking was limited to necessary things and the emphasis was put far more on listening to what they had to say. It helped that I was living in Tripoli and in the study area. This gave me local knowledge of how people usually think; their customs and traditions; and, the real environmental problems they face nowadays. All this helped me build trust and saved me time to study the characteristics of the area. My personal background and past experiences also opened doors for me to establish faster contact with many of respondents and to build more networks that facilitated my field work. Finally, my fluency in the local language made it easy for me to communicate with people. Nevertheless, my personal background made it essential, yet somewhat harder, for me to avoid bias. I have strived to remain open to new and different views and I have tried to resist and work around any influences placed on me by other's perceptions.

I believe that flexibility in work was the key behind the success of this research despite all these challenges. Whenever a challenge arose I amended the action plan and reacted in ways that were directly applicable to the new situation. Many times I had to work in parallel with different activities. I received great support in all this from my supervisors, friends and family and this was always a motivation for me to overcome all the obstacles or challenges I faced during this research.

Chapter 4: Citizens' perceptions of trust relationships in the environmental management process in North Lebanon⁴

4.1 Abstract

This research investigates how trust plays a role in environmental management in North-Lebanon, which has suffered repeated episodes of armed conflict in recent times. Previous studies have shown that environmental problems have increased and that the government has been unable to address these, even during periods of relative peace. We examined trust as a factor that contributes to, or hampers, environmental management. Our analysis drew on a survey in 2011 involving 499 citizens. The results demonstrated that, according to citizens, the lack of trust between citizens, and between citizens and the public sector, is a key factor obstructing effective environmental management. The results indicate the level of correlation between how trusting people are; how citizens participate and how people perceive government legitimacy.

4.2. Introduction

Based on social exchange theory (Axelrod, 1984; Deutsch, 1958) citizens will be willing to comply with rules and regulations and to adjust their behavior provided they have confidence that the private or public sector organizations are able to produce a beneficial event or to provide beneficial services. One way to gain confidence is by having more trusting relationships. Similarly, actors in the private sector will be willing to invest in cooperation with organizations in the public sector, or with actors in the political domain, if they expect this relationship to be beneficial on the short, medium or longer term. Social capital theory and the cultural theory of political trust argue that people who are more likely to trust others (social trust) are also more likely to be active and have greater confidence in political institutions (Putnam, 1993). Moreover, according to Ferrin *et al.*, and as was similar to Sztompka in this point, a trust perception can be observed as a history-dependent process (2008). The theoretical background is discussed in more detail in Section 2.1.

⁴ This chapter is based on:

Abbas, N. H., van der Molen, I., Nader, M., and Lovett, J. C. (2014). Citizens' perceptions of trust relationships in the environmental management process in North Lebanon, *Journal of Environmental Planning and Management* (ahead-of-print), 1-19.

Issa, S.T, Abbas, N. H., Nader, M. R., van der Molen, I., and Lovett, J. C. (2014) . Armed Conflict and Human Behavior: A case study of the Environmental Management Process in North Lebanon. Paper presented at *the Identity and Conflict Conference*, 20-22 March, 2014, Balamand University, Lebanon.

Trust is crucial in building and sustaining relationships between environmental management agencies and communities affected by management action and plans (Sharp *et al.*, 2013). Various scholars regard trust to be essential for the implementation of public programs among stakeholders (Tyler, 1998; Gilson, 2003; Tsang *et al.*, 2009). A number of studies have claimed a strong link between trust and cooperation (Ferrin *et al.*, 2007; Putnam, 1993; Edelenbos and Erik-Hans, 2007). Further research has suggested that protecting the environment requires trust and cooperation among multi-level stakeholders of the society (Mwangi 2000; Stel *et al.*, 2012).

Environmental protection and management in Lebanon is regarded as being very weak (McCornack, 2012; IMAC⁵, 2009). The environmental pressures and problems which exist in this area have been described in many previous studies (IMAC, 2007; MOE/UNDP/ECODIT, 2011). These include, for example, land degradation, solid waste dumping and wastewater discharge. These problems exist throughout much of Lebanon and have been exacerbated by the impacts of the inflow of refugees.

The natural environment has been, and still is, threatened by degradation from human activities; political and institutional weakness (IMAC, 2007a; Ker Rault, 2009; Haase, 2014); and armed conflict (Maler, 1990 in Takshe *et al.*, 2010). Armed conflicts threaten the environment in many direct and indirect ways. The repeated disruption of public governance by conflict in Lebanon has prevented appropriate decisions from being made. It has stalled development of environmental protection laws and, thereby exacerbated the damage (Bazzi, 2009). Environmental management plans or initiatives have not been implemented in many areas (IMAC 2009; MOE/UNDP/ECODIT 2011).

Repeated armed conflicts, particularly since 1975, have caused social fragmentation (Bazzi, 2007) and led to weak institutions, increased corruption (Leenders, 2012) and the breakdown of trust between citizens and government. The resulting interactions between various actors in Lebanese society have become shaped by lack of trust (Ker Rault, 2009; Allen, 2011). Together, all these factors have affected the natural environment, as well as public health and economic development (World Bank, 2007; Geara-Matta *et al.*, 2010).

The research is organized as follows. This section continues with an overview of the research aims, objectives and describes the types of stakeholders and trust categories adopted. Section 4.3 outlines general theories of trust and some related concepts. The methodology is described in Section 4.4. Section 4.5 discusses the results to elucidate the various types of trust relationships. The final section of this research draws conclusions and offers recommendations.

⁵ The Integrated Management of East Mediterranean Coastline (IMAC) has an overall objective to stimulate sustainable development of coastal zones in Lebanon with positive effects for the standard of living and ecosystem health. IMAC's main activities focused on launching a process of integrated coastal zone management (ICZM) in Northern Lebanon. The importance of this project is that rarely, if not ever, is there a similar project implemented about this topic, either in this specific area, or in Lebanon generally. <http://www.balamand.edu.lb>

4.2.1 Research Aims, Objectives and Approach

The main aim of our research was to explore the existence and nature of trust and cooperation between citizens themselves and between stakeholders of public and private sectors with the aim of improving understanding of the conditions needed for successful environmental management. We assume that trust relationships between citizens on one hand, and between them and the public and private sector stakeholders involved, shape the level of cooperation among the citizens in environmental management specifically in terms of participation in joint activities, compliance with regulations, and adjusting by changing their behavior. This will facilitate implementation of environmental programs and management process. In this chapter these trust relationships are studied in one direction by looking at the issues from just the citizen viewpoint.

The research objective was to identify and to understand the main socio-economic, and any other predictors of these trust relationships, and how these could relate to the environmental management process from a citizen's perspective.

The environmental management process is defined in our research as the development of strategies or activities with the goal "to maintain and improve the state of an environmental resource affected by human activities" (Pahl-Wostl, 2007, p.561). Our research assumption was that a lack of trust contributes to limited citizen participation; limited progress of planned projects; and, sometimes, removal or termination of some projects (IMAC, 2007a). This hampers maintaining or improving the state of natural environmental resources in Lebanon. Moreover, it threatens government legitimacy.

4.2.1.1 The Stakeholders

As discussed in Section 1.4, and repeated here for clarity, three broad categories of stakeholders are involved directly or indirectly in environmental management processes in Lebanon, as follows:

- stakeholders in the public sector
- stakeholders in the private sector, and
- citizens.

The public sector is the primary stakeholder in the environmental management process. At a national level, the public sector consists mainly of government policy makers, advisers, ministries, and government-related institutes (MOE/UNDP/ECODIT, 2011). Politicians in Lebanon, normally outside the public sector, are key-decision makers within the ministries and are included in our category of the public sector of Lebanon. At the local level, the municipality is charged by law to oversee and implement environmental projects benefiting communities within its area of jurisdiction (IMAC, 2007b). Nevertheless, many public institutions, at both local and national levels, are administratively weak and they not able to implement developmental projects, nor to provide adequate services to the citizens (Atallah, 2012).

The private sector, which is considered a secondary stakeholder, also plays an important role in environmental planning and management in Lebanon (IMAC 2007a). The private sector includes private companies, academic or research centers, and experts on the basis that they are being paid for their services⁶. Private companies work as consultants for the public sector; as contractors; or, as providers of specific services, for example, collecting solid waste or providing a water supply. The public and private sector are closely related and, to some extent, are interwoven. There are a number of funds, councils and joint-stock ventures established between these two sectors. All these have played a crucial role in the rehabilitation and reconstruction of major infrastructure. As a result, they impact on the environment.

Last, but not least, citizens can play a crucial role in the environmental management process through complying with laws and regulations; by volunteering in environmental initiatives; or, by resisting new plans. The role of Environmental NGOs is still very limited in the north of Lebanon, and has not been included as a specific category.

4.2.1.2 Types of Trust

This section is derived from Chapter 2, Section 2.1.3. There were various trust relationships evident. We divided these into four levels in our research to make the analysis simpler. These correspond to the first key statements which we tested in our questionnaire survey, as follows:

1. “citizen-citizen” trust - Statement 1: which measures generalized trust among citizens in the society.
2. “citizen-public sector” trust – Statement 2: which measures trust between citizens and public authorities *at national level*, specifically the decision makers within ministries and other governmental organizations at national level.
3. “citizen-municipalities” trust – Statement 3: which measures trust between citizens and public authorities at local level, the municipalities.
4. “citizen-private sector” trust - Statement 4: which measures trust between citizens and those stakeholders in the private sector involved in the environmental management processes.

One limitation of this approach is that citizens may trust one company, but not another. Similarly, they may trust one ministry at national level more than another ministry. Again, they may trust particular persons within the public sector more than others.

⁶ The academic and research centers in Lebanon play a role in the environmental management mainly as a consultation and implementing studies. There are experts who work in private companies or NGOs or individually who participate in environmental studies and work as consultant to public or other private stakeholders.

4.3. Theoretical background

The general theoretical background for this chapter and discussion of the complexity of trust is covered in Chapter 2, Section 2.1.1.

4.3.1 Social and Political trust

In the research presented in this chapter, we distinguish between social trust and political trust. The background here is derived from Chapter 2, Section 2.1.3. Social trust is defined as the general trust in society (Putnam, 1993). Social trust reflects a general expectation of trustworthiness, but without making any specific reference to the way in which this manifests itself. Trust between citizens is a horizontal trust relationship, i.e. our 'citizen-citizen trust'. This includes citizen's trust in other citizens and citizens' general trust in society as a whole (in line with Putnam's definition). Social trust emphasizes peoples' general disposition to trust or distrust of others. Social trust can be measured mainly by citizen involvement in the local community and its voluntary activities (Newton, 2001). Lühiste argues that there is a spill-over effect of social trust into trust in political institutions in both liberal democracies (Newton, 2001), as well as in post-communist countries (Dowley and Silver, 2002). This is also referred to as the cultural theory of political trust (CTPT).

Political trust is defined as an evaluation of the extent to which the public authorities representing the government are operating effectively and in accord with people's expectations (Hetherington, 1998). This is also referred to as the institutional theory of political trust (ITPT) and considers the effectiveness or 'performance' of government institutions in explaining trust in government institutions. This conforms to our second ('citizen-public sector trust') or our third ('citizen-municipalities trust') trust types. According to Newton (2001), political trust can be measured by citizens' confidence in political institutions; trust in politicians; and, citizen participation.

We used a definition of trust by Morton Deutsch when asking respondents questions about their specific expectations. This could be applied to actors in the public and private sector, as well as in the political domain: "To trust another person /organization to produce a beneficial event X [**add:**], or to provide a service, an individual/organization must have confidence that the other individual/organization has the ability and intention to produce it" (adapted from Deutsch, 1960b, p.125). Although this definition may seem to be outdated, we found it was still valid and applicable to the various stakeholders involved in environmental management in Lebanon. We used and communicated this definition to the people interviewed.

The definition focuses on specific expectations of trustworthiness as it refers to ability to benefit (the event or service provided) and to the intention of the trustee (their benevolence to do well).

It refers to expectations of trustworthiness (the first dominant concept), but not to the willingness to accept vulnerability (the second dominant concept) (Fulmer and Gelfand, 2012).

We can position this work within social exchange theory (Axelrod, 1984) which suggests that citizens are willing to comply with rules and regulations and to adjust their behavior, if and when they have confidence in private or public sector organizations (both at the level of municipalities and national level) to be able to produce a beneficial event or to provide beneficial services.

4.3.2 Trust and its link to government legitimacy and citizen participation

As mentioned in Chapter 2, Section 2.1.5., Christensen *et al.* (2011) stated that citizens' acceptance of, and trust in, the government's approach to problem solving is very important in a democratic system. The system must facilitate public participation in decision making processes to create legitimacy and to create the feeling that citizens' interests or preferences are taken into consideration and are reflected in the system (Prohl, 2004). At the same time, according to Elias and Alkadry, citizen participation can enhance the effectiveness of government policy because citizens are said to have undeniable knowledge resulting from their daily experiences (2011). Thus, trust is identified as an essential element of effective public participation processes (Sharp *et al.*, 2013).

It is argued that the link between trust and citizen's participation is directly related with the concept of legitimacy (Jin, 2013) and deliberative democracy (Kim, 2010). Several studies suggest that citizen-public sector trust enables collective action and that this can boost environmental performance and provide legitimacy to public institutions (Tsang *et al.*, 2009; Tyler, 1998).

Social capital theory further argues that people who are more likely to trust others (social trust) are more likely to be actively engaged in politics and have greater confidence in political institutions (Putnam, 1993) as is found in the cultural theory of political trust.

These two effects, when combined, can provide legitimacy to public institutions (Tsang *et al.*, 2009; Tyler, 1998). In addition, if citizens participate in the environmental decision making process, the process gains more legitimacy in the eyes of the public (Solitare, 2005). According to Webler and Tuler, people need to feel that they were listened to and that their input made a difference (in Ginger, 2013).

4.3.3 Trust and cooperation

As discussed in more details in Chapter 2, Section 2.1.4, the literature includes the work of a number of scholars who have discussed trust and its relationship with cooperation, citizen participation and government legitimacy. Trust at various levels enhances cooperation (Ferrin *et al.*, 2007; Putnam, 1993; Edelenbos and Erik-Hans, 2007). Individual trust at an interpersonal level improves future cooperation; increases free expression of opinions; facilitates

implementation of negotiated agreement; increases creativity; and, lowers counter-productive behavior (Fulmer and Gelfand, 2012). Also, as observed by Ferrin *et al.* (2008), development of the perception of mutual trust can derive from cooperative behavior. Such behavior is said to play a significant intervening role by transmitting the perception of one party's trust to another. Also a trust perception can be observed as a history-dependent process (Ferrin et al., 2008; Chapter 2, Section 2.1.6).

These results suggest that the improvement of trust between the stakeholders is a prerequisite for improving environmental management in Lebanon and one factor which could lead to more cooperation and reciprocity. In return, this will help enable mutual trust to develop among multiple stakeholders. Our research will use these theories to explain our results which will stress that enhancing citizens' trust is necessary and important for obtaining better environmental management in Lebanon.

4.4. Methodology

This section explains the methodology and method used in this research, and the study site of this project.

4.4.1 Study site

We conducted our research in the five main coastal areas of north Lebanon: Akkar, Minieh-Dinnieh, Tripoli, Koura and Batroun (see Map 3.1). Chapter 3, Section 3.2.1 presents more details about the study site so it is not repeated here.

4.4.2 Data collection and survey method

We collected primary data using a questionnaire survey carried out between mid-August to December in 2011. The survey contained both quantitative and qualitative questions. 499 questionnaires were distributed proportionally to the population in each of the five northern coastal areas of Akkar, Minieh-Dinnieh, Tripoli, Koura and Batroun.

The sample size for each area was derived from the sample size formula $n = \frac{N}{1+N(e)^2}$ (Israel, 1992) ; where n is the sample size; N is the population size; and, e is the level of precision which is 10% for each region.

After calculating the number of questionnaires needed to be completed in each of the five coastal areas, the number of questionnaires to be filled in each village or city (sub-areas) was determined based on the populations of each sub area as compared to the total population of the main area (See Appendix 2).

The selection of participants assessed in the survey was based on systematic random sampling from each sub-area. The decision to choose the participants randomly without further

stratification was because no official statistics regarding gender, education or religious divisions were found. This was also due to the complex realities in Lebanon generally, and in the north specifically, given its unique multiple religious, political and ideological differences. Our survey was designed to reveal if one factor, or a combination of factors (the independent variables), was affecting the trust relationships (the dependent variables). The main dependent variables in this survey were: (a) citizens' perception of trust relationships among citizens and (b) citizen perception of trust between them and the stakeholders of public or private sectors involved in the environmental management process in northern Lebanon. We were aware that there are other methods (in particular game theory experiments) to measure social trust, but we chose to simply ask questions for practical reasons. We believed that people answered honestly when saying they did not trust others, i.e. they were not trying to hide this perception. The main independent variables were related, either to social and economic characteristics, such as age, income, gender and education, or related to other variables (as asked about in the survey), such as questions regarding government legitimacy and citizen participation (Refer to Appendix 3 for more details).

Most of the survey questions were structured with a five-point Likert scale: from 1 (strongly agree) to 5 (strongly disagree). In the analysis phase, these five-point scorings were converted into two categories (nominal scale): 0 (disagree); and 1 (agree), or 0 (No); and, 1 (Yes). This binary system allowed us to transform the statements used in the survey into the variables used for the binary logistic regression and some of the correlations.

Table 4.1 shows a list of the statements or questions asked in the survey, which also included a few open questions. Some statements used were in the negative. These were balanced by others in the positive.

Table 4.1. Survey Statements And Questions: With Proportion Of Respondents Who Agree Or Disagree.

Statement	Proportion of respondents who agree/ disagree
1 In your opinion, lack of trust among the Lebanese is a characteristic of the Lebanese society	78.5% agree
2 In your opinion, there is lack of trust between citizens and public authorities involved in environmental management at national level in Lebanon.	96.1% agree
3 As a citizen you trust that the municipality will provide a good and sufficient management for environmental problems found in your area	59.51% disagree
4 In your opinion, private stakeholders are better capable than public stakeholders in administering environmental management initiatives	78.1% agree
5 In your opinion, the environmental management laws available do not provide adequate means to protect the environment in our country	83.5% agree

6	In your opinion, the existing environmental management laws in Lebanon are not well enforced.	99.4% agree
7	In your opinion, there is a problem in the process of decision-making regarding environmental management in Lebanon.	94.9% agree
8	In your opinion, the implementation of decisions taken with regard to environmental management is problematic in Lebanon	98.6% agree
9	The more you trust decision makers and stakeholders involved in the environmental management process, the more you (as citizen) are willing to comply with relevant laws and regulations.	97.4% agree
10	You are satisfied with the government environmental management process (ex: laws ,decision making, etc)	95.2% disagree
11	Lack of trust and cooperation is negatively effecting decision making of the environmental management process	99.2% agree
12	For you as citizen, the more you trust a stakeholder involved in an environmental management initiative, the more you are likely to cooperate in this initiative.	99.2% agree
13	Citizens in Lebanon play an important role in the environmental management process	92.2% disagree
14	Have you ever participated in an environmental initiative?	63.3% No
15	Are you part of an active group in environmental management?	96.6 % No
16	In your opinion, the lack of trust among the Lebanese stems from repeated conflicts in (North) Lebanon	79.9% agree
17	Why you don't participate in environmental initiatives?	Open question
18	Why you trust the private sector more than the public sector in administering environmental initiatives?	Open question
19	What causes, in your opinion, the lack of laws and inadequate enforcement of laws on environmental management in Lebanon?	Open question
20	How does, if at all, the lack of trust between citizens affects the environmental management process?	Open question
21	You as citizen believe that the lack of trust among the Lebanese is one of the results of the repeated conflicts in (North) Lebanon?	79.9% agree

A pilot test was conducted before the main survey and the questionnaire was amended accordingly and adjusted for accuracy and simplicity for use in its final form. The survey data, once collected, was entered into an ACCESS spreadsheet and transferred later to the SPSS statistical analysis package. The qualitative data were analyzed using NVivo software.

Two main tests were used in the analysis; the binary logistic regression (BLR) test and correlation tests, such as Spearman's rho (non-parametric) or Pearson (parametric). Both of these correlation tests are commonly used for assessing association (Siegel, 1957, p. 13). The logistic regression analysis was chosen specifically because it is a powerful tool for assessing the relative importance of the variables that determine outcome (Anderson *et al.*, 2003, p.757).

4.4.3 General Characteristics of the respondents

In general, respondents of the survey ranged in age between 18 and 84. 45% of them were female and 55% were male. 35% were Christian and 65 % were Muslims. Their education status was as follows:

- 3% Illiterate
- 4% Uneducated
- 11% Elementary
- 21% Intermediate
- 14% Secondary
- 9% Technical
- 33% University
- 5% Post graduate.

Their income level (in Lebanese Pound) varied as follows:

- 66% 0-700,000
- 25% 700,000-1,400,000
- 8% >1,400,000
- 1% undefined

4.5. Findings and Discussion

4.5.1 Citizen perceptions of trust relationships

The results showed that 78% of the citizens surveyed referred to a lack of trust among Lebanese citizens as being characteristic of Lebanese society (Statement 1) and supporting the idea that there is a low level of citizen-citizen trust or social trust or “horizontal” trust (Allen, 2011) in Lebanon.

When asked how the lack of trust between citizens affected the environmental management process (Statement 20), most replied that they had little confidence in other citizens to comply with laws or participate in a social or environmental activity (volunteering) to improve their environment.

The results also show that citizens did not trust stakeholders within the public sector at national level, whether in general or in relation to provision of services and decision- making. 96% reported a lack of trust between citizens and public authorities involved in environmental management at national level in Lebanon (Statement 2). 60% had little confidence or trust that the municipality provided a good and sufficient management for environmental problems in their area (Statement 3). These responses reflect the low level of political trust or “vertical” trust (Allen, 2011). This finding is supported, but only occasionally, in the literature. For example, according to Haddad (2002), citizens regard officials as corrupting forces in society as opposed to their being agents working on behalf of citizens. Therefore, political trust in Lebanon is perceived to be drastically low.

The Project Director of Strengthening the Environmental Legislation Development and Application System in Lebanon (SELDAS; hosted by the Ministry of Environment) reported

“it’s unfortunate to say, but the level of trust people have in the Government is very low. We cannot be blind and not see this...” (quoted in Potter, 2006,p. 68).

According to Newton, these trust scores can be considered as a measure of how well the political system is performing in the eyes of its citizens (Newton, 2001). The low level of political trust suggests the politicians and/or the institutions of the political system are functioning poorly (Ibid). The respondents referred to both.

It is argued that “political trust gives legitimacy to political institutions” (Haddad, 2002, p.202). The low level of trust in the governance authorities and institutions in Lebanon is a proxy for legitimacy of the government and its institutions. Social and political trust increases the practical possibilities of social cooperation; for example, the probability that citizens will pay their taxes (Newton, 2001). Our research suggests that the lack of social and political trust reduces the chances that people will comply with laws or participate (volunteering) in environmental initiatives. This was confirmed by the citizens themselves in many of their answers; for example, in Statements 6, 9 and 12.

Conversely, the results suggest better trust between citizens and the private sector as 78% thought private stakeholders are more capable than public stakeholders in administering environmental management initiatives (Statement 4). When asked why by an open question (Statement 18), the most frequent answer was their lack of trust in public authorities and policy makers in general. Others quoted their experience that private services for solid waste collection were more successful and more accountable. The link between past experiences and trust relationships is discussed earlier in literature (Ferrin *et al.*, 2007; Mayer *et al.*, 1995).

4.5.1.1. *Correlation between the trust relationships*

The results show a correlation (Spearman’s RHO) between citizen-citizen trust (Statement 1) and citizen–public sector trust (Statement 2); citizen–municipality trust (Statement 3); and, citizen–private sector trust (Statement 4) (0.224**⁷; -0.121**; 0.138** respectively). Also citizen-public sector trust (Statement 2) is correlated with citizen-municipalities trust (-0.126**) and citizen-private sector trust (0.248**). There is also a correlation between citizen-municipality trust and citizen-private sector trust (-0.183**). This finding confirms the citizens’ perception about the relation between social and political trust and the link between the citizens-public sector trust and citizen-private sector trust.

4.5.2 What Variables are considered predictors or have a correlation with the trust relationships studied?

4.5.2.1 *Socio-economic variables*

^{7**} Correlation is significant at the 0.01 level (2-tailed) - a correlation significance of 99%.

4.5.2.1.1 Binary logistic regression (BLR):

The following *socio-economic variables* were studied using BLR and used as predictors: gender (1= male, 0=female); age; income level; and, education level. These four independent variables were tested together, each time against one of the dependent variables (Statements 1, 2, 3 and 4 respectively). After testing many models only two models were found to have any significant relationship. Religion was not studied as one of the socio- economic variables because of local sensitivities.

Public and private sector management of environmental initiatives:

The results indicate that the more educated citizens are, the less they trust that their municipality will provide good and sufficient management for environmental problems found in their area (Statement 3), and the more likely they were to agree with Statement 4 that private stakeholders are better capable than public stakeholders in administering environmental management initiatives. A possible explanation is that a higher level of education brings more awareness about one's right to live in a safe and clean environment. If the government is not contributing to this (or conversely is contributing to deterioration of the environment), it reduces peoples' trust in the government to be effective in their environmental management. Also, a higher level of education makes people more able to analyze and assess risk (Johnson and Scicchitano, 2009).

Gender, income level and age were not significant predictors in the trust relationships studied. This result was deduced based on Model 1 and Model 2 (Table 4.2) that showed that educational level can be a predictor for the citizen-municipalities trust and citizen-private sector trust respectively (Statements 3 and 4). The forward stepwise (LR) method results showed that both models have a good fit (chi square = 4.358, and 9.88, respectively, $p < .037$ and $p < .002$ respectively with $df = 1$). The Wald criterion demonstrated that education level ($p = .037$ and 0.02 respectively) made significant contributions to predictions for both Statements 3 and 4, whilst the Exp (B) was found to be 0.871 and 1.281 respectively.

Table 4.2. Binary logistic Regression showing Educational level as a predictor for the citizen-municipalities trust and citizen-private sector trust (Model 1 and 2)

BLR	B	S.E.	Wald	df	Sig.	Exp(B)
Model 1 EdLevel	-.139	.067	4.336	1	.037	.871
Model 2 EdLevel	.248	.079	9.924	1	.002	1.281

4.5.2.2 Other variables investigated in the survey

4.5.2.2.1 Binary logistic regression (BLR):

The two category answers for the Statements 5 through to 15 (independent variables) were used as predictors for the four dependent variables (Statements 1, 2, 3 and 4). The results of the cross tabulations of each were found significant (see Table 4.3).

Trust relation with public participation and government legitimacy:

Model 3 found a significant relation between the independent variables (Statements 5 and 14) and the citizen–citizen trust relationships (Statement 1). The results of the BLR test using the forward stepwise method shows that this model has a good fit (chi square = 12.051; $p < .002$). Those respondents who agree that there is lack of trust among Lebanese society (Statement 1) are more likely to agree that the environmental management laws available do not provide adequate means to protect the environment (Statement 5) and that there is insufficient legal protection of the environment and they are less likely to participate or volunteer in an environmental initiative or activity (Statement 14). The first result with Statement 5 shows there is a spill-over effect of social trust into political trust (Lühiste, referred by Newton, 2001). The cultural theory of political trust and social capital theory mentions that people who are more likely to trust others (social trust) are also more likely to be politically engaged, active and have more confidence in political institutions. This might explain the significant relations between the citizens' perception of a low level of social trust and citizens' belief that there are insufficient laws. This can reflect weak governmental institutions and, thus, poor political trust. A major measure for political trust is confidence in political institutions and trust in politicians or governments (Newton, 2001).

The second result with Statement 14 is representation of social trust and people participating in social activities (Newton, 2001). Our results reveal that, whenever there is a perception of lack of social trust, we can predict a low level of citizen participation in social activities generally, and in environmental work specifically. In this statement, 63% answered that they have never participated in an environmental initiative. These results were deduced from Model 3 (see Table 4.3) where the Wald criterion demonstrated that citizens who agree on Statement 5 ($p=0.015$) and who said Yes to Statement 14 ($p=0.011$) made a significant contribution to the prediction of Statement 1.

When asked an open question as to why people did not participate in environmental initiatives Statement 17, some said they did not really care for participating in social activities mainly because they did not trust other citizens, who might volunteer, would work well in these activities. This confirms the findings in Model 3 (a significant correlation between Statement 1 and 14). Also, many said they did not trust the stakeholders involved in the environmental initiatives and they thought most initiatives were identified as being politicized. This result is implicit in social exchange theory (Axelrod, 1984). The lack of trust and confidence in stakeholders involved in environmental initiatives encourages poor participation by citizens in

environmental initiatives or activities. Many citizens state that decision makers (represented by politicians and administrators) do not ask them to participate in the decision making and planning process; and are sure they will not take their opinions into account during any implementing phase.

This result concurs with research which concluded that public participation, as one measure of political trust (Newton, 2001), is a vital part of public decision making in general, and in environmental policies specifically (Tsang *et al.*, 2009). Involvement of citizens in the policy making process helps to lower resistance to political decisions (Boedeltje and Cornips, 2004) and, as a result, the decision making process gains more legitimacy in the eyes of the public (Prohl, 2004; Solitare, 2005). Citizens need to feel that they can make a difference and that they are listened to (Webler and Tuler in Ginger, 2013).

Our study supports these finding. It further showed a belief that citizens know much more than decision makers, as their knowledge about the environmental problems comes from everyday experiences and the local problems that affect them. This point of view is also supported in the literature (Elias and Alkadry, 2011).

Model 4 found a significant relation between the independent variables (Statements 5 and 11) and the citizen-public sector trust at national level. Results of the BLR test using the forward stepwise method show a good fit (chi square = 6.807, $p < .033$). Thus, the two taken together can act to predict those who state that a lack of trust exists between citizens and public authorities at national level involved in the environmental management process (Statement 2). The two views are those people who state that: a). the environmental laws available do not provide adequate means to protect the environment (Statement 5); and, b). a lack of trust and cooperation negatively affected decision making in the environmental management process (Statement 11).

This result accords with the finding that 83% agreed that the environmental management laws available do not provide adequate means to protect the environment in our country, and creation and implementation of laws is a major part of the environmental management process.

Thus, we conclude that these citizens do not trust the public authorities to manage the Lebanese environment well. According to Tsang *et al.* (2009) citizen–public sector trust eases collective action that, in itself, can improve environmental performance and provide legitimacy to public institutions (Tyler, 1998). Therefore, a lack of citizen-public trust (Statement 2) makes it harder for citizens to engage in collective actions, such as compliance with laws or regulations (Statement 5). These results reveal a reinforcing process where the perception is there are not enough laws creates a lack of trust in the government institutions and decision makers and, thus, citizens do not comply with the laws or regulations. The result is that citizens themselves are contributing to the poor environmental management in Lebanon.

The second implication of a relationship between Statements 11 and 2 can be inferred. From a citizen's point of view, for better and more successful decisions in the environmental

management process in Lebanon, trust and cooperation needs to be built between all the stakeholders involved in the process, including the citizens. It is reasonable to think that, based on citizens' perception, the lack of trust among the public stakeholders, which is preventing them from taking proper decisions and, thus, achieving good environmental management, is one reason which leads to a lack of citizen-public sector trust.

On the other hand, the lack of citizen-public sector trust makes it harder for the citizen to trust decision makers and their decision making process. Therefore, the dearth of citizens' participation in decision making process makes citizens feel their interests or preferences are ignored and are not reflected in the system. This inference agrees with other studies of the role that citizens' participation in decision making process play in the achievement of legitimacy in the eyes of the public (Prohl, 2004; Solitare, 2005; Kim, 2010).

In general, our findings agree on a direct link between trust, citizens' participation and legitimacy found by Jin (2013). These results were deduced from Model 4 (Table 4.3) where the Wald criterion demonstrated that citizens who agree on Statement 5 ($p=0.038$) and Statement 11 ($p= 0.022$) respectively made a significant contribution to prediction of Statement 2.

Table 4.3. Binary Logistic Regression with Other Variables for Model 3 and 4 Investigated in the Survey

	B	S.E.	Wald	df	Sig.	Exp(B)
a- Citizen-citizen trust (Model 3)						
Statement (5)	.685	.282	5.909	1	.015	1.983
Statement (14)	-.599	.237	6.397	1	.011	.549
b- Citizen-public sector at national level trust (Model 4)						
Statement (5)	1.107	.532	4.325	1	.038	3.025
Statement (11)	2.899	1.266	5.242	1	.022	18.150

4.5.2.2.2 *Correlation:*

Table 4.4 shows the correlations between the trust relationships (Statements 1, 2, 3 and 4) and other variables as in Statements 5 through to 13. Using Spearman's RHO Correlation test a low, medium and strong correlation was found. A statistically significant correlation between 0.265 and 0.40 is considered a medium correlation and a statistically significant correlation greater than 0.40 is considered strong. Only strong relationships are discussed. These are found with the citizen-public sector at a national level trust (Statement 2).

Trust relations with citizen participation and government legitimacy:

A strong correlation was found between Statement 6 and Statement 2. Citizens who state that the existing environmental management laws in Lebanon are not well enforced (Statement 6) also agree that there is lack of trust between citizens and public authorities involved in environmental management at a national (Statement 2). When asked what caused this, their opinions focused on the lack of laws and inadequate enforcement of laws on environmental management (Statement 19). Many linked this issue to the lack of trust relationships and, thus, the lack of cooperation among the decision makers and stakeholders involved in environmental management. The problems of making or implementing decisions in Lebanon results in an inability to update laws; to draft new laws; and/or, most importantly, to enforce laws. This is also the case when considering the relationship between trust and cooperation (Ferrin *et al.*, 2007; Edelenbos and Erik-Hans, 2007; Ferrin *et al.*, 2008).

This point is confirmed by a strong correlation between Statements 7 and 8 and Statement 2 respectively. Citizens, who agree that there is a problem in the process of decision-making regarding environmental management in Lebanon (Statement 7), or who state that the implementation of decisions taken with regard to environmental management is problematic (Statement 8), also agreed that there is lack of citizen-public sector trust at a national level. Thus, citizens' are well aware that no longer do they cooperate with environmental management initiatives as they might, for example, in complying with important laws and regulations.

Some citizens also mentioned that armed conflict is directly or indirectly linked to the management process in general; and specifically to lack of laws and inadequate enforcement of laws on environmental management in Lebanon. According to respondents, armed conflict weakens governmental institutions leading to difficulty in taking proper decisions or implementing decisions such as laws. Citizens stressed the link between lack of trust and the armed conflicts, claiming that the arm conflict is indirectly one of the reasons behind the lack of laws or enforcement of laws. 79.9% of citizens agreed on statement (21): "You as a citizen believe that the lack of trust among the Lebanese is one of the results of the repeated conflicts in (North) Lebanon". The link between armed conflict and trust relationships is also confirmed in literature (Bazzi, 2007; Allen, 2011).

The strong correlation between Statements 10 and 2 indicates that citizens who are dissatisfied with the government environmental management process (Statement 10) strongly agree that there is a lack of trust between the citizen and public sector at a national level (Statement 2). This makes sense as national government is indeed the key component of the public sector. People's satisfaction with, and expectation of, government can be linked to the extent people perceive that the government operates effectively which, itself, is related to political trust (Hetherington, 1998). Their level of satisfaction reflects to what extent people find an actor or institution legitimate (OECD DAC, 2010).

Our results showed 95% of citizens were dissatisfied with the environmental management process of the government (Statement 10) and, perceived government authorities to have a low level of legitimacy. The inability of the state to deliver services to accord with citizens' expectations can lead to instability and vice versa (OECD DAC, 2010). The conclusion coming from citizens' perceptions is that the state in Lebanon is in an unstable phase.

Table 4.4. Correlation Matrix between Trust Relationships and Other Variables

Spearman's rho	Statement (1)	Statement (2)	Statement (3)	Statement (4)
Statement (5)	.194**	.294**	-.045	.145**
Statement (6)	.261**	.403**	-.122**	.192**
Statement (7)	.114*	.416**	-.140**	.216**
Statement (8)	.115*	.442**	-.100*	.218**
Statement (9)	.176**	.334**	.001	.130**
Statement (10)	-.147**	-.413**	.194**	-.172**
Statement (11)	.125**	.266**	-.110*	.122**
Statement (12)	.130**	.269**	.036	.120**
Statement (13)	-.195**	-.366**	.078	-.117**

** . Correlation is significant at the 0.01 level (2-tailed) (A correlation significance of 99%).
 * . Correlation is significant at the 0.05 level (2-tailed) (A correlation significance of 95%).

4.6. Conclusions

Protecting the environment requires trust and cooperation among multi-level stakeholders in society (Mwangi, 2000) and citizens remain a key stakeholder to deliver effective environmental protection and management (Godschalk *et al.*, 2003). Our results demonstrate that citizens' in northern Lebanon perceive a lack of citizen-citizen trust (Statement 1). They perceive the same lack of trust between citizens and the public sector at both the local and national levels of governmental authorities (Statements 2 and 3 respectively). In contrast, private sector involvement in the environmental management process is trusted more than the public sector.

This research found that there is a spill-over effect of social trust into political trust. This is explained in the significant relations found between the citizens' perception of a low level of social trust and citizens' belief that there are insufficient laws. The insufficient laws are thought by the citizens to be one of the signs for weak governmental institutions and organizations and, thus, poor political trust. Since a major measure for political trust is confidence in political

institutions and organizations (Newton, 2001). This result agrees with the social capital theory and the cultural theory of political trust that argues that people who are more likely to trust others (social trust) are also more likely to be politically engaged, active and have greater confidence in political institutions (Putnam, 1993).

Our research found that education is a socio-economic variable that is linked to trust relationships. Other variables related to other issues, such as the insufficient provision of laws; the lack of enforcement of laws; and problems in the process of implementation of decisions taken on environmental management. Also results have showed that trust perception can be observed as a history-dependent process. This is examined in the citizens' answer when asked by an open question why they think the private stakeholders are more capable than public stakeholders in administering environmental management initiatives (Statement 18). Some quoted that based on their past experience; services were found more successful and more accountable by the private sector stakeholders as compared to the public sector stakeholders. The link between past experiences and trust relationships is discussed earlier in literature by scholars such as Ferrin *et al.* and Sztompka (2008; 1999).

The results clearly demonstrate that, from a citizens' perception, there is a positive link between trust relationships on the one hand, and a citizen's participation (in terms of participation in joint activities, compliance with regulations, and adjusting) and the legitimacy of the government and its organizations on the other. In the citizens' answer to the open question why they think people did not participate in environmental initiatives (Statement 17), many said they did not trust the stakeholders involved in the environmental initiatives and they thought most initiatives were recognized as being politicized. This result is implicit in social exchange theory (Axelrod, 1984). The lack of trust and confidence in stakeholders involved in environmental initiatives encourages poor participation by citizens in environmental initiatives or activities. Results found that many citizens don't trust the decision makers because they don't ask them to participate in the decision making and planning process. The lack of participation of the citizens in the decision making process is resulting to higher resistance to political decisions (Boedeltje and Cornips, 2004) and, as a result, the decision making process gains less legitimacy in the eyes of the public. This result is confirmed by many scholars (Prohl, 2004; Solitare, 2005).

Although we assume that trust is one of the key factors for sustainable implementation of environmental management, it is important to notice, however, that still result found in this chapter showed that more than 20 % of the respondents didn't agree that there was a lack of social trust (Statement 1) and didn't agree that lack of trust among Lebanese stems from repeated arm conflicts (Statement 16). Also about 40 % stated that citizen –municipalities trust is found. This leads us to think critically about the main reasons that make citizens hold a diversity of perceptions. What are the other factors that affect people's perception on trust relationships in this area? Is it religion? Political backgrounds? Personal interest? Past experiences? Is it one of these reasons or many together? The results demonstrate that trust is a complex issue, and

although it is a central factor in relation to successful cooperation, there are other factors involved.

Ongoing conflicts make Lebanon a particularly interesting case study to investigate the role of trust in the delivery of environmental management. Environmental degradation in Lebanon is well-covered in the literature. However, knowledge is significantly lacking of how trust in prevailing relationships affects the environmental management process.

Our study has demonstrated that in Lebanon, citizens' participation and cooperation with decision making or environmental activities is vital to improve environmental management for maintaining and improving the state of natural environmental resources. We conclude that our study of citizens' perceptions in the north of Lebanon shows agreement with theories that argue that trust and cooperation are reciprocated. Our results also demonstrate the link between trust, citizen participation and government legitimacy. Nevertheless, on the basis of the result, we do not claim that trust relationships are the only reason behind the weak environmental management process in Lebanon; nor do we argue that trust is the only factor that enhances cooperation or citizen participation. However, we do conclude that citizens' perceptions show that trust plays a significant role in the environmental management process in Lebanon.

Chapter 5: Perceptions from the public and private sector on trust and cooperation relationships in the field of environmental management in Lebanon⁸

5.1 Abstract

This research considers the position of trust and cooperation in the context of environmental management in Lebanon. Previous studies have indicated increasing environmental problems in this area. The effectiveness of the Lebanese government to address these challenges has been reported to be constrained by large variety of factors, e.g. lack of appropriate decisions, lack of development of environmental protection laws, lack of continuity in program development. While ‘trust’ and ‘cooperation’ are referred to in literature, it is not systematically studied in the case of Lebanon.

The thesis of this research was that trust and cooperation are reciprocal by nature. It assumed that trust and cooperation were necessary conditions for effective environmental management in situations that require multi-stakeholder cooperation. The research and its findings are based on structured and semi-structured questions with both public and private sector stakeholders in 49 interviews.

The research found that, generally, from the perspective of public and private sector stakeholders, the cooperation between stakeholders within the public sector, and between public and private sector stakeholders, was considered to be weak. Trust (or the lack of trust) featured less prominently in the explanation for the poor environmental management than might have been expected. On the other hand, the respondents indicated that the extent to which citizens are likely to cooperate in environmental management (in terms of participation in joint activities, compliance with regulations, and adjusting) is related to citizens’ relationship with, and the trust of, the governmental authorities and the services they provide.

⁸ This chapter is based on:

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2013). Perceptions from the Public and Private Sector on Trust and Cooperation in the Field of Environmental Management in Lebanon. *Academic Journal of Interdisciplinary Studies*, 2(8), 571-581.

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2013). Perceptions from the Public and Private Sector on Trust and Cooperation in the Field of Environmental Management in Lebanon. Paper published in the *proceeding of the ICHSS Conference*, Rome, 2013.

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2013). Perceptions from the Public and Private Sector on Trust and Cooperation in the Field of Environmental Management in Lebanon. Paper presented at the *3rd International Conference on Human & Social Sciences (ICHSS) Conference*, 20-22 September 2013, Sapienza University of Rome and MCSER, Italy.

5.2. Introduction

In this chapter, social exchange theory (Axelrod, 1984; Deutsch, 1958) is again used as the theoretical unpinning for the empirical work, as in Chapter 4, but a different perspective is taken. In this part of the study, actors in the private sector will be willing to invest in cooperation with organizations in the public sector, or with actors in the political domain, if they expect this relationship to be beneficial on the short, medium or longer term. Similarly, citizens will be willing to comply with rules and regulations and to adjust their behavior provided they have confidence that the private or public sector organizations are able to produce a beneficial event or to provide beneficial services. One way to gain confidence is by having more trusting relationships. Moreover, the history-dependent process plays an important role in the trust and cooperation relationships (Ferrin *et al.*, 2008).

Implementation of public programs is not possible without trust among stakeholders (Tyler, 2003; Gilson 2003; Tsang *et al.*, 2009). Scholars refer to a strong link between trust and cooperation (Ferrin *et al.*, 2007; Lundin, 2007; Woolthuis, 1999; Putnam, 1993; Edelenbos and Erik-Hans, 2007). Therefore, it is not surprising that trust between stakeholders is perceived to be a necessary condition to overcome disagreements in how to undertake environmental management (Tennberg, 2007). Trust explains, at least to some extent, why participants in various scenarios choose to cooperate or not (Ostrom and Walker, 2003) and cooperation is said to be very important in a resource management process (Ostrom, 2007).

Armed conflicts represent a particular threat to the environment, not only because of direct impacts, but also because of the break-down of trust between different stakeholders and the sectors involved in managing the country. Lebanon provides a relevant case study area to investigate the role of trust on environmental management in times of conflict. The research indicates a dearth of literature on the sensitive issue of trust relationships (Ker Rault, 2009; Allen, 2011). Since 1975 Lebanon has been, and still is, repeatedly affected by armed conflict; e.g. the Lebanese' Civil War; the Israeli War; the Nahr-el Bared Clashes; and, the ongoing clashes in Tripoli. All these have caused social fragmentation (Bazzi, 2007) and led to weak institutions and increased corruption. A lack of trust is recognized well at the local level, but this factor is mentioned rarely in academic studies; although lack of trust is mentioned as a characteristic of interactions between various actors in Lebanese society (Ker Rault, 2009, p.4; Allen, 2011). According to Haddad (2002), the violence due to arm conflicts and corruption in Lebanon resulted in a low level of trust in government and politicians.

Environmental protection in Lebanon is considered very weak (IMAC, 2009, p. 50)⁹ and the country has been, and still is, threatened by environmental degradation associated with armed conflict (Maler, 1990 in Takshe *el al.*, 2010); human activities; and political and institutional

⁹ The Integrated Management of East Mediterranean Coastline (IMAC) has, as its overall objective, is to stimulate sustainable development of coastal zones in Lebanon to achieve with positive effects for standard of living and the health of the ecosystem health. The importance of this project is that there is rarely, if not no other, similar projects implemented to deal with about this topic in this area specifically and Lebanon generally, <http://www.balamand.edu.lb/english/IMAC>.

weakness (IMAC, 2007a). The repeated disruption of public governance by conflict in Lebanon has prevented appropriate decisions and development of environmental protection laws, which has exacerbated the damage (Bazzi, 2009; Zakka and Ghattas, 2011; Leenders, 2012). At the same time, the enforcement of existing of environmental protection regulations and implementation of programs has lagged behind (IMAC, 2009; MOE/UNDP/ECODIT, 2011).

There is no one leading agency with overall responsibility for managing the environment and its resources (Abi Saab, 2012) whilst legislative and organizational structures frequently overlap with the jurisdictions of the various stakeholders when even these are not well defined (Abi Saab, 2012; IMAC, 2007a; Zakka and Ghattas, 2011). Also, the national authorities are described as being highly sectoral (IMAC, 2007b). Cross-sectoral master planning is absent in Lebanon, neither is there any continuity in program development, implementation or even management specifically because each ministry has its own agenda (LCPS, 1996). Although most public institutions involved directly or indirectly with the environmental protection have developed plans, strategies or programs, most have operated in isolation with complementarities between agencies almost non-existent (Habib, 2012). This affects environmental programs negatively as many are long-term programs. The result is that most, if not all, the Lebanese areas, lack any discernible implementation of environmental management plans or initiatives (IMAC, 2009). All these threats have severe negative effects on the environment. However, they also affect public health and economic development (Sarraf *et al.*, 2004; World Bank, 2007). If we assume that trusting relationships have a positive impact on cooperation, then their existence would facilitate the implementation of environmental programs and their management process.

5.2.1 Stakeholders in environmental management processes

As illustrated in Section 1.4, three broad categories of stakeholders are involved in environmental management process in Lebanon, whether directly or indirectly: stakeholders in the public sector; stakeholders in the private sector; and, citizens.

The environmental management process is primarily a public sector responsibility. At a national level, the public sector consists mainly of policy makers, ministries, government and its organizations (MOE/UNDP/ECODIT, 2011). Politicians, normally outside the public sector, are key-decision makers within the ministries and, therefore, are included in the public sector category. At the local level, it is the municipality which is charged by law to oversee and implement environmental projects benefiting communities within its area of jurisdiction (IMAC, 2007b). Nevertheless, many public institutions, at both local and national levels, are administratively weak and are not able to implement developmental projects or to provide adequate services to the citizens (Atallah, 2012).

Significantly, the private sector, which is considered a secondary stakeholder, also plays an important role in environmental planning and management in Lebanon (IMAC, 2007a). The private sector includes private companies, academic or research centers, and those experts who are paid for their services. Private companies work as consultants for the public sector, as contractors, or as providers of specific services, such as collecting solid waste or water supply.

The environmental work of the public and private sector are closely related and, to some extent, interwoven. Various forms of ‘cooperation’ between them in environmental management include:

- (a) cooperation in project implementation;
- (b) cooperation through advisory work or consultation
- (c) cooperation through contracting, or
- (d) cooperation through service provision

A number of ‘councils and funds’ play a key role in disbursing funds from public to private sector and a number of joint-stock ventures also have been established (See Appendix 4 for a list of some joint venture projects). These funds, councils and joint-stock ventures have played a crucial role in the rehabilitation and reconstruction of major infrastructure and, thereby, have an impact on the environment.

Last, but not least, citizens can play a crucial role in the environmental management process through complying with laws and regulations; by volunteering in environmental initiatives; or, by resisting new plans. The role of Environmental NGOs is still very limited in the North of Lebanon and, therefore, they have not been included as specific category.

5.2.2 Objective

The focus of our research was to interview stakeholders in the public and private sector who were involved in environmental management.

The main objective of our research was: “To identify the perceptions of trust and the existence of cooperation:

- (a) Amongst stakeholders in the public sector; and,
- (b) Between the stakeholders in the public and private sector

In addition, we identify their perception of citizens’ cooperation with regard to citizens’ compliance with laws and, regulations and their participation (including volunteering) in environmental initiatives. We explicitly relate this to trust.

The research also aims to understand the main reasons behind these findings. There are two assumptions to our research. The first is that lack of trust amongst the stakeholders in public sectors, or between the stakeholders in public and private sectors, is leading to a low level of cooperation which constrains progress of planned projects. Sometime, this can even extend to projects being terminated or delayed (IMAC, 2007a). The second is that lack of trust leads citizens to not comply with environmental laws and regulations and to withhold their participation in environmental activities. Both contribute to other problems in implementing environmental management plans and programs.

The research of outcomes intends to improve our understanding of trust and cooperation relationships in environmental management processes from the viewpoint of the public and private sector stakeholders. This is important in as much as we argue that trust and cooperation is a necessary condition for effective environmental management when this requires multi-stakeholder cooperation.

The next section outlines the theoretical background of trust and its relationship to cooperation. The methodology is described in Section 5.4 while, Section 5.5 discusses the results. The final section draws conclusions and makes recommendations.

5.3. Theoretical background

5.3.1 Definition of trust

The literature offers many definitions for trust and the academic research has been systematically reviewed by Fulmer and Gelfand (2012). Definitions of trust are covered in more detail in Chapter 2, Section 2.1.1.

We adopted an adapted version of the conceptual definition of trust developed by Morton Deutsch (1960b) which, although dated, we found valid and applicable to the stakeholder situation concerning environmental management in Lebanon. This definition was used as an explanation of trust with the people we interviewed. It applies to various actors (mainly citizens, and the public and private sectors), as follows: "To trust another person /organization is to produce a beneficial event or to provide a service an individual/organization must have confidence that the other individual/organization has ability and intention to produce it" (adapted from Deutsch, 1960b, p. 125).

This definition focuses on specific expectations of trustworthiness, but not to the willingness to accept vulnerability. It refers to ability; to benefits (the event or service provided); and, to the intention of the trustee (benevolence to do well). More details about the complexity of trust and the definition used are covered in Chapter 2, Section 2.1.1.

5.3.2 Trust and cooperation relationships

As demonstrated in more details in Chapter 2, Section 2.1.4, trust and cooperation relationships are reciprocated by nature. Scholars have stated that trust at various levels enhances cooperation (Ferrin *et al.*, 2007; Lundin, 2007; Woolthuis, 1999; Edelenbos and Erik-Hans, 2007, among others). One reason for this is that parties then recognize and feel bound by certain values, such as fairness, cooperation, and reciprocity. This will encourage these parties to have more cooperation among them (Koeszegi, 2004; Parkhe, 1993). A party who has earned another's trust will tend to feel bound to that trust and will strive to work to honor it. As a result, they will tend to behave cooperatively, rather than competitively, toward each other (Ferrin *et al.*, 2007). Ferrin *et al.* observed that one way to develop mutual trust perceptions is through cooperative behavior. This is argued to play a significant intervening role by transmitting one party's trust perceptions to another (Ferrin *et al.*, 2008). According to Ferrin *et al.*, there is clear evidence that cooperation "is a critical intervening variable in the development of mutual trust perceptions between individuals and groups" (2008, p. 171).

This research reveals that, in order to improve environmental management in Lebanon, it is vital to improve the trust in relationships between the stakeholders involved to facilitate more cooperation and reciprocity that, in turn, will help develop the perception of mutual trust amongst these multi-stakeholders.

5.3.3. Trust relationships and sustainability of organizations

Barnard (1938) mentioned that cooperation is considered crucial for the endurance of organizations. Kouzes and Posner also state that trust, which is at the heart of collaboration, is a crucial and central issue in relationships within and outside organizations (2002). Organizational trust in organizations can reduce transaction costs; increase the willingness to cooperate; and, ensure ongoing cooperation. Trust enhances partnership performance and encourages innovation. However, at the same time, it can result in ethnically questionable transactions (Fulmer and Gelfand, 2012). Their research shows that trust and cooperation are both important and crucial for the relationship within and outside the public and /or public organizations that are involved in the environmental management process in Lebanon. It identified that trust and cooperation were necessary for effective environmental management in situations which required multi-stakeholder cooperation.

Our research will use and build on these theories to explain our results regarding the importance of these relationships among the stakeholders involved in environmental management in Lebanon. The next section will explain the methodology and method used in this research.

5.4. Methodology

Most of the data used in this research was gathered from 49 interviews conducted with public and private sector stakeholders who are involved in environmental management in Lebanon (Table 5.1). The remaining information was drawn from secondary data sources and the literature reviewed. The research took place between September 2011 and May 2013.

5.4.1 Primary data from interviews

38 of the 49 interviews were conducted face-to-face. 11 were carried out by email. The interviewees were contacted, either by phone or by email, to schedule the interviews. A letter was sent to all, either by fax or email, to explain the research aims, the purpose of the interviews and to provide a draft of the interview questions. Then a follow-up contact was made with each interviewee to schedule the time, date and place of the interview based on the interviewee's preference. From the potential interviewees contacted, only eight declined due to refusal or lack of interest.

Table 5.1. List of the stakeholders who were interviewed representing the public and private stakeholders involved in the environmental management process in Lebanon (North).

Sector	Institute	Type of the interview
Public sector stakeholders		
Representatives for 24 municipalities of the coastal cities and villages of north Lebanon	Arida , Cheikh Zennad , Tal Hayat, Klayaat, Qobbet Chamra, Bebnine - Al Abdeh, Bebnine - Al Abdeh, Mhamra, El Bhannine, El Minnieh, Deir Amar, Beddawi, Tripoli, El Mina, Qalamoun, Ras Maska, Kelhat, Anfeh, Chekka, El Hery, Hamat, Selaata, Koubba, Kfaraabida	All Personal
Representatives of 7 ministries involved in EM in Lebanon	Ministry of Public Works and Transportation, Ministry of Agriculture, Ministry of Industry, Ministry of Environment, Ministry of Interior and Municipalities, Ministry of Energy and water, and Ministry of Health	All Personal
Representatives of 3 public organizations	High Relief Council (HRC), Council for Development and Reconstruction (CDR), and Tripoli Environment and Development Observation (TEDO).	2 personal and 1 by email
Private sector stakeholders		
Representatives of 6 private companies	Lavajet, ECODIT, Management of Resources and Environmental Solutions (MORES), Earth Link and Advanced Resources Development (ELARD), and, Consultation and Research Institute (CRI), and Holcim Industrial Company	1 personal and 5 by email
Representatives of	Water Energy and Environment Research Center at	1 personal and

3 academic and research Centers	Notre Dame University (NDU), the Energy Research Group at American University of Beirut (AUB), and CREEN at Saint Joseph University (USJ).	2 by email
6 experts	Environmental experts	3 personal and 3 by email

The interviews included structured and semi-structured questions (Table 5.2) to study to what extent the interviewees consider there is trust and cooperation between the various stakeholders involved in the environmental management process (For further details see Appendix 5 and 6). A pilot test was conducted before the main interviews. Some of the questions were modified to ensure accuracy and simplicity.

Table 5.2. List of the questions asked in these interviews

Statement	Questions	Scale used in answers
Trust and cooperation relationship among public sector stakeholders		
Statement 1	<ul style="list-style-type: none"> From your experience, how would you evaluate the cooperation among the public sector stakeholders involved in the EM process (local and national) 	<ul style="list-style-type: none"> very strong/ strong/ weak /very weak / don't know
Open question	Why?	
Statement 2	<ul style="list-style-type: none"> Do you agree that cooperation among the public stakeholders involved in the EM process in Lebanon was related to trust in relationships? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know
Trust and cooperation relationships among the public and private sector stakeholders		
Statement 3	<ul style="list-style-type: none"> From your experience, how would you evaluate the cooperation between the stakeholders of the public and the private sectors involved in the EM process? 	<ul style="list-style-type: none"> very strong/ strong/ weak /very weak / don't know
Open question	Why?	
Statement 4	<ul style="list-style-type: none"> Do you agree that cooperation between public and private sector stakeholders involved in EM in Lebanon was related to trust in relationships? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know
Public and private sector stakeholders' perception about the citizen cooperation and its relation to trust		
Statement 5	<ul style="list-style-type: none"> Do you agree that agreed that the level of cooperation of the citizens involved with an EM initiative is related to the extent of trust between the citizen and the entity that is implementing this initiative? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know

Statement 6	<ul style="list-style-type: none"> From your experience, do you agree that the decisions that are made by a person that people trust are accepted and followed more easily than when given by a person that people don't trust? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know
Trust impact on EM		
Statement 7	<ul style="list-style-type: none"> From your experience do you agree that the more we have trust, among the public and/or private sectors involved in the EM process, the more we will have cooperation between them? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know
Statement 8	<ul style="list-style-type: none"> If you have trust and cooperation among the stakeholders involved in decision making, then more and better decisions will be taken regarding EM process in Lebanon 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know
Statement 9	<ul style="list-style-type: none"> Do you think that the history of cooperation affect the trust relationships among the various stakeholders involved in the EM process in Lebanon? 	<ul style="list-style-type: none"> Strongly agree /agree /disagree/strongly disagree/don't know

The structured form of interview helps ensure that all the interviews are assessed accurately. The procedure for the structured questions was as follows. First, all the interviewees were asked the same questions and in the same order and the same interviewer was used in all these interviews to enhance consistency. The answers were recorded in the form of rating scales. These were mainly five-point Likert scale with ratings from 1 (strongly agree) to 5 (strongly disagree). In the analysis phase, some of these five point score were converted into two categories; for example: 0 (disagree) and 1 (agree). These pre-determined answer- rating scales increase the reliability across interviews and the objectivity of judging the interviewees responses (Campion *et al.*, 1988, p. 28). It is crucial to make the scoring system explicit to justify the content validity of assessment procedures (Sackett, 1987).

Semi-structured questions are a better method to explore the perceptions and beliefs of interviewees when it comes to investigating sensitive and complex issues (Barriball and While, 1994) such as trust. Also, it provides the means to iterate a search for more information and to clarify answers when asking open-ended questions, such as “why there is or is not trust between the public and private sector involved in the environmental management process in Lebanon?”

By asking the same questions, with the same wordings and in the same order, to all the interviewees, we can be better assured that any variation in answers are due to the different

opinions among the interviewees and are not due to the differences in the questions asked (Barriball and While, 1994).

This more open-ended research also ensured that all the interviewees shared a common vocabulary and understanding of the key words. This is very important so that the researcher does not misunderstand the interviewees' answers. This leads to analysis that is better and more objective, especially if we want to compare perceptions (Denzin, 1989) on complex issues, such as trust, which can have many meanings.

In most cases, the data was collected from the public sector first and then from the private sector. In the public sector, the main stakeholders interviewed were representatives of the municipalities, ministries, and public organizations involved in the environmental management process. 24 interviews were conducted with presidents (or representatives of presidents) of the municipalities from the target area. Also interviewed were representatives of the seven ministries mostly involved in environmental management in Lebanon: Ministry of Environment; Ministry of Interior and Municipality; Ministry of Energy and Water; Ministry of Agriculture; Ministry of Health; and, Ministry of Public Works and Transportation. Only a few public organizations were interested in being interviewed. These were: the Council for Development and Reconstruction; the High Relief Council; and the Tripoli Environment and Development Observatory.

The main stakeholders interviewed in the private sector were representatives of the private companies; academic and research centers; and, experts in environment. The private companies mainly included the consulting companies and those that provide services. Five interviews were conducted with the following: Lavajet; ECODIT; Management of Resources and Environmental Solutions (MORES); Earth Link and Advanced Resources Development (ELARD); and, Consultation and Research Institute (CRI). We tried to interview five industrial factories, compass the industrial sector is important as they negatively impact on the environment of the area (IMAC, 2007a). However, only one company agreed to be interviewed. Interviews were conducted with only the three research and academic centers who agreed to do interviews: Water Energy and Environment Research Center at Notre Dame University (NDU); the Energy Research Group at American University of Beirut (AUB); and, CREEN at Saint Joseph University (USJ). We also interviewed various experts in a range of different environmental issues. Out of the twelve contacted only six accepted or were interested. The lack of private sector willingness or ability to participate in some respects reflects the issue of the confidentiality of the data they have.

5.4.2 Secondary data

The first step in our research was an analysis of relevant documents. This focused on reports produced by the Ministry of Environment, the World Bank and previous studies, such as those carried out by the Integrated Management of East Mediterranean Coastlines project (IMAC).

This analysis aimed to collect existing information on trust relationships, environmental problems in Lebanon and the role of trust and cooperation related to environmental management in Lebanon. Only few were found regarding trust and cooperation relationships.

5.5. Results and Discussion

5.5.1 Trust and cooperation relationships among public sector stakeholders

The interviewees were asked to give their opinion about the following Statement 1: “From your experience, how would you evaluate the cooperation among the public sector stakeholders involved in the environmental management process (local and national)?”

22 out of 34 public sector stakeholders stated that the cooperation among the public stakeholders involved in the environmental management process is weak (i.e. 15 out of 24 municipalities; five out of seven ministries; and, two out of three public organizations). The private sector’ interviewees also perceived this cooperation to be weak (i.e. six private companies; three academic and research centers; and, six experts).

The literature highlights three important areas: the role of cooperation in developing mutual trust between groups (Ferrin *et al.* 2008, p. 171); in advancing the public organizations (Kouzes and Posner, 2002, p. 224); and in improving the resource management process (Ostom, 2007).

Our research on the stakeholders’ perceptions also reveals weak cooperation among the stakeholders of public sector. This is affecting negatively the trust in relationships; the efficiency of the public organizations; and, the environmental management processes of this area.

The respondents were asked in an open question: “Why do you believe there is only weak cooperation within public stakeholders.” Among the public sector stakeholders, the ministry representatives stated that the main factors to improve and enhance cooperation were:

- lack of trust among the different parties involved
- lack of continuous cooperation only limited to specific projects
- lack of good citizenship
- the absence of monitoring
- weakness of government, and
- lack of budget and human resources.

Some of the ministries representatives clam that many times whenever a new minister comes to power, he stops most of the previous projects and plan new projects by his consultant team. This is causing a serious problem in the continuity of management process and plans. Respondents argue that it can be a combination of many of these factors. It was stated that even if the minister

has a plan or environmental projects that he wants to implement, many times he is faced by problems of financial and human resources or lack of enough cooperation between the involved stakeholders like with other ministries or other public institutions. When the interviewer asked some respondents for further explanation about the “weakness of governance” factor, many had stated that mainly because of the repeated armed conflicts in Lebanon, the government is faced by many economic, social, environmental problems among others. All this is leading to weakening of the government and its institutions.

Only one of the interviewees from the public organizations answered this question and argued that the lack of planning for the future and the influence of personal interest are the main reasons behind the weak cooperation among the public sector stakeholders.

The private sector stakeholders’, specifically the private companies stated the following main reasons:

- war and conflicts
- lack of communication
- poor exchange of knowledge
- little enforcement of applicable regulations
- conflict of interest in terms of responsibilities
- effect of private interests of certain decision makers
- conflicting mandates, and
- political tensions.

Some of the respondents of private companies stated as a further explanation on the “war and conflict” factor, that this factor has and still is affecting greatly the Lebanese Government by weakening its organizations and one of the results of this is lack of cooperation between the governmental actors who are involved in management process. This result goes parallel with the respondents of the ministries representatives shown above. Also according to the private companies representatives, the “political tension” that is found nowadays in Lebanon is escalating this problem.

The academic and research centers viewed the following as the main reasons:

- armed conflict
- competition around power, and
- the lack of implementations of laws by some stakeholders.

The representatives of the academic and research centers have stressed the role of armed conflict and how it is affecting the Lebanese Government in various ways, one of which is leading to lack of cooperation between the public sector stakeholders.

The environmental experts raised other reasons. Some stressed the long history of weak cooperation as the main factor leading to weak cooperation, leading to lack of trust. This point was also confirmed by many scholars who place stress on the importance of history- dependent processes on trust relationships (Ferrin *et al.*, 2007; Pilisuk and Skolnick, 1968) and by the answer of the experts themselves to the following statement (9): “Do you think that the history of cooperation affects trust relationships among the various stakeholders involved in the environmental management process in Lebanon?” all of them agreed. Similarly all the seven ministry stakeholders; two out of three public organizations; all the five private company; and two out of three academic and research center stakeholders agreed on this statement too.

Other reasons mentioned included:

- competing power and status amongst certain ministries vis a vis other stakeholders
- the desire of every stakeholder to be the first in charge of any plan, project, strategy and decision
- the lack of team work and team working spirit
- the overlap of authorities or terms of references between stakeholders
- the influence of personal interest and corruption
- the different political affiliation, and
- the lack of commitment and responsibility within the employees in the public organizations.

According to some experts, the weakening of the Lebanese Government is leading to lack of ability to take proper decisions. As a result, there are many weaknesses in the Lebanese management process such as “overlap of authorities or terms of references between stakeholders, “competing power among certain ministries”, and “lack of team work spirit”, among others.

Both public and private interviewees were asked if they agreed that: “Cooperation among the public stakeholders involved in the environmental management process in Lebanon was related to trust in relationships” (Statement 2). 22 out of 34 of the public sector stakeholders agreed with this proposition (i.e. 15 out of 24 municipalities; five out of seven ministries; and, two out of three public organizations). This finding was confirmed by other scholars (Ferrin *et al.*, 2007; Ferrin *et al.*, 2008, p. 168; Koeszegi, 2004), corroborating that one key factor enabling greater cooperation is by enhancing more trusting relationships.

The private sector interviewees’ regarded this issue somewhat differently. Two out of the six private companies “agreed” and three “disagreed” and one answered “don’t know”. This compares with two out of three academic and research centers and four out of the six experts who answered that they disagreed with this statement. In other words, nine out of the 15 private sector stakeholders disagreed that cooperation among public sector stakeholders is related to trust. Many of the private interviewees, as shown before, related weak cooperation to other

factors, such as war; private interests of the decision makers; political tensions; lack of implementations of laws; overlapping authorities; and corruption.

Although trust features less prominently than expected in how weak cooperation and, thus, poor management is being explained, we argue that some of these other factors mentioned can be directly or indirectly related to trust. For example, in the literature scholars state that there is a strong link between armed conflict and how trust does or does not prevail (Takshe *et al.*, 2010). This can reveal the complexity of trust relationships in Lebanon.

5.5.2. Trust and cooperation relationships between public and private sector stakeholders

The interviewees were asked to give their opinion on the Statement 3: “From your experience, how would you evaluate the cooperation between the stakeholders of the public and the private sectors involved in the environmental management process?”

23 out of 34 public sector stakeholders felt that the cooperation between the public and private sector stakeholders involved in the environmental management process is weak (i.e. 18 out of 24 municipalities; two out of three of the other public institutions; and, three out of seven ministries). Meanwhile, 10 out of 15 private sector stakeholders stated this cooperation to be weak (i.e. three out of six private companies; three out of three academic and research centers; and, four out of six experts). Thus, the perception that cooperation between the public and private sector stakeholders involved in environmental management in Lebanon is weak is confirmed from both the public and private sector interviewees. This research suggests that the environmental management process must be being affected adversely; a finding confirmed in the literature (Ostrom, 2007). Thus, our research supports the proposition (Ferrin *et al.*, 2008) that weak cooperation adversely affects the trust between stakeholders of the public and private sectors and the lack of mutual trust is reflected further by the poor delivery of environmental management programs and plans in Lebanon.

The interviewees were asked in an open question as to: “Why do you believe there is weak cooperation between public and private sector stakeholders.”

The public sector ministry representatives offered the following reasons:

- the weak administration and attitudes in dealing in the public sector
- the fact that the private sector has become stronger nowadays compared to the public sector
- the lack of compliance of laws by some sectors
- the limitation of cooperation on specific projects
- the lack of trust of the private sector in the public sector, and
- the lack of budget and human resources in the public entities.

Only one of the public organization interviewees had an answer to this question, mentioning that the main reason for this weak cooperation was associated with the lack of agreement among the various stakeholders. Some of the public sector interviewees even stated that they don't feel that the cooperation with the private sector stakeholders can be that beneficial, this is why there is weak cooperation. This is supported by the social exchange theory (Axelrod, 1984; Deutsch, 1958), which argues that actors in the private sector will be willing to invest in cooperation with organizations in the public sector, or with actors in the political domain, if they expect this relationship to be beneficial on the short, medium or longer term.

The reasons put forward by the private sector interviewees' were:

- the deficiency and weakness in the municipality organization
- the lack of cooperation and response to the requests and demands of this private company, and
- the lack of trust of the private sector in the public sector.

The academic and research centers responses were:

- the fact that there is no real environmental management process in Lebanon
- the lack of trust of the private sector in the public sector
- the lack of expertise in human resources or financial resources in public sector, and
- the lack of willingness of the public sector to cooperate with the private sector.

The experts offered the following reasons:

- the bureaucratic system
- the lack of motivation among the public sector
- the slow approach to work in the public compared to the fast pattern in the private sector
- the availability of profession and know-how in private sector which is not available in many cases in the public sector.

Some experts explained further the "bureaucratic system" factor by stating that from their own experiences, some projects were delayed and even stopped because of this system in the Lebanese public organization. The private actors have much more practical and informal system that allowed the work to be implemented much faster. The system in the public institutions is weakening the cooperation a lot between the public and private sector stakeholders. This factor can also be linked to the other factors mentioned by the respondents which is the "slow approach to work" in the public compared to the "fast approach to work" in the private sector.

Nevertheless, the experts did recognize some cooperation between the public and private sector stakeholders due to their common interest in funding mechanisms and the need for consultation, advisory services and maintaining networks between the public and private sector.

Stakeholders from all sectors were asked if they agreed that: "Cooperation between public and private sector stakeholders involved in environmental management in Lebanon was related to

trust in relationships” (Statement 4). 16 out of 24 municipalities and five out of seven ministries agreed; while two out of the three public organizations answered that they “don’t know”. In total, 21 out of 34 of the public stakeholders agreed that the cooperation between the public and private stakeholders is related to trust in relationships. Meanwhile, nine out of the 15 private stakeholders agreed with this statement (i.e. three out of six private companies; two out of three academic and research centers; and, four out of six experts).

Our research has shown that most public and private sector interviewees agreed that the cooperation between the public and private stakeholders involved in environmental management in Lebanon is related, in one way or another, to trust in relationships. This supports the findings of other scholars (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik- Hans, 2007; Koeszegi, 2004; Parkhe, 1993). Thus, the views of our public and private interviewees support the claim that enhancing trust in relationships between the public and private stakeholders is essential for creating more cooperation among these multi-stakeholders and, thus, having more successful decisions, developmental plans and environmental projects. This agrees with Kounzer and Posner who also concluded that trust is crucial for relationships within and outside organizations (2002).

Two other statements (Statements 7 and 8) were asked in the interviews to confirm this idea. The first was: “From your experience do you agree that the more we have trust, among the public and/or private sectors involved in the environmental management process, the more we will have cooperation between them?” The second was: “If you have trust and cooperation among the stakeholders involved in decision making, then more and better decisions will be taken regarding environmental management process in Lebanon”. 34 out of 34 public sector and 14 out of 15 private sector interviewees agreed with both statements.

5.5.3. To what extent is citizens’ participation in environmental management initiatives dependent on trust?

The interviewees were asked to give their opinion about this in the following statement: “Do you agree that citizens’ participation in an environmental initiative is dependent on the extent of trust between the citizens and the implementing agency?” In the public sector interviewees’ responses 17 of the 24 municipalities; seven out of seven ministries; and two of the three public institutions agreed with this statement. The private sector interviews found five out of six private companies; two out of three academic and research centers; and, four out of six experts also agreed on this statement.

Thus, the interviews showed that the majority of public stakeholders (26 out of 34) and the private stakeholders (11 out of 15) agreed that the level of cooperation of the citizens involved with an environmental management initiative is related to the extent of trust between the citizens

and the entity that is implementing this initiative (Statement 5). This result again corroborates what many scholars claim about the link between trust and cooperation (Ferrin *et al.*, 2007; Woolthuis, 1999; Edelenbos and Erik- Hans, 2007). Our research reveals that, in Lebanon, it is essential to develop more trusting relationships between the citizens and the public or private sector stakeholders involved in environmental management if more citizens' participation is to be achieved in environmental management activities.

Interviewees were then asked: "From your experience, do you agree that the decisions that are made by a person that people trust are accepted and followed more easily than when given by a person that people don't trust?" (Statement 6). A common answer was found between the public and private sector stakeholders with all 49 interviewees agreeing to this statement. This research concurs with social exchange theory that assumes that, in order to make citizens cooperate and comply with environmental laws or decisions, we need to work on enhancing more confidence and trust between them and the decision makers. Our research also stresses the importance of citizens' cooperation to improve environmental management in Lebanon whether this is in terms of participation in joint activities; compliance with regulations; or in adjusting behavior.

5.6. Conclusions

Because of recurring conflict in the area, Lebanon is considered to be an interesting case study to investigate the role of trust in what happens to environmental management in times of conflict. Previous academic studies have rarely mentioned that lack of trust is an issue, although it is argued to be characteristic of interactions between various actors in Lebanese society (Ker Rault, 2009; Allen, 2011). Nevertheless, information about lack of sufficient environmental protection and weak environmental management process do exist in Lebanon (IMAC, 2007a; Abi Sab, 2012; Sarraf *et al.*, 2004). Our research shows that, in Lebanon, the public and private sector stakeholders perceive that there is weak cooperation among the public sector stakeholders, as well as between the public and private sector stakeholders involved in environmental management.

Many reasons were found that contributed to this weak cooperation. We found that lack of trusting relationships, as seen by the private sector stakeholders, is less prominent than we might have first suspected for explaining the weak cooperation among the public sector stakeholders. Private sector interviewees generally stated other reasons were to blame, such as corruption; overlapping authorities; lack of implementation of laws; poor exchange of knowledge; and armed conflict. Some environmental expert interviewees also considered that the long history of weak cooperation is one of the main factors leading to weak cooperation. This point was also confirmed by many scholars who state the importance of history- dependence on trust and cooperation relationships (Ferrin *et al.*, 2008). It was also confirmed by the majority of other interviewees (from ministries, other public organizations, private companies, and academic and research centers). Nevertheless, we argue that some of these factors can be linked, either directly

or indirectly, to trust. For example, armed conflict has been stated to have a link on how trust does or does not prevail (Takshe *et al.*, 2010). The fact that there are many factors found behind the lack of cooperation among the stakeholders involved and the relations found between trust and the other factors, supports the choice of an inductive methodological approach rather than an experimental deductive approach. The results presented in in this chapter reveal the complexity and nuance in trust relationships in Lebanon.

Our research shows that both public and private sector interviewees agree that the level of cooperation of the citizens involved in the environmental management initiatives is related to the extent these citizens trust the implementing agency or entity. The findings of researchers elsewhere are confirmed that trust and cooperation are a necessary condition for effective environmental management when this requires the involvement of many stakeholders. The results agree with social exchange theory, which assumes that, in order to make citizens cooperate and comply the environmental laws or decisions, we need to work on enhancing more confidence and trust between them and decision makers. This is shown in the findings when all the public and private sector stakeholder interviewees agreed that from their experience, they consider that decisions made by a person whom people trust are accepted and followed more easily than when given by a person whom people don't trust.

The results agree with Mwangi (2000), who argues that tackling environmental problems requires trust and cooperation between different actors. Both the assumptions posited in our research were proven to be correct. The public and private sector representatives who were interviewed clearly reported that lack of trusting relationships, whether within the stakeholders of public sector, between the stakeholders of public and private sectors, or by citizens toward public or private sector stakeholders, adversely affect the environmental management process in Lebanon.

Therefore, some or all the parties need to work to enhance trust and cooperation among the various stakeholders involved in order to improve environmental management. However, we recommend (also mentioned in Section 8.4) these stakeholders bear in mind that some scholars argue that trust is slow to grow and easy to break (Beratan, 2007; Gray *et al.*, 2012). Our research does not claim that trust and cooperation are the only reasons why environmental management in Lebanon is lacking. Nor do we argue that trusting relationships will be the only means available to boost cooperation. However, our research does reveal that, according to the public and private sector interviewees, the ability to develop a trusting relationship is linked to cooperation, and that this relationship can have a significant role to play in improving environmental management in Lebanon. Some instances where they can be significant would be to help planned projects progress and be less constrained; to promote greater citizens' participation in environmental activities; and, in helping to get better citizen compliance with laws or decisions.

Chapter 6: Positive and negative trust and cooperation relationships in environmental management in Lebanon¹⁰

6.1 Abstract

This research investigates how trust relationships and cooperation between citizens and stakeholders in the public and private sector affect environmental management in North-Lebanon. The Lebanese Government faced many difficulties to address the environmental challenges in North-Lebanon. While ‘trust’ and ‘cooperation’ are referred to in literature as two underlying problems, these are not systematically studied in the case of Lebanon. In this research we hypothesize that the more stakeholders trust each other, the more they are willing to cooperate with each other. The willingness to cooperate includes, for citizens, willingness to participate in environmental initiatives or comply with environmental laws. The findings are based on interviews including structured and semi-structured questions with public and private stakeholders, survey with citizens in northern Lebanon, and secondary sources.

In this study, we find that citizens have lack of trust in stakeholders of the public sector at national level (96.1%) and there is low level of citizens’ participation in the environmental initiatives. Furthermore, we find that stakeholders in the public and private sectors state that cooperation between these sectors in addressing environmental problems is weak and is partly attributed to lack of trust. Yet, at the same time, some stakeholders successfully circumvent environmental regulations, using trust and cooperation with public authorities to effectively obstruct environmental regulations. The conclusion that ‘trust’ and ‘cooperation’ are absent or weak in the Lebanese context is therefore not justified. We argue that the willingness to cooperate for the general interest (or public good) is much lower than trust and cooperation for personal benefit.

¹⁰ This chapter is based on:

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2014). Trust and Cooperation relations in Environmental Management of Lebanon. *European Scientific Journal*, 10 (10).

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2014). Trust and Cooperation relations in Environmental Management of Lebanon. Paper presented at the *1st Mediterranean Interdisciplinary Forum on Social Sciences and Humanities, MIFS 2014 23-26 April 2014*, Beirut, Lebanon.

Abbas, N. H., Nader, M. R., van der Molen, I., and Lovett, J. C. (2013). Opportunity structure provided by Trust and Cooperation relations: Case Study of Environmental Management in Lebanon. Paper published in the *Proceeding of the Political Science in the 21st Century Conference*, Turkey, 2013.

Abbas, N. H., Nader, M. R., van der Molen, I., and Lovett, J. C. (2013). Opportunity structure provided by Trust and Cooperation relations: Case Study of Environmental Management in Lebanon. Paper presented at *the Political Science in the 21st Century Conference*, 31 October-2 November, 2013, Turkey.

Abbas, N. H., van der Molen, I., Nader, M. R., and Lovett, J. C. (2013). Opportunity structure provided by trust and cooperation relations: Case Study of Environmental Management in Lebanon. Paper presented at *CERES Summer School*, 24-25 June 2013, Netherlands.

6.2 Introduction

This chapter supports its finding by three theories: the social exchange theory, the corruption trust theory and altruistic theory described by Levi. The social exchange theory argues that actors are willing to invest in cooperation if they expect or have confidence that the others are able to produce a beneficial event or to provide beneficial services. One way to gain confidence is by having more trusting relationships (Axelrod, 1984; Deutsch, 1958). The corruption–trust theory argues that individuals recognize that, to get by in a society with corrupt officials, they will have to take part in corrupt or clientelistic practices (Rothstein, 2013). The altruistic theory described by Levi argues that people are willing to engage in cooperation for common goals even if they do not personally benefit from this significantly (1998). Nevertheless, this can happen only if these three conditions are obtained: the policy is morally justified; most other agents can also be trusted to cooperate; and the policy can be implemented in a fair and just manner (Ibid).

Trust between stakeholders is a necessary condition for overcoming disagreements regarding environmental management (Tennberg, 2007) and, further, there is a strong link between trust and cooperation (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007). Moreover, trust is stated to explain why participants in situations choose to cooperate or not (Ostrom and Walker, 2003).

Ongoing conflicts in Lebanon since 1975 have caused social fragmentation (Bazzi, 2007), weak institutions, and increased corruption (Leenders, 2013). Legal violations and corruption in Lebanon are considered as having led to citizens having a low level of trust in the Government and in politicians (Haddad, 2002). Environmental protection is reported to be weak in Lebanon generally (IMAC, 2009; Sarraf *et al.*, 2004), with environmental degradation the result of political and institutional weaknesses (IMAC, 2007a) and armed conflicts (Maler, 1990 in Takshe *et al.*, 2010). The repeated disruption of public governance as a result of conflict in Lebanon has prevented proper decision-making, the development of environmental legislation and regulations (Bazzi, 2009; Leenders, 2012), the enforcement of existing of environmental regulations, and the formulation and implementation of master plans. Furthermore, the repeated nature of the conflict has hampered continuity in developing, implementing, or even managing environmental programs (IMAC, 2009; MOE/UNDP/ECODIT, 2011) and has discouraged cooperation among public institutions involved with environmental protection (Habib, 2012). As a result, most, if not all, Lebanese districts fail to effectively implement environmental management plans and initiatives (IMAC, 2009). This not only negatively affects the environment, but also public health and economic development (Sarraf *et al.*, 2004; World Bank, 2007).

Environmental management is defined here as the development of strategies or activities with the goal ‘to maintain and improve the state of an environmental resource affected by human

activities' (Pahl-Wostl, 2007, p. 561). Three broad categories of stakeholders are involved in the environmental management process in Lebanon, either directly or indirectly: stakeholders in the public sector, stakeholders in the private sector, and citizens. The environmental management process is primarily in public sector hands both at the national (policymakers, ministries, the Government, and its institutes) and the local level (primarily the municipalities). However, many public institutions at both local and national levels are administratively weak and are unable to implement developmental projects or provide adequate services to their citizens (Atallah, 2012). In addition, the private sector, which is considered a secondary stakeholder, also plays an important role in environmental planning and management in Lebanon (IMAC, 2007a). Here, the private sector is broadly defined as including private companies, academic and research centers, and experts who are being paid for their services. Private companies work as consultants for the public sector, as contractors, or as providers of specific services, such as collecting solid waste or supplying water. The public and private sectors are closely related and, to some extent, interwoven. These two sectors cooperate in various forms: in project implementation, through advisory work or consultation, through contracting, and through service provision. Last, but not least, citizens play a crucial role in the environmental management process by complying with laws and regulations, by volunteering in environmental initiatives, or by resisting new plans.

The main objective of this research is to study the trust and cooperation relationships between citizens and stakeholders from both the public and private sectors who are involved in environmental management in Lebanon. There are two assumptions in this research. The first is that a general lack of trust by citizens in the public or private sectors leads to a lack of citizen participation in environmental initiatives and/or in them failing to comply with the environmental laws. By the term 'initiatives' we mean simple activities such as volunteering to collect garbage from the streets or the seashore. The second assumption is that a lack of trust between the stakeholders in the public and private sectors results in a low level of cooperation in environmental management initiatives. This hampers progress in planned projects, and sometimes results in the termination of projects (IMAC, 2007a). The research also aims to identify the reasons behind the apparent lack of trust and cooperation. Yet, at the same time, this research acknowledges that some stakeholders successfully circumvent environmental regulations, using trust and cooperation with public authorities to effectively obstruct environmental regulations. We argue that the willingness to cooperate for the general interest (or public good) is much lower than trust and cooperation for personal benefit.

A survey was completed by 499 citizens from the north of Lebanon and 49 key informant interviews were conducted with stakeholders from the public and private sectors involved in the environmental management process in Lebanon. The chapter is organized as follows. The next section outlines general theories of trust and its relation to cooperation. The methodology adopted is explained in the subsequent section. This is followed by the presentation and discussion of the results that were identified from the data collected from the citizens and from the public and

private sector stakeholders. The final section of this chapter draws conclusions and recommendations.

6.3. Theoretical background

For sake of clarity, this section is derived from Chapter 2, Section 2.1. The main reason for this unavoidable repetition is to make it possible for this chapter to be read independently.

6.3.1 Definition of trust

As mentioned in more details in Chapter 2, section 2.1.1, trust is a complex concept and it has been defined in different ways by various scholars (Luhmann, 1979; Rousseau *et al.*, 1998; Currall and Judge, 1995; Kiyonari *et al.*, 2006). This study has adopted, as a conceptual definition of trust, one that can be applied to the various actors, i.e. mainly the citizens and the stakeholders in the public and private sectors: ‘Trusting another person/organization to produce a beneficial event X [add:], or to provide a service, amounts to an individual/organization having confidence that the other individual/organization has both the ability and intention to produce it’ (adapted from Deutsch, 1960b, p. 125). Although this definition may seem somewhat old, we found it valid and applicable to the stakeholders involved in the environmental management process in Lebanon.

6.3.2. Trust and cooperation relationships

The section here is derived from Chapter 2, Section 2.1.4. Trust, on various levels, enhances cooperation (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007; Abbas *et al.*, 2013; Cvetkovich and Winter, 2003). One of the reasons for this is that parties then recognize and feel bound by certain values such as fairness, cooperation, and reciprocity; and these will encourage the parties toward greater cooperation (Koeszegi, 2004). A party that has earned another’s trust will feel bound to that trust and will work to honor it and, as a result, will behave cooperatively rather than competitively toward the other (Ferrin *et al.*, 2007).

This research argues that, in order to improve environmental management in Lebanon, it is vital to work on developing stronger trust relationships between the stakeholders involved since this will lead to more cooperation and reciprocity. Moreover, as observed by Ferrin *et al.*, the development of perceptions of mutual trust can be based on cooperative behavior. Such behavior is said to play a significant intervening role by transmitting one party’s trust perceptions to another (Ferrin *et al.*, 2008). According to Ferrin *et al.*, there is clear evidence that cooperation ‘is a critical intervening variable in the development of mutual trust perceptions between individuals and groups’ (2008, p.171).

6.3.3. The ‘wasta’ concept and its relationship to trust

As discussed in more details in Chapter 2, Section 2.1.8, in Lebanon, as in many other Middle Eastern societies, ‘cooperation’ has two faces: one that increases the likelihood of successful implementation of policies and programs; and one that seems to achieve the opposite. Cooperation between stakeholders in the public and private sectors, and between citizens and stakeholders in the public or private sector, takes place through a practice referred to as ‘*wasta*’: an ‘implicit social contract that obliges those within the group to provide assistance (favorable treatment) to others within the group’ (Barnett *et al.*, 2013, p.2). Smith *et al.* describe it as ‘the process whereby one can achieve goals through links with key persons in positions of high status’ (2012, with reference to Cunningham and Sarayrah, 1993). In a similar way to trust, *wasta* lowers transaction costs and increases the likelihood of successful cooperation – including when this is counterproductive for environmental protection, as has been seen in the quarry industry, waste management, and reconstruction (Leenders, 2012).

According to the corruption –trust theory, individuals recognize that to get by in a society with corrupt officials, they will have to take part in corruption or clientelistic practices (Rothstein, 2013). Self-interest plays an important role in how people decide how to act. Human behavior is determined based on the perception that agents do depend on what they think the other agents are going to do (Rothstein, 2013). According to Levi, people are willing to engage in cooperation for common goals, even if they do not personally benefit from this significantly (1998). Nevertheless, there are three conditions for this to happen: (a) people must be persuaded that the policy is morally justified; (b) people have to be convinced that most other agents can also be trusted to cooperate; (c) people have to be persuaded that the policy can be implemented in a fair and just manner (Ibid). In other words, according to the altruistic theory described by Levi, people are willing to engage in trust and cooperation relationships for the general interest only if these three conditions are met.

This research distinguishes between the opportunity structures that are reflected in the trust and cooperation relationships that positively affect environmental management, and ‘*wasta*’ based on trust and cooperation relations with public authorities that is successfully used to circumvent environmental regulations. Our use of, ‘opportunity structure’ refers to the framework of rules that people are encouraged to follow in order to achieve what their culture considers to be success. According to Alsop and Heinsohn (2005) and to Ibrahim and Alkire (2007), it refers to the institutional environment consisting of the formal and informal contexts in which the actors often simultaneously function. The next section will explain the methodology and methods used in this research.

6.4. Methodology

There is some unavoidable repetition in this section taken from Chapter 3; this is to make it possible for this chapter to be read independently.

The data gathered includes: 1) primary data from a survey completed by citizens and from interviews conducted with public and private sector stakeholders involved in the environmental management process in Lebanon; and 2) secondary data from documents concerning environmental problems in Lebanon.

In this study in North Lebanon, we invited stakeholders to comment on their trust and cooperation relationships; and their willingness to volunteer for environmental initiatives or to comply with environmental regulations. The reason for this approach is that testing trust relationships in an experimental setting, as explained in the literature (references from psychology), combined with measures of cooperation (the type, duration, intensity, and purpose of the cooperation), in a hybrid and complex policy environment is unlikely to generate clear results.

6.4.1. Survey

The section is derived and found in more details in Chapter 4, Section 4.4.2. The survey was aimed at citizens along the northern coastline of Lebanon, an area which constitutes around 40% of the Lebanese coast (Mitri *et al.*, 2012) (refer to Map 3.1), in the form of a questionnaire administered during August to December 2011. The aim of this survey was to understand the perceptions of citizens regarding trust relationships between them and the public and private stakeholders involved in environmental management in Lebanon.

Questionnaires were distributed proportionally to the population in each of the five main areas based on the sample size formula $n = \frac{N}{1+N(e)^2}$ (Israel, 1992), where n is the sample size, N is the population size, and e is the level of precision: 10% in this case for each region. A total of 499 questionnaires were completed in person by the researcher. Most of the survey questions were to be answered in the form of a five-point Likert scale from 1 (strongly agree) to 5 (strongly disagree). Some of the survey statements were negative and these were balanced by positive statements; aiming to have a relatively unbiased rating scale. In the analysis phase, some of these five-point scales were converted into binary categories (a nominal scale): 0 (disagree) and 1 (agree), or 0 (no) and 1 (yes). A few remaining questions in the survey were open to allow longer answers and greater understanding; those questions were related mainly to why and how questions.

The selection of participants for the survey was based on systematic random sampling from each of the sub areas. A pilot test was conducted before the main survey, after which the questionnaire was amended for accuracy and simplicity in its final form. After collecting in the surveys, the data were entered as ACCESS database and later transferred to the SPSS package. The qualitative data were analyzed using NVivo software.

6.4.2. The Interviews:

The section is derived and found in more details in Chapter 5, Section 5.4.1. 38 of the 49 interviews were face-to-face, with 11 carried out by email. The interviews that were carried out included both structured and semi-structured questions. In the structured questions, all the interviewees were asked the same questions in the same order. The answers were in the form of rating scales, mainly five-point Likert rankings from 1 (strongly agree) to 5 (strongly disagree). In the analysis phase, some of these five-point scores were converted into two categories, for example: 0 (disagree) and 1 (agree). Structured questions were used to ensure that all the interviews were assessed consistently and, to further enhance consistency, the same interviewer was used in all interviews. All the questions were designed to reveal to what extent the interviewees considered there was trust and cooperation between the various stakeholders involved in the environmental management process.

This research also ensured that all the interviewees shared a common vocabulary and meanings for the key words. This is important for the analysis phase, especially when comparing perceptions on a complex issue such as trust, which can have many meanings. A pilot test was conducted before the main interviews and some of the questions were modified to ensure accuracy and simplicity. From the potential interviewees contacted, only eight declined. In general, data were first collected from the public sector, and then from the private sector, starting in September 2011 and finishing in May 2013.

In the public sector, most of the stakeholders interviewed were heads, or their representatives, of the 24 municipalities in the area covered; of the 7 ministries related directly or indirectly with environmental management in Lebanon; and of 3 public institutes. In the private sector, the stakeholders interviewed were heads, or their representatives, of six private companies and of three academic and research centers, plus six experts on a range of environmental issues (twelve were contacted but only six agreed to be interviewed). The private companies included were mainly consultancies and ones that provide services. Interviews were sought with representatives from five industrial factories since the industrial sector is identified as having a negative impact on the environment of the area (IMAC, 2007a), but only one agreed to be interviewed. Private sector actors were generally unwilling to participate in the interviews as most regarded their data as confidential (Refer to Table 5.1 for list of the stakeholders interviewed).

6.4.3. Secondary data

Document analysis was carried out in the first step. Ministry of Environment reports, World Bank reports, as well as previous studies such as Integrated Management of East Mediterranean Coastlines project (IMAC) were searched. This step aimed to collect existing information on trust relationships, environmental problems in Lebanon, and the role of trust and cooperation related to environmental management in Lebanon.

6.5. Results and Discussion

6.5.1. Citizen perceptions of trust relationships with public sector stakeholders

The survey indicated that 96.1% of the citizen respondents agreed that there was a lack of trust between citizens and those public authorities involved in environmental management at the national level in Lebanon. Similarly, 95.2% of the citizens stated that they are not satisfied with the governmental environmental management process (e.g. laws, decision-making). This finding is in line with Hetherington (1998) who states that satisfaction with the government can be linked to people's expectations, and to what extent people perceive the government to be operating effectively: in other words, to political trust. When asked, 63.3% the citizens indicated they had never participated in an environmental initiative". Also when asked, in an open question, the reasons for their lack of participation, a lack of trust in decision-makers and in the stakeholders who plan or are involved in these initiatives was frequently mentioned (Abbas *et al.*, 2014).

This finding is in line with social exchange theory. Citizens' lack of trust, and thus lack of confidence in public sector stakeholders, results in their non-participation in environmental initiatives. Consequently, this lack of trust negatively affects the environmental management process in Lebanon. In order to improve EM, one needs to understand the underlying causes that result in citizens' lack of trust in public sector stakeholders so that one can improve the citizens' cooperation with environmental initiatives and conformity with the laws. This relationship between trust and cooperation is also considered by many scholars (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007, Abbas *et al.*, 2014; Abbas *et al.*, 2013). The more citizens trust the institutions involved in environmental policy procedures and management, the more they will be willing to cooperate and accept changes following the implementation of environmental policies (Cvetkovich and Winter, 2003).

The citizens' responses to statements in the survey also support this view, especially in their responses to the following two statements: 'The more you trust decision-makers and stakeholders involved in the environmental management process, the more you (as a citizen) are willing to comply with relevant laws and regulations' and 'For you as a citizen, the more you trust a stakeholder involved in an environmental management initiative, the more you are likely to cooperate in this initiative'. Results indicate that citizens strongly agree that the more they have trust in the stakeholders and decision-makers, the more likely they are to cooperate in the initiatives (99.2%) and to comply with the laws and regulations (97.4%).

6.5.2. Stakeholder perceptions of trust and cooperation in the relationships between stakeholders in the public and in the private sectors

In the interviews, both the public and private sector interviewees were asked: 'From your experience, how would you evaluate cooperation between the stakeholders in the public and private sectors involved in the environmental management process?' In responding, 23 out of 34

public sector stakeholders and 10 of the 15 from the private sector perceived that there was only weak cooperation between the public and private stakeholders involved in the environmental management process in Lebanon. The findings also reveal that this weak cooperation between the main sectors involved in the environmental management process is negatively influencing trust relationships; supporting the view advanced by Ostrom and Ferrin *et al.* (2007).

When the interviewees were asked, in an open question, why they stated there was only weak cooperation, the following reasons were offered. Among the public sector stakeholders, ministry representatives stated that the main factors that needed to be overcome to improve and enhance this cooperation were: the weak administration, a default in the state, lack of continuity in the cooperation process, lack of trust from private sector stakeholders in public sector stakeholders, and a lack of financial and human resources in the ministry. Only one of the interviewees from the public institutes answered this question and stated that the lack of agreement among the various stakeholders made the cooperation weak.

According to the private sector stakeholders, the main reasons for this weak cooperation between public and private stakeholders were: deficiencies and weaknesses in municipality organizations; lack of cooperation by the municipality with requests and demands by private companies; and private sector stakeholders' lack of trust in public sector stakeholders. Interviewees from academic and research centers offered the following reasons: no real environmental management process in Lebanon; a lack of trust by private sector stakeholders in public sector stakeholders; lack of expertise and of human/financial resources among public sector stakeholders making work harder; and the unwillingness of public sector stakeholders to cooperate with private sector stakeholders even though the latter want this. For many experts, one of the main reasons for the weak cooperation is the poor trust relationships. Other reasons mentioned by some experts are: private agendas; the bureaucratic system; and a lack of motivation among public sector stakeholders. Nevertheless, they recognized some cooperation through funding mechanisms and consultation, advisory services, and networks (public/private sector).

Both public and private interviewees were asked if they agreed that cooperation between public and private sector stakeholders involved in the environmental management process in Lebanon was related to trust relationships. The majority, 21 of the 34 public sector stakeholders and 9 of the 15 private sector stakeholders, agreed that cooperation was related to trust, a finding similar to other studies (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007). The argument is that, when parties trust each other, they feel bound by certain values such as cooperation and reciprocity, and thus will be encouraged to increase cooperation with each other (Koeszegi, 2004; Ferrin *et al.*, 2007). The results presented here, based on the public and private stakeholders' perspectives, demonstrate that improving trust relationships between public and private stakeholders involved in the environmental management process is essential for

increasing cooperation among these stakeholders. This would enhance environmental management by improving decisions, developmental plans, and environmental projects.

Two other responses from the public and private stakeholder interviews support this idea. The first is the responses to the statement: ‘From your experience do you agree that the more we have trust among the stakeholders in the public and/or private sectors involved in the environmental management process, the more we will have cooperation between them? The second statement was: ‘If you have trust and cooperation among the stakeholders involved in decision-making, then more and better decisions will be taken regarding the environmental management process in Lebanon’. In responding, all 34 public and 14 of the 15 private interviewees agreed with both statements.

6.5.3. Current trust and cooperation relationships that hinder environmental management

Trust and cooperation relationships with certain public authorities can be used by some stakeholders to obstruct measures and institutions that could reduce environmental problems.

Some of the ministry representatives stated that it is known that some Lebanese police officers ‘benefit’ from the failure to implement certain environmental laws. Some private sector actors use their ‘wasta’, or even bribe police officers, to obtain complicity in their lack of compliance with the law. This illustrates how trust and cooperation can be used to obstruct measures that could reduce environmental problems. Similar observations have been made in other studies that note the “wasta” concept and how it is deeply embedded in the fabric of many Middle Eastern societies, including Lebanon (Barnett *et al.*, 2013).

Negative manifestations of trust and cooperation relationships in the environmental management process also include examples in solid waste management. For example, it has been estimated that Beirut municipality could collect its own waste at about half the cost currently charged by private companies (Antoun *et al.*, 1998; Wakim, 1998). Some private companies that deal with solid waste management in Lebanon use their trust and cooperation relationships with certain Lebanese political leaders or public institutes to make agreements with government, or to renew initial agreements (Leenders, 2012). According to Michael al Murr, a former interior minister, 70% of a certain company’s costs were in the form of commissions to top government leaders (Daily Star 21 July 2003, in Leenders, 2012). Sometimes these private companies also give the political leaders a controlling stake in the company (Leenders, 2012). In other words, private companies dealing with solid waste management trust the political leaders, because of their personal interests and financial benefits, to cooperate with them and assist them in making agreements and contracts with the Government. This was admitted by a manger of a private company who stated that politics goes very well with the garbage business since you have to build trust and close relationships with politicians and they expect a service from you in return (Daily Star 13 April 1999 in Leenders, 2012). Another example is illustrated by Allès (2012) who argues that many of the local political elites showed remarkable resistance to the public –

private partnership project in water sector in Tripoli. These elites are said to intervene in managing the water sector and they use the public administration as a way to strengthen their patronage network. The political elites were trying to control the water authority as a mean to cover up their clients' fraudulent who come to them for protection. The weak performance of the local authority permits the elites to act as central intermediaries between water users and public utility. A high number of people in Tripoli were found to resort to intermediaries to contact water authorities. According to representative of the Ondeo- Liban, the company which took charge of the project, even when it was recruiting employees, it faced very high political pressures (Ibid). Not only the clients but also some elites used their relationships or the "wasta" to try to get or hire someone in a job, in the context of cronyism in public administrations.

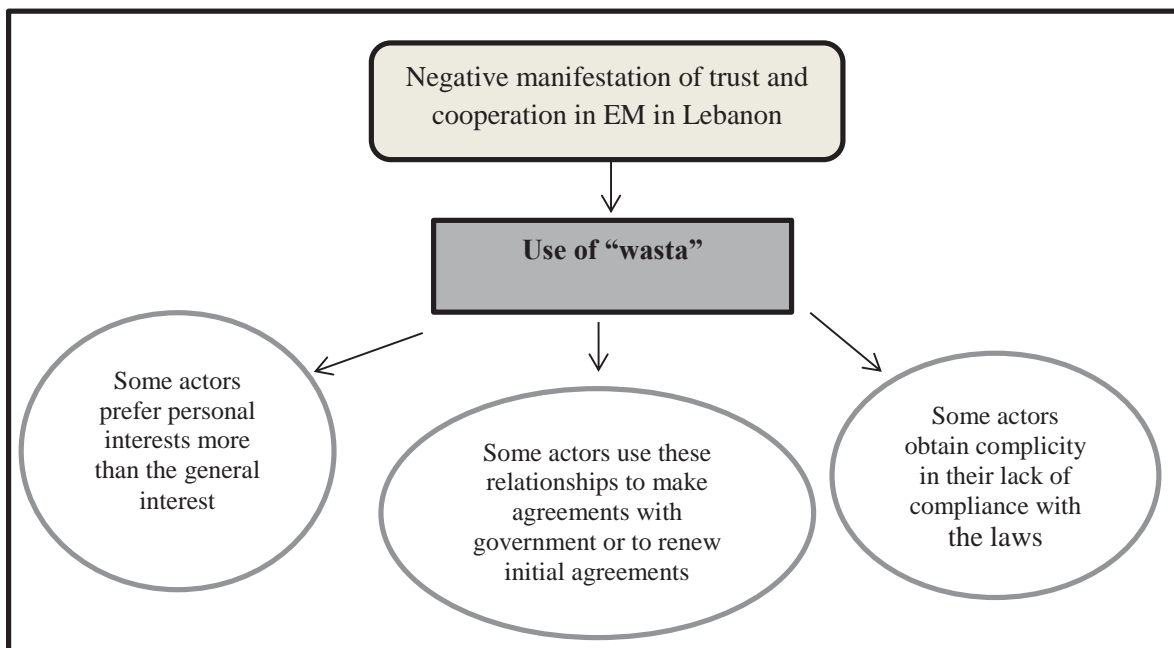
When citizens were asked their opinions on this issue, many agreed saying that, from their experience, they had noticed that, nowadays, some citizens and private sector stakeholders use the "wasta" with their leaders to circumvent laws, including environmental ones. According to some citizens, even public sector stakeholders use "wasta" with public authorities in higher positions to bypass laws and regulations. According to corruption – trust theory, citizens who have lack of trust in public authorities and consider that they are living in a corrupt society, feel that in order to survive they also have to take part in this corruption. This could be an explanation of why some people use trust and cooperation with public authorities to effectively obstruct environmental regulations. This also agrees with Levi (1998), and argues that citizens and some of the private sector stakeholders perceive that there is lack of trust in the public sectors stakeholder of involved in environmental management. That there is not enough fair and just implementation for environmental policies can explain why some stakeholders use trust and cooperation relations for their personal interest instead of the general interest. This result is also supported by some scholars who claim that individuals with low in trust are considered to be less likely to contribute to public goods than those with high in trust relationships and vice versa (Parks, 1994 in Parks *et al.*, 2013).

According to Rothstein, citizens who consider there is corruption or common unfairness in public administration of their country are likely to be less supportive of the idea that there should be a collective responsibility for policies for increased social justice or public goods. Not because they are against increased public goods, but because they believe that their commitment will not be reciprocated (2013). The perception that there is corruption in public administration, and lack of trust in the public sector stakeholders and public authorities, explains why the willingness of some stakeholders in environmental management to cooperate for the general interest (or public good) is much lower than trust and cooperation for personal benefit.

It is claimed that tangible rewards, such as financial rewards, in return for establishment of a public good encourages self-interested behavior and destroys the public good (Deci, 1971, 1972 in McLure Wasko and Faraj, 2000). The results of our study show that some private companies dealing for example with solid waste management trust the leaders or decision makers, because

of personal interest and financial benefit, to cooperate with them and assist them in obtaining certain agreements and contracts with the Government. Thus, because of tangible rewards such as financial ones, some stakeholders use their trust and cooperation for personal benefit overlooking the general interest (Figure 6.1).

Figure 6.1. Shows the effect of “wasta” on environmental management in Lebanon



It is important to emphasize that we have no actual evidence of this wasta process: we are only reporting perceptions and are supporting it with reports in the literature. Obtaining hard data on this type of activity is extremely difficult. This finding illustrates that, when discussing trust and its relationship to environmental management in Lebanon, it is important to distinguish between ‘positive’ and ‘negative’ trust and cooperation relationships (Refer to Figure 2.4). It is also necessary to differentiate between trust and cooperation relationships for personal interests and trust and cooperation relations for the common good.

6.6. Conclusions

To summarize, the results demonstrate that citizens have a lack of trust in national-level public sector stakeholders. Further, there is a low level of citizens’ participation in environmental initiatives in Lebanon. These findings are in line with social exchange theory; lack of trust in

public or private stakeholders is one of the reasons for citizens failing to participate in environmental initiatives or to comply with environmental laws (discussed in more detail in Chapter 4). Most of the public and private sector interviewees stated that there was only weak cooperation between public and private sector stakeholders involved in the environmental management process in Lebanon. This weak cooperation is perceived by both public and private participants to be related to the poor trust relationships. Other reasons also mentioned by the public and private sector interviewees that could explain this weak cooperation included a weak public sector administration, the lack of financial and human resources in public institutions, and a lack of motivation among public sector stakeholders (discussed in more detail in Chapter 5).

Although trust and cooperation were found to be weak, there was also evidence that such relationships are used to hinder environmental management; specifically where some stakeholders use 'wasta' to effectively obstruct measures that could reduce environmental problems. This finding is supported by other studies (e.g. Leenders, 2012; Wakim, 1998). We argue that the willingness to cooperate for the general interest (or public good) in Lebanon is much lower than trust and cooperation for personal benefit. This result can be explained by the corruption–trust theory (Rothstein, 2013) and altruistic theory described by Levi (1998).

The regular conflicts make Lebanon a particularly interesting case study when investigating the role of trust in environmental management. Academic studies have rarely mentioned this lack of trust although it is argued to be a characteristic of interactions between various actors in Lebanese society (Ker Rault, 2009; Allen, 2011). However, information about the lack of environmental protection and weak environmental management processes in Lebanon does exist (IMAC, 2007a; Abi Saab, 2012; Sarraf *et al.*, 2004).

This study demonstrated the link between trust and cooperation relationships. These relationships between the various stakeholders involved in the environmental management process in Lebanon are factors that could enhance environmental management processes. Nevertheless, it also can be a means to obstruct environmental management. This research demonstrates that lacks of trust relationships are not the only or predominant factor which effect environmental management, but it is one of the factors and it can be linked both directly and indirectly to the other factors mentions such as the weak public sector administration and lack of motivation among the public sector stakeholders. This research revealed the complexity and nuance of trust relationships. At the same time it showed that trust is important to take it into consideration whenever planning environmental initiatives in Lebanon.

Chapter 7: Analyzing linkages between trust and solid waste management using the fuzzy cognitive mapping approach: Case study of Al-Fayhaa Union, Lebanon¹¹

7.1 Abstract

Previous studies have already highlighted the importance and positive impact of trust on the management process. Solid waste management is one of the most common problems in Lebanon that not only negatively affects the environment but also human health. Solid waste management is considered weak in Lebanon and many factors are reported as constraining the Lebanese Government in overcoming this problem. While ‘trust’ is referred to in the literature in this regard, it has not been systematically studied in Lebanon. This research investigates whether trust is one of the aspects that is affecting, or is affected by, solid waste management in this region.

In Lebanon, three main categories of stakeholders are involved in solid waste management: public sector stakeholders, private sector stakeholders, and grassroots movements. This research studies solid waste management in Lebanon, specifically in the Al-Fayhaa Union area, through the application of Fuzzy Cognitive Mapping. A round-table discussion workshop was organized that involved five stakeholders groups. The findings showed that “lack of trust relationships” is a central variable, ranked second of the 49 variables listed by the public sector and private sector stakeholders and fifth by the grassroots representatives. This research also studies the relationship between trust and other factors that affect solid waste management in Lebanon. A social map, combining the perceptions of all the 29 participants, indicated that trust was rated second among the top 10 variables with a high centrality in the solid waste management system.

7.2. Introduction

The link between trust and successful natural resources management (Idrissou *et al.*, 2013; Baral, 2012) and project management (Pinto *et al.*, 2008; Berkes, 2009) is considered to be fundamental. Hoffman *et al.* (2001), recognize the human dimension of project management one of which is trust, to be the single most important determinant of any project success. It is also argued that trust has an important role in building positive relationships among project stakeholders (Pinto *et al.*, 2008). This notion has developed within the framework of natural

¹¹ This chapter is based on:

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Abbas, N. H. (2014). The Impact of trust relationships on environmental management in North Lebanon. *Research Seminar* presented at the University of Balamand, Faculty of Health Sciences, 7 August 2014, Beirut, Lebanon.

resources planning and public dependence on government agencies to protect natural areas and provide public welfare (Davenport *et al.*, 2007). Trust is considered to be the basis for building and sustaining relationships between environmental management agencies and communities affected by management action and plans (Sharp *et al.*, 2013). It is said that trust cements and reinforces the relationships among the stakeholders involved in a project, thus determining its success (Bresnen and Marshall, 2000; Chan *et al.*, 2003). Trust among stakeholders is perceived by many scholars to be crucial in the implementation of public programs (Tyler, 1998; Gilson, 2003; Tsang *et al.*, 2009). Trust explains, at least to some extent, why participants decide to cooperate or not (Ostrom and Walker, 2003). Based on the social exchange theory, the less citizens have trust in the stakeholders involved in management process, the less they will be willing to comply with rules and regulations, to adjust their behavior, or to volunteer to contribute (Axelrod, 1984). In this study in Lebanon we assume that trust is a key component of effective implementation of solid waste management processes and programs.

Solid waste problems in Lebanon generally, and especially in North Lebanon, continue to degrade the environment (Sarraf *et al.*, 2004; IMAC, 2007a; IMAC, 2009). This problem is not only negatively effecting the natural environment but also human health (Sarraf *et al.*, 2004). Solid waste management is generally considered to be one of the central environmental health services and a fundamental part of basic urban services (Ahmed and Ali, 2004). In Lebanon, especially since the civil war, solid waste collection and disposal services have deteriorated significantly (El-Hoz, 2007; ELARD, 2004). Today, there is no efficient or well-implemented national policy on solid waste management (Massoud and El Fadel, 2002; IMAC, 2007a; European Commission, 2006; El-Hoz, 2007; MOE, UNDP and ECODIT, 2011) and the Lebanese Government is recognized as unable to address these challenges (IMAC, 2007b; IMAC, 2009; Habib, 2012; Abbas *et al.*, 2013; MOE, UNDP and ECODIT, 2011). While ‘trust’ has been referred to in the literature in this respect, it has not been systematically studied in the case of Lebanon. To help fill this gap in knowledge, this research investigates variables that are affecting, or affected by, solid waste management, with a particular focus on the role of trust.

Three broad categories of stakeholders are involved, whether directly or indirectly, in the environmental management process generally in Lebanon, and in solid waste management specifically, and these are represented in this research: stakeholders from the public sector, stakeholders from the private sector, and citizens. The environmental management process is primarily in public sector hands, both at the national (policymakers, ministries, government and its institutes) (MOE/UNDP/ECODIT, 2011) and the local levels (mainly municipalities). In addition, and significantly, the private sector (private companies, academic and research centers, and experts), considered here as secondary stakeholders, also plays an important role in environmental planning and management in Lebanon (IMAC, 2007a); and is closely related and, to some extent, interwoven with the public sector bodies. Last but not least, citizens play a crucial role in the solid waste management process by complying, or not, with laws and regulations, by maybe volunteering in environmental initiatives, or by resisting new plans. In this

research, this sector was represented by grassroots movements, primarily NGOs. The NGOs' main work in Lebanon in this area includes volunteering in primary collection, developing awareness in communities, and being contracted by other agencies to implement projects.

The main objective of this research is to explore, from the perceptions of the various involved stakeholders, what is the particular role of trust on variables that affect, or are affected by, solid waste management in Al-Fayhaa Union, Tripoli, Lebanon. To examine this objective, we applied Fuzzy Cognitive Mapping as a tool for studying solid waste management in North Lebanon. A round-table discussion was organized in May 2013 that included five working groups representing stakeholders involved in solid waste management in the Al-Fayhaa Union area of Lebanon: from the public sector, from the private sector, and from grassroots movements. This study discusses the similarities and differences in perceptions among the different groups of stakeholders. The research is organized as follows. Section 7.3 describes the case study area and then Section 7.4 explains the methodology used in this research. Following this, Section 7.5 presents and discusses the results before Section 7.6 draws conclusions and recommendations.

7.3. The case study area

This section is partially derived from Chapter 3, Section 3.2.2. As part of the coastline of North Lebanon, the Al-Fayhaa Union area was chosen for the case study into solid waste management (Refer to Map 3.1). The Al-Fayhaa Union area includes the municipalities of Tripoli (the second largest city in Lebanon), El-Mina, and El-Beddawi. The Al-Fayhaa Union has the largest population (around 330,000 in 2007) of the unions found in the coastal area of North Lebanon (UNEP, 2009). In Al-Fayhaa Union, as in all other areas of Lebanon, the Lebanese Government is unable to address many of the environmental challenges, including the disposal of solid waste. There are many reasons for this including the weakly defined national planning authorities (IMAC, 2007b); the lack of continuity in developing, implementing, and managing environmental programs (IMAC, 2009; MOE/UNDP/ECODIT, 2011); the lack of cooperation among public institutions involved in environmental protection generally (Habib, 2012; Abbas *et al.*, 2013) and solid waste management specifically; and the failure of citizens to cooperate and comply with environmental laws and regulations (Abbas *et al.*, 2014). In Lebanon, municipal solid waste is still regularly dumped in uncontrolled seafront landfills, on beaches, or inland. In the area considered, Al-Fayhaa Union's largest seafront dumping site is at Tripoli and it receives municipal solid waste from around 400,000 people. This dumpsite, as with many other dumpsites in Lebanon, is a source of local pollution (European Commission, 2006; ELARD, 2004). In Al-Fayhaa Union, a private company, LAVAJET, is responsible for municipal solid waste collection and street cleaning. Another private company, BATCO, is responsible for managing the landfill. The landfill of Tripoli receives around 280 tons daily, not only from the three major cities in Al-Fayhaa Union but also from the municipality of Al Qalamoun (a village in the northern coastal area of Lebanon), from a slaughterhouse, from a Palestinian refugee camp, and from a few

resorts (UNEP, 2009). The landfill reached its maximum capacity in 2010, but is still open and in use until today.

7.4. Method

7.4.1 Fuzzy Cognitive Mapping

7.4.1.1 Introduction to Fuzzy Cognitive Mapping

This case study uses Fuzzy Cognitive Mapping, a participatory approach methodology. It is a qualitative participatory approach capable of determining and comparing the perceptions and understandings of different stakeholders (Meliadou *et al.*, 2012; Mouratiadou and Moran, 2007). In this case study, this approach was used instead of depth data collection mainly due to time restriction and safety conditions. Fuzzy Cognitive Mapping has also been used in developing participatory management plans (Ozesmi and Ozesmi, 2003). The approach portrays how a given system operates (Ozesmi and Ozesmi, 2004). This approach has also been used to elicit stakeholder and public participation regarding a certain issue (Mouratiadou and Moran, 2007). Fuzzy Cognitive Mapping is made up of concepts that represent the main elements of a system and of directional connections which represent casual relationships among the concepts (Meliadou *et al.*, 2012; Park and Kim, 1995). The concepts can be represented by variables in the form of either measurable quantities or abstract qualitative concepts. The relationships between the variables (positive or negative) are identified as well as the direction of the causality (Meliadou *et al.*, 2012). The strength of the relationship is indicated by a weight. A positive weight indicates an excitatory relationship and a negative one an inhibitory relationship (Giles *et al.*, 2007). Fuzzy Cognitive Maps are analyzed based on graph theory, frequently using existing editing software. Fuzzy Cognitive Mapping is used successfully in many disciplines such as business management, engineering, and political science (Stach *et al.*, 2005; Bueno and Salmeron, 2009). Of more relevance here, it is also used today, albeit not widely, in environmental issues such as water management, forest management, and fisheries management (Mouratiadou and Moran, 2007; Ozesmi and Ozesmi, 2004; Giordano *et al.*, 2005; Kok, 2009; Radomski and Goeman, 1996).

Fuzzy Cognitive Mapping offers various advantages over other participatory research methods such as questionnaire surveys, structured or unstructured interviews, and mapping and modeling methods. One of the most important advantages of using Fuzzy Cognitive Mapping is that important concepts and relationships are drawn on the map by the participants themselves. This removes the potential for researcher bias in the analysis phase and reduces the researcher's time investment (Celik *et al.*, 2005). Visualizations of Fuzzy Cognitive Maps can be used in presentations making relationships between variables clearer for both the public and for decision-makers (Ozesmi and Ozesmi, 2004). Further, in order to simplify maps, or to emphasize one variable or component of the studied system, one can extract only those relationships concerning specific nodes of interest.

7.4.1.2 Pilot Study

A pilot study was conducted with six individuals selected from the three stakeholder groups (public sector, private sector, and grassroots). In the pilot test, we prepared a list of 45 predefined variables. The selection of these variables was based on an earlier survey conducted with citizens and previous interviews with public and private sector stakeholders involved in the environmental management process in Lebanon. Further, some secondary data from previous research and studies related to solid waste management in Lebanon were used. This pilot test helped to clarify some ambiguous variables. As a result, some of the variables were modified to improve accuracy and simplicity leading to a final list of predefined variables to be used by the stakeholder groups in forming their Fuzzy Cognitive Maps (Table 7.1). The aim of developing this predefined list was primarily to make the work easier for the participants and to facilitate the later inter-map comparison which would then be using unified terminologies.

Table 7.1: List of predefined variables that have cause-effect relations with the solid waste management in Al-Fayhaa Union.

Armed conflict	Decentralization	Economic situation	Lack of standards and legislation
Lack of trust relations	Lack of cooperation	Accountability for the management process	Overlapping responsibilities between stakeholders involved
Political will	Lack of enforcement of laws	Availability of human resources and experts	Lack of data
Conflict of interest	Lack of environmental education	Lack of funding	Deficiencies in decision-making
Good awareness of citizens	Lack of implementation for decisions	Availability for space for a new landfill	Current operating landfill
Waste collection system	Bad infrastructure	Poor processing and poor treatment of solid waste	Public sector involvement
Private sector involvement	NGO's involvement	Media	Citizens/households
Agricultural sector	Fisheries sector	Industrial sector	Tourism sector
Waste minimization	Municipalities waste management policies	Environmental degradation	Current Waste treatment techniques
Lack of clear national environmental policy	Health sector	Lack of long term vision	Lack of urban planning(zoning)
Lack of ratifying of treaties and conventions	Lack of citizen involvement in decision making process	No solid waste sorting	Lack of national security
Lack of citizens participation in environmental activities	<i>Public health</i>	<i>Corruption</i>	<i>Slum</i>

- *The last three variables in italic are added by the participants during the workshop.*

7.4.1.3 Prompting stakeholders' views

In order to prompt relevant stakeholder views on variables currently related to solid waste management in Al-Fayhaa Union, a round-table discussion workshop was organized (For more details see Appendix 7 and 8). In total, 29 individuals attended this workshop and they were divided into five working groups representing the main stakeholders involved in solid waste management in Al-Fayhaa Union (Table 7.2). There were two groups representing public sector stakeholders (municipalities, municipality union, ministries, public institutes), two groups representing private sector stakeholders (private companies, experts, academic and research centers, waste producing sectors, and chambers and syndicates related to solid waste management), plus one group representing the grassroots (NGOs). Each working group consisted of a maximum of six participants and one moderator to facilitate the exercise (For further details see Appendix 9).

Table 7.2. List of the participants in the Fuzzy Cognitive Mapping workshop

Public sector stakeholders	
	Al Fayhaa Union (2 persons)
	CDR
	Member in the council of Mina's municipality
	Member in the council of Tripoli's municipality
	Ministry of Agriculture
	Ministry of Education
	Ministry of Energy and Water
	Ministry of Finance
	Ministry of Health
	Ministry of Industry
	Ministry of information
	Ministry of Information
	Tripoli Port
Private sector stakeholders	
	Al-Salam Hospital
	Bar association of Lebanon (North)
	BATCO
	Beirut Arab University
	Chamber of commerce, industry & agriculture
	Dar AL- Shifaa Hospital
	Environmental Expert
	Fishery cooperative for north Lebanon
	Lavajet
	Union of North Associations
Grassroots stakeholders	
	Big blue association

	Environment Protection Committee (NGO)
	North Lebanese NGOs for development, environment and culture
	UNRWA
	Zero waste coalition

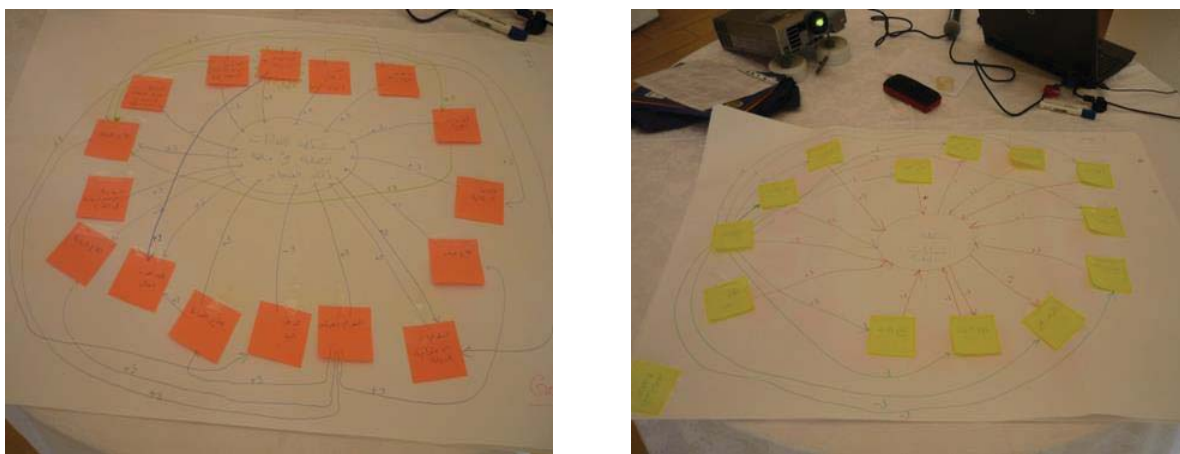
At the start of the round-table workshop, the research objectives were explained to participants and it was emphasized that all the information gathered would only be used for academic purposes. Following this, the Fuzzy Cognitive Mapping approach was described using an unrelated map representing a neutral problem domain. After this, they were informed about the predefined list of variables prepared to help them in drawing maps. It was also emphasized that this list was flexible and that it was not necessary to use all 45 predefined variables and that new variables could be added. Although this activity is part of a larger research project that mainly concerns trust and its relationship with environmental management, this aspect was not emphasized in order to prevent bias: trust was explained in a similar way to all the other variables. Each variable was defined in an attempt to ensure that all participants understood them in a similar way and to avoid misinterpretations and misunderstandings at a later stage of the analysis. For example, the variable “Lack of trust relationships” was explained and agreed to mean the absence of trust relationships and not just weak trust relationships. Further, since there are many definitions of trust in the literature, this study adopted the conceptual definition of Morton Deutsch that is capable of being applied to various actors including all those in our study: ‘to trust another person/organization to produce a beneficial event X [addendum: or to provide a service], an individual/organization must have confidence that the other individual/organization has ability and intention to produce it’ (adapted from Deutsch, 1960b, p. 125). Although this definition may seem somewhat outdated, we considered it still valid and applicable to the various stakeholders involved in the environmental management process in Lebanon. This definition is argued that it can be applied to citizens and actors both in the public and the private sector, and in the political domain. However, this definition was updated a bit mainly in the explanation of “event X” which was explained according to this research to include also “a specific service”.

In the next step, each working group was asked to draw a cognitive map by answering the following question: “What variables affect or are affected by solid waste management in Al-Fayhaa Union, and how do these variables affect each other?” Initially, each working group was asked to list the main variables they perceived as positively or negatively affecting solid waste management. Arrows were used to indicate how these variables interrelate and affect solid waste management. A weight (weak, medium, or strong effect) was assigned to indicate the strength of these cause-effect relationships, and a sign (negative or positive) to indicate the type of the relationship. A relationship is positive, and denoted by a “+” sign, when an increase in one variable results in an increase in the other variable; and negative and denoted by a “-” sign when

an increase of one variable results in a decrease in the other variable. At the end of the session, each working group portrayed its perceptions in a map representing the variables that had cause and effect relationships with each other and with solid waste management. As such, five Fuzzy Cognitive Maps were drawn (See Appendix 10 for some pictures of the Fuzzy Cognitive Mapping workshop).

The session concluded with an evaluation in which each group was asked to present its work and a short discussion was held in which every participant was able to voice their opinion (Figures 7.1).

Figure 7.1. Showing some FCM maps drawn by the participants



7.4.1.4 Fuzzy Cognitive Mapping data analysis:

In order to analyze the maps, and in line with graph theory, they were transformed into adjacency matrices with values between -1 and 1 attributed to the strengths of the relationships mentioned by participants (Ozesmi and Ozesmi, 2003) with 0 equating to “no relationship” (Elpiniki and Areti, 2012). These matrices were then processed in FCMapper Software Solution and Fuzzy Cognitive Mapping Aggregator Vs 0.1 (Bachhofer and Wildenberg, 2010. www.fcmmappers.net). Both are based on MS Excel and freely accessible for non-commercial use.

The software calculates the number of variables, the number of “transmitter variables” (those with a positive out-degree and no in-degree), the number of “receiver variables” (having a positive in-degree and no out-degree), and the number of “ordinary variables” (having both out-degree and in-degree components). The out-degree of a variable is the cumulative strength of connections emanating from the variable: it shows the effect of the variable on other variables. Conversely, the in-degree is the cumulative strength of connections entering the variable: it shows the extent that a variable is affected by other variables (Eden *et al.*, 1992).

Further, if a given variable is considered as a transmitter this means that it is not affected by any other variable. In other words, it cannot be controlled under any circumstances or scenario within the studied system. Conversely, a receiver variable has no influence on any other variable in the map. The larger the number of receivers in a map, the more complex it becomes (Eden, 1992). The map indices give an indication of the complexity of each map and about the interrelationships among its variables.

In social network analysis, centrality is the more analyzed indices in terms of map complexity and is represented by the sum of both out-degree and in-degree relationships of a variable. It reflects the connectivity of this variable to other variables in the map showing the cumulative strength of its connections (Eden *et al.*, 1992). The higher the centrality value, the more important a variable is in the system. It is also important to calculate the density of each map to show how sparsely or well-connected a map's components are.

7.5. Results and discussion

In this study, the five maps are combined by sector so as to obtain one map for the public sector, one for the private sector, and one for grassroots. Finally, these three maps are aggregated into one final “social map” (Wildenberg *et al.*, 2010) representing the perceptions of all stakeholders as to the main variables that affect solid waste management including the cause/effect relationships within this system. To visualize the findings and in order to extract sub-networks, maps are represented using Visone software (<http://visone.info>). The analysis of the three sectors shows that nearly all of the 45 predefined variables identified as potentially affecting solid waste management were recognized by at least some of the participants. Further, the public sector representatives added three other variables: public health, corruption, and slum presence; while rejecting two from the original list. The private sector representatives used the entire predefined list and did not add or reject any. The grassroots group excluded 14 of the 45 variables.

7.5.1. Map indices

The indices for the three sectoral maps are provided in the table below:

Table 7.3: Indices of the three sectoral maps.

	Public	Private	Grassroots
No. of maps	2	2	1
No. of variables*	47	46	32
No. of Transmitters	20	13	13
No. of Receivers	4	2	0
No. of Ordinary	23	31	19

No. of connections	82	94	61
Density	0.034	0.039	0.025

* Solid waste management is included as a concept/variable

Of the 49 variables (the original 45 variables plus the three variables added by the public sector and solid waste management itself), 20 were viewed as transmitters by the public sector and 13 each by the private and the grassroots sectors. In theory, these variables are uncontrollable as none of the other variables affects them. In comparison, there were very few receivers, variables that do not affect the system but are affected by it. The relatively low density of the Grassroots group reflects that their map was the least interconnected and participants did not see as many cause/effects relationships between the variables as the other sectors.

7.5.2. The most central variables

The main objective of this research is to understand the importance of trust in environmental management and more specifically in solid waste management. In order to better understand where stakeholders place “Lack of trust relationships” compared with the other variables in the system, the top ten variables in terms of centrality identified by each sector are compared in Table 7.4.

Table 7. 4: Top ten variables in terms of centrality in each sector.

Rank	Public	Centrality	Private	Centrality	Grassroots	Centrality
1	Decentralization	2.82	Political will	8.16	Waste minimization	5.66
2	Lack of trust relationships	2.66	Lack of trust relationships	4.66	Poor processing and poor treatment of solid waste	5.00
3	Lack of cooperation	2.66	Lack of national environmental policy	3.83	Current operating landfill	5.00
4	No solid waste sorting	2.50	Good awareness of citizens	2.83	Lack of funding	4.32
5	Current operating landfill	2.17	Environmental degradation	2.50	Lack of trust relationships	4.00
6	Availability of space for a new landfill	2.16	Lack of standards and legislation	2.50	Armed conflict	4.00
7	Lack of law enforcement	2.00	Armed conflict	2.33	Waste collection system	4.00
8	Lack of urban planning(zoning)	2.00	Economic situation	2.16	Lack of national security	4.00

9	Private sector involvement	2.00	Lack of funding	2.00	Private sector involvement	3.98
10	Media	1.99	No solid waste sorting	2.00	Citizens/households	3.33

Table 7.4, showing the most central variables, helps clarify which variables are most important and central in the Fuzzy Cognitive Mapping (Zhang *et al.*, 2013). This table shows that the public and private sector stakeholders put trust relationships (or the lack thereof) in second place, and the grassroots group put this in fifth equal place (along with “Armed conflicts”, “Waste collection system”, and “Lack of national security”).

The analysis also shows that cooperation is the third most important variable for the public sector stakeholders. In other words, for the public sector stakeholders, who are the primary stakeholder in solid waste management in Lebanon both trust and cooperation are considered one of the most important variables in solid waste management. This finding is consistent with findings by many scholars (Pinto *et al.*, 2008; Delisle, 2004; Kadefors *et al.*, 2007; Chan *et al.*, 2003). Interestingly, the private sector and grassroots stakeholders attached much less importance to “Lack of cooperation” as a variable with a relationship with solid waste management. It is also important to note that in all three maps “Lack of trust relationships” is an ordinary variable: it affects and is affected by other variables.

7.5.3. The “Lack of trust relationships” variable

In order to analyze in greater detail the role of trust relationships as a variable affecting or being affected by the solid waste management system, we created ‘neighborhood maps’ for this particular variable showing only those concepts that are directly connected with “Lack of trust relationships”. The “neighborhood maps” were used to make the analysis easier and clearer. The full maps that contain the relationships between all the 49 variables are still found in this research, although it is found to be complicated ones (See appendix 11, 12, 13, and 14 for full maps of public sector, private sector, grassroots and the aggregated map respectively).

The map in Figure 7.2 shows, from the public sector stakeholders’ perspective, that when “Lack of trust relationships” increases (i.e. relationships worsen) then “Private sector involvement” decreases and “Solid waste management” worsens. Further, the “Lack of cooperation” variable is in a two-way positive relationship with “Lack of trust relationships” indicating that these are mutually reinforcing. As such, the results clearly demonstrate a link between trust and cooperation. This link has been reported by many scholars (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik- Hans, 2007; Koeszegi, 2004; Ferrin *et al.*, 2008). When parties trust each other, they will feel bound by certain values such as fairness, cooperation, and reciprocity; and thus will be encouraged to boost cooperation (Koeszegi, 2004; Parkhe, 1993; Ferrin *et al.*, 2007).

The results also show a link between trust and cooperation on the one hand and solid waste management on the other, a link also supported by many scholars (Pinto *et al.*, 2008; Delisle, 2004; Kadefors *et al.*, 2007; Chan *et al.*, 2003). This map also shows a link between trust relationships and private sector involvement, which is not surprising given the private sector's role in solid waste management as consultants, contractors, or provider of specific services such as collecting solid waste. In all of these roles, participation or cooperation, and trust, are needed.

Figure 7.2. All neighboring concepts or variables directly connected to the “Lack of trust relationships” concept and their linkages for the Public sector group. Solid arrows represent positive and dotted arrows represent negative effects, the sizes of circles reflect the centrality of the variable.

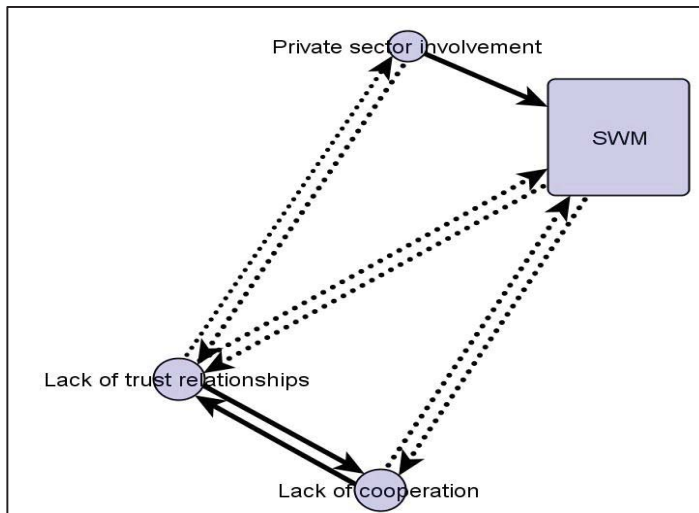
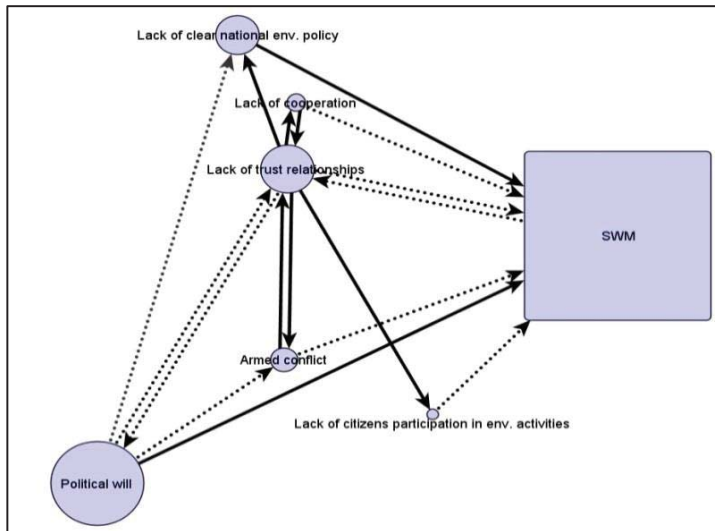


Figure 7.3 shows that the private sector stakeholders see more connections between “Lack of trust relationships” and other variables than those in the public sector. They see lack of trust as having a positive relationship with “Lack of clear national environmental policy”, “Lack of cooperation”, “Lack of citizens participation in environmental activities”, and “Armed conflict”; and a negative relationship with “Political will” and “Solid waste management”. However, two of the positive relationships are one-way: “Lack of clear national environmental policy” and “Lack of citizens’ participation in environmental activities” do not affect but are only affected by the “Lack of trust relationships”.

Figure 7.3. All neighboring concepts or variables directly connected to the “Lack of trust relationships” concept and their linkages for the private sector group. Solid arrows represent positive and dotted arrows negative effects, the size of the circles reflects the centrality of the variable.

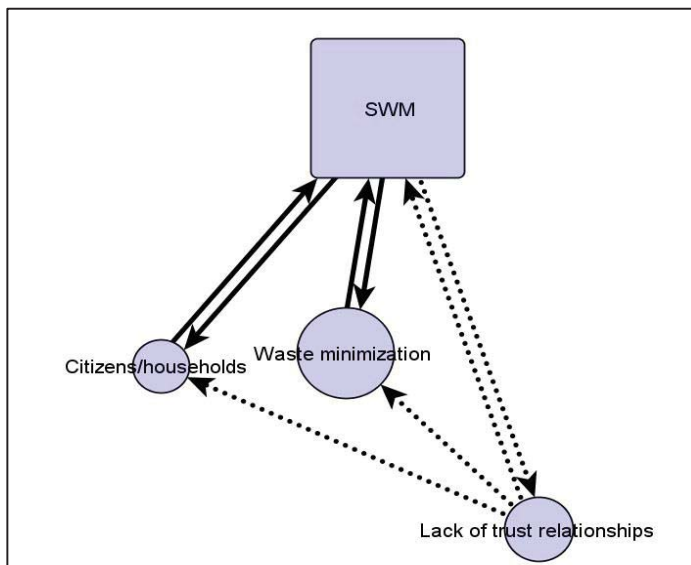


Once again these results are consistent with what many scholars have previously argued, that there is a link between trust and cooperation (Ferrin *et al.*, 2007; Lundin, 2007; Edelenbos and Erik-Hans, 2007; Koeszegi, 2004; Ferrin *et al.*, 2008). Although the private sector stakeholders did not attach that much importance to a “Lack of cooperation”, evidenced by it not appearing in their ten most central variables (Table 7.4), Figure 7.3 does show that these stakeholders do consider that there is a link between trust and cooperation. Again, the private stakeholders state that both trust and cooperation are linked to solid waste management, but that trust has a larger effect than cooperation. This result is again consistent with earlier findings (Pinto *et al.*, 2008; Delisle, 2004; Kadefors *et al.*, 2007; Chan *et al.*, 2003). This map also shows that private stakeholders consider that there is a link between “Lack of trust relationships” and “Armed conflict”. This parallels what Allen has stated regarding the civil wars that are considered as a contributing variable and a result of the high level of distrust in Lebanon (2011). The relationship between “Lack of trust relationships” and “Lack of citizen participation in environmental activities” is also not surprising given that citizen participation is part of citizen cooperation. According to social exchange theory (Axelrod, 1984), citizens are willing to participate (i.e. volunteer) in an activity or adjust their behaviors or comply with laws provided they have confidence that private or public sector organizations are able to produce a beneficial event or to provide beneficial services. Our research shows that one way of gaining confidence is to build trust. This map shows that trust relationships are important in encouraging citizen participation in environmental activities, another important variable that can positively affect solid waste management.

This map also shows a link between trust relationships and political will. The relationship between these two variables shows that private sector stakeholders perceive that “Lack of trust relationships” will decrease when “Political will” increases, and vice versa. The results shown in Table 7.4 indicates that trust relationships come second after “Political will” in terms of effect on solid waste management. The results also show that when trust relationships improve, the national environmental policy becomes more important and thus one is likely to have a better solid waste management process in Lebanon. This group also argued in there being a positive relationship between trust and cooperation. Stakeholders who build a trusting relationship among themselves are stated to cooperate more (Ferrin *et al.*, 2007; Koeszegi, 2004; Parkhe, 1993); and should thus be able to make better decisions, policies, and plans.

Figure 7.4, representing the grassroots’ point of view, shows a negative relationship between “Lack of trust relationships” and “Solid waste management” while this group stated that “Lack of trust relationships” decreases “Waste minimization” and the “Citizens/households” contribution.

Figure 7.4. All neighboring concepts or variables directly connected to the “Lack of trust relations” concept and their linkages for the Grassroots group. Solid arrows represent positive and dotted arrows negative effects; the sizes of circles reflect the centrality of the variable



Based on the grassroots’ perceptions, the trust relationship can play an important role in the success of solid waste management since solid waste management decreases when “Lack of trust relationships” increases (i.e. trust deteriorates) and vice versa. This result is supported by scholars who note the link between trust and the success of projects and management (Pinto *et*

al., 2008; Kadefors *et al.*, 2007; Hoffman *et al.*, 2002). The negative relationship between “Lack of trust relationships” and “Waste minimization” also indicates that the less trust there is, the less waste is minimized, an aspect of solid waste management.

This map shows that enhancing trust between citizens and the public and private stakeholders involved in solid waste management can be one way to encourage citizens to comply with laws and regulations related to solid waste or change their behaviors and try to minimize their waste production. This finding is in general agreement with social exchange theory (Axelrod, 1984). This is also supported by the relationship found between “Citizens/households” and “Lack of trust relationships”. When “Lack of trust relationships” increases, citizens will play a less important role in solid waste management. That is, the less citizens have trust in the stakeholders involved in solid waste management, the less they will be willing to comply with rules and regulations, to adjust their behavior, or to volunteer to contribute. The relationship between “Citizens/household” and “Solid waste management” shows that a link exists between the citizens’ sector and solid waste management. This is consistent with findings elsewhere regarding the important role of citizens in environmental management in general (Elias and Alkadry, 2011). This supports Berkes, who argues that people affected in their livelihoods by management decisions should have a say in how those decisions are made (2009).

7.5.4. The aggregated “social” map

This map is the combination of those for the three sectors; it shows all the previously mentioned relationships and concepts in all the earlier maps (map indices are provided in Table 7.5). By analyzing this map, we can gain an overall view of all the stakeholders’ visions of solid waste management. This will include “Lack of trust relationships” as this was considered important by all three stakeholder groups.

Table 7.5: Indices of the aggregated map

	Aggregated map
No. of maps	3
No. of variables	49
No. of Transmitters	8
No. of Receivers	0
No. of Ordinary	41
No. of connections	149
Density	0.062

Having merged all the viewpoints, the aggregated map gives us an idea of the overall system of solid waste management as seen by the stakeholders concerned. The eight transmitter variables are ones that are identified as impossible to control from within the system: these mostly reflect legal/political aspects such as “Corruption”, “Deficiencies in decision-making”, “Lack of

ratifying of treaties and conventions”, and “Lack of citizen involvement in decision-making process” and shows that people feel that they do not have control over these aspects. The lack of any of receiver variables means that all variables are recognized as having an impact on the system’s behavior. The comprehensive final map contains 149 connections between the 49 variables. Given this complexity, we focus on the ten variables with the highest centralities and their inter-relationships (Table 7.6).

Table 7.6. Ten variables with the highest centralities

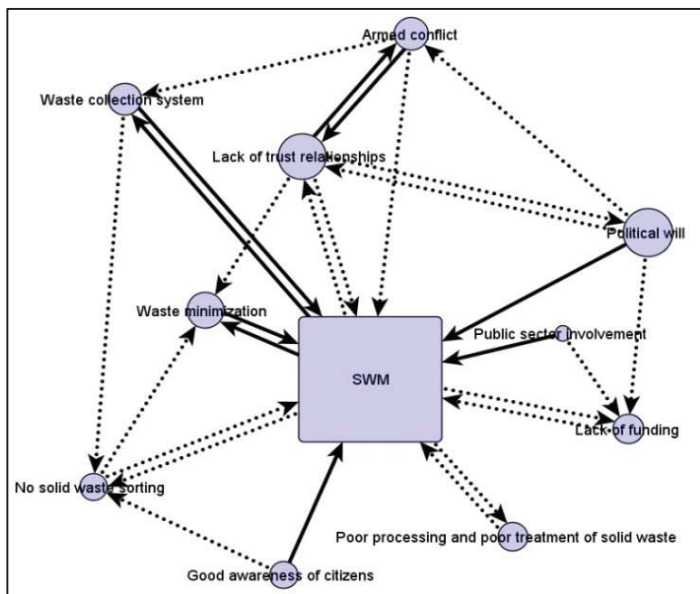
Rank	Concepts	Centrality
1	Political will	3.89
2	Lack of trust relationships	3.77
3	Waste minimization	2.89
4	Armed conflict	2.66
5	Waste collection system	2.61
6	Lack of funding	2.38
7	Poor processing and poor treatment of solid waste	2.33
8	Private sector involvement	2.33
9	Good awareness of citizens	2.22
10	No solid waste sorting	2.17

Table 7.6 places “Lack of trust relationships” in second place, behind “Political will”, in the list of the most influential variables affecting or affected by, directly or indirectly, solid waste management.

The map in Figure 7.5 shows “Lack of trust relationships” as one of the most influential variables on solid waste management. The results indicate a positive relationship between the “Lack of trust relationships” and the “Armed conflict” variables. The findings also indicate a negative relationship between “Lack of trust relationships” on one hand and “Waste minimization”, “Political will”, and “Solid waste management” on the other. That is, the more there is a lack of trust relationships, the more it is thought that armed conflicts will occur, and vice versa. Similarly, a fall in trust leads to a drop in political will, and vice versa. This map also indicates that a lack of trust relationships can reduce efforts to minimize waste and thus have a negative effect on the solid waste management process. Apart from the direct relationships between trust and some variables related to solid waste management, trust can also have an indirect relationship with other variables related to solid waste management. For example, the map shows a link between “Lack of trust relationships” and “Political will”, and the latter as having a link with “Lack of funding”. From this, we can conclude that trust relationships have an indirect link with the funding variable. Similarly, we see that trust relationships have an indirect link with variables such as: “No solid waste sorting”, “Waste collection system”, “Public sector involvement”, “Good awareness of citizens”, and “Poor processing and poor treatment of solid

waste”. In other words, this map shows that trust relationships (or the lack thereof) have a link with many variables involved directly or indirectly with solid waste management; this reflects the complexity and nuance of this factor. Thus, trust relationships generally play an important role in the environmental management process and specifically in solid waste management. This finding is consistent with earlier ones (Pinto *et al.*, 2008; Kadefors *et al.*, 2007; Hoffman *et al.*, 2002).

Figure 7.5. Ten variables with highest centralities in the aggregated map. Solid arrows represent positive and dotted arrows negative effects, circle sizes reflect the centrality of the variable.



This aggregated map is a valuable tool that can illustrate, to policy and decision makers in Lebanon, which variables are identified as having the most important roles in solid waste management by all the stakeholders involved in this process.

7.6. Conclusions

The results of this chapter disagreed to some extent with other findings that human dimension of project management including trust is to be the single most important determinant of any project success or management (Hoffman *et al.*, 2001). The results of this research have found that other factors are considered by stakeholders to be higher in importance and were better ranked than trust to the solid waste management.

Specifically, the analysis of the cognitive maps (Table 7.4) shows that “Lack of trust relationships” is a central variable and ranked second by the public and private sector stakeholders (after “Decentralization” and “Political will” respectively) and fifth by the

grassroots representatives (after “Waste minimization”, “Poor processing and treatment of solid waste”, “Current operating landfill” and “Lack of funding”) of the 49 variables identified as having a relationship with solid waste management. It is not surprising that some variables were better ranked. Some of the factors stated were already mentioned earlier literature as a common problem in Lebanon. Scholars have already mentioned the problem of centralization in the Lebanese administrative system, both organizationally and geographically (Abou Assi, 2013). Thus, decentralization was stressed on by the public sector. As for the “Political will” that was ranked first by the private sector stakeholders, or the other variables such as “Waste minimization” and “Lack of funding” that were rank higher by the grassroots, this study showed in Figure 7.5 that all these variables are directly or indirectly linked to “Lack of trust relationships”. This research also highlights relationships between trust and other variables that affect the solid waste management in Lebanon.

The final aggregated map, which reflects the perceptions of all 29 participants, indicates that trust is rated second of the top ten variables and has a high centrality in the system (Table 7.6). The factor that came in the first rank was “Political will”. This research has showed, however, that there was a direct and indirect link between trust and political will (Figure 7.5). In addition to “Political will”, other important factors included “Lack of clear national environmental policy”; “Lack of citizens’ participation in environmental activities”; “Lack of funding”; “Good awareness of citizens”; and, “Armed conflict”. According to social exchange theory (Axelrod, 1984), The relationship between “Lack of trust relationships” and “Lack of citizen participation in environmental activities” is also not surprising given that citizen participation is part of citizen cooperation. The result of this research demonstrates the complexity of trust and the difficulty of providing appropriate measures. Whenever studying trust, it is important to consider that many other factors can be linked with it.

Earlier studies have indicated increasing environmental problems in Lebanon, with solid waste being a common problem that not only negatively affects the natural environment but is also detrimental to human health. To date, trust has not been thoroughly studied in Lebanon and, by using the Fuzzy Cognitive Mapping approach; we have been able to elicit the views and perceptions of the various stakeholders involved in solid waste management. The findings demonstrate that trust is indeed an important variable and has a key role in improving solid waste management.

This research supports the literature that has already addressed the importance of trust in management processes (Pinto *et al.*, 2008; Kadefors *et al.*, 2007; Hoffman *et al.*, 2002; Berkes, 2009). This research shows, based on the views of various involved stakeholders, that trust is an essential element that affects and is affected by solid waste management in Lebanon. Thus, it is important to take trust into account whenever considering solid waste management and the success of projects. Nevertheless, this research states that when studying trust relationships it is vital to consider its link to other factors.

This research suggests it would be valuable to enhance trust among the various stakeholders involved in solid waste management in order to improve this process. Given that the Lebanese Government is constrained by many factors in trying to improve solid waste management, such an exercise would help decision-makers in making the right decisions, and we would urge them to always consider trust as an important variable when dealing with solid waste management specifically or with other environmental management processes in general.

Chapter 8: Conclusions and recommendations

The main objective of this research is to study, from the perceptions of the main stakeholders involved, the trust and cooperation relationships in Lebanon between public and private sector stakeholders who are involved in environmental management and between each of those stakeholders and the citizens. This study also aims to observe the effect and influence of these relationships on environmental management in North Lebanon taking into consideration the complex reality of conflict in this area.

Based on these objectives, the central research question of this thesis was:

From the perception of citizens and the public and private sector stakeholders involved in environmental management, how is the cooperation in environmental management in Lebanon (North) shaped by trust relationships between the public and private sector stakeholders, and between each of those stakeholders and the citizens; taking into consideration the complex reality of conflict in Lebanon (North)?

8.1 Conclusions from the empirical chapters

Four sub-questions were formulated to answer the central research questions and these concerns. The answers are summarized here:

SQ1: *“From the citizens’ perspective, how do trust relationships between the citizens on the one hand, and between them and the public and private sector stakeholders involved in environmental management, on the other, shape the level of cooperation among citizens in the environmental management process taking into consideration the complex reality of conflict? How does this relationship of cooperation and trust affect the environmental management process of (North) Lebanon?”*

The trust relationships between the citizens, and between them and the public and private sector stakeholders, were studied from the citizens’ viewpoint in Chapter 4. The survey results showed that both levels of social and political trust are low and do affect each other. The results also revealed correlations between trust, citizens’ participation and government legitimacy. The lack of social and political trust by citizens clearly affected their willingness to participate in environmental initiatives and/or to comply with environmental laws. Moreover, results showed that citizens’ trust in the public sector stakeholders is very low and clearly affects government legitimacy. Thereby it not only affects government policy in the field of environmental management, but could also do so in other policy areas. In the context of the current political turmoil, this finding shows that trust should not only be seen as something which is shaped by the institutional and political context, but that citizen’s trust is also shaping the context; this resonates with the *duality of structure* (Giddens, 1979), where structure (institutional and

political strength/weakness) is both medium and outcome of practices (cooperation and trust) and where the outcome (environmental management) is both affected by institutional and political strengths/weaknesses; and trust and cooperation relationships.

Most citizens agreed that trust relationships are a factor affecting environmental management; it is one of the reasons, they say, why environmental management in Lebanon is weak. Interesting enough, this was not agreed by everyone. 20% of the respondents did not agree that there was a lack of social trust (Statement 1) in the first place. 20% also did not agree that lack of trust among Lebanese stems from repeated episodes of armed conflicts (Statement 16). Moreover 40% of the respondents stated that there is trust between citizens and municipalities. The other 60% is less confident on the trust between citizens and municipalities.

These figures are not necessarily contradicting, illustrating the complexity of trust relationships. Respondents may find that an improvement of trust relationships between citizens and public sector at national level would strengthen environmental management, but that there is, still, some level of trust between citizens and municipalities. This leads us to think critically about the reasons that result in a diversity of perceptions that are quite nuanced. What are the factors that affect people's perception on trust relationships? Can trends be discovered along political-religious lines? Are their perceptions based on personal interests or past experiences? Is it one of these reasons or many together? While trust is a central factor in relation to cooperation leading to sustainable environmental management, there are other factors involved as well.

SQ2: "From the viewpoint of the public and private sector stakeholders involved in environmental management, how are cooperation and trust relationships shaped between public stakeholders themselves and between public and private sector stakeholders involved in environmental management, and how are they mutually affecting each other and the environmental management process of (North) Lebanon? What are the public and private sector stakeholders' perceptions of citizens' cooperation and to what extent do they depend on trust?"

Trust and cooperation relationships among the stakeholders in the public sector and between the stakeholders in the public and private sector were studied from the public and private sector's perceptions in Chapter 5. Interview results showed that, for many reasons, there was weak cooperation between and among these stakeholders. The lack of trusting relationships, as seen by private sector stakeholders, is less prominent than we might have suspected at first in explaining the weak cooperation among the public sector stakeholders. Private sector interviewees argued other reasons were to blame, such as corruption; overlapping mandates of authorities; lack of law enforcement; and conflict. Nevertheless, we argue that some of these factors are linked, either directly or indirectly, to trust.

The fact that there are many factors explaining the lack of cooperation among the stakeholders involved, justifies the initial choice of an inductive methodological approach rather than an experimental deductive approach. The results presented in Chapter 5 reveal the complexity and

nuance in trust relationships in Lebanon, similar to the results just discussed for Chapter 4. Both public and private sector respondents agree that the level of cooperation of the citizens involved in environmental management initiatives is related to the extent these citizens trust the implementing agency or entity. It is therefore not surprising that a lack of trusting relationships between all or any of the stakeholders adversely affects the environmental management process in Lebanon.

SQ3: “From the perception of the various stakeholders involved in environmental management, how can we distinguish between trust and cooperation relationships among the stakeholders involved as a factor which hinders environmental management and trust and cooperation relationships as a means to enhance environmental management in Lebanon?”

Chapter 6 studied how trust and cooperation relationships among citizens and public and private sector stakeholders can enhance or hinder environmental management in Lebanon. The survey results demonstrated that citizens lack trust in national-level public sector stakeholders and there is lack of citizens’ participation in environmental initiatives in Lebanon; a finding covered in more detail in Chapter 4. The interview results indicated that most public and private sector interviewees argued there was weak cooperation between public and private sector stakeholders involved in the environmental management process in Lebanon, and that this was partly related to the poor trust relationships. Other reasons mentioned to explain this weak cooperation included: weak public sector administration; the lack of financial and human resources in public institutions; and, a lack of motivation among public sector stakeholders (discussed in more detail in Chapter 5). This mirrors the observation from the introduction that environmental degradation can be partly attributed to institutional and political weaknesses.

Although trust and cooperation were found to be weak, there was also evidence that such relationships are used to circumvent environmental policies and regulations for individual gain. The willingness to cooperate for the general interest (or public good) in Lebanon is much lower than the willingness to cooperate for personal benefit.

SQ4: “From the perception of the various stakeholders involved in solid waste management, how can the previous findings be used to assess how trust and cooperation relationships influence the solid waste management, taking into consideration the complex reality of conflict in (North) Lebanon?”

Chapter 7 brought together the different stakeholders in a single workshop. It explored the public sector, private sector and grassroots movement’s views on the factors that affect, or are affected by, solid waste management in the Al-Fayhaa Union and in particular the role of trust. Applying the Fuzzy Cognitive Mapping method to a solid waste management case study confirmed earlier findings that trust is a prerequisite for effective environmental management. Various respondents ranked this higher or lower in the list of variables linked to environmental management, depending on their denomination (public/private sector or grassroots organizations).

The use of the Fuzzy Cognitive Mapping technique showed that, out of the 49 variables listed as having some relation with solid waste management, the “lack of trust relationships” was ranked *second* by the public and private sector stakeholders, and *fifth* by the grassroots interviewees. The final aggregated map, which combines all 29 participant’s views, indicated that trust ranked second among the top 10 central variables in the system. Trust relationships were found to have direct and indirect relations with other factors linked to environmental management, for instance, political will; armed conflicts; lack of funding; private sector involvement; and awareness of citizens; citizens’ participation; and, governance legitimacy. The different views on the importance of trust between stakeholders from the public and private sector, and grassroots organizations, is remarkable. It raises the question whether trust from citizens and grassroots organizations in local organizations is much higher than trust in the functioning of organizations at national level.

8.2 Policy relevance

This research is highly relevant for policy-makers in three ways.

First of all, this research is perhaps one of the first pieces of extensive academic research to study trust relationships in Lebanon and its links with environmental management. As such, it will be of significance to politicians, decision makers and policy makers in Lebanon, and other developing countries with similar characteristics and situations. It provides an insight into the current state of knowledge about trust relationships as they are perceived by the key stakeholders involved in environmental management. It shows that trust relationships have an important direct or indirect effect on environmental management generally, and on solid waste management specifically. It is a first and necessary step to recognize the importance and role of trust in development and management in Lebanon, bearing in mind that trust is a sensitive issue and a feature which is easily destroyed and hard to earn (Walker *et al.*, 1999 in Huurne and Gutteling, 2009; Welter and Smallbone, 2006).

Secondly, this research also provided us information on trust in the local democracy. When distinguishing between social and political trust the research showed overlaps between the public and private sector and citizens’ lack of faith in local democracy and these being core elements for the (in)effectiveness of environmental policy. The literature review had already linked trust to democracy, and with research that found one of the most important attributes of democracies is "a strong sense of social trust among citizens" and, accordingly, a major characteristic of weak states is "a lack of social trust among communities, religions, and tribes " (Chickering and Haley, 2007). According to Smith and Seward (2005), “democratic trust is simply the social relationships that emerge from the relations between both: citizens and democratic institutions”. Trust is argued to “basically cherish and respect democratic institutions; and democratic trust is

recognized based on the reciprocal interactions that exist from the mutual rights and obligations” (Ibid).

Our research argues that the lack of trust in Lebanon is weakening its democratic institutions. The fact that citizens lack trust in the public sector stakeholders has led them to reserve their participation in environmental activities, or not to comply with regulations and decisions related to environmental management. This same lack of trust and poor cooperation sometimes constrained progress of planned projects, even sometimes delaying or cancelling projects.

Finally, when looking at the list of conditions for reduction of environmental deterioration and for protection of the natural environment, the findings show that *none* of the four conditions that were listed by Sarraf *et al.* (2004) and the European Commission (2006) for reduction of environmental degradation are present in North Lebanon: (a) the strict enforcement of environmental laws and legislation; (b) partnerships between public and private sectors; (c) a clear distinction between the roles of the public and private sectors and (d) environmental awareness among the citizens (Sarraf *et al.*, 2004, and European Commission, 2006, for discussion, see 1.2.2).

8.3 Contribution to applied theoretical frameworks

Many scholars have studied the link between trust and cooperation relationships (Ferrin *et al.*, 2007; Lundin, 2007; Woolthui, 1999; Edelenbos and Erik-Hans, 2007). The literature mentioned the importance of trust relationships to management and decision-making process (Berkes, 2009; Pinto *et al.*, 2009). Nevertheless, no literature was found that studied the link between trust relationships and environmental management.

Therefore, our research makes three broad contributions: First, it filled the gap found in literature about systematic studies on trust relationships in Lebanon. Second, it showed scientifically a clear link between trust relationships and environmental management process. Third, it builds on and complements the existing literature on trust, trust and cooperation relationships and trust and its importance in the success of management and projects.

Many scholars stress that the problems and challenges of natural resource management are broader than simple cooperative dilemmas (Wilson and Jentoft, 1999; McCay and Jentoft, 1998). Nevertheless, I consider that the theoretical frameworks for understanding trust and cooperation relationships are extremely useful in environmental management and how they influence human behavior. The environmental degradation and weak management in Lebanon is widely mentioned (Sarraf *et al.*, 2004; IMAC, 2007). So how can we improve the environmental management process in Lebanon? What factor must be considered? Is trust one of these factors? Is it the predominate one?

The literature mentioned many reasons behind environmental deterioration in Lebanon, specifically for natural resources. One of the most important are armed conflicts, human activities and weak governance. I suggest that trust relationships and its link to cooperation are also important factors to be considered in dealing with environmental management, especially in a less developed country like Lebanon. Trust relationship was found to have direct and indirect link with many other factors important to improving environmental management.

Our research does not claim that trust relationships are the only reason behind a lack of environmental management in Lebanon nor it is the most dominant. However, it found that trust and cooperation relationships among citizens and the public and private stakeholders indeed had a vital effect and played a significant role in the environmental management process. Our research agrees with Mwangi (2000) who argued that trust and cooperation between different actors is required to tackle environmental problems.

Both the assumptions first posited in our research were proven to be correct from the perceptions of the various stakeholders involved in environmental management in Lebanon. First, trust and cooperation relationships are found to be reciprocated by their nature and, second, the more there is trust among the stakeholders involved, the more cooperation is obtained, and vice versa.

The public sector and private sector people we interviewed clearly reported that lack of trusting relationships, whether within the stakeholders of public sector, between the stakeholders of public and private sectors, or by the citizen toward the public or private sector stakeholders, adversely affects the environmental management process in Lebanon. The more trust found, the more cooperation was perceived, and vice versa. The importance of trust relationships in management is verified also in the solid waste management initiative chosen as a case study. Nevertheless, trust and cooperation relationships when expressed through the “wasta” concept were used by some stakeholders to hinder the management process, one of which is the environmental one.

This research sheds light on theoretical blind spots and adds important findings to be used in sustainable development plans in north Lebanon and elsewhere and make this research important and necessary.

8.4 Closing remarks and areas for future research

My aim throughout this research was to develop a more thorough understanding of the trust relationships in Lebanon and the link between trust and cooperation relationships and environmental management. Trust is a crucial variable in environmental management being a lubricant for cooperation (Pretty, 2003) and an engine of cooperation in natural resource management. Promoting trust is fundamental to encouraging co-management arrangements.

A key strength of the present study arises from the fact that using various methods it collected primary data on various people's perceptions on a topic that has been rarely (trust relationships) or never studied before (the link between trust and environmental management) in Lebanon or other countries.

Trust relationships change over time and are affected by many factors, as this research has shown. This research studied the role of trust on the environment as seen through the eyes of the "key" public and private sector actors involved in environmental management in Lebanon. The opinions of others less involved parties were largely neglected.

The pilot nature of this research can hopefully encourage similar research in the future in other areas in Lebanon and elsewhere. The following areas for future research have been identified:

- Trust relationships in Lebanon are not studied enough and could now be extended to provide comparative research to complement our research. Whilst investigations into trust relationships in environmental management are important it would be interesting for similar studies to examine the role of trust in other disciplines and areas.
- This research has revealed various causes for the lack of trust as described by the stakeholders involved. The nature of these require more focused studies to give a fuller picture on this issue and to how these factors could be better facilitated and managed for sustainable development.
- This research has found that trust and cooperation can be used to hinder the management process through the "wasta" process. This research encourages future studies to investigate this issue more and to try to find suggestions to limit this process in Lebanon.
- Enhancing trust relationships is a hard and long process. This research argues that one of the means to enhance trust relationships is by having more cooperation. This research shows that enhancing trust is a process that deserves more attention and should be studied further.

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Appendix 1: Summary of Laws related to solid waste management in Lebanon

Law/Decree No.	Year Description	Year Description
2775	1928	Dumping of pollutants into public water is prohibited
7975	1931	Waste should not be dumped around houses, but be buried or removed by the municipality
1761	1933	Law summarizing the discarding and penalties involved while disposing of municipal and industrial waste
425/1	1971	Refuse should be stored in plastic bags
8735	1974	Municipalities are responsible for collection and disposal of domestic wastes. Household and construction wastes (rubble) may not be dumped in public places or private land adjacent to roads and residential districts. It is an offense to drop litter in streets, government buildings and public areas. Only tightly closed containers should be used for the storage of refuse. Municipalities may not pile waste on the roadside before it is collected. Wastes should not be transported in open vehicles, but in vehicles that are "tightly covered." Disposal sites must have the approval of the health council of the Mohafaza
64/88	1988	It is the duty of every person to preserve the safety of the environment from pollution. A list of hazardous material was published, and the importation or possession of radioactive or poisonous waste was prohibited. In extreme cases the death penalty could be applied
216	1993	Ministry of environment was created with a responsibility for environmental supervision
197	1993	Ministry of municipal and rural affairs was established, and is charged with municipal sector development in areas such as strategic planning, budgeting, and programming, as well as auditing the functions of the various municipalities in Lebanon
444	2002	Law for the protection of the environment stating that: it is the duty of every person to preserve the safety of the environment from pollution. Waste should be managed taking into consideration country specific economic conditions (including collection, transportation, storage, treatment, and final disposal). Disposal sites must be designed and managed within established guidelines and principles. Local authorities are responsible for collection, transport, storage, treatment and disposal of waste. Every person is responsible to inform the local authorities about any kind of waste that adversely affect the environment. Persons that dump wastes illegally are obliged to dig out all the waste, and minimize or compensate for adverse impacts on the environment

Source: ELARD, 2004, p: 2-3

Appendix 2: Five main areas and number of surveys completed in each of the sub areas based on population size.

Mohafaza/Case	Total N° of survey needed according to the sampling formula	Coastal City/Village/District(sub areas)	Population (CDR 2006)	N° of surveys needed according to each municipality
Akkar	100		45,221	
		Arida	877	2
		Cheikh Zennad	961	2
		Rmoul	942	2
		Qleiat	1,730	4
		Qoubbet C.	1,174	3
		Bebnin- Abdi	12,787	28
		Al Mehamra	26,750	59
Minnieh-Dennieh	100		57,969	
		Bhanine	4,389	8
		Minieh	21,230	37
		Deir Ammar	4,890	8
		Beddawi	27,460	47
Tripoli	100		264,894	
		Tripoli	211,134	80
		El Mina	48,937	18
		Qalamoun	4,823	2
Koura	99		9,595	
		Ras Maska	4,082	42
		Kelhat	739	8
		Anfeh	4,774	49
Batroun	100		35,468	
		Chekka	8,346	24
		El Herry	909	3
		Hamat	1,853	5
		Selaata	389	1
		Koubba	853	2
		Batroun	21,393	60
		Kfar Abida	1,725	5

√ Number of sub areas and number of population are cited from IMAC 2007c:34.

Appendix 3: Survey filled by the citizens (in Arabic)

تاريخ:

رقم الاستبيان: _____

التعبئة: _____

اسئلة الاستبيان

الغرض الرئيسي من هذا الاستبيان :

ان هذا الاستبيان هو جزء من بحث دكتوراة بعنوان "علاقات الثقة في شمال لبنان ضمن الواقع المعقد للنزاع وأثره على عملية الإدارة البيئية". ان هدفه الرئيسي هو دراسة علاقة الثقة بين المواطنين من جهة والجهات المعنية العامة و / أو الخاصة التي تشارك في عملية الإدارة البيئية مع الأخذ بعين الاعتبار الواقع المعقد للصراع في هذه المنطقة. وهذا الاستبيان سوف يلاحظ أيضا كيف يمكن لعلاقة الثقة هذه ان تؤثر على مستوى التعاون بين المواطنين في عملية الإدارة البيئية في (الشمال) لبنان.

وتعريفات المتبعة في هذه الدراسة هو التالي :

"الثقة" : ان يتق الفرد بشخص آخر (او منظمة) لإنتاج حدث (x) مفيد او نتيجة (x) جيدة ، يجب أن يكون هذا الفرد على ثقة بأن الشخص الآخر (او المنظمة) لديها القدرة والنية لإنتاجه.

الإدارة البيئية: وضع استراتيجيات لتخصيص والحفاظ على الموارد ، مع الهدف النهائي المتمثل في تنظيم تأثير الأنشطة البشرية على البيئة المحيطة.

• العمر: _____ الجنس : ذكر / انثى الدين (يرجى تحديد الطائفة) :

• مكان السجل: _____ مكان الإقامة الحالي:

• المستوى العلمي : أمي/ غير متعلم(ولكن يعرف الكتابة او القراءة) / ابتدائي / متوسط / ثانوي / فني / جامعي / دراسات عليا

• الحالة الاجتماعية : أعزب / متزوج / أرمل / مطلق

• عامل في القطاع : التجاري / الصناعي / الصحي / التربوي / الاجتماعي / البيئي / السمكي / الزراعي/ الحرفي أخرى: _____

• مستوى المسؤولية : مدير / رب عمل/ موظف / عامل او بائع/ مدرب / استاذ / عامل متطوع / تلميذ / عامل مهرة (ذو مهارات)/ سائق / القوات المسلحة / أخرى : _____

• الدخل الشهري للفرد (ICM)(في آلاف ليرة لبنانية) : الرجاء وضع دائرة على الجواب الصحيح

1399 > ICM > 1100	699 > ICM > 600	لا دخل
1999 > ICM > 1400	799 > ICM > 700	299 > ICM
ICM > 2000	899 > ICM > 800	399 > ICM > 300
	999 > ICM > 900	499 > ICM > 400

	1099> ICM> 1000	/599> ICM> 500
--	-----------------	----------------

I. الرجاء الإجابة على كل سؤال بجواب واحد فقط وذلك عن طريق وضع "√" :

لا أعرف	لا أوافق ابداً	لا أوافق	أوافق	أوافق بشدة	
					1. انعدام الثقة بين اللبنانيين هو سمة من سمات المجتمع اللبناني.
					2. أنت كمواطن تعتقد أن انعدام الثقة بين اللبنانيين هو احد النتائج للنزاعات المتكررة في (الشمال) لبنان
					3. انت على معرفة جيدة بالقوانين البيئية في لبنان
					4. هناك عدم وجود ما يكفي من القوانين لحماية البيئة في بلدنا.
					5. ليس هناك ما يكفي من تطبيق لقوانين حماية البيئة في بلدنا.
					6. انت كمواطن تعارض وجود مطمر للنفايات قرب منزلك
					7. حتى ولو كان جزء من خطة وطنية اكبر لإدارة النفايات الصلبة في المنطقة ،انت كمواطن تعارض وجود مطمر للنفايات قرب منزلك (NIMBY FACTOR).
					8. انت كمواطن تثق في بلديتك على انها توفر إدارة جيدة وكافية للمشكلة (او المشاكل) البيئية الموجودة في منطقتك
					9. هناك مشكلة في عملية اتخاذ القرارات بشأن الإدارة البيئية في لبنان.
					10. هناك مشكلة في عملية تنفيذ القرارات المتخذة بشأن الإدارة البيئية في لبنان.
					11. يمكن لبناء الثقة ان يؤدي إلى مزيد من التعاون بين مختلف الجهات المعنية بعملية إدارة البيئة
					12. يمكن لبناء التعاون ان يؤدي الى بناء علاقات الثقة

لا يوجد مستووعات / _____ قلة في عدد المستووعات / _____ اوقات جمع
 النفايات قليلة/ _____ بعد مسافة المستووعات/ _____ اوقات جمع النفايات غير منتظم/
 المستووعات غير صحية/ _____ اسباب أخرى

24. ما هي المبادرات التي تعرفها عن إدارة النفايات الصلبة في لبنان الشمالي (مثل: جمع القمامة من قبل شركات القطاع الخاص، الخ)؟ (يرجى ذكر 3 مبادرات كحد أقصى)؟

25. في رأيك، أي واحدة (سؤال 24) من هذه المبادرات المرتبطة بإدارة النفايات الصلبة كان لها أكثر تأثير إيجابي في منطقتك؟

26. هل تعتقد أنك كمواطن يجب ان تلعب دورا هاما في عملية صنع القرار في عملية إدارة البيئة؟

نعم: _____ / لا: _____ كيف

27. إذا كنت تواجه مشكلة بيئية لمن تلجىء للشكوى؟ ما هي طرق الإعلان عن الشكاوى المتعلقة بالأمور البيئية التي تستعملها (يرجى اختيار طريقة واحدة او اكثر)

غيره (الرجاء التحديد)	عبر جهاز الفاكس	ارسال شكوى خطية (رسالة)	عبر البريد الالكتروني	الحضور شخصياً	عبر الهاتف	لمن تلجىء؟ (بلديات/ وزارات/ سياسيين/ جمعيات أهلية/ الخ)
						1.
						2.
						3.
						4.

28. هل أنت على دراية بالقوانين البيئية في لبنان؟

نعم: _____ / لا: _____

29. إذا كانت الإجابة بنعم ، يرجى وضع علامة على جميع المواضيع التي انت على دراية بقوانينها ؟ وكم من المعرفة لديك عنهم؟

كم من المعرفة لديك عن هذه القوانين؟			المواضيع
منخفضة	متوسطة	عالية	إدارة المياه المبتزلة
منخفضة	متوسطة	عالية	إدارة النفايات الصلبة
منخفضة	متوسطة	عالية	القوانين التي تنظم القطاع السياحي
منخفضة	متوسطة	عالية	قانون التنظيم المدني للمناطق الساحلية
منخفضة	متوسطة	عالية	ادارة الاملاك العامة البحرية
منخفضة	متوسطة	عالية	القوانين التي تنظم القطاع الزراعي
منخفضة	متوسطة	عالية	القوانين التي تنظم القطاع الصناعي
منخفضة	متوسطة	عالية	أهمية الثروة السمكية
منخفضة	متوسطة	عالية	غيرها: _____
منخفضة	متوسطة	عالية	غيوها: _____

30. هل سبق لك وشاركت في مبادرة بيئية؟

نعم: _____ / لا: _____ لماذا؟

31. اذا نعم (30) ،هل اشتراكك هذا حفذك (اكثر او اقل) للمشاركة في مبادرات اخرى؟

اكثر: _____ / اقل: _____

32. هل انت جزء من مجموعة فعالة في الادارة البيئية؟

نعم: _____ / لا: _____

33. كيف تعتقد أننا يمكن الحصول على عملية تحسين للإدارة البيئية في لبنان؟

34. ما هي نصيحتك لأصحاب المصلحة المعنيين في اتخاذ القرارات المتعلقة بعملية الإدارة البيئية في لبنان؟

😊 شكراً جزيلاً

Appendix 4: *List of some joint ventures projects between public and private sector stakeholders in environmental management in Lebanon.*

Public sector stakeholder	Private sector stakeholder	Project Title	Location	Date
Council for Development and Reconstruction (CDR)	ELARD	Technical Assistance to the local development support project in North Lebanon	Abdeh – Akkar, North Lebanon	Oct. 2010 - Jul. 2013
Ministry of Environment (MoE)	ELARD	Provision of services to conduct desk studies and field assessments to complete the vulnerability and adaptation and the mitigation chapters of Lebanon’s second National communication	Lebanon	May 2009 – Dec.2010
Council for Development and Reconstruction (CDR)	ELARD	The environmental Fund for Lebanon	Lebanon	Jul. 2007 - Jun. 2012
Ministry of Environment (MoE)	ELARD	Regional solid waste management project in Mashreq and Maghreb countries, national activity in Lebanon	Lebanon	May 2004 – Jun. 2005
Al- Fayhaa Union	Lavajet	Municipality Solid Waste Collection Operator	Al- Fayhaa Union	Till today
Al- Fayhaa Union	Batco	Municipality Solid Waste Disposal Operator	Al- Fayhaa Union	Till today
Lebanese cabinet	Sukleen	Municipality Solid Waste Collection Operator	Greater Beirut & Mount Lebanon (excluding Jbeil)	Till today
Lebanese cabinet	Sukomi	Municipality Solid Waste Disposal Operator	Greater Beirut & Mount Lebanon (excluding Jbeil)	Till today

Appendix 5: Interview questions for municipalities (in Arabic)

أسئلة المقابلة

الغرض الرئيسي من هذه المقابلة :

كجزء من بحث بعنوان "علاقات الثقة في شمال لبنان ضمن الواقع المعقد للنزاع وأثره على عملية الإدارة البيئية"، ان الهدف الرئيسي من هذه المقابلات هو دراسة علاقة الثقة بين الجهات المعنية العامة (المحلية والوطنية) و / أو الخاصة التي تشارك في عملية الإدارة البيئية وبين كل من هذه الجهات وبين المواطنين مع الأخذ بعين الاعتبار الواقع المعقد للصراع في هذه المنطقة.

وتعريفات المتبعة في هذه الدراسة هو التالي :

"الثقة" : ان يتق الفرد بشخص آخر (او منظمة) لإنتاج حدث (x) مفيد او نتيجة (x) جيدة ، يجب أن يكون هذا الفرد على ثقة بأن الشخص الآخر (او المنظمة) لديها القدرة والنية لإنتاجه.

الإدارة البيئية: وضع استراتيجيات لتخصيص والحفاظ على الموارد ، مع الهدف النهائي المتمثل في تنظيم تأثير الأنشطة البشرية على البيئة المحيطة.

1. ما هو الدور المحدد للبلديات في لبنان؟

2. كيف تتم عملية صنع القرار في البلدية؟ ومن هي الجهات المشاركة في اتخاذ هذا القرار؟ هل هناك نظام داخلي للمجلس؟

3. هل جميع أعضاء المجلس البلدي ينتمون الى دين واحد؟

نعم : ____ / لا : ____

4. هل جميع أعضاء المجلس البلدي ينتمون الى التيار السياسي نفسه؟

نعم : ____ / لا : ____

5. في رأيك، كيف ترى فريق (أعضاء) المجلس البلدي؟

متجانس (موحد): ____ / مجزأ (غير متجانس): ____ / أخرى : ____

لماذا؟

6. هل توافق على أن علاقات الثقة بين أعضاء المجلس البلدي تؤثر على عملية اتخاذ القرارات في البلدية؟

____ أوافق بشدة / ____ موافق / ____ غير موافق / ____ غير موافق ابداً / ____ لا أعرف

7. إلى أي مدى مسألة "تخفيف الاثر البيئي" أولوية في عملية صنع القرار في البلدية ؟

- _____ مهم للغاية / _____ مهم / _____ محايد / _____ ليس مهما / _____ ليس مهما ابداً
8. هل توافق على أن انعدام الثقة بين المواطنين بشكل عام هو سمة من سمات المجتمع اللبناني؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
9. من خلال تجربتك كرئيس بلدية ، هل توافق على أنه كلما كان يوجد لدينا المزيد من الثقة بين الجهات المعنية العامة (المحلية والوطنية) و / أو الخاصة التي تشارك في عملية الإدارة البيئية ، سيكون لدينا مزيد من التعاون بينهما؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
10. هل تعتقد أن "الثقة" و"التعاون" بين مختلف الجهات المعنية في عملية الادارة البيئية في لبنان هي عملية متبادلة؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
11. هل تعتقد أنه إذا كان هناك ثقة وتعاون اكثر بين أصحاب الجهات المعنية في عملية صنع القرار، سوف يتم اتخاذ قرارات أكثر وأفضل بشأن عملية الإدارة البيئية في لبنان؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
12. هل توافق ان انعدام الثقة من قبل شريك واحد/ مؤسسة قد ينتج عنه انعدام الثقة من قبل الشريك الآخر / مؤسسة الآخر؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
13. هل توافق ان انعدام التعاون من قبل شريك واحد/ مؤسسة قد ينتج عنه انعدام التعاون من قبل الشريك الآخر / مؤسسة الآخر؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
14. هل توافق على أنه يوجد انعدام الثقة بين مختلف الجهات المعنية في الادارة البيئية في لبنان؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
15. في حال كان الجواب بالايجاب على السؤال (14) ، هل توافق على أن انعدام الثقة بين مختلف الجهات المعنية في لبنان قد اثرت في عملية صنع القرارات المتعلقة بعملية إدارة الشؤون البيئية؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
16. من خلال تجربتك، هل واجهت مشاكل في عدم توقيع او تأييد مبادرة " تخفيف الأثر البيئي" بسبب انعدام الثقة بين الأطراف المعنية في عملية صنع القرار؟
 _____ كثيراً / _____ أحيانا / _____ نادرا / _____ ابدا / _____ لا أعرف
17. هل سبق وواجهت أي مشكلة بالنسبة لتنفيذ قرار تخفيف الأثر البيئي بسبب انعدام الثقة بين أصحاب المصلحة المعنيين؟
 _____ كثيراً / _____ أحيانا / _____ نادرا / _____ ابدا / _____ لا أعرف

18. هل توافق ان هناك عدم وجود ما يكفي من القوانين لحماية البيئة في لبنان؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
19. إذا كان الجواب بالإيجاب على السؤال 18، هل توافق أن انعدام الثقة بين الجهات المعنية في اتخاذ القرارات هو السبب الرئيسي وراء عدم وجود ما يكفي من القوانين لحماية البيئة؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
20. هل توافق انه ليس هناك ما يكفي من فرض لتطبيق القوانين المرتبطة بحماية البيئة الموجودة حالياً في بلدنا؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
21. إذا كان الجواب بالإيجاب على السؤال 20 ، هل توافق أن انعدام الثقة بين الجهات المعنية في اتخاذ القرارات هو السبب الرئيسي وراء عدم فرض تطبيق للقوانين الموجودة حالياً المرتبطة بحماية البيئة في لبنان؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
22. من خلال تجربتك، كيف تقيم التعاون بين القطاعات العامة المشاركة في عملية الإدارة البيئية في لبنان(المحلية والوطنية مثل : الوزارات، والبلديات، الخ)؟
 _____ قوي جداً / _____ قوي / _____ ضعيف / _____ ضعيف جداً / _____ لا أعرف
23. هل توافق على أن هذا التعاون (سؤال 22) بين القطاعات العامة المشاركة في عملية الإدارة البيئية في لبنان مرتبط بعلاقات الثقة (بين الافراد او المؤسسات)؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
24. من خلال تجربتك، كيف تقيم التعاون بين القطاعات العامة والخاصة المشاركة في عملية الإدارة البيئية؟
 _____ قوي جداً / _____ قوي / _____ ضعيف / _____ ضعيف جداً / _____ لا أعرف
25. هل توافق على أن هذا التعاون (سؤال 24) بين القطاعات العامة والخاصة المشاركة في عملية الإدارة البيئية في لبنان مرتبط بعلاقات الثقة (بين الافراد او المؤسسات)؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
26. هل توافق بان مدى تعاون المواطنين مع مبادرات تخفيف الاثر البيئي مرتبط بمدى الثقة الموجودة بين المواطنين والجهة المنفذة؟
 _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
27. هل هناك مساعدات دولية في مجال البيئة وردت الى البلدية؟
 نعم: _____ / لا: _____
28. إذا كان الجواب بالإيجاب على السؤال 27، هل توافق على أن المساعدات الدولية التي ترد إلى البلدية هي مرتبطة بمدى علاقة الثقة بين المصادر الممولة والحكومة اللبنانية؟
 _____ كثيراً / _____ أحيانا / _____ نادرا / _____ ابداً / _____ لا أعرف
29. هل هناك أي تعاون في القضايا البيئية بين بلديتك وأية جهات أخرى؟

كثيرا / أحيانا / نادرا / ابدا

30. إذا كان الجواب بالإيجاب على السؤال 29 ، يرجى ذكر 5 من هذه الجهات الأكثر تعاوناً، الخاصة منها أم العامة؟
ونوع التعاون؟ اسم المشروع؟ القيمة المادية للتعاون؟

القيمة المادية للتعاون (إذا وجدت)	اسم المشروع (التي تم التعاون فيه)	نوع التعاون (مادي، موارد بشرية، تجهيزات، أخرى)	صفتها (خاصة او عامة)	اسم الجهة
		مادي موارد بشرية تجهيزات أخرى: _____	خاصة عامة	1.
		مادي موارد بشرية تجهيزات أخرى: _____	خاصة عامة	2.
		مادي موارد بشرية تجهيزات أخرى: _____	خاصة عامة	3.
		مادي موارد بشرية تجهيزات أخرى: _____	خاصة عامة	4.
		مادي موارد بشرية تجهيزات أخرى: _____	خاصة عامة	5.

31. هل تعتقد أن علاقات الثقة كان لها تأثير على هذا التعاون بين البلدية والجهات المانحة (او المتعاونة) (السؤال رقم 29)؟

نعم / لا / لا اعرف

32. من خلال تجربتك، هل مستوى فعالية عمل بلديتك متعلق بنسبة الثقة بالبلدية من قبل الناس الذين يتم مساعدتهم؟

كثيرا / أحيانا / نادرا / ابدا

33. من خلال تجربتك، هل توافق على أن القرارات التي تأخذ من قبل الشخص الذي يثق به الناس يتم تنفيذها أكثر من إذا اتخذت من قبل الشخص الذي لا يثق به الناس؟

أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف

34. يرجى ذكر ثلاثة مشاكل البيئية الرئيسية تعتقد أن هناك حاجة لحلها في أقرب وقت ممكن في المجتمع اللبناني الشمالي؟ (1 هو الأكثر أهمية ، 3 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____

35. يرجى ذكر 3 من المبادرات الناجحة او محاولات تخفيف الأثر البيئي نفذتها بلديتك ؟ (1 هو الأكثر أهمية ، 3 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____

36. يرجى ذكر قائمة المبادرات الرئيسية التي تنفذها(او نفذتها) بلديتك فيما يتعلق بإدارة النفايات الصلبة في شمال لبنان؟

1. _____ 2. _____ 3. _____

37. من وجهة نظر البلدية ، اي واحدة من هذه المبادرات (السؤال 36) اعتبرت اكثر ناجحاً ؟ لماذا؟

38. يرجى ذكر 3 اولويات بالنسبة للبلدية التي سوف تعمل على تنفيذها باعتبارها محاولات تخفيف الأثر البيئي في المنطقة الساحلية لشمال لبنان؟ (1 هو الأكثر أهمية ، 3 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____

39. في رايك، ما هي حالياً رتبة "إدارة الشؤون البيئة" في أولويات الحكومة؟ (1 أهم، 5 الأقل أهمية)؟ يرجى وضع علامة √ على الجواب الصحيح.

1. _____ / 2. _____ / 3. _____ / 4. _____ / 5. _____

لماذا؟:

40. في رايك، ماذا يجب ان تكون رتبة "إدارة الشؤون البيئة" في أولويات الحكومة؟ (1 أهم، 5 الأقل أهمية)؟ يرجى وضع علامة √ على الجواب الصحيح.

1. _____ / 2. _____ / 3. _____ / 4. _____ / 5. _____

لماذا؟:

شكراً جزيلاً ☺

Appendix 6: Interview questions for ministries (in Arabic)

أسئلة المقابلة

الغرض الرئيسي من هذه المقابلة :

كجزء من بحث بعنوان "علاقات الثقة في شمال لبنان ضمن الواقع المعقد للنزاع وأثره على عملية الإدارة البيئية"، ان الهدف الرئيسي من هذه المقابلات هو دراسة علاقة الثقة بين الجهات المعنية العامة (المحلية والوطنية) و / أو الخاصة التي تشارك في عملية الإدارة البيئية وبين كل من هذه الجهات وبين المواطنين مع الأخذ بعين الاعتبار الواقع المعقد للصراع في هذه المنطقة.

وتعريفات المتبعة في هذه الدراسة هو التالي :

"الثقة" : ان يثق الفرد بشخص آخر (او منظمة) لإنتاج حدث (x) مفيد او نتيجة (x) جيدة ، يجب أن يكون هذا الفرد على ثقة بأن الشخص الآخر (او المنظمة) لديها القدرة والنية لإنتاجه.
الإدارة البيئية: وضع استراتيجيات لتخصيص والحفاظ على الموارد ، مع الهدف النهائي المتمثل في تنظيم تأثير الأنشطة البشرية على البيئة المحيطة.

1. ما هو الدور المحدد للوزارة في لبنان؟

2. كيف تتم عملية صنع القرار في الوزارة ؟ ومن هي الجهات المشاركة في اتخاذ هذا القرار؟ هل هناك نظام داخلي للمجلس؟

3. إلى أي مدى مسألة "تخفيف الاثر البيئي" أولوية في عملية صنع القرار في الوزارة ؟

_____ مهم للغاية / _____ مهم / _____ محايد(لا مهم ولا غير مهم)/ _____ ليس مهما
/ _____ ليس مهما ابداً

4. هل توافق على أن انعدام الثقة بين المواطنين بشكل عام هو سمة من سمات المجتمع اللبناني؟

_____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
5. من خلال تجربتك كوزير في الوزارة ، هل توافق على أنه كلما كان يوجد لدينا المزيد من الثقة بين الجهات المعنية العامة (المحلية والوطنية) و / أو الخاصة التي تشارك في عملية الإدارة البيئية ، سيكون لدينا مزيد من التعاون بينهما؟

_____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
6. هل تعتقد أن التجارب والمعارف السابقة تؤثر على علاقات الثقة و / أو علاقات التعاون بين مختلف الجهات المعنية في عملية الإدارة البيئية في لبنان؟

_____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
7. هل تعتقد أن الصراعات المسلحة على وجه التحديد قد اثرت على علاقات الثقة و / أو علاقات التعاون بين مختلف الجهات المعنية في عملية الإدارة البيئية في لبنان؟

- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
8. هل تعتقد أن تاريخ التعاون يؤثر على علاقات الثقة بين مختلف الجهات المعنية في عملية الإدارة البيئية في لبنان؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
9. هل تعتقد أن "الثقة" و"التعاون" بين مختلف الجهات المعنية في عملية الإدارة البيئية في لبنان هي عملية متبادلة؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
10. هل تعتقد أنه إذا كان هناك ثقة وتعاون أكثر بين أصحاب الجهات المعنية في عملية صنع القرار، سوف يتم اتخاذ قرارات أكثر وأفضل بشأن عملية الإدارة البيئية في لبنان؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
11. هل توافق ان انعدام الثقة من قبل شريك واحد/ مؤسسة قد ينتج عنه انعدام الثقة من قبل الشريك الآخر / مؤسسة الآخر؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
12. هل توافق ان انعدام التعاون من قبل شريك واحد/ مؤسسة قد ينتج عنه انعدام التعاون من قبل الشريك الآخر / مؤسسة الآخر؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
13. هل توافق على أنه يوجد انعدام الثقة بين مختلف الجهات المعنية في الإدارة البيئية في لبنان؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
14. في حال كان الجواب بالإيجاب على السؤال (13) هل توافق على أن انعدام الثقة بين مختلف الجهات المعنية في لبنان قد اثرت في عملية صنع القرارات المتعلقة بعملية إدارة الشؤون البيئية؟
- _____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف
15. من خلال تجربتك، هل واجهت مشاكل في عدم توقيع أو تأييد مبادرة " تخفيف الأثر البيئي" بسبب انعدام الثقة بين الأطراف المعنية في عملية صنع القرار؟
- _____ كثيراً / _____ أحيانا / _____ نادراً / _____ ابداً / _____ لا أعرف
16. هل سبق وواجهت أي مشكلة بالنسبة لتنفيذ قرار تخفيف الأثر البيئي بسبب انعدام الثقة بين أصحاب المصلحة المعنيين؟
- _____ كثيراً / _____ أحيانا / _____ نادراً / _____ ابداً / _____ لا أعرف

17. هل توافق ان هناك عدم وجود ما يكفي من القوانين لحماية البيئة في لبنان؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
18. في حال كان الجواب بالاجاب على السؤال (17) ،هل توافق أن انعدام الثقة بين الجهات المعنية في اتخاذ القرارات هو السبب الرئيسي وراء عدم وجود ما يكفي من القوانين لحماية البيئة؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
19. هل توافق انه ليس هناك ما يكفي من فرض لتطبيق القوانين المرتبطة بحماية البيئة الموجودة حالياً في بلدنا؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
20. في حال كان الجواب بالاجاب على السؤال (19) ،هل توافق أن انعدام الثقة بين الجهات المعنية في اتخاذ القرارات هو السبب الرئيسي وراء عدم فرض تطبيق للقوانين الموجودة حالياً المرتبطة بحماية البيئة في لبنان؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
21. من خلال تجربتك، كيف تقيم التعاون بين القطاعات العامة المشاركة في عملية الإدارة البيئية في لبنان(المحلية والوطنية مثل : الوزارات، والبلديات، الخ)؟ ولماذا؟
 قوي جداً / قوي / ضعيف / ضعيف جداً / لا أعرف
- لماذا؟:
22. هل توافق على أن هذا التعاون (سؤال 21) بين القطاعات العامة المشاركة في عملية الإدارة البيئية في لبنان مرتبط بعلاقات الثقة (بين الافراد او المؤسسات)؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
23. من خلال تجربتك، كيف تقيم التعاون بين القطاعات العامة والخاصة المشاركة في عملية الإدارة البيئية؟ ولماذا؟
 قوي جداً / قوي / ضعيف / ضعيف جداً / لا أعرف
- لماذا؟:
24. هل توافق على أن هذا التعاون (سؤال 23) بين القطاعات العامة والخاصة المشاركة في عملية الإدارة البيئية في لبنان مرتبط بعلاقات الثقة (بين الافراد او المؤسسات)؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
25. بشكل عام، كيف تقيم تعاون المواطنين مع مشاريع او برامج الوزارة ؟
 قوي جداً / قوي / ضعيف / ضعيف جداً / لا أعرف
26. هل توافق بان مدى تعاون المواطنين مع مبادرات تخفيف الاثر البيئي مرتبط بمدى الثقة الموجودة بين المواطنين والجهة المنفذة؟
 أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف
27. هل هناك مساعدات دولية وردت الى الوزارة ؟

نعم: _____ / لا: _____

28. إذا كان الجواب بالإيجاب على السؤال 27، هل توافق على أن المساعدات الدولية التي ترد إلى الوزارة هي مرتبطة بمدى علاقة الثقة بين المصادر الممولة والحكومة اللبنانية؟

كثيراً / أحياناً / نادراً / ابداً / لا أعرف

29. هل هناك أي تعاون في القضايا البيئية بين الوزارة وأية جهات أخرى؟

كثيراً / أحياناً / نادراً / ابداً / لا أعرف

30. إذا كان الجواب بالإيجاب على السؤال 29، يرجى ذكر 5 من هذه الكيانات (الجهات) الأكثر تعاوناً، الخاصة منها أم العامة؟ ونوع التعاون؟ اسم المشروع؟ القيمة المادية للتعاون؟

اسم الجهة	صفتها (خاصة او عامة)	نوع التعاون (مادي، موارد بشرية، تجهيزات، اخرى)	اسم المشروع (التي تم التعاون فيه)	القيمة المادية للتعاون (إذا وجدت)
1.	خاصة عامة	مادي موارد بشرية	تجهيزات اخرى:	
2.	خاصة عامة	مادي موارد بشرية	تجهيزات اخرى:	
3.	خاصة عامة	مادي موارد بشرية	تجهيزات اخرى:	
4.	خاصة عامة	مادي موارد بشرية	تجهيزات اخرى:	
5.	خاصة عامة	مادي موارد بشرية	تجهيزات اخرى:	

31. هل تعتقد أن علاقات الثقة بين الوزارة والجهات المانحة (او المتعاونة) كان لها تأثير على هذا التعاون (السؤال رقم 29)؟

نعم / لا / لا أعرف

32. من خلال تجربتك، هل مستوى فعالية عمل وزارة الطاقة والمياه متعلق بنسبة الثقة بهذه الوزارة من قبل الناس الذين يتم مساعدتهم؟

كثيراً / أحياناً / نادراً / ابداً / لا أعرف

33. من خلال تجربتك، هل توافق على أن القرارات التي تأخذ من قبل الشخص الذي يثق به الناس يتم تنفيذها أكثر من إذا اتخذت من قبل الشخص الذي لا يثق به الناس؟

أوافق بشدة / موافق / غير موافق / غير موافق ابداً / لا أعرف

34. يرجى ذكر ثلاثة مشاكل البيئية الرئيسية تعتقد أن هناك حاجة لحلها في أقرب وقت ممكن في المجتمع اللبناني الشمالي؟ (1 هو الأكثر أهمية ، 3 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____
35. يرجى ذكر 6 المبادرات الناجحة او محاولات تخفيف الأثر البيئي نفذتها الوزارة في المنطقة الساحلية لشمال لبنان؟ (1 هو الأكثر أهمية ، 6 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____
4. _____ 5. _____ 6. _____
36. يرجى ذكر قائمة المبادرات الرئيسية التي تنفذها(او نفذتها) الوزارة فيما يتعلق بإدارة النفايات الصلبة في شمال لبنان؟

1. _____ 2. _____ 3. _____
4. _____ 5. _____ 6. _____
37. من وجهة نظر الوزارة ، اي واحدة من هذه المبادرات (السؤال 36) اعتبرت اكثر نجاحاً ؟ لماذا؟

38. بشكل عام، هل تعتقد أن الواقع المعقد للصراع في (الشمال) لبنان قد أثرت على الإدارة البيئية لإدارة النفايات الصلبة؟

_____ أوافق بشدة / _____ موافق / _____ غير موافق / _____ غير موافق ابداً / _____ لا أعرف

39. 44. إذا كان الجواب بالايجاب على السؤال 38، هل تعتقد أن هذا التأثير كان إيجابياً أو سلبياً؟

_____ تأثير ايجابي / _____ تأثير سلبي

40. يرجى ذكر 3 اولويات بالنسبة للوزارة التي سوف تعمل على تنفيذها باعتبارها محاولات تخفيف الأثر البيئي في المنطقة الساحلية لشمال لبنان؟ (1 هو الأكثر أهمية ، 3 هو الأقل أهمية)؟

1. _____ 2. _____ 3. _____

41. في رايك، ما هي حالياً رتبة "إدارة الشؤون البيئية" في أولويات الحكومة؟ (1 أهم، 5 الأقل أهمية)؟ يرجى وضع علامة √ على الجواب الصحيح.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

لماذا؟:

42. في رأيك، ماذا يجب ان تكون رتبة "إدارة الشؤون البيئة" في أولويات الحكومة؟ (1 أهم، 5 الأقل أهمية)؟
يرجى وضع علامة √ على الجواب الصحيح.

_____1 / _____2 / _____3 / _____4 / _____5.

لماذا؟:

شكراً جزيلاً ☺

Appendix 7: Invitation letter for FCM workshop (in Arabic)

15 ايار ٢٠١٣

جانب : حضرة السيد

الموضوع : مشروع "آثار النزاعات المسلحة على البيئة الساحلية WOTRO"

تحية طيبة وبعد،

ان معهد الدراسات البيئية في جامعة البلمند يقوم بتنفيذ مشروع "آثار النزاعات المسلحة على البيئة الساحلية (WOTRO)" الممول من قبل الحكومة الهولندية بالتعاون مع جامعة "تونتي" في هولندا ويهدف هذا المشروع إلى دراسة آثار النزاعات المسلحة على البيئة في منطقة لبنان الشمالي من النواحي الاقتصادية، الاجتماعية، الجغرافية والسياسية (مرفقا نبذة عن المشروع).

لتحقيق هذا الهدف، نتشرف بدعوتكم للمشاركة في طاولة مستديرة بعنوان: "عملية إدارة النفايات الصلبة في اتحاد الفيحاء: دراسة وتقييم وتوقع ". هذا اللقاء سوف يجمع المعنيين في إدارة النفايات الصلبة ، وذلك يوم الخميس الواقع في 30 ايار ٢٠١٣ (مرفقا برنامج الورشة)، في منتجع "ميرامار" السياحي في القلمون.

نتمنى عليكم المشاركة شخصيا أو تسمية ممثلاً عن حضرتكم للمشاركة في هذه الجلسة. ونأمل أن تكون افضلية الاختيار للشخص المعني أكثر بموضوع النفايات الصلبة.

شاكرين لكم دعمكم، وتفضلوا بقبول الإحترام والتقدير

د. منال نادر

مدير المعهد

لتأكيد الحضور يرجى الاتصال على الرقم: 06-930257 او عبر البريد الالكتروني على:

Nivine.abbas@std.balamand.edu.lb

المرفقات: نبذة عن المشروع، برنامج الورشة،

نسخة : د. ميشال نجار؛ نائب رئيس جامعة البلمند

جامعة البلمند

مشروع "آثار النزاعات المسلحة على البيئة الساحلية"
مناقشات حول طاولة مستديرة بين المعنيين في وإدارة النفايات الصلبة في اتحاد الفيحاء

البرنامج

تسجيل الحضور و تعارف	09:00 - 08:30
افتتاح الجلسة	09:15 - 09:00
شرح للتقنية التي سيتم استخدامها في هذه المناقشة	09:30 - 09:15
شرح قائمة العوامل المحددة مسبقا التي سيتم استخدامها في هذه المناقشة	09:45 - 09:30
جلسة الحوار الاولى - عملية إدارة النفايات الصلبة في اتحاد الفيحاء سلبيات وإيجابيات العوامل التي تؤثر على إدارة النفايات الصلبة من وجهة نظر مختلف المعنيين (العامة والخاصة والأهلية)	11:30 - 09:45
فترة استراحة	11:50 - 11:30
جلسة الحوار الثانية - عرض نتائج مباحثات المجموعات المشاركة	12:30 - 11:50
جلسة الحوار الثالثة- دراسات حالة وختام	02:00 - 12:30
الغداء	2:00

Appendix 9: Notes for the FCM facilitators

Notes for facilitators:

You'll have in your kits a table to be filled from participants (their names and institutions)

Agenda, variables list for each FCM exercise, the list of questions for the last session and power point presentation of the methodologies

1st session: 2 FCM exercises: الخريطة التقريبية (1:45 min)

The 1st map: (30 min)

ما هي العوامل التي تؤثر على تفاقم مشكلة النفايات الصلبة في منطقة الفيحاء

1. The participants 1st have to choose from the variables list, the variables that they see fit the questions
2. Right down the chosen variables on the little post it and stick it to the blank papers (تفاقم مشكلة النفايات الصلبة) has to be in the middle (10 min).
3. Draw the arrows with the markers with their directions, signs and scales (20 min)

Notes about the scale:

-3 -2 -1 0 1 2 3:

0 is neutral (means that there's no relation, so it shouldn't exist on the map)

-1 and 1: low impact

-2 and 2: medium impact

-3 and 3: high impact

To know whether to put positive or negative signs you have to make sure that:

Positive means that if one variable increases the other increases too and if the variable decreases the other decreases too

Negative means that if one variable increases the other decreases

For example: awareness has a positive impact on the Management of solid waste but it has a negative effect on increasing the Problem of solid waste.

Negative/positive reflects the **relation** and **not the variable** itself (it's not that the lack of awareness is a negative thing that it has to always have a negative effect)

4. Once you're OK with the map, secure the post its with scotch tapes

The 2nd map: (1:15min)

ما هي العوامل التي تؤثر على إدارة النفايات الصلبة في منطقة الفيحاء

1. The participants 1st have to choose from the variables' list, the variables that they see fit the questions.

2. Right down the chosen variables on the little post it and stick it to the blank papers (إدارة النفقات الصلبة) has to be in the middle (15 min)
3. Draw the arrows with the markers with their directions, signs and scales (1 hour)
4. Once you're OK with the map, secure the post its with scotch tapes and prepare for the presentation (During the break)

2nd session: عرض نتائج مباحثات المجموعات المشاركة (after the coffee break) (50 min)

Each group has to present their maps in plenary: we'll attach the papers on the flip chart and a participant from each group will explain their work in the 2 maps

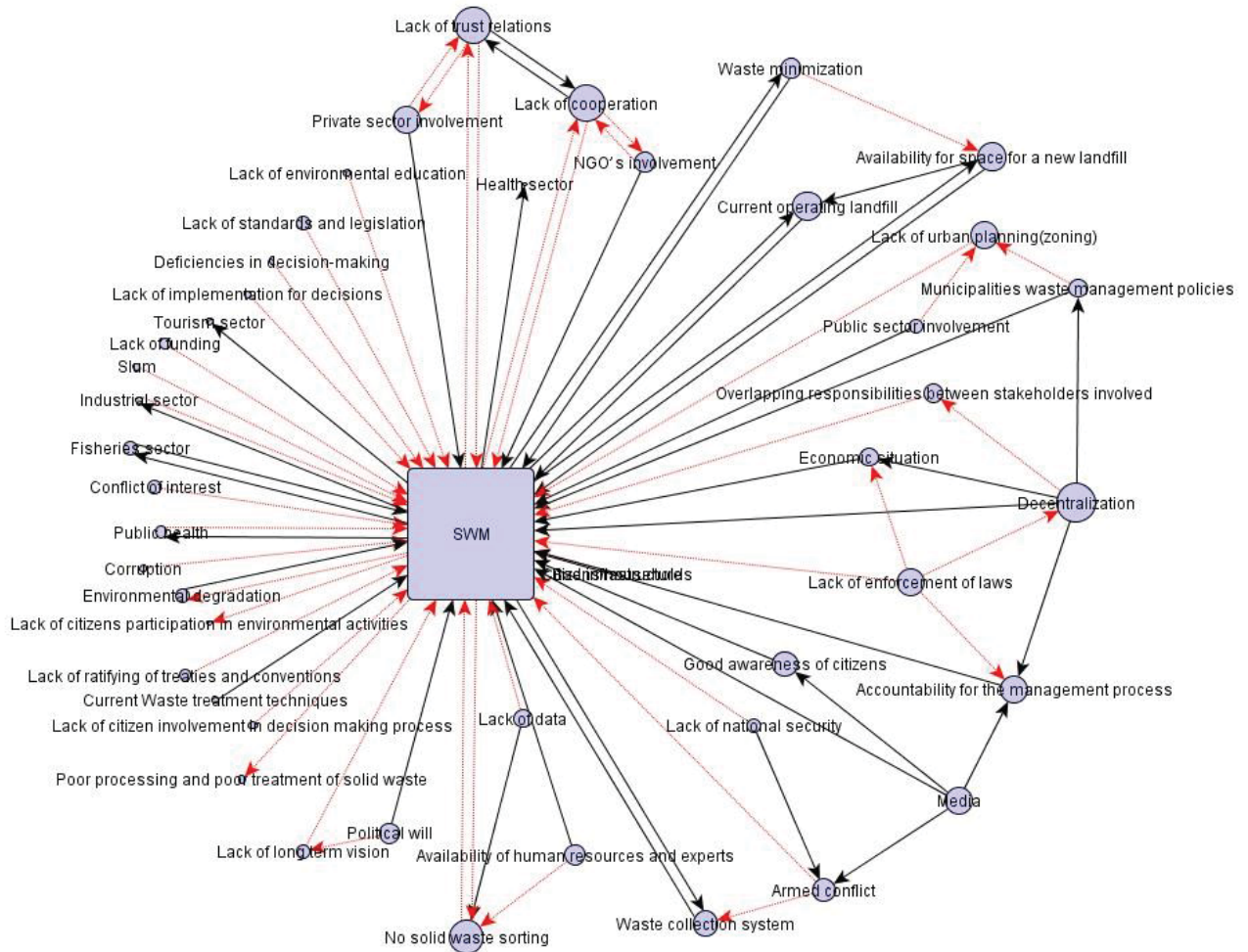
Finally with the rest of the time we'll close the day by asking them their opinion about the day, the exercises (as a small evaluation)...then... LUNCH...

Thank you all☺

Appendix 10: *Some pictures of the FCM workshop.*

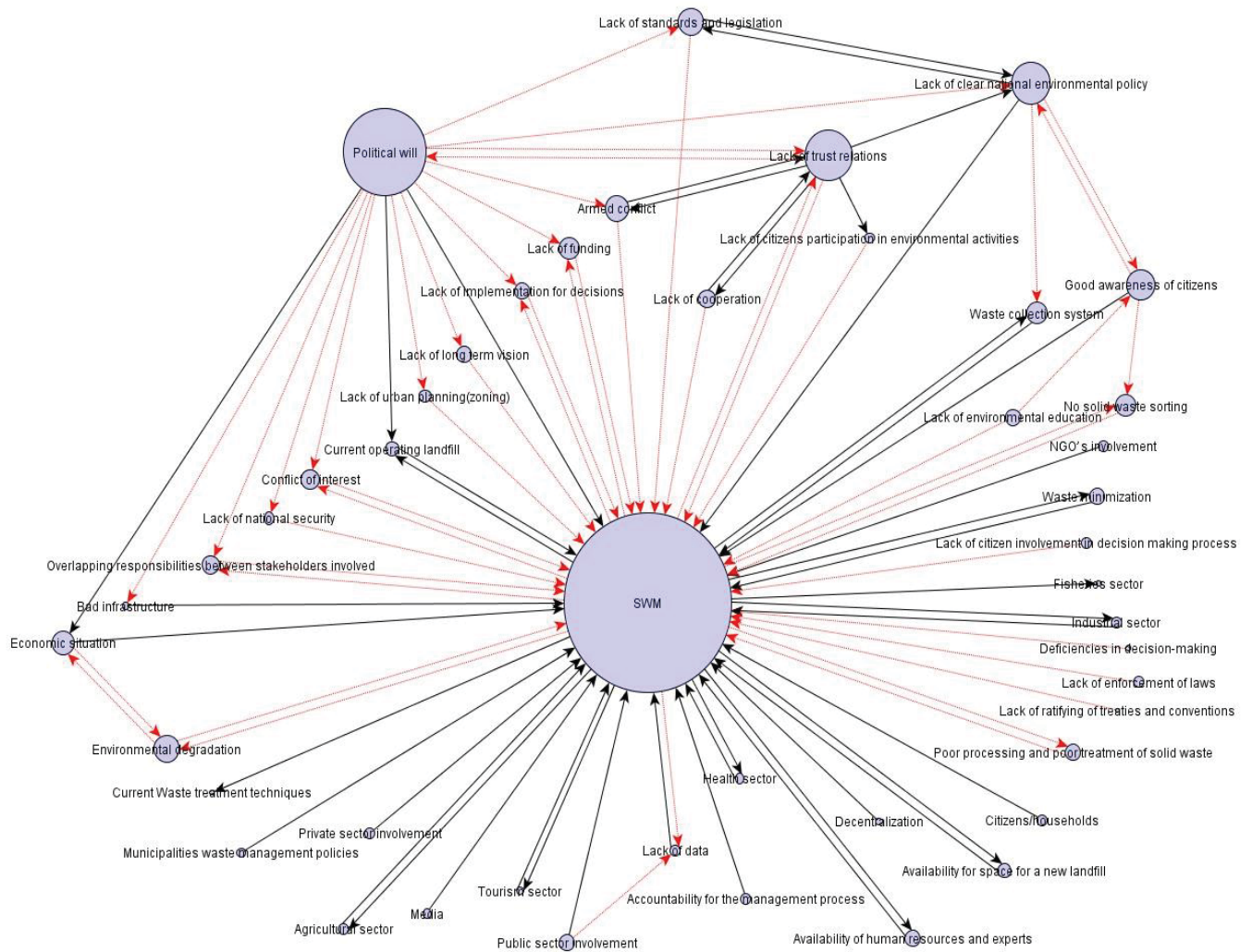


Appendix 11: *The FCM map with all the variables representing the public sector stakeholders' perceptions*



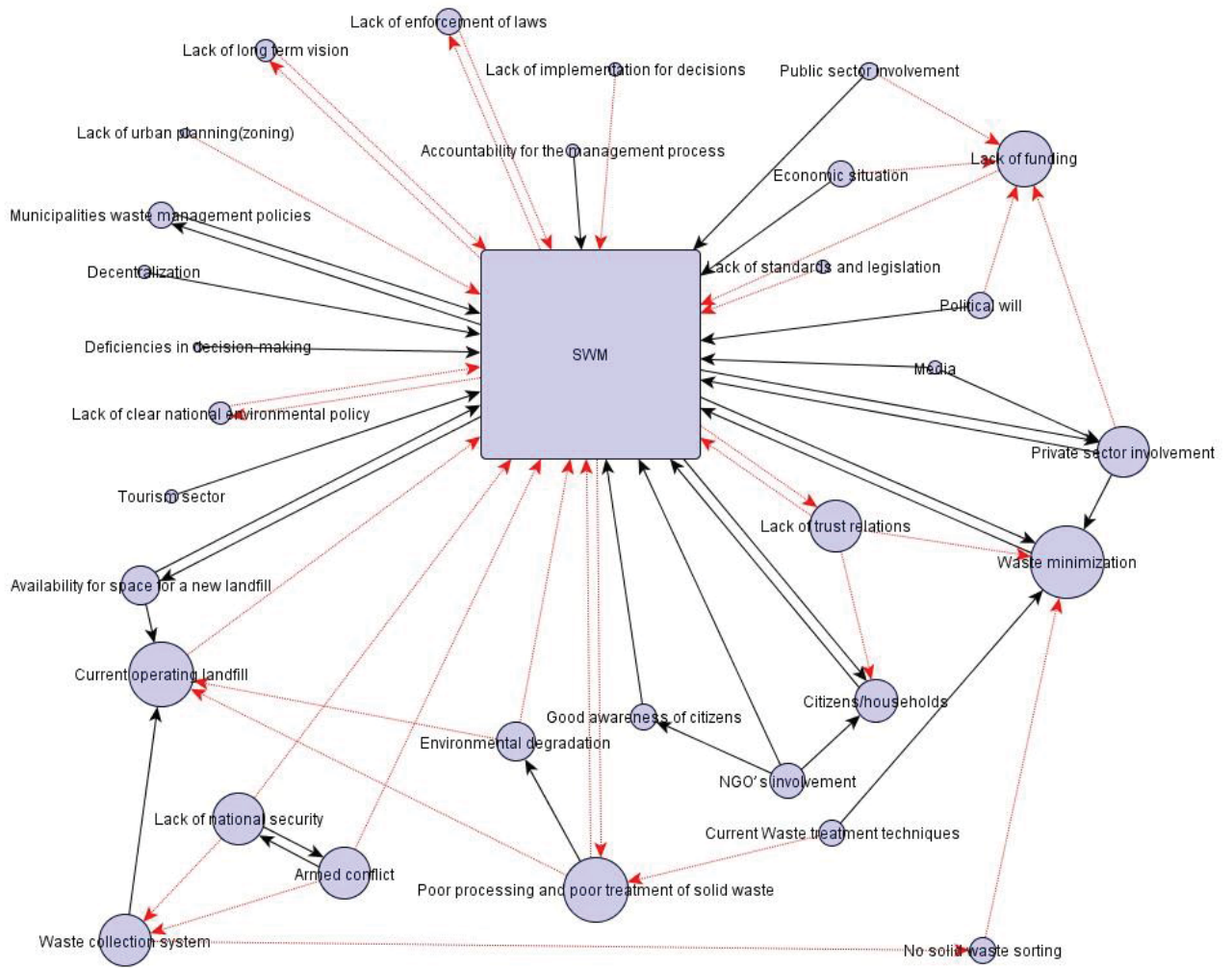
Solid arrows represent positive and dotted arrows represent negative effects, the sizes of circles reflect the centrality of the variable.

Appendix 12: The FCM map with all the variables representing the private sector stakeholders' perceptions



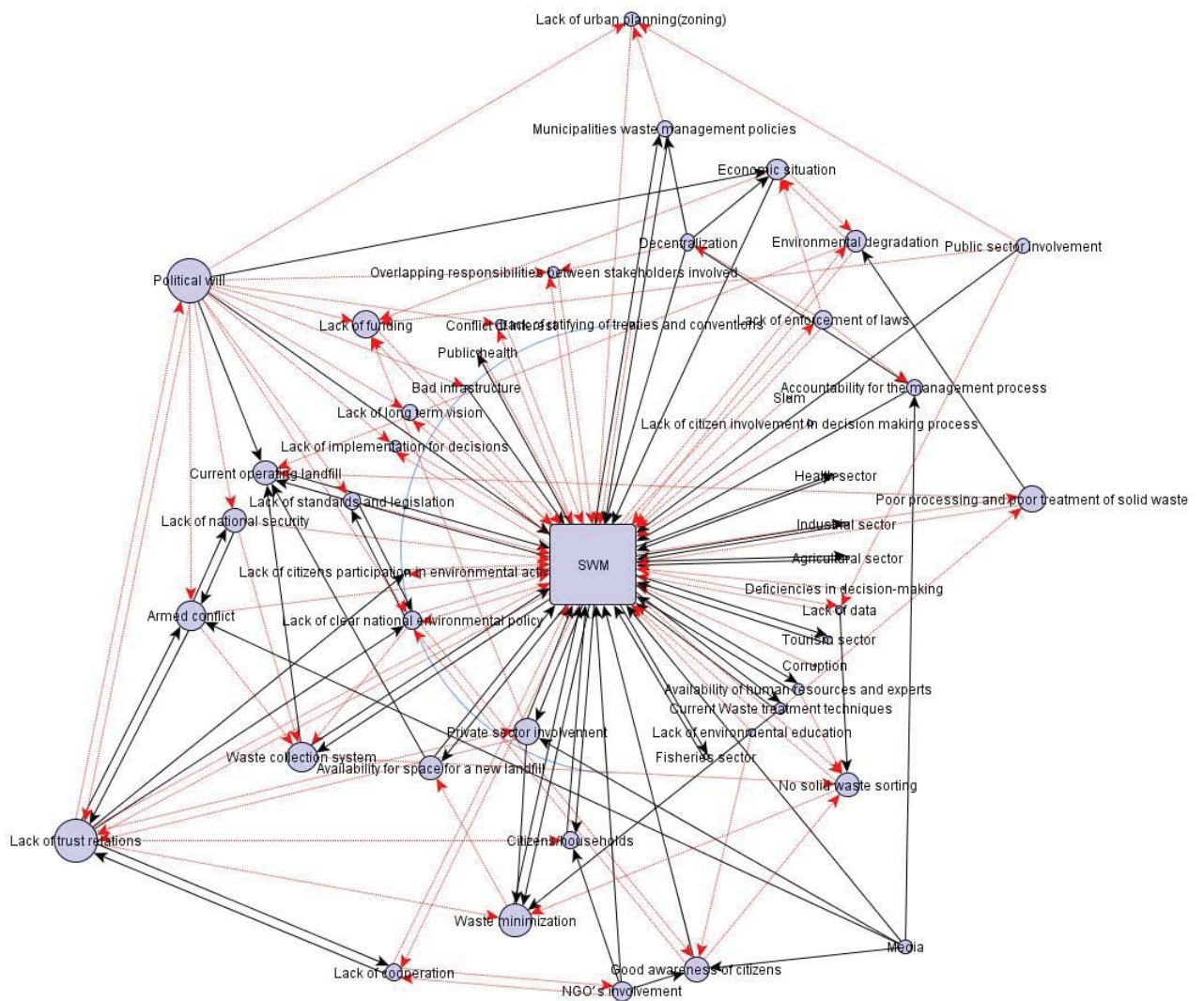
Solid arrows represent positive and dotted arrows represent negative effects, the sizes of circles reflect the centrality of the variable.

Appendix 13: *The FCM map with all the variables representing the grassroots stakeholders' perceptions*



Solid arrows represent positive and dotted arrows represent negative effects, the sizes of circles reflect the centrality of the variable.

Appendix 14: The full aggregated FCM map with all the 49 variables including all the public, private and grassroots stakeholders' perception .



Solid arrows represent positive and dotted arrows represent negative effects, the sizes of circles reflect the centrality of the variable.

Summary

Achieving sustainable environmental management is one of the biggest challenges of the 21st century, in any country, particularly in situations where conditions are far from conducive, such as in areas of armed conflict. Previous studies have shown that environmental problems have increased in Lebanon. The effectiveness of the Lebanese government to address these challenges has been reported to be constrained by large variety of factors, e.g. lack of appropriate decisions, lack of development of environmental protection laws, lack of continuity in program development. Many researchers have discussed the impact of trust as one of the variables that shapes environmental management and affects its outcomes; nevertheless, knowledge of trust relationships and as a factor affecting environmental management is significantly lacking in the case of Lebanon.

In Lebanon, three broad categories of stakeholders are involved in the environmental management process, whether directly or indirectly: stakeholders in the public sector; stakeholders in the private sector; and citizens. This main objective of this research is to study, from the perceptions of the main stakeholders involved, the trust and cooperation relationships in Lebanon between public and private sector stakeholders who are involved in environmental management, and between each of those stakeholders and the citizens. Also this study aims to observe the effect and influence of these relationships on environmental management in North Lebanon taking into consideration the complex reality of conflict in this area.

In order to reach this objective an analytical framework is developed by adopting the overarching assumption that there is a reciprocal relationship between trust and cooperation, and that sustainable environmental management is only possible under conditions of trust. This research builds its analytical framework using more than one theory about trust and cooperation relationships. The theories used throughout the study are social exchange theory; the cultural theory of political trust; social capital theory; corruption trust theory; the altruistic theory described by Levi; and history-dependence (Chapter 2). The research used an inductive rather than deductive approach. A mixed methods approach was adopted, with both qualitative and quantitative data collected (Chapter 3).

The empirical chapters start in Chapter 4. Using the survey method, this chapter studies *from the citizens' viewpoints*, the trust relationships between the citizens, and between them and the public and private sector stakeholders. The results show that both levels of social and political trust are low and do affect each other. The results also reveal correlations between trust, citizens' participation and government legitimacy. Most citizens agree that trust relationships are a factor affecting environmental management. Lack of trust is found to be one of the reasons why environmental management in Lebanon is weak. However, other factors also score highly, illustrating the complexity of trust relationships.

Chapter 5 studies trust and cooperation relationships among stakeholders in the public sector and between stakeholders in the public and private sector *from the public and private sector's perceptions*. Using interviews, the results show that for many reasons there was weak cooperation between and among these stakeholders. The lack of trusting relationships, as seen by private sector stakeholders, is less prominent than might be expected in explaining the weak cooperation among public sector stakeholders. We argue that some of the other factors listed by the private sector stakeholders are linked, either directly or indirectly, to trust. Both public and private sector respondents agree that the level of cooperation of the citizens involved in environmental management initiatives is related to the extent these citizens trust the implementing agency or entity. The fact that there are many factors explaining the lack of cooperation among the stakeholders involved justifies the initial choice of an inductive methodological approach rather than an experimental deductive approach and reveals the complexity and nuance in trust relationships in Lebanon.

Chapter 6 studies how trust and cooperation relationships *among citizens and public and private sector stakeholders* can enhance or hinder environmental management in Lebanon. Using the citizens survey, together with public and private sector stakeholders interviews, the results show that trust and cooperation are weak and that this weakness hinders environmental management in Lebanon. Nevertheless, the results also show there is evidence that such relationships are used to circumvent environmental policies and regulations for individual gain. This research argues that willingness to cooperate for the general interest (or public good) in Lebanon is much lower than willingness to cooperate for personal benefit.

Chapter 7 brings together the different stakeholders in a single workshop. It *explores the public sector, private sector and grassroots movement's views* on the factors that affect, or are affected by, *solid waste management* in the Al-Fayhaa Union and in particular the role of trust. Application of the Fuzzy Cognitive Mapping method to a solid waste management case study confirmed earlier findings that trust is a prerequisite for effective environmental management, but that also this relationship is not simple. Results show that, out of the 49 variables listed as having some relation with solid waste management, the “lack of trust relationships” is ranked second by the public and private sector stakeholders, and fifth by the grassroots interviewees. The final aggregated map, which combines all 29 participant's views, indicates that trust ranked second among the top 10 central variables in the system. Trust relationships are found to have direct and indirect relations with other factors linked to environmental management, for instance, political will; armed conflicts; lack of funding; private sector involvement; and awareness of citizens; citizens' participation; and, governance legitimacy. The results presented in this chapter reveal the complexity and nuance in trust relationships in Lebanon, and confirms the results found earlier in Chapters 4, 5 and 6.

The study concludes in Chapter 8 that based on the perceptions of the main stakeholders involved in Lebanon, trust relationships are found to have an important direct or indirect effect on environmental management generally, and on solid waste management specifically. This

research also provides information on trust in the local democracy. This research argues that the lack of trust in Lebanon is weakening its democratic institutions. The fact that citizens lack trust in the public sector stakeholders leads them to reserve their participation in environmental activities, or not to comply with regulations and decisions related to environmental management. This same lack of trust and poor cooperation sometimes constrains progress of planned projects, even sometimes delaying or cancelling projects.

This research makes three broad contributions: First, it fills the gap found in literature about systematic studies on trust relationships in Lebanon. Second, it shows scientifically a clear link between trust relationships and the environmental management process. Third, it builds on and complements the existing literature on trust, trust and cooperation relationships and trust and its importance in the success of management and projects.

Samenvatting (Summary in Dutch)

Het is wereldwijd een van de grootste uitdagingen van de 21^e eeuw: duurzaam milieubeheer. Wat al lastig is, wordt nog ingewikkelder wanneer door omstandigheden een effectieve omgang met dit thema belemmerd wordt - bijvoorbeeld in het geval van een gewapend conflict. Uit eerdere studies is gebleken dat de milieuproblemen in Libanon zijn toegenomen. De onderzoeken tonen aan dat de doeltreffendheid waarmee de Libanese overheid deze uitdagingen het hoofd probeert te bieden, wordt beperkt door een groot aantal factoren. Zo worden er geen passende besluiten genomen, worden er geen wetten ter bescherming van het milieu opgesteld en is er een gebrek aan continuïteit in de ontwikkeling van milieuprogramma's. Veel onderzoekers hebben zich al gebogen over de rol die vertrouwen speelt in milieubeheer. Toch is er in Libanon een groot gebrek aan kennis over vertrouwensbanden en de invloed die zij kunnen uitoefenen op milieubeheer.

In Libanon zijn drie grote groepen belanghebbenden betrokken bij milieubeheer (hetzij direct, hetzij indirect): belanghebbenden in de publieke sector, belanghebbenden in de private sector, en burgers. Dit onderzoek is er met name op gericht om vanuit de zienswijzen van de belangrijkste belanghebbenden na te gaan hoe in Libanon het vertrouwen en de samenwerking zijn tussen publieke en private belanghebbenden bij milieubeheer enerzijds, en tussen deze belanghebbenden en burgers anderzijds. Tevens wordt bekeken welk effect en welke invloed deze relaties op het milieubeheer in Noord-Libanon hebben. Hierbij wordt rekening gehouden met de complexe realiteit in dit conflictgebied.

Om het onderzoek succesvol te kunnen uitvoeren, is er een analytisch kader ontwikkeld gebaseerd op de algehele opvatting dat er een wederkerig verband bestaat tussen vertrouwen en samenwerking, en dat duurzaam milieubeheer enkel mogelijk is met vertrouwen. Voor het opstellen van het analytisch kader is gebruikgemaakt van meerdere theorieën over vertrouwensbanden en samenwerkingsverbanden. Deze theorieën - die in de gehele thesis zijn gebruikt -, zijn de sociale uitwisselingstheorie, de culturele theorie van politiek vertrouwen, de sociaal-kapitaaltheorie, de corruptie-vertrouwentheorie, de theorie van Levi en de afhankelijkheid van eerdere ervaringen (hoofdstuk 2). Er is gebruikgemaakt van een inductieve in plaats van een deductieve aanpak. Er zijn verschillende methodes toegepast, aan de hand waarvan zowel kwalitatieve als kwantitatieve gegevens zijn verzameld (hoofdstuk 3).

Vanaf hoofdstuk 4 komen de empirische gegevens aan bod. In dit vierde hoofdstuk – waarvoor enquêtes zijn uitgevoerd – worden vanuit *het zicht van de burgers* de vertrouwensbanden tussen de burgers onderling, en tussen hen en de belanghebbenden uit de publieke en private sector onder de loep genomen. Uit de resultaten blijkt dat zowel het sociale als het politieke vertrouwen laag zijn en dat deze elkaar beïnvloeden. Ook is duidelijk geworden dat er een wisselwerking is tussen vertrouwen, burgerparticipatie en de legitimiteit van de overheid. De meeste burgers zijn het erover eens dat vertrouwensbanden van invloed zijn op milieubeheer. In Libanon is een gebrek aan vertrouwen een van de redenen gebleken waarom het milieubeheer daar zwak is. Er

zijn echter nog andere factoren die hoog scoren en dus de complexiteit van vertrouwensbanden weergeven.

In hoofdstuk 5 worden vertrouwen en samenwerking bestudeerd tussen belanghebbenden binnen de publieke sector, en tussen belanghebbenden uit de publieke en private sector. Hierbij wordt gekeken *vanuit het zicht van deze twee sectoren*. Voor dit hoofdstuk zijn interviews gevoerd. Uit de resultaten van deze interviews komen veel redenen naar voren voor de slechte samenwerking tussen deze belanghebbenden (zowel tussen belanghebbenden binnen de publieke sector als tussen belanghebbenden uit de publieke en private sector). Belanghebbenden uit de private sector hebben gebrek aan vertrouwen - als factor die van invloed is op samenwerking - minder vaak genoemd dan verwacht zou kunnen worden bij het verklaren van de zwakke samenwerking tussen belanghebbenden uit de publieke sector onderling. We denken dat een aantal van de andere aspecten die door de belanghebbenden uit de private sector genoemd werden, samenhangen met vertrouwen (hetzij direct, hetzij indirect). Respondenten uit de publieke én de private sector zijn het erover eens dat de mate van samenwerking van burgers die bij initiatieven op het gebied van milieubeheer betrokken zijn, gerelateerd is aan de mate waarin deze burgers de uitvoerende organisatie of instantie vertrouwen. Het feit dat er veel factoren zijn die het gebrek aan samenwerking tussen de belanghebbenden verklaren, rechtvaardigt de keuze voor een inductieve methodologische benadering boven een experimentele deductieve benadering en laat tegelijkertijd de complexiteit en nuances zien in Libanese vertrouwensbanden.

In hoofdstuk 6 wordt onderzocht hoe vertrouwen en samenwerking *tussen burgers en belanghebbenden uit de publieke en private sector* het milieubeheer in Libanon kunnen versterken of juist belemmeren. Een combinatie van de resultaten van de burgerbevraging en de interviews met belanghebbenden uit de publieke en private sector laat zien dat er in Libanon weinig vertrouwen en samenwerking is en dat dit het Libanese milieubeheer belemmert. Tegelijkertijd valt ook te concluderen dat zulke banden gebruikt worden om milieubeleid en milieuregelingen te omzeilen om er persoonlijk voordeel uit te behalen. Dit onderzoek stelt dat in Libanon de bereidheid om voor het algemeen belang (of algemeen welzijn) samen te werken veel lager is dan de bereidheid om voor persoonlijke winst samen te werken.

In hoofdstuk 7 wordt een workshop besproken waaraan de verschillende belanghebbenden gezamenlijk hebben deelgenomen. In dit gedeelte van de thesis worden *de zienswijzen van de publieke sector, de private sector en de Grassroots-beweging* geanalyseerd wat betreft de factoren die *het afvalbeheer* in de Al-Fayhaa-bond (Al Fayhaa Union of Municipalities) beïnvloeden of die juist op hun beurt door dit beheer beïnvloed worden. Hierbij wordt in het bijzonder gelet op de beoordeling van de factor vertrouwen. Ook wordt de Fuzzy Cognitive Mapping-methode toegepast op een casestudy over afvalbeheer. Hiermee worden eerdere bevindingen bevestigd waaruit is gebleken dat vertrouwen een voorwaarde is voor effectief milieubeheer, maar het werd eveneens duidelijk dat deze vertrouwensband complex van aard is. Resultaten laten zien dat de belanghebbenden van de publieke en private sector van de 49 opgesomde variabelen die in verband staan met afvalbeheer, het “gebrek aan

vertrouwensbanden” op de tweede plaats zetten, terwijl de Grassroots-beweging deze variabele op plek vijf had staan. Uit de schematische weergave met alle 29 opvattingen van de deelnemers valt op te maken dat vertrouwen op plek twee staat in de top 10 van centrale variabelen in het systeem. Het is gebleken dat vertrouwensbanden direct en indirect gerelateerd zijn aan andere factoren die te maken hebben met milieubeheer (voorbeelden zijn politieke wil, gewapende conflicten, een gebrek aan fondsgelden, betrokkenheid van de private sector, bekendheid van burgers met milieubeheer/milieuaspecten, burgerparticipatie en legitimiteit van de overheid). De resultaten uit dit hoofdstuk geven de complexiteit en nuances in Libanese vertrouwensbanden aan en bevestigen de resultaten uit hoofdstuk 4, 5 en 6.

In hoofdstuk 8 wordt het onderzoek afgerond met de conclusie dat, op basis van de opvattingen van de belangrijkste belanghebbenden bij het Libanese milieubeheer, vertrouwensbanden een belangrijk direct en indirect effect hebben op milieubeheer in het algemeen, en op afvalbeheer in het bijzonder. In dit onderzoek wordt ook ingegaan op vertrouwen in de lokale democratie. Er wordt gesteld dat het gebrek aan vertrouwen in Libanon de democratische verworvenheden in het land aantast. Het feit dat burgers niet genoeg vertrouwen hebben in de belanghebbenden uit de publieke sector zorgt ervoor dat ze zich gereserveerd opstellen wat betreft participatie in milieugerelateerde activiteiten of geen gehoor geven aan regelingen en besluiten die te maken hebben met milieubeheer. Dit gebrek aan vertrouwen in combinatie met slechte samenwerkingsverbanden belemmert soms de voortgang in projecten en kan zelfs tot vertragingen of het stopzetten van projecten leiden.

Dit onderzoek levert drie belangrijke bijdragen: ten eerste vult het met de bespreking van vertrouwensbanden in Libanon een lacune in systematische studies. Ten tweede is op wetenschappelijk verantwoorde wijze aangetoond dat er een duidelijk verband bestaat tussen vertrouwen en milieubeheer. En ten derde vormen de resultaten van het onderzoek een aanvulling op de bestaande literatuur over vertrouwen, vertrouwen en samenwerkingsverbanden en vertrouwen en het belang hiervan voor het welslagen van managementactiviteiten en projecten.

About the author

Nivine H. Abbas was born in 1976 in Tripoli, Lebanon. She holds a Bachelor of Arts degree (in Archaeology) from the American University of Beirut (AUB), Lebanon (1999). However, she didn't work in this field, mainly due to the war in Lebanon. Instead she participated as a volunteer in many community activities, leading to work with NGO's and International organizations. Since 2002, she has worked as a facilitator, trainer, administrative director, or project assistance in many projects implemented in Lebanon and abroad. In parallel to these activities she received training in topics such as: Organizational Development and Capacity Building; Increasing the Efficiency of Institutions; Training of Trainers of Local Community Development Workers; Personal Economics; Participatory Development Research; Financial Management; among others. While working, she decided to continue her education in this field. In 2008, Nivine graduated with a Master degree in International Affairs from the Lebanese American University (LAU), Lebanon.

Continuing her PhD was always in her mind. Being a Lebanese citizen and through her work and education she noticed that lack of trust relationships is often a problem in her society, and she was concerned about the severe environmental degradation in the area. As soon as she found out about the PhD Programme offered by CSTM of the University of Twente, Netherlands in partnership with the Institute of Environment at the University of Balamand, Lebanon, she applied. She thought this is a great opportunity that can bring together these two topics: trust and environmental management. In October, 2010, Nivine was enrolled for four year in a full time PhD position to examine trust relationships and its impact on the environmental management in North Lebanon. The PhD research was supervised by Prof. Prof. Jon Lovett and Dr. Irna van der Molen and Dr. Manal Nader; and funded by the Netherlands Organization for Scientific Research (NWO), WOTRO Science for Global Development.

From March until July 2014, she worked with the World Health Organization (WHO) as a Public Health Officer in Tripoli, Lebanon, during which time the conflict in Syria spilled over into northern Lebanon. Nivine's education and experiences have empowered her with knowledge about the interrelationship between human nature, society, environment, and health. Her interdisciplinary education and background has given her a wide perspective and understanding of the complex interrelationships between different components of trust.

During the last two years, Nivine has presented and published many of the research findings in journals, conferences, and proceedings targeting different audiences. She plans to continue working in the field of environmental management and policy, public health issues, sustainable development, and community engagement.