A thesis submitted to the Department of Environmental Sciences and Policy of Central European University in part fulfilment of the Degree of Master of Science

ENVIRONMENTAL JUSTICE IN ISRAEL: THE CASE STUDY OF THE ARAB BEDOUIN IN THE NEGEV

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July, 2010

Budapest

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ABSTRACT OF THESIS submitted by:
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This study identifies and analyzes cases of environmental injustice and unequal distribution of environmental harms and benefits focusing on the Arab Bedouin minority in the north-eastern Negev, Israel. The concept of environmental justice is used to frame the research and to interpret the data collected in the study.

The study is based on the findings of the preliminary and main research including the field research. The aim of the field research was to assess the distribution and of environmental benefits and hazards and the subsequent impacts on the residents of unrecognized and recognized Bedouin settlements. Six patterns of environmental injustice and unequal treatment have been detected: differentiated access to water, discriminatory waste management practices, exposure to hazardous waste, chemicals and pollution, sewage: differentiated access to the system and exposure, differentiated access to electricity and inadequate housing.

The research reveals that compared to majority population, the situation of the Bedouin living in unrecognized villages is alarming, and the environmental threat they face is high. Types of unequal treatment and exposure to environmental risks in unrecognized villages cover all six patterns of environmental injustice. It is also found that the situation in recognized villages is inadequate regarding access to municipal services.

The study concludes with preliminary recommendations on how to address the unequal distribution of environmental harms and benefits through capacity-building and grassroots initiatives.

Keywords: Environmental justice, Bedouin, Negev, Israel

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1.1. INTRODUCTION TO THE RESEARCH ON ENVIRONMENTAL JUSTICE AND NEGEV BEDOUIN IN ISRAEL

"No electricity, no water, no sewage, no recognition, no nothing. Welcome to Israel."

(The Regional Council for the Unrecognized Villages in the Negev[1])

Prior to the establishment of the State of Israel, the population of the Negev desert consisted of more than 70 thousand Arab Bedouins divided among ninety-five tribes (Goering 1979; Falah 1989). The 1948 war brought about a dramatic change in this situation. Most of the Bedouin (over 50 thousand) left their land behind and fled during the fighting or were expelled from the area. Those who remained in the Negev (approximately 11 thousand) were relocated and concentrated in the north-eastern Negev, an area referred to as the "Siyag", giving the beginning of what later the Israeli government will regard as "the Bedouin problem" (Swirski and Hasson 2006, 74).

The concentration of the Bedouin within the small and confined area - one of the first attempts undertaken by the government to control Bedouin settlements, had been followed by further land expropriations and a number of laws and regulations that affected the everyday life of Bedouin. Today, out of approximately 160 thousand Negev Bedouins, 55 to 76 thousand Bedouins live in unrecognized villages and do not have access to water, electricity, sewage, waste collection and other public goods. Moreover, part of the villages is located in the close proximity to open sewage streams, industrial complexes and military zones.

[1] Taken from the website of the Regional Council for the Unrecognized Villages in the Negev, RCUV 2010.

This may bring the questions of fair or unfair allocation of environmental and public goods and ills to the surface. Is it just a coincidence that Bedouin communities are situated close to polluting facilities?

Unequal treatment may not be only about Arab Bedouins though, but they are the exposed indigenous and marginalized group of people in Israel when it comes to the analysis of uneven distribution of environmental harms associated with industrial development, and of disproportionate access to environmental benefits. In this context, the distributional aspect can be studied from the perspective of environmental justice, which is generally understood as the fair treatment and involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no group of people, including racial, ethnic, or socioeconomic groups, should be disproportionally exposed to negative environmental consequence resulting from industrial, municipal, and commercial operations or the execution of programs and policies (UCCCJR 1991). Environmental justice is also about recognition and involvement of all stakeholders, regardless of their ethnicity or economic status, in development, implementation and enforcement of policies, programs and projects related to the distribution of environmental goods and ills (Filcak 2007).

This study is developed with the intention to map out the environmental conditions in the region, identify mechanisms related to the differentiated treatment and ways to address the impacts of inequalities, and establish the patterns of unequal treatment. The research is an attempt to analyze the role of the environment in the context of human rights and to demonstrate, that on the basis of their ethnicity, the Israeli Arab Bedouins suffer from poor access to land, water, electricity and inadequate governmental funding to deal with environmental hazards. Thus, given the history of the issue there is a question of discrimination

in equal access to environmental benefits in the north-eastern Negev and inequality of people when it comes to exposure to environmental harms.

1.1.1. Study rationale

A significant amount of academic research has been conducted on the Negev Bedouin addressing the social and political implications of the government's urbanization policy (e.g. Falah 1989; Ginguld *et al.* 1997; Dinero 1997, 1999), the ecological impacts of semi-nomadic pastoralism (e.g. Falah 1989), anthropological and social aspects of Bedouin life (e.g. Meir and Ben David 1991; Hundt and Forman 1993; Meir 1987; Degan 2003, Kressel 2003) and health of the Bedouins (e.g. Rosen 1998; Al-Krenawi 2004; Almi 2003, 2006). In addition, numerous environmental and human rights organizations have become increasingly active on the issue of inequality, claiming that limitation of access to municipal and public services in unrecognized Bedouin villages directly affects the health of its residents and is in violation of the states responsibility to meet the basic needs of its citizens (Almi 2003; RCUV/AHR 2003; COHRE 2008).

The preliminary and main research reveal that there are number of studies mentioning the adverse environment the minority lives in (Manski 2006; Tarek 2004; Meallem 2006; EC 2010; Swirski and Hasson 2006) or discussing water, sanitation and health problems faced by Bedouins (Manski 2006; COHRE 2008; NCF 2006; Almi 2003, 2006). However, past studies appear to largely avoid framing the research on the Bedouin community within the concept of environmental justice. Only few studies are devoted to environmental justice and Arab minority in Israel (e.g. Shmueli 2008; Omer and Or 2005). And even less research, to my best knowledge, that looks at Bedouin community through the lens of environmental justice framework is done (e.g. Fritz 1999, Manski 2007). Nevertheless, the situation in the Bedouin

villages remains critical. Therefore, an analysis of situation in Bedouin villages within the framework of environmental justice can contribute to understanding of the causes of unfair treatment and disproportionate exposure of Bedouins to environmental hazards, and help to identify measure to address environmental injustice.

1.1.2. Contribution of the research

The minimal information and research done on environmental justice and the Bedouin community in Israel means there is a need to explore the situation in Bedouin settlements within the framework of environmental justice. This study offers to fill such need by applying the framework of environmental justice to the Bedouin minority living in recognized and unrecognized in the north-eastern Negev, Israel. The study hopes to engage with the interdisciplinary academic thinking about justice in environmental and social context.

This research aims to provide a compilation of evidence that demonstrates the urgent need for work ahead to build and promote environmental justice in Israel. One of the purposes of the study is to raise awareness on the role of discrimination in levels of exposure to environmental hazards and access to environmental goods, thus, to encourage and mobilize human resources to cure environmental injustice. The research also aims to be a comprehensive study on environmental challenges faced by Bedouin communities in the north-eastern Negev and struggles for equal economic, ecological and cultural distribution. It hopes to contribute to understanding of origins, mechanisms and impacts of differentiated treatment of Arab Bedouin citizens of Israel and create a basis for combating inequality in the distribution of harms and benefits at the State and local levels.

Beyond contributing to academic knowledge this study hopes to provide valuable information for the communities themselves, as a basis for addressing problems of distribution of

environmental risks and benefits, and to external agencies, working to increase community and public awareness of specific environmental hazards and find sustainable solutions. Finally, the Israeli public, largely unaware of the problems faced by residents living in Bedouin settlements, might also find this work of interest.

1.2. OVERVIEW OF THE RESEARCH PROBLEM

Environmental risks and hazards as well as benefits are unequally apportioned among the members of society. As it has been observed for many years, the marginalized segments of society whether they are representatives of ethnic minorities, communities of lower socio-economic status or the least educated and poor people, suffer disproportionally from negative impacts and uneven distribution of adverse effects of industrial development (Steger *et al.* 2007). This tendency was embedded in "the first law of environmental risks" formulated by Beck (1999, 5) – "pollution follows the poor".

The aim of this study is to identify, explore and analyze examples, roots and forms and causes of environmental injustice in the north-eastern Negev, Israel, and to discuss ways to address them. The Bedouin indigenous minority is the focus of this work. To understand the cases of environmental injustice in Israel, we need to see them in the context of not only social, economic, political and cultural processes but also historical forces that fuel the environmental injustice in the country.

The security concern is one of the major factors influencing the reality of environmental justice in Israel (Shmueli 2008). It strongly shapes Israeli policies on land allocation and use at the national, regional, and local governmental levels. For the Bedouin citizens of Israel, environmental justice is inseparable from demands for equal treatment to that provided to Jewish citizens.

Based on the trivalent nature of justice proposed by Schlosberg (2004) in combination with corrective element of justice (Shmueli 2008), a broad and inclusive framework for analysis of environmental injustice in Israel was developed. It integrates (see Fig.1):

- equitable distribution of environmental risks and benefits,
- recognition of the diversity of affected peoples and communities as a distinct element of justice (the role that class ethnicity plays in distribution and processes leading to distribution),
- participation of peoples and communities in the political process which creates and manages environmental policy (the ability of marginalized groups and individuals to influence the distribution of environmental benefits and risks and to formulate environmental justice struggles),
- compensation for exposure to environmental hazards and risks, and differentiated access to environmental benefits.

These four deeply interconnected concepts constitute an operative framework of environmental justice that may be applicable in Israeli settings. None of these elements can be ignored since all of them contribute to the better understanding of the causes of environmental injustice and ways to address unequal distribution of environmental harms and benefits. For example, recognition plays an essential role for the residents of unrecognized Bedouin villages. The lack of it affects every aspect of their life. Recognition of the village may enhance participation of its residents in the environment-related and other decision-making processes thus increasing chances for other villages to be recognized and come out of the margins of the society. Needless to say that deeper involvement of the discriminated and marginalized community into the decision-making process may bring a positive change in terms of compensation provided and access to environmental benefits.

Figure 1. Interconnection between elements constituting the framework of environmental justice.
Source: adopted from Schlosberg 2004 and Shmueli 2008

In order to understand mechanisms behind the environmental justice it is also important to know the history of environmental discrimination and the processes by which it unfolds (Pellow 2002). History influences the present and forms the institutional and informal structures in which decisions are taken. Understanding of historical social processes associated with the distribution of environmental benefits and risks, and institutional inequalities of people of different class or ethnic origin helps to shed light on the roots of the present cases of environmental injustice. This approach helps to understand that environmental injustice does not have an accidental or occasional nature of temporary disadvantageous distribution of environmental harms and goods, but it is rather an outcome of long-term structural discrimination and marginalization.

1.3. AIMS AND OBJECTIVES

The study offers an examination of the situation within the environmental justice framework among Arab Bedouins living in unrecognized and recognized Bedouin villages in the north-eastern Negev, Israel. The aim of the study is also to identify and explore the key factors leading to environmental injustice in the region, in order to provide preliminary recommendations for addressing environmental injustice.

The following sets of research questions were developed as a guideline for the research:

1. ***Can the situation in Bedouin settlements in the north-eastern Negev be described as environmental injustice? If so, then what are the forms and scope of the unequal treatment? What are the impacts on affected communities? Are there inequalities in the distribution of environmental benefits and costs?***

Objective 1. Identify, describe and analyze cases, forms and nature of environmental injustice in Bedouin villages in the north-eastern Negev.

Objective 2. Examine and describe the core barriers on the way of addressing environmental injustice in Bedouin settlements;

Objective 3. Determine impacts of uneven distribution on affected.

2. ***What can be done to assure a more just distribution of environmental goods and risks?***

Objective 1. Identify measures to be implemented in community development and capacity building of affected people (bottom-up approach) and provide alternative/possible solutions to alleviate the consequences of environmental injustice

Objective 2. Provide preliminary recommendations for external agencies working in the field (the focus on grassroots initiatives will be explained in the last chapter).

A mix of qualitative research methods was chosen to give a comprehensive answer to these questions. Primary data was collected during the field research in Israel by means of

unstructured interviews and observation. During the field observation the attention was mainly paid to the living conditions of the Bedouins with the focus on housing, water and electricity, sanitation and health facilities, and waste (see Appendix III, 99-103).

The secondary data was gathered via review of the available academic and professional literature, laws and regulations.

1.4. RESEARCH SETTINGS

Israel, one of the countries of the world's youngest region – Middle East (Dhillon 2008), is a dynamic State with its unique physical, socio-political, demographic, and economic conditions. The problems it is now facing are determined by its geographical location and the historical background of the country and region which has been in strife for more than sixty years. The legacy of conflict has compromised the ability of communities to cope with social problems that in the Israeli context are inextricably connected with an environmental context of water shortages, deforestation, overgrazing, recurrent drought and poor surface management of cultivated lands (Brown and Crawford 2009).

Rapid industrial development, population growth and urbanization are putting pressure on the environment and increasing the environmental burden of the State. This is partly a result of the sentiment that without significant population and economic growth, Israel would be unable to survive in the face of the hostile environment in which it exists (Gabriel and Cohen 1973).

Because of its limited area and high concentration of population and industry along the narrow coastal plain, such global issues as climate change and industrial pollution are particularly relevant to Israel. Israel is thus particularly vulnerable to potential exposure of rising ocean levels, Mediterranean shipping-oil spills, and wind-blown and sand-blown pollution (Shmueli 2008).

The country covers a land area of only 21 642 square kilometers, with a population of 7,374,000 people (CBS 2009) that are 80% Jewish and 20% Arab (Shmueli 2008). Approximately 60% of the population is highly concentrated in the North of the country. This region constitutes the area of densest concentration of population, industry, and commerce, covering 2 200 square kilometers and embracing a total population of approximately four million, with an average density of 1800 persons per square kilometer (Shmueli 2008). Along with another major population center, Greater Jerusalem, this area forms a core urbanized and industrialized region of Israel where the Jewish and Arab populations live in close proximity, and the impact of pollution and other environmental factors has little to do with class or ethnicity. Hence, the inequities based on income and race have little relevance within the core region.

However, the majority of Israel's Arab population (1 million of the 1.4 million) is concentrated in the northern (the Galilee) and southern (the Negev) peripheries, Um el Fahm and the rest of the "Little Triangle", and in Jerusalem (see Fig. 3, 4). It is in these peripheral regions that issues of environmental inequities for Arabs are most sharply felt.

Major issues with environmental consequences are related to land allocation and land use. The small size of the country increases the value of every dunam[2] because roads, sewage systems, waste disposal and management, and other public facilities require space.

[2] 1 duman=1000 m^3

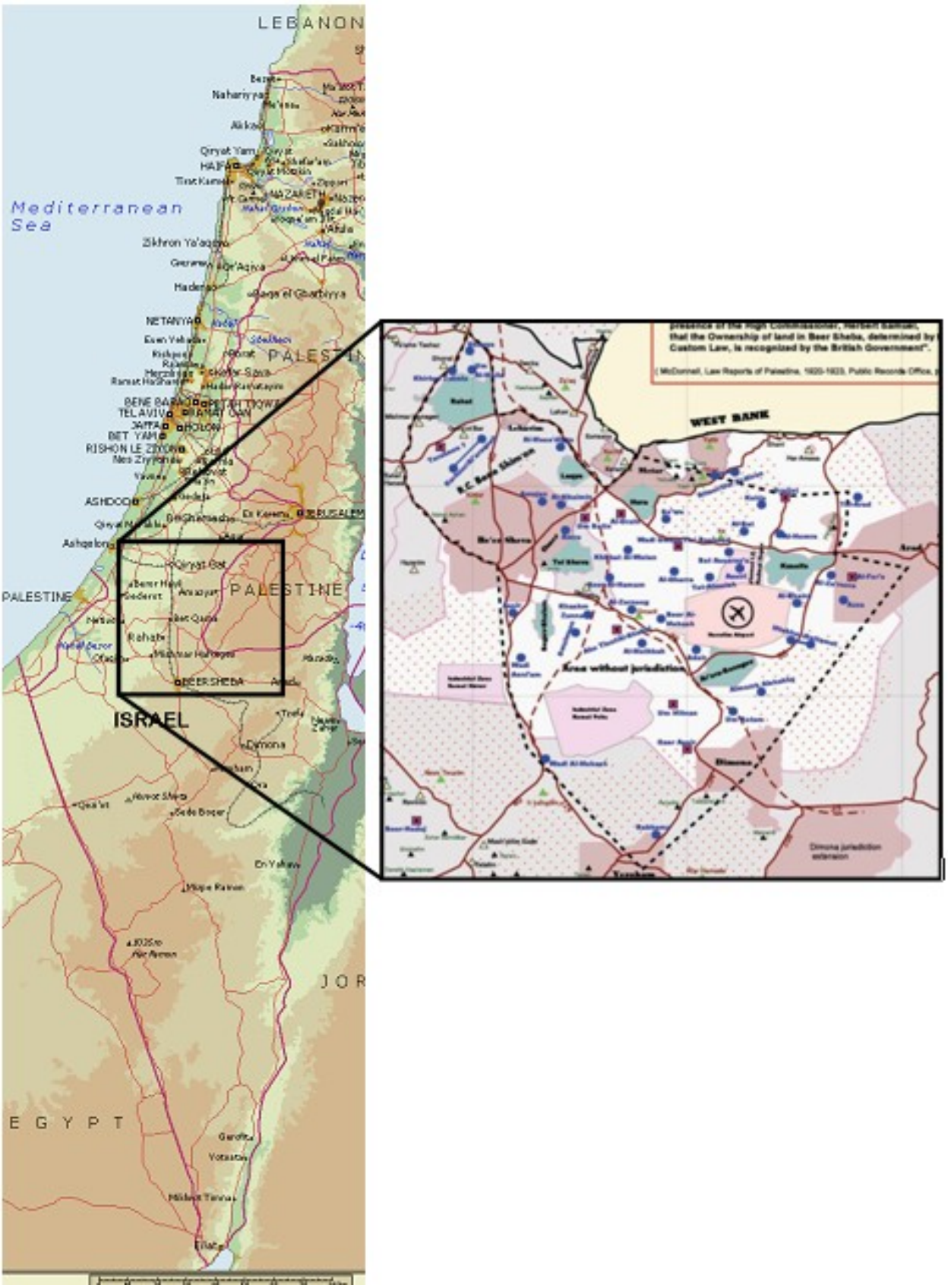

Figure 2. Siyag borders, north-eastern Negev, Israel

Source: adopted from Meallem 2006

Since the beginning of industrialization of Israel, most of the chemical facilities were built in the core region in the North of the country. However, in the 70-80's, due to uncontrolled discharges of the chemical industries (cyanic liquid residues mixed with oils and industrial pollution), attention was brought to destruction of the fauna and flora along the river beds of several rivers crossing the metropolitan area of Tel Aviv, on their way to the Mediterranean Sea. As a result, the government has significantly modified its environmental policy since 1985 and created conditions for the polluting facilities to be relocated from the industrial North and Beer Sheva to the Ramat Hovav region, which is located 12 kilometers south-east of Beer Sheva (Cohen 2007) (see Fig. 2, 3).

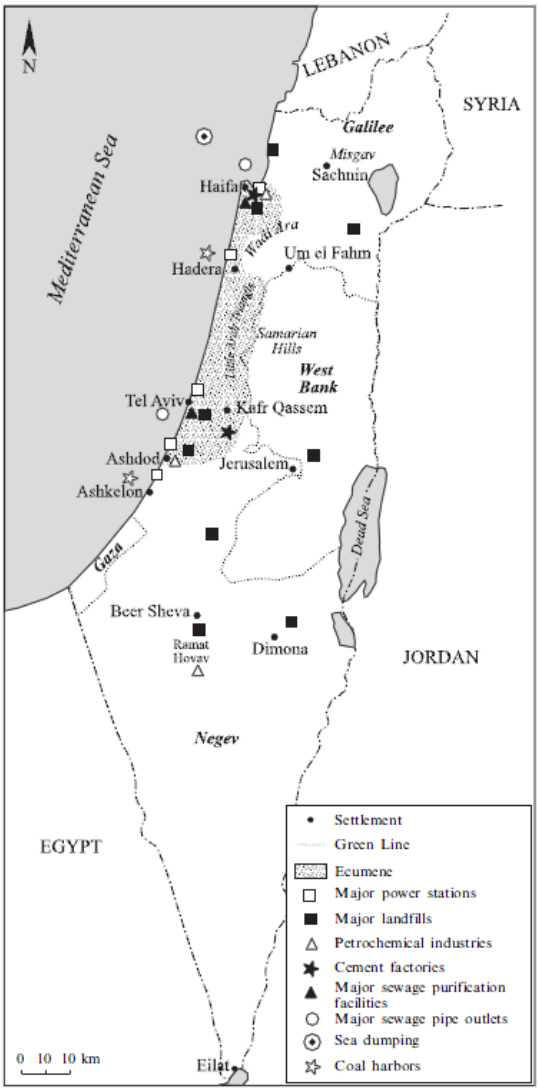

Figure 3. Environmental risk point sources in Israel.
Source: Shmueli 2008

The justification for the relocation of chemical industries to the Negev was that at that time this region constituted a rarely populated area, and Beer Sheva (now one of the largest cities in Israel and the biggest city in the desert) was a comparatively small town with less than 20 thousand inhabitants. Relocation of polluting facilities and construction of new one in the spacious South of the country could solve the problem of industrial pollution in the core region. Thus, chemical residues and the dangerous substances from all over the country found

their place in the Negev – "garbage bin of Israel" (two major landfills are located here) (Cohen 2007; Manski 2006).

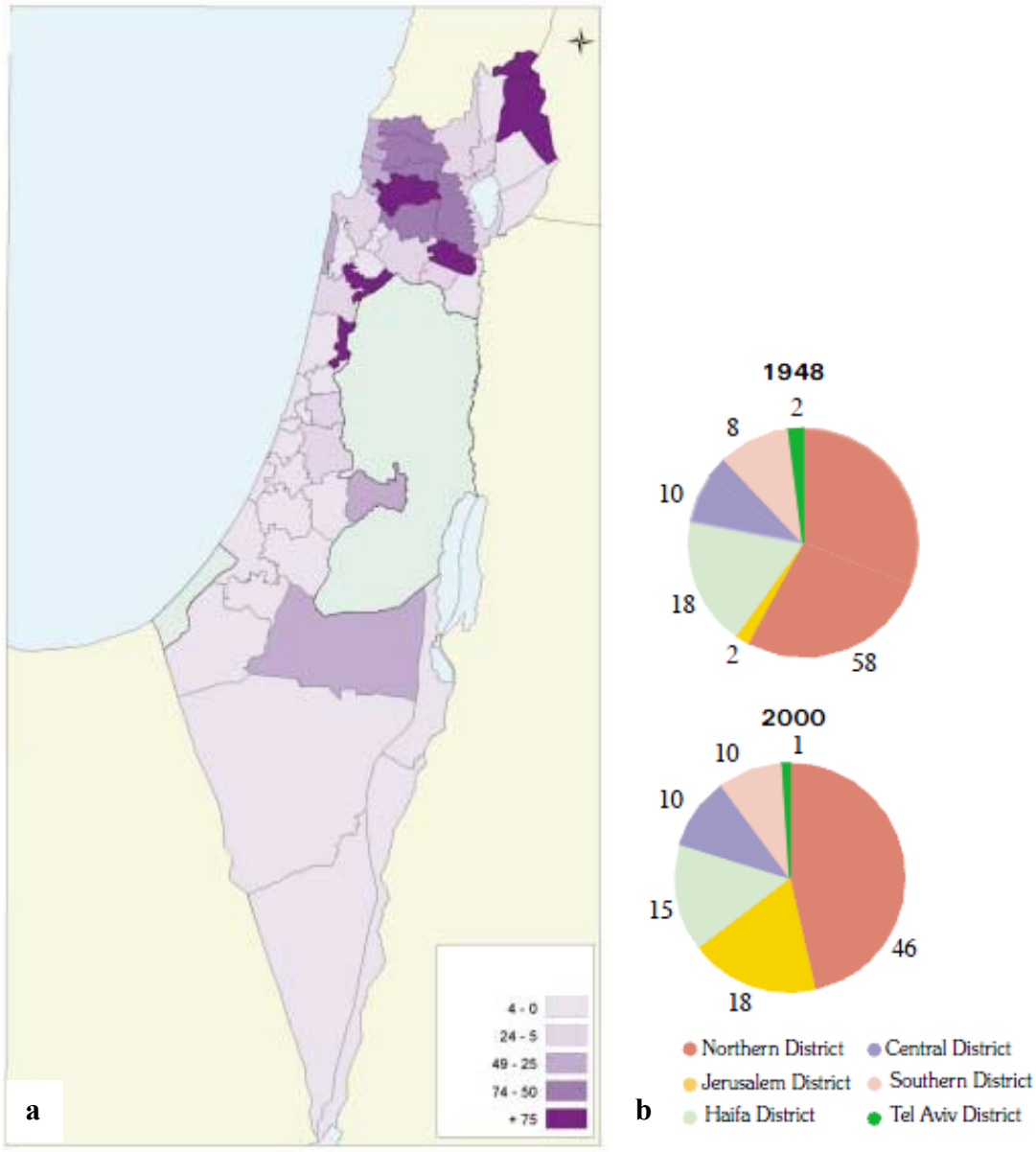

Figure 4. a) Arab population in natural regions (% of total population in region), 2000, and **b)** Arab population, by district, %, 1948, 2000
Source: Central Bureau of Statistics and Center of Statistical Information 2002

What was before the Ramat Hovav region is now called the Industrial Council of Ramat Hovav. It hosts 17 chemical factories, concentrating over half of Israel's chemical plants on 22.3 square kilometers. It is also the largest toxic waste facility in the region to which seventy thousand tons of hazardous materials are shipped annually by road (Lubanov 2008). The site

processes organic, inorganic and solid waste through chemical-biological treatment, incineration and landfilling. Organic wastes from the factories are piped to a series of evaporation ponds that take up almost half of the site's acreage.

Another environmental hazard that is located in the northern edge of the Negev (east of Beer Sheva) is Israel's natural uranium, heavy-water research reactor at Dimona which poses a potential risk to a large proportion of the country's population (see Fig. 3). It was constructed in the end of 50's in about 13.5 kilometers from the town and was put on line in early 1964.

Moreover, the region is also known as a military cardon of Israel. Thus, for example, the government decided to establish an Israel Defense Forces (IDF) Training Base City - Ir Habahadim -, some ten kilometers away from Ramat Hovav. The military city is planned to be a platform for the economical development of the Negev. Construction of this base will have huge impacts on the region.

Besides being a "dump-yard" of the country and its industrial and military zone, the north-eastern Negev – the area also called Siyag (Fig.2), is a home for some 62 Bedouin settlements. Forty-five unrecognized and ten recently recognized Bedouin villages, six Bedouin townships and one Bedouin city are concentrated here. Though poverty and inequality remain widespread all over the country (over 20% of households are below the poverty line compared to the OECD average of 11%), north-eastern Negev is the region where high poverty rates and growing social disparities are particularly acute.

Bedouins are the minority within the Arab minority (which constitutes 20% of Israel's population), which can be called the poorest of the poor (50% of the Arab population are below the poverty line) (EC 2010). Social stratification is high, and the Bedouin community suffers from a very high poverty rate estimated at 80% in the unrecognized villages (COHRE

2008). The labour force participation rate of the Arab Bedouin population in the Southern district of Israel is lower than in other districts: only 49% of Arab men and 6% of Arab women are in the labour force (CBS and CSI 2002).

While residents of recognized villages and townships suffer from lack of access to green areas, and insufficient funding for combating pollution and other environmental hazards, the Bedouins in unrecognized villages, above the problems mentioned before, do not have access to water, electricity and other public services.

To summarize, Bedouins are the ethnic minority, which constitute some 2% of country population, and share some 2.5 % of the desert (Siyag area) with Israel's nuclear reactors, 22 agro and petrochemical factories, an oil terminal, closed military zones, quarries, a toxic waste incinerator, cell towers, a power plant, several airports, a prison, and 2 rivers of open sewage (Manski 2006). Due to constant exposure to toxicity and radiation, the risk of cancer for residents in this area is significantly higher than in the rest of the country (Manski 2006).

The selection of the north-eastern Negev as the territory for the research was based on the initial assumption that due to the high concentration of Bedouin settlements, economic and social problems, and clear segregation and marginalization of Bedouin villages from the main villages, it will be easier to document specific forms of environmental discrimination. These could be specific not only for the Southern region but also for Israel in general and its indigenous Bedouin minority.

1.5. STRUCTURE OF THE THESIS

The study is comprised of 6 chapters. Chapter 1 of the study gives an introduction to the research on environmental justice in the north-eastern Negev, Israel. While describing

conditions inherent to the region, it sheds light to the research setting and offers justifications for the research. Aims and objective are also presented.

Chapter 2 is devoted to the discussion of the concept and theories of environmental justice. It traces back the origins of environmental justice concept and gives definition of "environmental justice". The framework for the research is also offered. Discussion on methodology used in the research is presented in Chapter 3. Methods for data collection and analysis as well as study approach and design are described.

Chapter 4 is devoted to the case study of the Negev Bedouin. It offers the history of environmental justice problems in the Negev. The patterns of environmental justice that emerged during the research and the impacts of uneven distribution of environmental harms and benefits are described in Chapter 5 summarizing the results of data interpretation and analysis.

The preliminary recommendation and conclusion of the study is presented in Chapter 6.

CHAPTER 2. THEORETICAL FRAMEWORK

2.1. INTRODUCTION TO ENVIRONMENTAL JUSTICE

This chapter provides an insight into the theories of environmental justice and importance of the framework in the analysis of the origins and outcomes of the cases of injustice and uneven distribution of environmental benefits and harms. The first part is a discussion of environmental justice theories with the focus on what constitutes "justice" in environmental justice. It also traces back the roots of the environmental justice concept and gives the definition of environmental justice.

The second part of the chapter is devoted to the discussion of distinct elements that form the trivalent nature of environmental justice framework (Schlosberg 2004, 2007), namely distribution, recognition and participation. At the end of the chapter, the framework chosen to be applied to environmental injustice in the Israeli setting is presented.

2.1.1. Roots of the environmental justice concept

The extensive literature devoted to the subject of environmental justice links the creation of the environmental justice movement to the local struggles and other social movements in the United States (Cole and Foster 2001; Shrader-Frechette 2002; EJRC 2002). Based on this standpoint, environmental justice is a relatively new concept which has surfaced and taken shape over the last forty years. It emerged out of struggles of local communities, minorities and the poor against the brunt of the industrialized world's pollution. Among the cases labelled as milestones are the Houston Northwood Manor protest against sanitary landfill (1978), the Love Canal case in New York (where houses were built on abandoned toxic waste dump), the

Warren County case in North Carolina (protest of African Americans against a toxic waste dump in 1982), or the Triana case in Alabama (black community was contaminated with DDT from the Redstone Arsenal Army base in 1983).

However, it is important to note that the cry for environmental justice is not new, nor does it strictly find its roots in the environmental justice movement in the United States. People in different parts of the world, especially in a context of lasting "postcolonial environmentalism" debate between North and South, have experienced and combated discrimination and uneven distribution of environmental harms for a long time (Steger *et al.* 2007).

Along with US cases of the protest movements seeking to address inequalities in the distribution of pollution and other harmful effects of environmentally damaging activities are the Chipko movement in India (1973), the Chico Mendes rural union movement in Brazil in 1975 (struggle by rubber-tappers against the brutal conditions under which they lived) and the Movement for the Survival of Ogoni People (MOSOP) in Nigeria in 1992 under the leadership of Ken Saro-Wiwa. This type of protest movements originated as a response to environmental injustices

2.1.2. Defining environmental justice

Environmental justice focuses on the environmental problems (in terms of programs, policies, and/or activities) disproportionately faced by those with the least power (minority and low-income populations). While a number of countries that have begun to address environmental justice have grown recently, very little attention has been paid to what exactly the "justice" of environmental justice refers to.

For a long period of time, environmental justice was primarily defined as distribution of goods and harms in the communities and societies (Schlosberg 2007). The limitation of such a standpoint on environmental justice is that it does not take a holistic approach to the topic, and generally considers environmental justice as an offshoot of distributive justice, thus, undertheorizing the distinct elements of justice such as recognition and political participation (Schlosberg 2004; Shmueli 2008). Moreover, the theories that represent such an approach are insufficient in practice since they ignore the demands and expressions of the movements for environmental justice in the world. The main argument here is that a comprehensive notion of global environmental justice "needs to be locally grounded, theoretically broad, and plural – encompassing issues of recognition, distribution, and participation" (Schlosberg 2004, 518).

However, with time, the theory of environmental justice evolved and a number of additional ways of understanding and interpreting justice and injustice have been developed. The standpoint described in contemporary studies includes not only theories about distribution or maldistribution but also recognition and participation (Schlosberg 2007). In addition, Lake (1996) along with participation accentuated the significance of procedural justice.

Environmental justice focuses on the environmental problems disproportionately faced by those with the least power such as minorities and low-income populations (Fritz 1999). It may be observed in terms of programs, policies, and activities. Although the term "environmental justice" is the one that is most commonly used, "environmental injustice" is the one that lies at the heart of the discussion (Fritz 1999).

Many researches call environmental injustice environmental racism since they believe that racism frequently is the root of a problem (Mohai and Bryant 1992; Bullard 1994a, 1994b; Westra and Wenz 1995; Kraft and Scheberle 1995). However, other analysts prefer the terms "environmental justice" or "injustice" since environmental problems develop over a long period

of time and are complicated, which may create reasons for discrimination other than racism (Fritz 1999).

Three basic types of equality that are undermined by unequal environmental protection were described by Bullard (1995): "procedural" which involves rules, regulations, evaluation criteria, and enforcement; "geographic" - proximity to environmental hazards such as industrial and military zones, landfills, incinerators; and "social" which may be described as role of sociological factors such as race, ethnicity, class, culture in environmental decision-making.

Environmental justice is also understood as social justice (Rechtshaffen and Gauna 2002), which has been described as the marriage of the civil rights movement and environmentalism. Bullard refers to this aspect of environmental justice as "social equity: ... an assessment of the role of sociological factors (race, ethnicity, class, culture, lifestyles, political power, and so forth) in environmental decision-making" (1993, 11).

The proceedings of the 1991 First National People of Color Environmental Leadership Summit, co-organized by the United Church of Christ Commission for Racial Justice, put forth the following definition of environmental justice (UCCCRJ 1991):

> *Environmental justice - is the fair treatment of people of all races, cultures, and income with respect to the development, implementation and enforcement of environmental laws, regulations, programs, and policies. Fair treatment means that no racial, ethnic or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from the operation of industrial, municipal and commercial enterprises and from the execution of federal, state and local, and tribal programs and policies.*

The comprehensive definition for environmental injustice suggests that "environmental injustice exists when members of disadvantaged, ethnic, minority or other groups suffer disproportionately at the local, regional (sub-national), or national levels from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights

as a result of environmental factors, and/or are denied access to environmental investments, benefits, and/or natural resources, and/or are denied access to information; and/or participation in decision-making; and/or access to justice in environment-related matters" (Steger *et al.* 2007).

In other words, environmental justice will be achieved when everyone has the same degree of protection from environmental hazards and associated health harms and equal access to the process of decision-making to guarantee a healthy environment in which to live, learn, and work (U.S. EPA n.d.; Bullard and Johnson 2000).

2.1.3. Environmental justice: distribution and procedures

Distributive justice is focused on equal distribution of environmental harms and benefits: on what basis should goods and services be allocated? What constitutes a fair distribution of the benefits and risks associated with industrial development?

As it was indicated earlier, theoretical approaches that focus solely on a distributive aspect of justice are considered as narrow (Schlosberg 2004, 2007; Smueli 2008). Arthur and Shaw (1991) set forth four major philosophical doctrines on which a number of theories of distribution are based:

(1) libertarian (free-market operation where justice ensures the right of individuals not to be coerced and to be free from interference);

(2) utilitarian (needs or interests of people are the primary concern measured in terms of happiness (satisfied desires);

(3) *utopian* (social contract between government and citizen to apply to the equal distribution of the benefits of society);

(4) *rewards* (how much is deserved in accordance with contributions of time, effort, and labour) (Feinberg 1970; Rachels 1991).

In an environmental context, distributive justice most commonly involves addressing the disproportionate public health and environmental risks borne by minority and lower income groups (Been 1994; Bullard 1993; Colin 1992; Jerrett *et al.* 1997, 2001; Mitchell and Dorling, 2003; Pearce *et al.* 2006; Solimano 1998). Often, the communities most affected by environmentally harmful activities are ignored and excluded from important decision-making processes because they lack the opportunities, resources and knowledge (Shmueli 2005, 2008).

One of the concepts, that is distinct from environmental justice as distributive justice, was offered by Rechtschaffen and Gauna (2002) - environmental justice as procedural justice. It is defined as "the right to treatment as an equal ... not to an equal distribution of some good or opportunity, but to an equal concern and respect in the political decision about how these goods and opportunities are to be distributed" (Rechtshaffen and Gauna 2002, 9), and by the perceived fairness of the procedures leading to the outcome.

Filcak (2007, 21) sees procedural justice "as a concept involving the fair, moral, and impartial treatment of all persons, especially in law". He explains that it is a "continued effort to do what is 'right', where the 'right' is determined by consulting the majority, employing logic, relying on cultural and historical patterns of behaviour and/or values or referring to divine authority".

To summarize, distributive justice concentrates on fair outcomes, while procedural justice concentrates on fair processes. Distributive justice is seen as basic condition for the procedural aspects of distribution (Filcak 2007). Thus, both components of distribution and procedures

represent distinct elements of environmental justice, where "environmental justice is fair treatment of all people regardless of class or colour in procedural decisions relevant to the distribution of environmental harms and benefits" (Filcak 2007).

2.1.4. Recognition, participation and compensation.

As research proposes, recognition is crucial to the theory of justice (Rawls 1971; Walzer 1983; Schlosberg 2007). Rawls (1971) even notes that recognition is central to the moral question of justice. However, he does no separate recognition as distinct category of justice and argues that it is accounted for in theories of distributive justice. On the contrary, as Schlosberg (2007, 21) puts it, "recognition is not simply assumed in the real world of injustice… the battle for recognition is as large as the one for fair distribution". He claims that lack of recognition and maldistribution are inextricably linked.

The assertion that recognition is assumed offers no practical discussion of recognition. Moreover, it does not link lack of recognition and existing distributional inequalities, and therefore, no attention is paid to the institutional structures and practices that mediate both recognition and distribution. Schlosberg (2007, 22) focuses on recognition as a distinct element of justice:

> *If the interest is about attaining justice, rather than attaining a sound theory of justice, recognition is central to the question and the resolution – and is not simply to be assumed.*

The point here is that theories of distributive justice offer models and procedures by which distribution may be improved, but meanwhile none of them thoroughly examine the social, cultural, symbolic, and institutional conditions underlying poor distributions in the first place (Young 1990). They consider goods as static rather than due to the outcome of the relations

within society and institutions. As Young argues (1990, 15), "While distributive issues are crucial to a satisfactory conception of justice, it is a mistake to reduce social justice to distribution".

The lack of recognition of group differences is part of the problem of injustice, and part of the reason for unjust distribution. As Young insists (1990), lack of recognition, demonstrated by various forms of insults, degradation, and devaluation at both the individual and cultural level, inflicts damage to both oppressed communities and the image of those communities in the larger cultural and political realms. The lack of recognition, in this view, is an injustice not only because it constrains people and does them harm, but also because it is the foundation for distributive injustice. Likewise, Nancy Fraser (1997, 1998, 2000, 2001) focuses on demonstrating that justice requires attention to both distribution and recognition; justice is "bivalent" in this sense. As with Young, Fraser insists that we have to look at the roots of inequality in order to understand and cure it. Young and Fraser explore what the real impediments to such schemes are, and how they can be addressed. These theorists also note the direct link between a lack of respect and recognition and a decline in a person's membership and participation in the greater community, including the political and institutional order. If you are not recognized, you do not participate. In this respect, justice must focus on the political process as a way to address both the inequitable distribution of social goods and the conditions undermining social recognition. Democratic and participatory decision-making procedures are then both an element of, and a condition for social justice (Young 1990); they simultaneously challenge institutionalised exclusion, a social culture of misrecognition, and current distributional patterns.

Rechtschaffen and Gauna (2002) add another element to the environmental justice – compensation. Environmental justice as corrective justice involves fairness in the way

punishments for lawbreaking are assigned and damage inflicted on individuals and communities are addressed including the duty to repair the losses by the responsible party (Kuehn 1994).

2.1.5. Refining the framework of environmental justice for Israel

The approach to environmental justice within a nation should reflect its unique geographical, socio-political, demographic, and economic conditions. Preliminary research on environmental justice in Israel demonstrated that forms of inequalities in this State might differ from cases indicated earlier in the United States, India or Brazil. Furthermore, while analyzing the Negev Bedouin settlements, it became obvious that the approaches from the US, for example, may not adequately be applied to the specific historical, social and cultural context of Israel. Therefore, it is necessary to build an environmental justice framework applicable to the discussion of environmental justice in the Israeli context.

The following framework comprised of the concepts proposed by Schlosberg (2004) – threefold reality of justice, and Shmueli (2008), represent a broad and inclusive definition of environmental justice integrating:

- equitable distribution of environmental risks and benefits,
- recognition of the diversity of affected peoples and communities as a distinct element of justice,
- participation of peoples and communities in the political process which creates and manages environmental policy,
- corrective or compensatory justice.

These four concepts constitute the operative definition that may be chosen to be applied to the discussion of environmental justice in the Israeli setting. This study, however, concentrates on the distributive dimension of the framework while recognizing that three other elements are important and intrinsic to the understanding of environmental injustices in the case of the Negev Bedouin.

CHAPTER 3. RESEARCH DESIGN, STUDY APPROACH AND METHODOLOGY

3.1. RESEARCH DESIGN

An establishment of conceptual framework is the first major thing to do prior to the research. As Rossman and Rallis (2003) point out that conceptualization of the study is probably the most essential part of the research design since it directs the researcher in data collection and analysis. A clearly articulated conceptual framework helps to clarify focus, purpose and strategy, and provides a rationale for research decisions (Rossman and Rallis 2003). Thus, to develop a conceptual framework for the research, one should answer the question of what is to be learnt about, discover what is already known about the topic and what questions are still unanswered (Rossman and Rallis 2003). The next questions to be asked are *how the research should be done? What methods should be used?*

These questions are addressed by the proposed research methodology, designed to explore the following research questions:

1. *Can the situation in Bedouin settlements in the north-eastern Negev be described as environmental injustice? If so, then what are the forms and scope of the unequal treatment? What are the impacts on affected communities? Are there inequalities in the distribution of environmental benefits and costs?*
2. *What can be done to assure a more just distribution of environmental goods and risks?*

The research strategy formed to answer these questions will be discussed in the following part of the chapter.

3.1.1. Research strategy and phases of the research

The research can be divided into two phases: preliminary research and main research.

The *preliminary research* was devoted to definition of main aim and objectives, literature and documents review, secondary data collection, identification and evaluation of methodology, development of main research design, and examination of time and finance. Given these goals, the set of preliminary research objectives were as follows:

- define main aims and objectives of the research;
- collect secondary data through literature and document review;
- identify and evaluate methodology and appropriate data collection methods for the research;
- decide on data processing methods for the research;
- suggest theoretical framework;
- map the locations for case studies and decide on the scope of the research;
- examine time and finance for the research.

Collection of initial data by means of literature and document review was the first stage of the research. It helped to study the situation in Israel and to narrow the scope of the research. Moreover, the mix of research techniques and methods that could be applied in the further research was identified.

Main research included the field research. It comprised primary data collection and processing, data analyses, discussion of results, preliminary recommendations and conclusions.

The research was focused on the Arab Bedouin minority population of the north-eastern Negev, as a group likely to be disproportionately exposed to negative environmental

consequences due to the proximity to industrial zones, open sewage streams and exposure to hazardous waste. Moreover, Bedouin communities are more likely to be underrepresented in the distribution of environmental benefits.

3.2. METHODOLOGY

The research used both primary and secondary data collected with help of the mix of qualitative methods. Primary data was collected during the twelve-day research trip to Israel by means of observations in unrecognized and recognized villages, unstructured interviews and expert opinions. Secondary data was collected through review of official documents, academic and professional literature and sources available in the Internet.

3.2.1. Gathering secondary data

Literature and document review was done prior the main research in order to identify the focus of the research and understand how the research should be done and what methods should be used.

First, the review and analysis of literature and data on Israel and Bedouin community were done. This includes examination of data from Central Bureau of Statistics of Israel, number of books written and reports done by Centre on Housing Rights and Evictions (COHRE), The Center for Bedouin Studies and Development and the Negev Center for Regional Development (Ben Gurion University of the Negev), European Commission, Physicians for Human Rights, Arab Association for Human Right, Regional Council of Unrecognized Villages, Negev Coexistence Forum for Civil Rights and The Legal Center for Arab Minority Rights in Israel – Adalah.

Next, the set of methodological literature was studied. This includes the review of such books as *Designing qualitative research* (Marshal and Rossman 2002), *Qualitative research and evaluation methods* (Patton 2002) and *Learning in the field: introduction to qualitative research* (Rossman and Rallis 2003).

The literature on the theory of environmental justice was also examined. To name the few, works of next authors were studied: Bullard (1993, 1994a, 1994b, 1995), Fraiser (1996, 1997, 2000, 2001), Young (1990), Rawls (1991) and Shlosberg (2004, 2007).

3.2.2. Field methodologies

Miles and Huberman (1994) define the prime task of a field work as description and analysis of a pattern of relationship. In order to establish the pattern of relationship in Israeli context the field research in Israeli settings and collection of primary data was needed.

The field research methodology can be divided into three categories: observations, unstructured interviews, and data recording and management.

Observation and case studies: The focus of observation was the living conditions in Bedouin villages, especially with regard to housing, electricity, waste, and infrastructure development. For this reason, the framework of rapid rural appraisal developed for the field trip was utilized (for more details see Appendix III, 99-103). Due to lack of time available and dispersion of Bedouin villages, a car was used to drive around the area of unrecognized and recognized Bedouin villages. The car tour around Ramat Hovav Industrial Complex was also taken. All the observations were written in English.

Unstructured interviews: some interviews were conducted opportunistically when meeting friends and colleagues of one of my informer (e.g. during the trip to Albert Katz International

School for Desert Studies which is a part of Ben-Gurion University). The interviews conducted in the field can be characterized as unstructured, open-ended, and informal. They were conducted with environmental activists working with Bedouin communities in Israel, representatives of non-governmental organizations (NGO), graduates and professors of the Arava Institute of Environmental Studies and Ben-Gurion University of the Negev (see Appendix III for more details, 99-103). The aim of the interviews for the most part was to capture the situation in the north-eastern Negev and use the data gathered in interviews for the triangulation with data from observation and findings in the literature.

Data recording and management: Part of the interviews was documented in English by handwritten notes while part of them was recorded with digital recorder and then transcribed.

3.3. DATA ANALYSIS

In qualitative studies, data collection and analysis usually go hand in hand (Marshall and Rossman 2010). Thus, qualitative data collected during preliminary research – literature review, was constantly being analyzed in order to build a coherent interpretation and stimulate the collection of missing data for the main research. The primary aim of data analysis was reduction of data and its interpretation. For this reason I followed the model, proposed by Marshall and Rossman (2010) who outlined seven phases for typical analytical procedures:

(1) Organizing the data;

(2) Immersion in the data;

(3) Generating categories and themes;

(4) Coding the data;

(5) Offering interpretations through analytic memos;

(6) Searching for alternative understanding;

(7) Writing the report or other format for presenting the study.

Date collected during the main research stage – field research, was organized into groups. This helped to identify categories, themes and patterns. All the data was analyzed involving triangulation validation technique, which proved to be useful for this research because of the differences in data gathered from different sources. Denzin (2009, 301) defines triangulation as "use of multiple methods in the study of the same object". Thus, in this research, findings in literature were triangulated with data gathered in the interviews and observations.

3.4. LIMITATIONS OF THE STUDY

The study took place on Arab Bedouin villages in the northern Negev in Israel. It is focused on Bedouin communities living within "Siyag" borders in a close proximity to environmental hazards such as industrial and military zones, and open sewage streams.

Data: The unavailability of appropriate data seriously impacted the study and evaluation of the access that different groups have to various resources. Part of the information assembled and presented in the study is not first-hand. The literature review revealed that information available cannot be regarded as comprehensive. For example, though there are studies on Bedouins that mention the adverse environment the minority lives in, only several studies that looked at Bedouin community through the lens of environmental justice framework was found (e.g. Fritz 1999). While number of studies provides statistical information on recognized Bedouin villages (Statistical Yearbook of the Negev Bedouin 2002; Lithwick 2002; Meallem 2006), the statistical data on unrecognized villages is almost absent.

There is also conflicting evidence on the Bedouin community by different sources. Some sources based their reports on estimates only, others on primary data, and/or on government

data. The data on Bedouin usually cannot be found in governmental sources. Governments should gather data on Bedouin that explicitly categorize them as a separate social entity.

Time and funds: the short amount of time and limited financial resources that have been allocated to the research in the field defined the level of involvement and participation during the research trip. One of my informers said that in order to visit the Bedouin villages and talk to people it is necessary to build the trust first. Thus, given the short time spent in the field, a car tour around the villages was taken instead of participant observation.

Language: language was one of the determining factors while collecting secondary and primary data. Thus, for example, academic and professional literature written in Russian and English languages was studied. Language constraints were also among other difficulties that were faced in the field. This also poses some limitation on the study since the interviews were conducted only with English-speaking informers.

CHAPTER 4. CASE STUDY OF THE ARAB BEDOUIN IN THE NEGEV: GENERAL CONTEXT, HISTORICAL BACKGROUND AND CONDITIONS IMPORTANT FOR ORIGIN OF ENVIRONMENTAL INJUSTICE

4.1. THE ARAB BEDOUIN OF ISRAEL

The word Bedouin is derived from the Arabic *badawi*, which can be translated as desert-dweller. Mostly Bedouin have been associated with the raising of livestock in the *Baddiya* (open country, range or steppe), and the herd animals were principally sheep, goats, and camels and occasionally cattle, horses and donkeys. Previously the word *Bedouin* represented a way of life that was specialized and evolved around herding; today Bedouin refers less to a way of life than to an identity which includes a common history and sub-culture that cuts across tribal boundaries (Cole 2003).

Bedouin traditionally exist all over the Middle East: in Libya, Algeria, Saudi Arabia, Oman, Syria, Iraq, Egypt, Israel and Jordan. Their territories are located in a range of climates, from the harshest deserts such as the Western Sahara or the Empty Quarter of Arabia, to potentially rich arable land such as the Fertile Crescent or Cyrenaica (Cole 2003). In relation to specific environmental conditions and resource availability, a variety of Bedouin lifestyles exist, ranging from settled to semi-nomadic to truly nomadic.

The Bedouins of the Negev are the native Arab inhabitants of the Negev (*Arab Al-Naqab*). They represent a minority population, geographically and socio-culturally distinct from other Israeli Arabs and Jews. The Negev Bedouin community, which constitutes small remnants of the Arabs living in the region prior to 1948, is an integral part of broader Palestinian and Arab societies and continues to be embedded within far wider networks in the Palestinian West Bank and Gaza, in Jordan and elsewhere in Israel (Parizot 2001, 2004, 2006; Yiftachel 2008).

In general, two types of Bedouin settlements exist in the north-eastern Negev: unrecognized villages that are denied the benefits such as access to water and other municipal services and access to natural resources; and recognized settlements and townships which have limited access to municipal services and resources. An estimated population of all the Bedouin settlements is 140,000 - 159,000 Bedouin, of which 82 thousand live in the 7 planned settlements and 10 recently recognized villages, and approximately 76 thousand live in 45 unrecognized villages that are the subject for demolition (Statistical Yearbook of the Negev Bedouin 2002; Almi 2003; Al-Krenawi 2004) (see also Appendix I, 95).

Most of the research on the Bedouin community has been framed, in the main, by concepts of modernization, urbanization, politics of identity and gender, and most recently globalization (Yiftachel 2008). The Bedouins, previously locally known as Arab a-Sab'a (Arabs of Beer Sheva), are usually described in the studies as "nomads undergoing a process of sedentarization" (Yiftachel 2008, 2). A lot of research is devoted to their subsequent modernization and urbanization, and as the result of the latter, family, economic, political and societal transformation (Abu-Rabia 1994, 2001; Dinero 1997; Kressel 1993; Marx 1967, 2000; Meir 1994, 1997), immigration (Ben-David and Gonen 2001), housing, economy, community transformations and the question of land (Kedar 2004; Meir 2005). Rich studies have traced the process of the planning of Bedouin settlement (Gradus and Stern 1985; Kliot and Medzini 1985; Razin 2000; Soffer and Bar-Gal 1985; Stern and Gradus 1979).

In later years, more critical researchers have written about the Bedouins as a peripheral minority which has been experiencing various deprivations within an ethnic Jewish state (Abu-Rabia 2001; Fenster 1993, 1999; Meir 1988; Nevo 2003; RCUV/AHR 2003). These studies have focused on patterns of discrimination against the Bedouins and their geographical,

economic and political marginalization (Abu-Saad and Lithwick 2000; Statistical Yearbook of the Negev Bedouin 1999, 2004; Swirski and Hasson 2006).

Another recent approach sees Bedouins as part of the divided Arab or Palestinian nation, involved in the struggle with the Israeli state. The focus has been on land, identity, Arabness, culture and Palestinization (Abu-Saad and Yonah 2000; Abu-Sitta 2001; Bar-On and Kassem 2004; Cook, 2003; Falah 1983, 1989; Parizot 2004). As an offshoot of this approach, another common Israeli discourse, which sees the rapidly growing Bedouin community as part of the Arab and Palestinian geographic and demographic threat to the embattled Jewish state, has appeared (Krakover 1999).

Yiftachel (2008, 3) sees Bedouins as a "colonized indigenous people residing within a settler state". He argues that "colonialism critically informs the modernization, dislocation, [and] discrimination" against Bedouin community. As he puts it:

> *In later years, the post-1967 occupation has been treated as temporary while awaiting resolution as part of a "peace process." In this vein, the Bedouins, too, have been presented in many studies as "only" a peripheral community struggling to adjust to life in a modern Western society. An extension of this analysis refers to Bedouin political detachment from the history of the Naqba and the daily reality of the occupation—both critical foundations of the Judaization policy that also directly affects their life in the Naqab.*

Hence, he continues, "ethnic colonialism" of Israeli State is a main factor that shapes Bedouin existence since 1948 (Yiftachel 2008, 3). As a result, dispossession and forced movement became widespread. Bedouins have been constantly struggling with Israeli authorities for land, development and housing rights. Under the Israeli regime, they have become "invaders" of their ancestors' land and "obstacles" to development (Yiftachel 2008, 3). Their concentration into planned "development towns" caused poverty and social degradation (Abu-Saad 2001; Yiftachel 2003).

The research done on the Bedouin community, sketched above very briefly, explore and explain key aspects of Bedouin life in the Negev. These studies may shed the light on the roots of environmental injustice in the region.

4.2. HISTORY OF THE ARAB BEDOUIN

4.2.1. 1517 – 1948: under the Ottoman and British rule.

The first Bedouin tribes are thought to have moved into the Negev from the Arabian Peninsula at the beginning of Arab rule in the region in the VII century AD. This process was accelerated in the period of Ottoman rule (1517-1917) and towards the end of the XIX century the Negev was effectively under the control of Bedouin tribes (Ginguld *et al.* 1997). Under Ottoman rule and in the British mandatory period the Bedouin transformed from a nomadic existence to a predominantly semi-nomadic one; a period of spontaneous sedentarization occurred, movement became limited and the value of land increased along with sheep herding and rain fed cereal production agriculture (Falah 1989; Ginguld *et al.* 1997; Cole 2003). Additionally, farmers from Egypt and present day Gaza began to lease land from the Bedouin, creating two separate groups; namely the "Falakhin" Bedouin and "Real" Bedouin (Ben-David and Gonen 2001). The period of World War I, and the British rule of Palestine from 1917-1948, brought little change to the Negev since the British intervened minimally with the internal affairs of the Bedouin (Ginguld *et al.* 1997) and by the end of this period there were an estimated 65,000 – 103,000 Bedouins Arab living in the Negev, from a total of some 95 tribes (Falah 1985). Before the establishment of the state of Israel, the Bedouin of the Negev – who are culturally distinct from the Bedouin of the Galilee – were the vast majority of the population of the region and lived as nomadic pastoralists in the desert.

4.2.2. Post-1948: after the establishment of the State of Israel.

During, or in the immediate aftermath of, the 1948 War, most Negev Bedouin either had to flee taking refuge in the surrounding Arab countries and territories (e.g. Gaza strip, West bank, Jordan) or were expelled and displaced (Shamir 1996; Ginguld *et al.* 1997; Cole 2003).The Negev became an integral focus for Jewish settlement. The Bedouin lost access to almost all their rangeland and were given little choice but to settle and give up large parts of their traditional way of life (Koeller 2006).

4.2.2.1. Forced relocation and confinement to the Siyag

After most of the Arab Bedouin fled or were expelled to Jordan, the Gaza Strip and Egypt during the 1948 War, only approximately 11 thousand remained in the Negev. Post 1948, the Israeli authorities took control of most of the land in the Negev and the Bedouin who remained lost their freedom to cultivate lands and migrate with their herds. The State set a policy of concentrating the Arab Bedouin in the area east of Beer Sheva on 1.5 million-dunam area of land - *Siyag* (Hebrew, roughly meaning *confinement, enclosure*, *fence* or *demarcation*) (see Fig. 5). In 1951, eleven of the remaining nineteen tribes were forcefully relocated from their lands to join the remaining eight tribes in the *Siyag.* In 1955 two-thirds of the residents of the Siyag area were Bedouin who had been displaced from the northwestern Negev, and one-third were Bedouin who had inhabited the area before 1948 (Swirski and Hasson 2006).

The *Siyag* area is known for its low agricultural fertility and is estimated to encompass just 10 to 20% of the area previously occupied by the Bedouin before the establishment of the state of Israel and 2% of the Negev, which itself constitutes over 60% of the pre-1967 Israeli-

controlled land area (Marx 1967; Falah 1985; Shamir 1996; Ginguld *et al.* 1997; Hamdan 2005).

When the Bedouin were removed from their original lands, the region was declared a military zone that the Bedouin were banned from entering (Tarek 2004). The Bedouin district was declared a "closed area", and until the policy was cancelled in 1966, Arab Bedouins were not allowed to leave or take their flocks to other parts of the Negev without special permission (Tal 2002). The Bedouin remained under Military administration until 1966 which meant they could not return and cultivate their original lands and required special permits to leave the Siyag in search of jobs, education or markets (Marx 1967; Ginguld *et al.* 1997). Relocation of Bedouins and the restrictions imposed on them represented a form of forced sedenterization. As a result, throughout most of the first two decades of Israel control, the Bedouin – like the other Palestinian Arabs who became Israeli citizens in 1948 – lived under military government, which greatly limited their movements outside the Siyag area (Swirski and Hasson 2006). The Bedouin found themselves confined to a demarcated and closed area, isolated from the other parts of society.

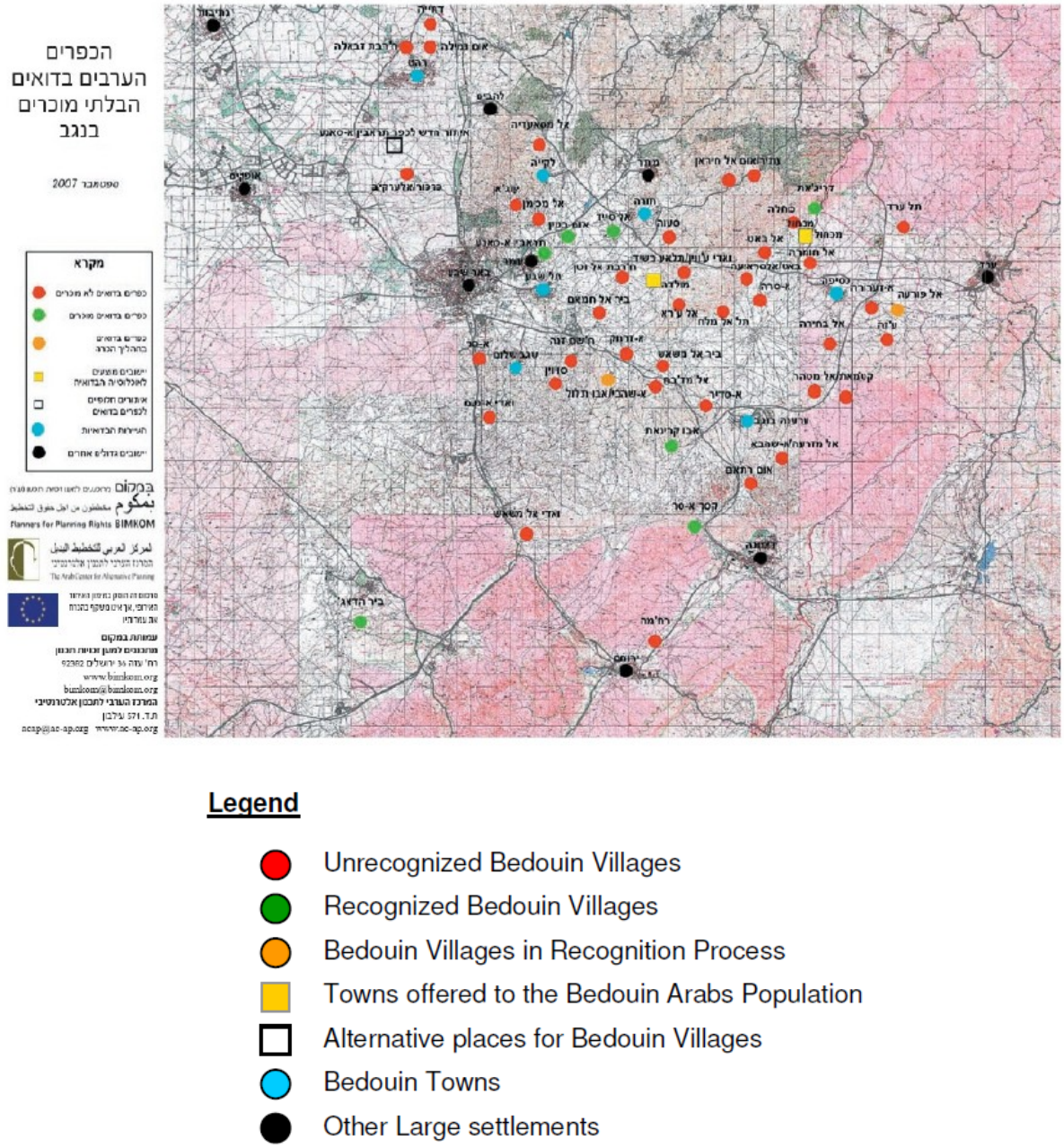

Figure 5. Recognized and unrecognized Bedouin villages in the Negev.

Source: NFC 2009

4.2.2.2. Restricted Access to Natural Resources

Prior to 1948, the Bedouin's grazing and water rights, as well as the periodic migrations were "recognized, accepted and respected by those with whom they came into contact" (Falah 1985, 36). Natural vegetation on the range depended on rain and was therefore considered a "gift of

Allah" and like fire, air and water, if not developed, was available to all users (Cole 2003, 239). However, it was through the management of water wells that the Bedouin typically controlled the territories (Cole 2003; RCUV-AHR 2003). The relocation of the Bedouin was accompanied by the restricted access to these essential resources; wells were declared property of the state, and Mekorot, the national water company, was given full control over water allocation, making it illegal for the Bedouin to use traditional wells or dig new ones. Bedouin farmers are either denied water altogether, or given no agricultural quotas (Almi 2003). Bedouin who had been relying on the same resource for hundreds of years found themselves buying water at significantly higher prices, transporting it in trucks or illegally connecting to water systems in Jewish settlements. For those Bedouin that were still able to cultivate land, the lack of an agriculture quota meant paying domestic rates for water; twelve times the agricultural rate charged to Jewish farmers (Almi 2003; RCUV/AHR 2003; Meallem 2006).

Since the area of the Negev was not surveyed in either the Ottoman or British mandatory periods, there are no reliable records or official ownership of land. Yet, it is estimated that prior to 1948, the Bedouin effectively owned 98% of the Negev (RCUV/AHR 2003). After the establishment of the Jewish state, the Bedouin who had intimate knowledge of the land and had utilized it for centuries could not provide documentary evidence to support their land claims and thus became victims of a technicality.

In 1950, the Plant Protection Law, known as the *"Black Goat's Law"*, put further restrictions on the grazing of livestock as it required Bedouin shepherds to obtain special permits from the Ministry of Agriculture to graze a limited number of goats outside of their privately owned land (Falah 1985). This is a stark contrast to the traditional semi-nomadic migrations which were less defined by political boundaries than by the ecological productivity of the land. Given that flocks traditionally provided the Bedouin with their entire livelihood and economic

sustainability, the implementation of this law has had huge cultural, social and economic consequences (e.g. confiscation of entire herds without compensation, loss of self sufficiency, dependence on employment in the service sector, high unemployment levels, loss of culture and traditions relating to livestock rearing, increased concealment of women who would traditionally wander with the herds) (Dinero 1997; RCUV/AHR 2003). During the 60's and early 70's, as the aftermath of the cancellation of military restriction, the situation changed a little and the Bedouin were allowed to migrate to seasonal grazing sites in the region. But in 1978, the peace accord signed between Israel and Egypt led to a massive redeployment of Israeli army bases from the Sinai Desert to the Negev further limiting the availability of grazing land in the region (Ginguld *et al.* 1997).

Those that still relied on livestock were strictly confined by state regulations; herd sizes and grazing areas were tightly controlled and a special police unit – Green Patrol - patrolled and confiscated flocks which violated governmental regulations. Thus, very few Negev Bedouin subsist today entirely on the traditional sources of livelihood, seeking employment elsewhere in the Israeli economy (Marx and Shmueli 1984; Ginguld *et al.* 1997).

4.1.2.3. Land expropriations

After being forcefully relocated to the Siyag, Bedouin's lands outside the "enclosure" were expropriated through the medium of the *1950 Absentees' Property Law*, designed to enable Israel to control the lands of Arabs who were expelled or fled during the 1948 war (Swirski and Hasson 2006).

Three years later, in 1953, this expropriation was retroactively authorized by the Israeli Land Acquisition Law. The State ascertained that under this law uncultivated land, located at a

distance exceeding 1.5 miles from the nearest settlement, could be confiscated for urgent needs of the state, regardless of ownership. In reality, this land was once cultivated or used for grazing pasture, but the forced relocation of the Bedouin left much of it unattended for a number of years and eventually all the land belonging to the relocated tribes was confiscated (Falah 1985, 1989; Goering 1979; Shamir 1996). Expropriated land was transferred to the Development Authority, a body set up by the government in 1952 for the purpose of administering the lands of Palestinian refugees and making them available to the state for its development plans (Swirski and Hasson 2006).

Given that these were the northern Negev's most fertile lands, the Israeli government treated them as a reserve to settle Jewish newcomers who decided to move to new Jewish state during this period (Swirski and Hasson 2006). In fact, within a few years, some fifty Jewish settlements were established in this area strengthening the claim of Israeli ownership over the Negev (Yiftachel 2003).

According to Swirski and Hasson (2006), the Siyag area in 1960 comprised 1.2 to 1.5 million dunams; cultivable land in the area amounted to some 400 thousand dunams, or about 20% of the tillable area available to the Bedouin before their relocation from the northwestern Negev. Over the years, the government has expropriated part of Siyag land in order to meet needs of the State. Swirski and Hasson (2006) list four major expropriation amounting to 235 thousand dunams: (1) 88,500 dunams in the 1950's in order to establish Jewish settlements; (2) 45,670 dunams in order to set up government-planned Bedouin townships; (3) some 50 thousand dunams for military projects; (4) 65 thousand dunams in 1980 in order to build the Nevatim military airport.

4.3. CASE STUDY: THE GOVERNMENT PLANNED-PLANNED TOWNSHIPS – A TALE OF UNDER-DEVELOPMENT

Following the termination of the military regime over the Bedouin population, the Israeli government decided to urbanize Bedouins, concentrating them in the government-planned urban areas (Thabet Abu-Ras 2006). In the late 1960's and early 1970's, the government developed plans to resettle the entire Negev Bedouin population into seven urban areas: Tal Al-Saba/Tel Sheva, Arara Al-Naqab/Ar'ara BaNegev, Rahat, Kseifa, Shaqib Al-Salaam/Segev Shalom, Hora/Hura and Laqiya (see Fig.5; Table 1). The first of these, Tel Sheva, became residential in 1967. However, Bedouin Arabs resisted moving to the township for various reasons.

Tal (2002) claims that many of them perceived forceful relocation to urban areas as violation of their rights and dignity or they simply did not like the town where they could be forced to live in the proximity of rival tribes. Only about 40% of the Bedouin initially agreed to move into the new cities. Another argument is that as communities that were used to have nomadic or semi-nomadic way of life, Bedouins found themselves locked in the limited urban area. Not only could not they maintain their traditional way of life any longer, but they also found it difficult to adjust to the modern style of life and to get means for subsistence. As an NGO activist working with the Bedouin community explains:

> *There are a lot of problems in recognized villages. That is why people living in unrecognized villages do not want to go there. The government has been taking sometimes mixed tribes, you know there are tribe issues, and putting them together within the small area. There have been clashes between them [tribes], the reason of high crime rates. What also happens often in that there is no industrial area in the village. There is no way for them [Bedouins] to make a living there. That is why there is high unemployment rate. All these clashes coming together within a village or a new town are seen as a failure.*

Thus, it is possible to conclude that the urban settlement program has been divisive, given its radical departure from the Bedouin's traditional way of life and the impact it has had on the social structure of the Bedouin communities. While these towns were intended to create the conditions necessary to provide basic services to this population and are heavily subsidized, they were planned without giving any consideration to the traditional Bedouin way of life.

Table 1. Year of establishment and population of Bedouin government-planned towns in the Negev, 2007
Source: adopted from Central Bureau of Statistics 2008; Marx 2000; Abu-Saad 2008

Town	Year Founded	Population in 2007
Rahat	1972	42,100
Tel-Sheva	1968	14,000
Ar'ara BaNegev	1981	12,900
Kseife	1982	10,700
Hura	1989	10,500
Laqiya	1990	8,900
Segev Shalom	1984	6,800

This especially affects the freedom of movement for women. In urban areas the opportunities for forbidden non-agnate (not immediate family) male-female contact that will jeopardize the family honour are greater and hence the participation of women in activities that take place outside the family home has become more restricted (Dinero 1997; Meir 1987).

The rationale for establishing these urban townships was to modernize the Bedouin and provide them with services such as running water, electricity, health clinics and modern schools. However, the cities' infrastructure and social services were perceived as inferior to those in Jewish development towns. The conditions in the settlements are very poor and

municipal services are inadequate (Goering 1979; RCUV/AHR 2003). As Lithwick (2000, 1) puts it:

> *The towns are socially, economically and politically dysfunctional, ranking as the most disadvantaged settlements in Israel by a significant margin. Furthermore, the disparities between these towns and their immediate Jewish neighbours have bred growing frustration, alienation from the state, and animosity towards those neighbours. The consequences, such as crime and violence, discrimination and repression, are setting off alarm bells, but they are not being heard in official quarters.*

The consequences of urbanization of the Bedouin are high rates of unemployment, poverty, deprivation, dependency, crime and social tensions (Yiftachel 2003, NCF 2006). The Bedouins no longer had the space to raise crops and livestock to subsist, which caused further economic distress. Bedouin townships are the poorest areas in the country ranking at the bottom of the socio-economic index of Israel (see Table 2) (Coursen-Neff 2001).

Table 2. Socioeconomic ranking of Bedouin and neighboring Jewish localities in the Negev.
Source: Tarrow 2008

Locality		**Rank**
Bedouin Towns	Kseifa	1
	Tel-Sheva	2
	Rahat	3
	Ar'ara BaNegev	4
	Segev Shalom	5
	Laqiya	7
	Hura	8
Jewish Towns	Dimona	95
	Arad	109
	Beer Sheva	118
	Lehavim	195
	Omer	197

The urban Bedouin townships lack the infrastructures that similar Jewish settlements in the Negev have. They are unable to provide work for their residents or social services at a sufficient level. Most of the residents work outside their towns and obtain their services from the neighbouring Jewish localities. The recognized towns have a shortage of banks, post offices, public libraries, and places of entertainment. Sewage infrastructures are inadequate or non-existent. For example, work on sewage facilities at recognized township of Kseife with population of more than 10 thousand, where raw sewage runs in an open channel, has begun only in 2010 though the township was established in 1982 (Adam Teva V'Din 2010).

The status of "recognized" means that residents of townships and villages are entitled to the same sanitation and other municipal services that all citizens of Israel receive from their local authorities. However, the lack of internal or external public transportation services still limits access of Bedouins to the labour market, higher education institutions or social services. The largest Arab-Bedouin town - Rahat, which has more than 42 thousand residents, has only one bank, one central post office and no public library. Moreover, very limited governmental services such as Social Security and the Ministry of Labour are available only in Rahat. Segev Shalom, one of the recognized towns, has no developed industrial areas (Baruch 2004). In all of the recognized Bedouin settlements, there is a lack of space designated for residential use, limiting its prospects for future development and growth.

Although the Bedouin make up approximately 28% of Negev citizens, there are only seven recognized Bedouin towns out of 225 Negev localities (Hamdan 2005). Jewish localities in the Negev have more land per person in their jurisdiction than Arab localities, which explains higher population density in Bedouin villages (see Table 3). Overall, Arab localities all over Israel use only 2.5% of the land although they compose 18% of the population (NFC 2006). Most of the Jewish communities "are ethnically segregated agricultural settlements for Jews

only, each with generous plots of land" (NFC 2009, 11). In contrast, most residents of the Bedouin villages receive no more than a plot on which they can build their home and nothing else.

Table 3. Jurisdiction area and density in Arab and Jewish localities in the Negev
Source: adopted from NCF 2006

Locality	Population group	Population	Jurisdiction area (in square	Density (people per square
Tel Sheva	Arab	14,000	4.593	3 048.1
Rahat	Arab	42,100	19.621	21 45.6
Segev Shalom	Arab	6,800	6.005	1 132.4
Ar'ara	Arab	12,900	14.095	915.2
Mitzpe-Ramon	Jewish	5,000	64.000	78.1
Omer	Jewish	5,900	20.081	193.8
Yeruham	Jewish	8,800	38.749	227.1
Arad	Jewish	24,100	92.942	259.3

4.4. CASE STUDY: THE UNRECOGNIZED VILLAGES – A TALE OF INVISIBLE CITIZENS

This part of the chapter provides an analysis of the situation in the unrecognized Bedouin villages in the north-eastern Negev. It is devoted to the description of characteristics and conditions inherent to unrecognized Bedouin villages.

4.4.1. The Unrecognized Villages: research settings and description

The Building and Planning Law of 1965 established a national strategic plan, regulating the planning and development mechanisms for communities in Israel. Villages in the *Siyag*

populated with Bedouins who refused to move to the government-planned townships did not appear on this plan and effectively became unrecognized.

Since Israeli government classified these "scattered settlements" or "populations" as illegal (Qupty 2004), all the buildings in unrecognized villages became subject to demolition (see Fig.6; Appendix IV). Residents of the unrecognized villages are not classified in the governmental Central Bureau of Statistics (CBS) socioeconomic scale and CBS does not publish data on unrecognized villages. For this reason, basic demographic data on the Bedouins in the Negev is controversial: the lower figure of 55,305 is from the Ministry of Interior whilst the 76,364 estimate is from the Regional Council for Unrecognized Villages (Meallem 2006).

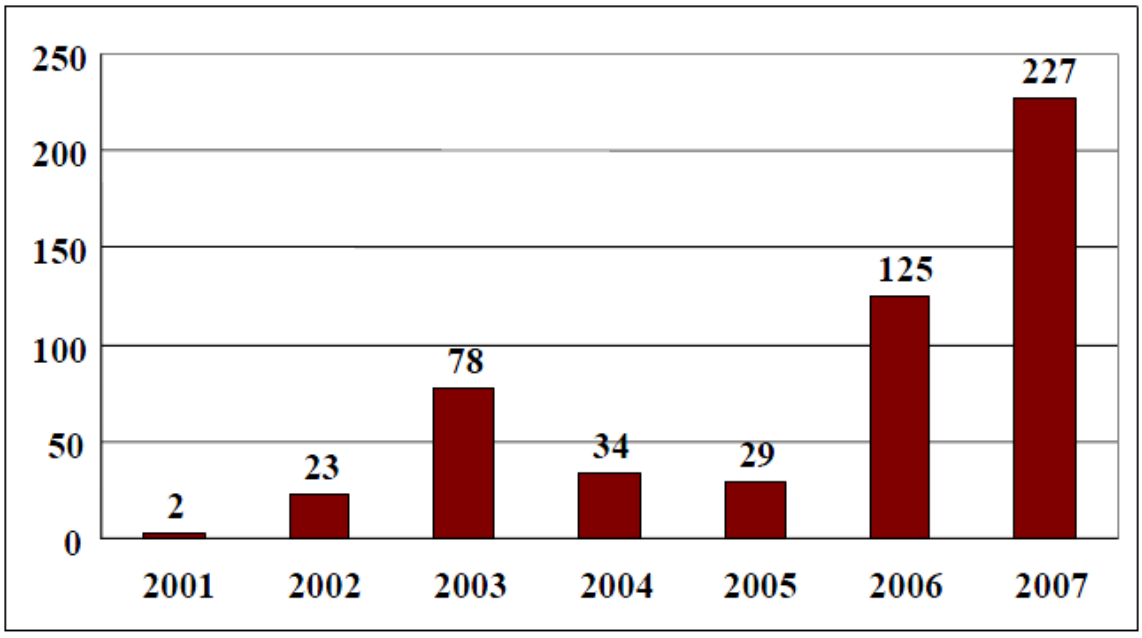

Figure 6. Number of buildings demolished in the unrecognized villages (2001-2007).
Source: Gottlieb 2008.

The majority of the unrecognized villages are characterized by tin-shacks, cabins and tents, lacking both basic infrastructure and services such as electricity, running water, sewage and waste disposal, proper access roads to villages, and the provision of decent health, educational

and social services (Almi 2003). Furthermore, there are land confiscations, house demolitions, fines for illegal building and systematic harassment (Almi 2003; RCUV/AHR 2003, Hasson 2004). Yiftachel (2003, 38), describes the villages as "the poorest, most run-down in Israeli society", in which government policy "forced the villages to remain frozen as clusters of unserviced dilapidated dwellings, neglected environments, and high residential density." The community suffers from high unemployment and illiteracy, with the poorest health and welfare indicators in the country (Qupty 2004). The unrecognized villages do not appear on official maps of the state and Bedouin Arabs that live in these villages are often referred to as "invisible citizens" (Swirski and Hasson 2006).

But most controversial is the government's refusal to officially recognize the "unplanned" villages and the subsequent coercive methods used until today to literally force the Bedouin off their lands and into the seven settlements (RCUV/AHR 2003). As a resident of one unrecognized village and NGO activist says:

> *The fact that these unrecognized villages today do exist on any official map means that every official employee or governmental authorities do not consider them as existent in any aspect. So every planning like domestic planning or regional planning does not consider these communities because once they hold the maps they are not there. So any day I, as a man living in unrecognized community, can find a plan of electric tower on top of my house, so tomorrow they can come and say - so you are here, you should move. In specific cases it could be a tower, but in other cases it could be an industrial zone and any other facility that the government is planning. So it has to move all of them because they are movable! They are not there so they have to move.*

In the Bedouin community, especially for residents of unrecognized villages, environmental justice is inextricably intertwined with the question of recognition. Without being recognized they cannot address locally produced environmental hazards stemming from absence of waste and sewage disposal, electricity and inadequate water supply. Moreover, they are exposed to

environmental hazards from facilities located on their borders such as Ramat Hovav Industrial Complex.

Though declared by state as citizens of Israel, Bedouins lack basic human and citizen rights. According to the UN General Assembly Resolution 45/49, "all individuals are entitled in an environment adequate for their health and well-being" (UN 1990). The right to health, which forms part of human rights, includes not only the right to receive health care, but also the right to live a healthy life (Almi 2003). For the residents of the unrecognized villages, this right is infringed on the everyday basis.

Overall, Bedouin settlements do not have or have insufficient access to environmental goods. The unrecognized villages have no infrastructure for water, electricity, sewage, roads, health services, education, garbage disposal, or other public services. Constant exposure to waste-related hazards and lack of access to clean water and sewage pose critical environmental health problems to the residents of Bedouin villages. The ramifications of such state of affairs are the higher rates of water-borne diseases, much higher rates of disability among Bedouin Arab children, adults and elderly than among Jews (Habib 2008; NCF 2006). The harsh situation of Bedouin communities settling in the Negev demonstrates the urgency of an environmental justice agenda.

CHAPTER 5. DISCUSSING THE PATTERNS AND IMPACTS OF ENVIRONMENTAL INJUSTICE: GENERAL CHARACTERISTICS OF THE NEGEV BEDOUIN

The following chapter will discuss the patterns of environmental justice and compare observation in recognized and unrecognized Bedouin villages in the north-eastern Negev, Israel. The first part of the chapter is devoted to the analysis of the patterns itself and health ramifications associated with disproportioned exposure to environmental harms. The second part is a discussion of impacts of environmental justice on the Bedouin community in the Negev.

5.1. PATTERNS OF ENVIRONMENTAL JUSTICE

Filcak (2007) defines patterns of environmental injustice as "specific, representative types of interactions between humans and the environment, where environmental benefits and/or harm are unequally distributed". One of the aims of detecting patterns is to describe the interactions leading to unjust treatment and to analyze the dynamics of social processes behind them.

As a result of the main research, six patterns of environmental injustice have been identified:

1. differentiated access to water
2. discriminatory waste management practices
3. exposure to hazardous waste, chemicals and pollution
4. sewage: differentiated access to the system and exposure
5. differentiated access to electricity
6. inadequate housing

This list of the environmental injustices does not intend to be comprehensive but it summarizes the forms of unequal treatment identified in the preliminary and field research. It is important

to note that field observation revealed that while Jewish towns and settlements enjoy access to nature, both recognized and unrecognized villages do not have any or have very small green areas. However, the data describing this pattern was incomplete and therefore it will not be discussed in this research.

Analyzing the pattern of environmental injustice it has become obvious that recognition is one of the key factors that determine access to environmental benefits. Residents of recognized towns are connected to the national water and electricity grids. They also have access to other municipal services such as waste collection and sewage system. However, to what extent they enjoy these benefits is another question.

5.1.1. Pattern 1 - differentiated access to water

"The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (WHO 2003).

5.1.1.1. Description of the pattern

Average water consumption in Israel is 135 liters per person per day (Almi 2006). However, this figure is lower when it comes to the Arab Bedouins (2% of Israel's residents) (see Table 4). The water consumption in the Bedouin townships is about half the average national consumption, and allocation of water to residents of Bedouin townships is unequal as compared with the rest of Israel's residents (Almi 2006). While existing recognized towns have running water, in new recognized towns which are still in the planning stages, water is supplied only to the central part of the town and those living far from the center must pay for laying temporary long pipelines (NFC 2009). One of the recently recognized villages, Derijat, got access to water only in 2009, five years after recognition.

Table 4. Water consumption (per capita) in localities in the Negev, 2002
* recognized Bedouin townships
** data for year 1994
Source: adopted from Almi 2003, 2006.

Locality	Population Group	Water consumption per person		Total municipal water consumption
		liters/day	m^3/year	m^3
Unrecognized	Arab	No data	24**	No data
Laqye*	Arab	167	61.1	65.3
Hura*	Arab	113	41.3	61.7
Rahat*	Arab	No data	35**	No data
Tel Sheva*	Arab	No data	38**	No data
Arad	Jewish	173	63.2	87.7
Metar	Jewish	283	103.3	124
Lehavim	Jewish	295	107.8	133
Omer	Jewish	346	126.3	186

While running water is provided to the absolute majority of Israeli citizens (Keinan 2005), residents of unrecognized villages are not connected to the national water grid and the responsibility for accessing water is placed on the residents themselves. As a result, over 80 thousand Bedouins suffer from various water-related problems, including water shortage and poor water quality. According to Almi (2003, 2006), the insufficient quantity of water that Bedouin communities receive is of doubtful quality and in most cases is far below the minimum living requirement recommended by the World Health Organization[3] (see Fig. 7) (Howard 2003).

[3] A person requires 2-5 liters of water per day in order to survive. But in order to live (do laundry, clean, cook, and maintain a household) the accepted requirement is at least 50 liters per day. If cleaning an entire household as well as public/shared water use are taken into account, the minimum living requirement comes to about 100 liters of water per person per day.

One of the examples of unequal distribution of water resources is village of Wadi Al Na'am with a population of approximately 4 500, which as many others is not connected to the national water supply system. What makes the situation worse is that the storage tanks of the Mekorot Water Company, supplying water to the neighbourhoods and cities in the area, are located inside the village.

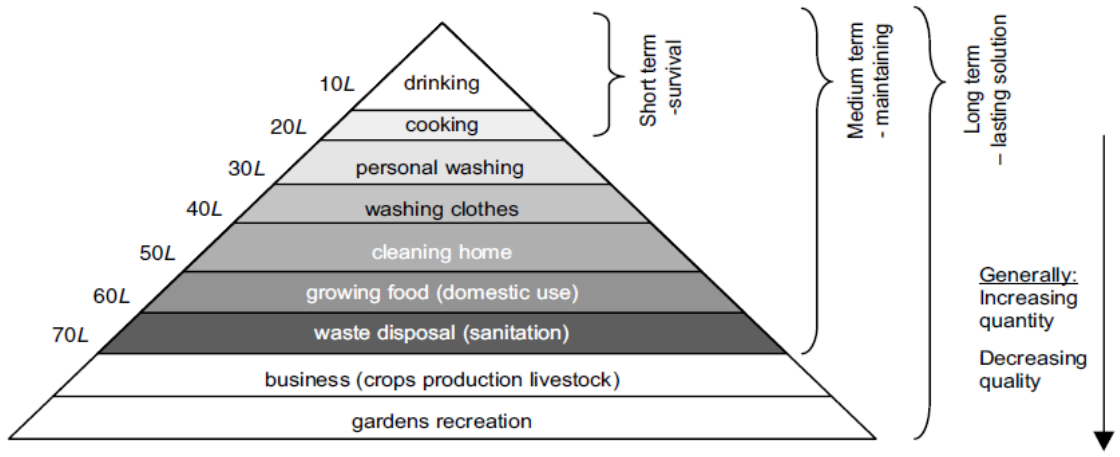

Figure 7. Hierarchy of water requirements (liters per capita per day)
Source: Reed n.d.

There are villages, such as Tel Arad, Awajan or Sawawin in which hundreds of families live without access to running water. By contrast, dozens of single Jewish farms with populations of less than ten individuals are connected to water as soon as they are established (NFC 2009). In total, there are 112 Jewish settlements in the Negev that are much smaller than the Bedouin settlements, and they enjoy access to running water: Jewish settlements have an average population of 309, while the Bedouin-Arab villages have an average population of 1,740 (NFC 2009).

5.1.1.2. Access to water: Bedouin coping strategies

In the absence of access to running water, residents of unrecognized villages must bring water from far away in tanks carried by tractors, which makes water extremely expensive[4]. Water is then stored in containers made from hard plastic or metal, which are kept outside, where they are exposed to heat and cold. Sometimes water is kept there for prolonged periods of time because access to water in such villages is irregular.

The filling points are usually located several kilometers away from the village. According to Almi (2006), it takes approximately ninety minutes to fill an average container (3.5 m^3). Given this time (more than thirty minutes) and distance from the village to the filling point (more than one kilometer), the water source is classified as inaccessible (Howard 2003; Almi 2006). These conditions pose a very serious health risk since the minimal water requirement for survival cannot be assured, nor can one maintain personal and household hygiene (Howard 2003).

Water supply in some unrecognized Bedouin villages is partly implemented via individual water connections. However, in order for a connection to be established, one must be authorized by the Water Committee. In practice, the application process to get permission for independent connection, usually carried out with the assistance of external agencies and NGOs, is very hard and time-consuming (see Table 5). Moreover, the application for establishing a water connection should be submitted on behalf of ten or more families which later are obliged to pay for the cost of laying the pipes over several kilometers.

Table 5. Lists of applications for approving connection to national water grid to the Water Committee (2003-2004)

[4] An average family requires two containers per week; therefore the filling process is usually undertaken twice a week. In order to fill and tow the container, it is necessary to have a tractor. Residents who do not own a tractor hire one for this purpose (NIS 150 per filling). The price of water is higher than in other parts of the country.

Source: adopted from Almi 2006

Name of village	Number of families	Number of residents	Date of application	Date of response	Approved
Tel Almeleh	15	100	11 Sept 2003	27 Oct 2004	No
Gattmat	11	39	11 Sept 2003	27 Oct 2004	No
Wadi Gwain	10	94	11 Sept 2003	27 Oct 2004	No
Tla' Rasheed	18	115	11 Sept 2003	27 Oct 2004	No
Wadi Al Na'am	16	63	26 Feb 2004	27 Oct 2004	No
Wadi Al Na'am	15	107	29 April 2004	27 Oct 2004	No
Um Al_Hiran	34	172	29 July 2004	19 Oct 2004	No
Tel Arad	40	247	23 Aug 2004	31 Oct 2004	No
Wadi Al Na'am	20	112	11 Nov 2004	9 Jan 2005	No

The number of independent water connections increased from 142 in 1995 to 254 in 2004. However, the fact of having one does not guarantee regular access to water since its flow is weak and the gauge of the pipe is narrow (usually 2.54 cm). In addition, the connection serves several families (on average 250 people), which means that water pressure is lower in more distant houses. This makes Bedouins keep water containers as a reserve. According to a 2004 water survey by the Regional Council for the Unrecognized Villages in the Negev, only about 47% of the villagers were connected to independent water connections, while the rest attained water via containers (45%) or animals (8%) (Almi 2006).

Due to the water shortage some villagers pump well-water, which may have adverse health effects, as its quality is not inspected by the Ministry of Health. About 50% of the well-water is used for animal consumption, 10% for agriculture and about 15% for drinking (Almi 2006).

The quality of water in containers, wells and pipes is not tested or inspected; given the prolonged water storage it may become hot, turbid, and ridden with algae and rust. In addition, the sewage problem (to be discussed in section 5.1.4) affects the quality of water, as sewage water contaminates wells and causes the unregulated use of unpurified water (Almi 2006).

5.1.1.2. Health ramifications of the water shortage and of poor water quality

The main health implications of water shortage in Bedouin villages are dehydration and skin diseases. The distance from the road, the daily walk to the school bus, the lack of basic services in the house and the village and the absence of public transportation all contribute to residents' physical movement throughout the day, and their subsequent loss of fluids, not always readily replenished to the body. The lack of a healthy environment, proper hygiene and sanitation make it difficult to avoid skin infections such as scabies. When an infection happens, it is difficult to maintain proper hygiene for treatment of the disease. Many diseases are water-related and even more frequently, such as in the cases of burns or dehydration, an ample quantity of good quality water is required for the patient's proper treatment as well as for the person administering treatment.

Poor quality water is liable for common intestinal conditions among the Bedouin Arab population (Giardia lamblia, Rota virus, Cryptosporidiosis and E-coli of various types). Data from the 1990's on child hospitalization rates at the Soroka Hospital indicate that every August 16 thousand Bedouin children, versus 5 thousand Jewish children, are hospitalized, while their proportion of the population is much lower[5].

[5] The Bedouin Arabs make up about one-quarter of the Beer Sheva district which comprises some 540,000 people according to the Central Bureau of Statistics for 2004. Bedouin Arab children make up some 40% of the district's children, with about 87,000 Bedouin Arab children under age 19. Soroka Hospital serves all residents of the south (except for Arava and Eilat residents), serving about 350,000 Jewish children.

Some of the researchers see a direct link between water accessibility and rates of infant mortality in Bedouin communities, which is the highest in Israel (see Fig. 8): more than three times the national average (Almi 2003, 2006).

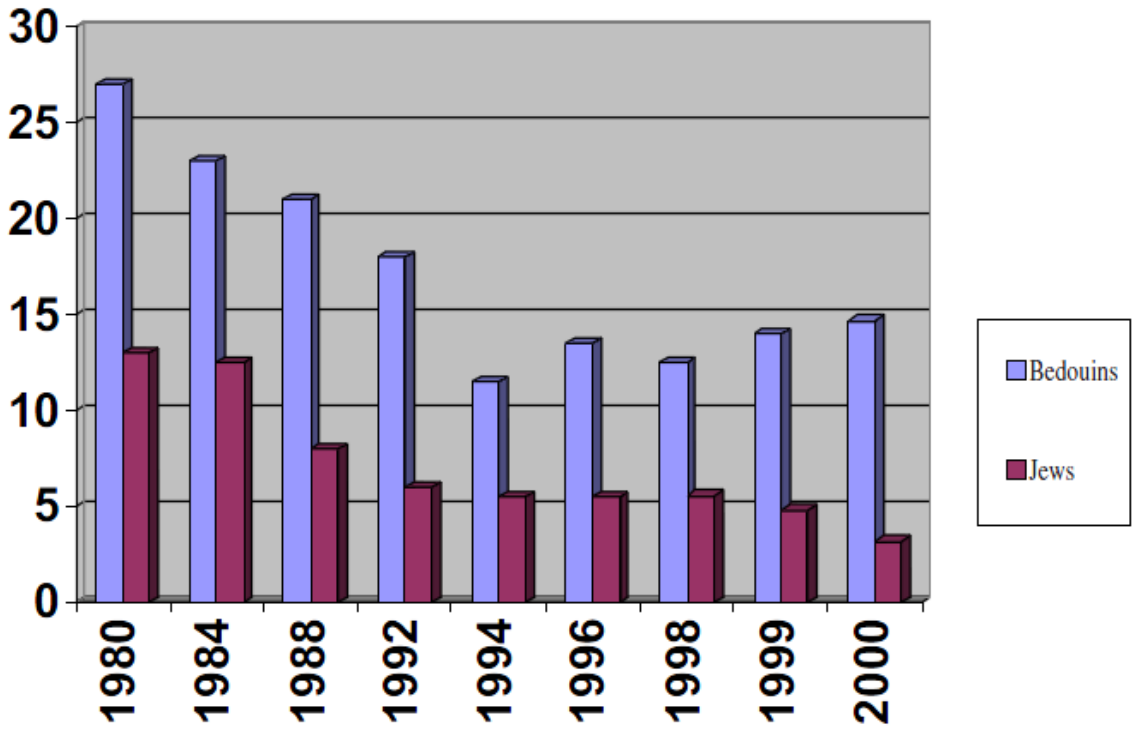

Figure 8. Infant Mortality Rates (Per 1,000 Live Births) in the Negev by Population Groups, 1980-2000
Source: Almi 2003

In 2004, the national rate was 4.73 per 1,000 live births versus 15.8 among Bedouin in the Negev. In the State report submitted to the UN Committee on the Elimination of Racial Discrimination (UN CERD 2005, 76), high infant mortality rates and the large gap between the general population's rate and the rate amongst the Bedouin population were explained by "the high rate of consanguineous marriage… religious prohibition against abortion, even in medically recommended cases, as well as socio-economic differences".

The counterclaim is, however, that absence of basic infrastructures services such as running water, waste disposal and health services "impacts the community's ability to safeguard the

health of young infants" (NCF 2006, 23). Lack of water, or its poor quality, can cause infectious diseases and can affect the ability to properly treat such illnesses.

5.1.2. Pattern 2 - discriminatory waste management practices

In the absence of waste collecting services, the residents of Bedouin villages resort to informal waste disposal methods such as backyard burning, dumping and removal to municipal bins in other settlements and storing waste on the backyard. (Meallem 2006). The potential health and environmental impacts related to these waste management practices are of great significance and cause for concern.

Backyard burning is usually carried out in barrels or ditches. The practice of burning agricultural waste is very problematic as the manure straw and hay piles can smoulder for days to weeks, emitting a very thick smoke. Residents claim this is causing them respiratory problems, aggravating the conditions of those already with asthma (Meallem 2006). There are also numerous cases of children accidentally stepping on still smouldering piles and burning themselves.

Household waste burning is highlighted as a major risk, especially when objects containing chlorine (e.g. plastics) are burnt. The Bedouin population at greatest risk of exposure to toxic pollutants are those living closest to and interacting with burning waste piles. However, the transboundary characteristic of air pollution means populations living further away from the pollution source are also at risk, but to a lesser extent.

Meallem (2006) points out that "burning waste on a regular basis may increase the risk of health problems including chronic and acute toxicity, cancer, high blood pressure, brain damage, cardiovascular problems, birth defects, throat and skin irritation, headaches, loss of

coordination, kidney and liver damage, nausea, fatigue, vomiting, and the worsening of existing respiratory and heart problems". In the absence of an extensive waste related epidemiological or environmental survey of Bedouin settlements, it is likely that waste burning is an important but overlooked cause of illness and local air pollution.

The dumping of mixed wastes in informal dumps is another concern due to potential leaching and ground water contamination (which has transboundary impacts) and the attraction of vermin and scavenging animals to the dumps. One of the common practices - dumping waste in the Hebron stream (Wadi Hebron), results in flooding when the sewage stream becomes blocked by waste. This waste is usually removed during yearly floods. Informal waste dumps also provide ideal breeding grounds for mosquitoes.

The storage and reuse of asbestos waste is a major health risk, as inhalation of asbestos fibres can cause various illnesses such as cancer, and the storage of bulky waste in backyards provides shelters for vermin. In addition to the mentioned concerns, the storage of waste and large items such as construction waste, in backyards provides shelter for such pests as rats "the size of cats", and snakes and increases the risk of disease (Meallem 2006).

The transboundary character of certain practices (e.g. contamination of groundwater sources from dumping and increased air pollution from burning waste) means that not only the waste handlers, their neighbors or all the residents of the settlement are at risk, but also populations living well beyond the boundaries of the Bedouin settlements. Subsequently, the inadequate provision of waste disposal infrastructure to Bedouin communities is a national problem that must not be ignored. This fact, along with the health and environmental problems facing local residents, should motivate decision makers to take immediate mitigation steps. As citizens of Israel, the Bedouins deserve to receive the same urban status, resources and services.

The complete absence of waste disposal services in unrecognized Bedouin villages and inadequate provision in the planned settlements means that solid waste management is of great concern to public and environmental health (Meallem 2006).

The problem that was observed in recognized townships include abundance of waste on the streets and in garbage bins (plastic bottles and bags, animal waste) which points to the problem of irregularity of waste collection in the towns.

5.1.3. Pattern 3 - exposure to hazardous waste, chemicals and pollution

The Covenant on Economic, Social and Cultural Right establishes that one of the steps states must take in order to achieve the full realization of the right of health is to improve "aspects of environmental and industrial hygiene" (UN GA 1966, 8). This statement, however, seems to be ignored by Israel, given the fact that residents of Bedouin villages are disproportionally exposed to such hazards as open sewage channels passing through the villages (for more details see section 5.1.4.) and pollution from the Ramat Hovav Industrial Complex (see Fig. 9) and its evaporation pools, emissions from factories located within the industrial complex and storage of hazardous waste there. One of the concerns - heavy odours from the site, was experienced during the field research.

The problem of Ramat Hovav, which is "a major focal point of air and water pollution in the Negev" (Ministry of Environmental Protection 2007), affects both Bedouin and Jewish communities located around the site. However, residents of unrecognized villages experience more problems since they live in the closest proximity to Ramat Hovav. Two of the unrecognized villages -Wadi Al Na'am, with a population of approximately 4,500, and Wadi Almshash with approximately 850 residents -, fall within the area of highest danger, which has been defined as a radius of five kilometers from the site (Almi 2003). Some of the homes in

Wadi Al Na'am are located right across the road from Ramat Hovav (500 meters or less from the site).

Figure 9. Ramat Hovav Industrial Zone
Source: Google Earth

The environmental ramifications of the facility are associated with toxic waste which is a by-product of the chemical factories on the site. In the past, waste was channeled directly into one of the river beds in the area contaminating groundwater. Toxic waste is now stored in evaporation pools extending over an area of some 13 square kilometers. The waste is stored in the pools until the water components evaporate. However, toxic elements such as volatile organic materials, some of which are known to be highly dangerous carcinogens, evaporate along with the water (Almi 2003).

Several of the factories at Ramat Hovav (particularly Bromine Compounds Ltd and the Makhteshim Group) emit significant concentrations of hazardous chemicals out of their chimneys, including highly toxic chemicals and carcinogens. Two plants at Ramat Hovav - the

Government Company for Environmental Services and Akosol Ltd. – house piles of barrels containing toxic waste. Akosol operates the incendiary at Ramat Hovav. In March 2001, the factory received an administrative closure order following an explosion in a container holding organic fluid waste; the explosion caused a fire. All the employees on the site were advised to stay in protected rooms, while the residents of Wadi Al Na'am were left unprotected.

In addition to the Ramat Hovav Industrial Complex, Wadi Al Na'am is surrounded by an Israel Defense Forces (IDF) munitions factory and military fire zone, the Efrat Oil Terminal - an oil-storage site -, the Israel Electric Company and the Mekorot national water carrier site.

5.1.3.1. Health ramifications

According to the findings of the 2004 epidemiological study carried out by the Ministry of Health, the cancer and infant mortality rates among those who live within a radius of 20 kilometers of the Ramat Hovav Industrial Zone are 65% higher than among people living in more distant areas (Johal 2005). Approximately 350 thousand people live within this danger zone, including the residents of Beer Sheva. Even the IDF vacated its military camp two kilometers away from the site after soldiers fell ill and complained about heavy odors (Almi 2003).

Residents of Bedouin villages report asthma among children under the age of six, eye infections, a high proportion of miscarriages, heart disease at a young age, and high levels of cancer (Almi 2003; Johal 2005).

5.1.4. Pattern 6 – sewage: differentiated access to the system and exposure

The right to health includes ensuring the presence of the underlying determinants of health. Healthy environment and access to adequate sanitation services are among these determinants. Bedouin villages of the Negev are still not connected to the national sewage system and do not have any proper facilities for the disposal of sewage.

One of the ways Bedouins deal with the sewage problem is building concrete or mud cesspits. However, this solution creates additional problems for the Bedouin community, such as mosquitoes, rodents, or contamination of ground water and wells, which are used both as a source of drinking water and water for the flocks. Moreover, there is always a need to pump the content of a full pit (usually it implies hiring a truck) or constructing a new one.

While absence of sewage system in the villages poses risks to the community by itself, there are additionally two open untreated sewage streams (from Dimona and Hebron mountains) that pass through and near many of the unrecognized villages. Sewage lines affect the villages of Qasar Alsir, Bir Almshash, Alzarnug Bir Alhamam and Umm Matnan. In the latter, sewage passes directly through the village in the form of an unfenced open flow. Among other problems are odour and mosquitoes. The range of mosquitoes can be up to six kilometers, and up to ten kilometers if there are strong winds (Meallen 2006).

The Hebron sewage stream includes both domestic and industrial waste. It passes through the recently recognized village of Umm Batin, and the unrecognized villages of Algrin and Amra. It also passes near the Bedouin township of Tel Sheva. The steam is used by the residents of the villages as a waste disposal site because of the absence of proper waste collection and management services in unrecognized villages. This contributes to the sanitation and health

hazards due to the blockage of polluted water flow and to the environmental hazards due to the leaching of waste water into ground water.

5.1.5. Pattern 4 – differentiated access to electricity

This pattern deals with unequal access to electricity, an important public resource. None of the villages is connected to the national grid. Interestingly, some villages are located on the way of high voltage lines carrying electricity to big cities and the surrounding areas but are not connected to the grid. One of the examples is the village of Al Fur'ah with a population of 3,700. Approximately one hundred of its residents live directly under the line carrying electricity to Arad. Another example is Wadi Al Na'am, where a power station has been established in the center of the village (see Fig. 10). While electricity lines run just above their heads the residents must use diesel fuel to produce their own power via generators.

Diesel generators, which in many cases are purchased jointly by a number of families and are operated in the evenings for a couple hours, are the main source of electricity in unrecognized Bedouin villages (Almi 2003; Meallem 2006). Generators are inefficient, expensive and unsustainable. They produce noise, emit odours and require diesel to work, which means additional expenditures for Bedouins who represent the poorest segment of Israeli society.

Figure 10. High voltage lines in the unrecognized village of Wadi Al Na'am.
Source: LIFE 2007

Absence of electricity in the villages directly and indirectly affects the health of Bedouins. Indirect ramifications include the cases when inability to store food in refrigerators affects children who require decent food in order to develop properly. The direct effect involves cases when Bedouins are unable to provide proper storage conditions for medicines, such as various ointments that require storage at low temperatures, and particularly for drugs for such chronic illnesses as asthma.

5.1.5.1. Electricity: sustainable coping strategies o f Bedouin community

During the field research it was observed that some of the houses in the Bedouin villages had solar panels on their roofs. As it was explained one NGO activist working with Bedouin communities: "*Solar panels are the solution that is adapted by residents of the place".* Thus,

if a family can afford it, a solar hook up will supplement the electricity needs of the family. However, a single solar power system is not enough to provide 24-hour power to a household.

Among the recently recognized villages, the Derijat village is known for having its own multipurpose solar electricity system, which provides the residents with "green" electricity (Golan 2006). As it was noted by one of my informers, *"The mosque in Derijat is the first mosque that is run by solar energy"*.

Because of Israel's geographic location, the intensity of solar energy, especially in the Negev, makes utilizing solar power an attractive option for energy independence of Bedouins.

5.1.6. Pattern 5 – inadequate housing

This pattern deals with inadequate housing in Bedouin villages. As it was declared in the Universal Declaration of Human Rights (UN GA 1948):

> *Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing and medical care and necessary social services.*

The notion of adequate housing involves "the right to live somewhere in security, peace, and dignity" (UN CESCR 1992). This, however, contradicts the reality faced by Bedouin communities on an everyday basis. In the Bedouin case, removing them from a tent and putting them in urban homes is the violation of their right to culturally adequate housing. Urban townships do not provide access to land or employment and in some cases contribute to high poverty rates among the Bedouin population. The Bedouin in unrecognized villages have no security of tenure and their homes are illegal.

The birth rate of Bedouins is amongst the highest in the world (Almi 2006). However, despite rapid population growth, Bedouin in unrecognized villages cannot build new houses and constantly face the potential of their homes being demolished. House demolitions, in their turn, have a strong effect on the health of the Bedouin family (Almi 2006). They undermine the psychological health of Bedouins, especially of young children. Moreover, the execution of demolition orders violates the children's right to proper development.

In communities such as the Bedouin, the health of the individual is often linked to the health of the society. In this respect, activities that lead to the displacement of Bedouins against their will from their traditional territories and environment, denying them their sources for subsistence and breaking their symbiotic relationship with their lands, has a deleterious effect on their health (UN CESCR 1992).

5.2. DISCUSSING THE IMPACTS OF UNEQUAL DISTRIBUTION OF ENVIRONMENTAL HARM AND BENEFITS

Environmental justice is generally understood as a condition when environmental hazards and benefits are equally distributed without direct or indirect discrimination at all jurisdictional levels regardless of race, class, religion or gender. It also implies fair and equal treatment when it comes to access to environmental investments, benefits, and natural resources as well as access to information, participation in decision-making, and access to justice in environment-related matters. However, in the real world some groups of people may be disadvantaged, as Bedouins, and may bear a disproportionate share of the negative environmental consequences because of their ethnicity, culture, class or religion.

The Bedouins are official citizens of Israel, which means that they are to enjoy the same legal rights and equality before the law as all other citizens of the State. However, when it comes to

facts, reality seems to be different. One of the examples demonstrating the controversy of the citizen rights of Bedouins is their inability to vote in municipal elections due to the unrecognized status of the Bedouin villages and consequently the absence of official addresses in the village[6]. This is just one of the dozens of examples proving that rights of Arab Bedouin citizens of Israel are violated by the State.

Defining the unrecognized villages as "scattered in the illegal clusters", the Israeli government refuse to provide municipal services to the villages (NCF 2006, 14). Absence of basic infrastructure and services such as connection to the electric, water and sewage grids, waste disposal, and proper access roads compounded by a shortage in medical services impede the rights of the Arab Bedouin citizens to a healthy environment according to the principles of justice and equality.

By ignoring the existence of unrecognized villages and excluding them from planning arrangements on the basis of the 1965 National Planning and Construction Law, the government has been discriminating Arab Bedouins in the granting of housing rights and building permits. The only planning option available to Bedouins allows them to live in an urban or suburban type of locality rather than agricultural villages preferred by Bedouins which meets the traditional practices and lifestyle of the Bedouin community. Different planning options, however, are available to Jewish citizens. One of the examples of different planning approach is the "Wine Road" Plan. While the government rejects to provide Bedouin with agricultural planning option, it has initiated a plan to build thirty single household farms (twenty-nine Jewish and one Arab-Bedouin household) on the area currently being claimed by Bedouins (Yiftachel 2006). Each farm is planned for a single family provided with dozens and hundreds of dunams of land for their exclusive use. Most of the farms are established without

[6] Identification Card will have the name of the tribe instead of the place of residency.

outlined plans, and building permits are granted retroactively (NCF 2006). This clearly demonstrates inequality in access to the land for Arab Bedouins and discrimination in planning policies. The way a local NGO activist puts it:

> *The Bedouins do want to be offered the variety of settlements that are existent, for example in Jerusalem. We want to have a possibility to live in urban areas, to live in the modern areas, or agricultural settlement. We want to have this possibility. We come from the more open agricultural society. And if people want to live in the urban settlement, than they want to choose. If Bedouin wants to live in urban-planned area, that is fine. But at least give us the opportunity to choose between the types of settlements.*

While Jewish settlements and single farms along the "Wine Road" in the Negev with population of less than ten individuals have access to electricity and are promptly provided with water access, often prior to obtaining planning permission for their dwellings, most of the Bedouin villages with an average population of 1,740 continue to be off-grid. Moreover, while water prices for Jewish farmers are heavily subsidized by the government at a rate of 3.5 times lower than the household rates, Arab Bedouin receive smaller water allotments or do not receive any water allotment at all (NFC 2006). As a result, they have to pay for the water at household rates and face great difficulties in subsisting off their land.

Since unrecognized villages are not connected to electricity, most homes do not have a refrigerator, making it difficult to store food. Even when families have a refrigerator, however, it is of relatively limited use, since the generators only operate for a few hours a day. There are no street lights in the villages. This contributes to a growing feeling of insecurity among the residents. Among other problems faced by off-grid Bedouin communities are lack of access to the media (television, computers and mobile telephones).

The denial of municipal services makes them much more expensive for Bedouins. The price of water, for example, is three to ten times higher for Bedouins (NFC 2006). As for electricity,

residents of villages are forced to buy diesel for generators and use this expensive and unsustainable source which provides them with electricity only for a couple hours in the evenings.

All the constructions in Bedouins' unrecognized villages are considered illegal. However, while building without permission is tolerated in Jewish communities where unlicensed buildings are usually retroactively approved, it is punished in Bedouin villages with demolition order[7]. More than 100 houses are demolished annually. Thus, 113 houses were demolished in 2002 and 157 in 2003 (NFC 2006; see also Appendix IV, 104). One of the recent examples of demolition, which took place on July 27, 2010, is when the entire village of al-Arakib with approximately 40 houses was bulldozed, leaving 300 Bedouins without a place to live (Aljazeera 2010).

All this brings the question of recognition to the surface. It seems that when it comes to considering the needs and interests of the affected Bedouin community, the State frames the interaction in a security context. This often applies to issues of allocation and use of land. In contrast, the Bedouin frame concentrates on the need to be recognized in order to secure their housing and land rights.

The distribution of environmental hazards in the north-eastern Negev is such that they are generated by facilities located in close proximity to Bedouin settlements. The infrastructures in Jewish communities in the area are far superior to that of Bedouin villages and townships.

Most of the decisions that impact the Bedouin community - land expropriations, construction of military city, siting of the Ramat Hovav Industrial Zone, were made without the

[7] Physical demolitions take place by squads of local police and land-administration officials. Such raids are usually carried out in the early hours of the morning. Families are driven out of their homes by orders of a police officer, and the houses are destroyed by bulldozers (usually on top of the family's possessions). In many cases, children, women and men are left without a roof over their head. In some cases, the police behaved violently and injured some people while demolishing homes or putting demolition orders on them.

participation of Bedouin representatives. This clearly demonstrates a power imbalance which is not designed to permit a fair outcome. For example, there has not been adequate compensation for the environmental risks and damage inflicted on Bedouin community.

CHAPTER 6. RECOMMENDATIONS AND CONCLUSIONS

Previous chapter presented and discussed the findings of the study and patterns of environmental injustice that were detected during the main stage of the research. Current chapter provides preliminary recommendations based on the results of data interpretations and analysis, summarize the findings of the study and gives conclusion of the research. Moreover, suggestions for further research are offered.

The following patterns of unequal distribution of environmental harms were identified: differentiated access to water, discriminatory waste management practices, exposure to hazardous waste, chemicals and pollution, sewage: differentiated access to the system and exposure, differentiated access to electricity and inadequate housing. Exposure to these environmental risks has especially severe implications for the residents of unrecognized Bedouin villages. The government should accept the problems of its Bedouin citizens and recognize their needs for healthy environment. Along with the modification of the government's policy regarding resource allocation to planned Bedouin settlements, a change in the policy that negates the provision of municipal services to residents of unrecognized Bedouin villages is in dire need. However, based on the governments past record regarding Bedouin policies, such a transformation is doubtful and immediate mitigation efforts are more likely to be initiated by NGOs and external agencies. Some of the following recommendations will therefore focus on initiatives at grassroots level and will include the possible solutions for alleviating the consequences of lack of access to municipal services in unrecognized villages.

With regard to discriminatory waste disposal practices, several initial approaches have been identified to facilitate safer waste management. First one includes mitigation of public and environmental health risks by means of local education and raising awareness campaigns that

target high risk populations. The information that should be delivered to residents of the villages include exposure pathways, hazardous waste, vermin, safety measures and the general benefits of keeping areas clean. Meallem (2006) suggests that it is important to educate Bedouin women, since they are the one who deal with waste management in the villages, about waste related hazards associated with storage, disposal, reuse and resale, and about environmental health. Thus, these women will become "agents of change, empowered to take mitigation actions which can modify the behavior of their families (especially their children) and lead to improved health conditions for the entire household" (Meallem 2006, 92).

Second proposal is to implement waste recovery programs and mitigate the environmental and health impacts of informal agricultural waste disposal. One of the "waste-to-recourse" options that can be used in Bedouin villages is biogas digester - self-contained biogas systems that work on the anaerobic digestion of organic materials, animal and/or human waste products and plant matter. The biodigester works on natural microbial processes that operate on waste products causing them to produce methane gas which is readily usable for cooking, heating, lighting and fuelling refrigerators and motors. The introduction of biodigester systems into unrecognized Bedouin villages can help mitigate the public and environmental health problems associated with agricultural waste disposal and economic problems relating to purchasing fuel.

Water shortages in the villages, where the need to conserve water is pronounced, could be partially solved by introducing grey water system. Grey water is water from all water-using appliances and processes except toilets. Depending on the level of purification, grey water can be reused for crop irrigation and even drinking.

Regarding the culturally adequate housing, government should provide the Bedouins with the choice of different type of settlements available for other citizens of the State. Whether it is an

agrarian farm or urban township, the settlement should meet the traditional and cultural needs of the Bedouin community and should not contradict their identity. One of the models that can be applied in Bedouin villages in the model proposed by BUSTAN NGO – environmental community center that is planned to be built in the village of Qasr al-Sir (see Fig.11) (BUSTAN 2010).

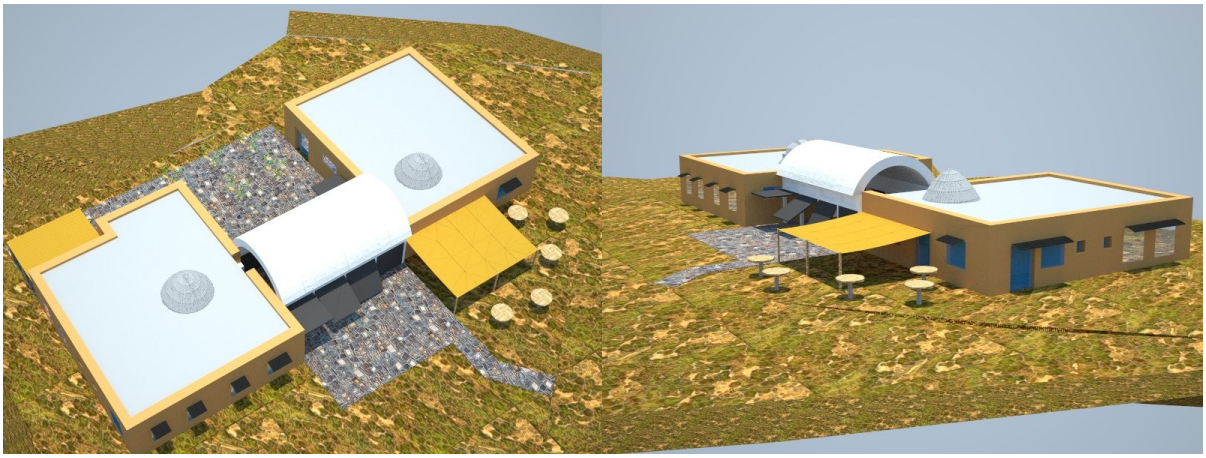

Figure 11. Plan of the Bedouin community center.
Source: BUSTAN 2010

The community center is designed to be solar-powered and use other "green" techniques taken from both traditional Bedouin methods and newer permaculture techniques. The construction of the center creates work opportunities for Bedouins who for this reason will be trained as ecological builders and will be actively involved in construction process. The site will include four areas that are meant to fill a certain need of Bedouins: women's site, youth site, men's club and trees greenhouse. Moreover, elderly people will be involved in the center activities, thus, creating the possibilities for full cooperation in the village. Implementation of this model can create a bridge that will integrate the Bedouin minority in Israeli society while preserving its culture and promoting a sustainable way of life.

Health problems in the recognized and unrecognized villages should be resolved by providing them health services in full on the basis of equality, regardless of the status of land, house or

place of residency. Moreover, Bedouins have the right to specific measures to improve their access to health services and care. These health services should be culturally appropriate, taking into account traditional preventive care, healing practices and medicines. Measures should be taken to ensure the cultural accessibility of healthcare services, particularly with respect to language.

Israel should recognize all the Arab Bedouin villages and stop house demolitions. Government should take steps to return the Bedouin their land and territories that were owned by them before the State of Israel was established. Prompt compensation should be granted to those who decided to move to government-built townships. Where possible, this compensation should take the form of lands and territories.

Statistical data on residents of unrecognized villages should be collected and become available in the governmental and other sources. Data on pollution and health of the residents of the unrecognized villages should be gathered. This data must be incorporated into state health policies in order to allocate more funds according to the factual needs of the villagers.

6.1. FURTHER RESEARCH

This study presents an analysis of the situation in Bedouin villages in the north-eastern Negev within the distributional dimension of environmental justice framework. The investigation of cases of environmental injustice in Bedouin communities from the perspective of other elements of the framework in order to obtain a deeper understanding of the situation is thus suggested. The patterns of unequal distribution indicated in this research may be further tested during the regional research with application of the Rapid Rural Appraisal methodology. Moreover, the comparative case studies of the Negev Bedouin and Bedouin living in the North of Israel may be carried out to understand whether environmental discrimination is specific for

the Southern region or in general for Israel's Arab Bedouin community and Arab minority at large.

The impacts of unequal distribution of environmental harms and benefits should be further studied taking into account finding of this research. All listed above proposals are planned to be implemented during a PhD research on environmental justice in Israel.

6.2. CONCLUSION

This study identified and analyzed cases of environmental injustice and unequal distribution of environmental harms and benefits in the north-eastern Negev, Israel. Six patterns of uneven distribution were detected during the research: (1) differentiated access to water; (2) discriminatory waste management practices; (3) exposure to hazardous waste, chemicals and pollution; (4) sewage: differentiated access to the system and exposure; (5) differentiated access to electricity and (6) inadequate housing. The outcomes of the research do not suggest that Bedouin community is the only one exposed to environmental risks in Israel. Yet if you are a Bedouin living in the north-eastern Negev, Israel, the probability of you having a safe, clean and healthy environment is lower that of those non-Bedouin citizens of Israel.

The following research questions were set forth and explored in the study: Can the situation in Bedouin settlements in the north-eastern Negev be described as environmental injustice? If so, then what are the forms and scope of the unequal treatment? What are the impacts on affected communities? Are there inequalities in the distribution of environmental benefits and costs? What can be done to assure a more just distribution of environmental goods and risks?

To answer these questions, the research was done on unrecognized and recognized Bedouin villages and townships in the north-eastern Negev. The forms of unequal treatment in

recognized settlements touch upon the subjects of uneven access to nature and green areas, irregularity of waste collection and discriminatory waste management practices, inefficient sewage system and "culturally inadequate" housing. The situation of the Bedouin living in unrecognized villages is alarming, and the environmental threat they face is high compared to the majority population. Types of unequal treatment and exposure to environmental risks in unrecognized villages cover all six patterns of environmental injustice indicated earlier in this section. The findings of this research clearly indicate that recognition is a crucial factor and lack of it not only determines access of the residence of unrecognized Bedouin villages to environmental benefits but also force them to be the victims of unfair distribution of environmental harms.

It can be concluded that the disadvantaged position of Bedouin community determines their vulnerability and inability to promote their interests and protect themselves against environmental risks. At the same time, environmental injustice contributes to their further marginalization through different impacts of uneven distribution of environmental harms. The research demonstrates that even when both Arab Bedouin and Jewish citizens of Israel are exposed to environmental hazards such as pollution from Ramat Hovav Industrial Complex, the environmental benefits, such as access to nature, and benefits of industrial complexes such as electricity are unequally distributed between the Jewish and Arab population.

Environmental injustice is not the only problem imposed on Bedouin community in the north-eastern Negev, Israel. It represents only one dimension of the challenges faced by Bedouins. At the same time environmental injustice is a consequence of the complex nature of these problems. This interdependence demonstrates that it is improbable to cure environmental injustice without addressing specific needs of the Bedouin minority or without integrating it into society, however, taking into account their traditional way of life.

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APPENDIXES

APPENDIX I. Bedouin Population in the Unrecognized Villages, 2002

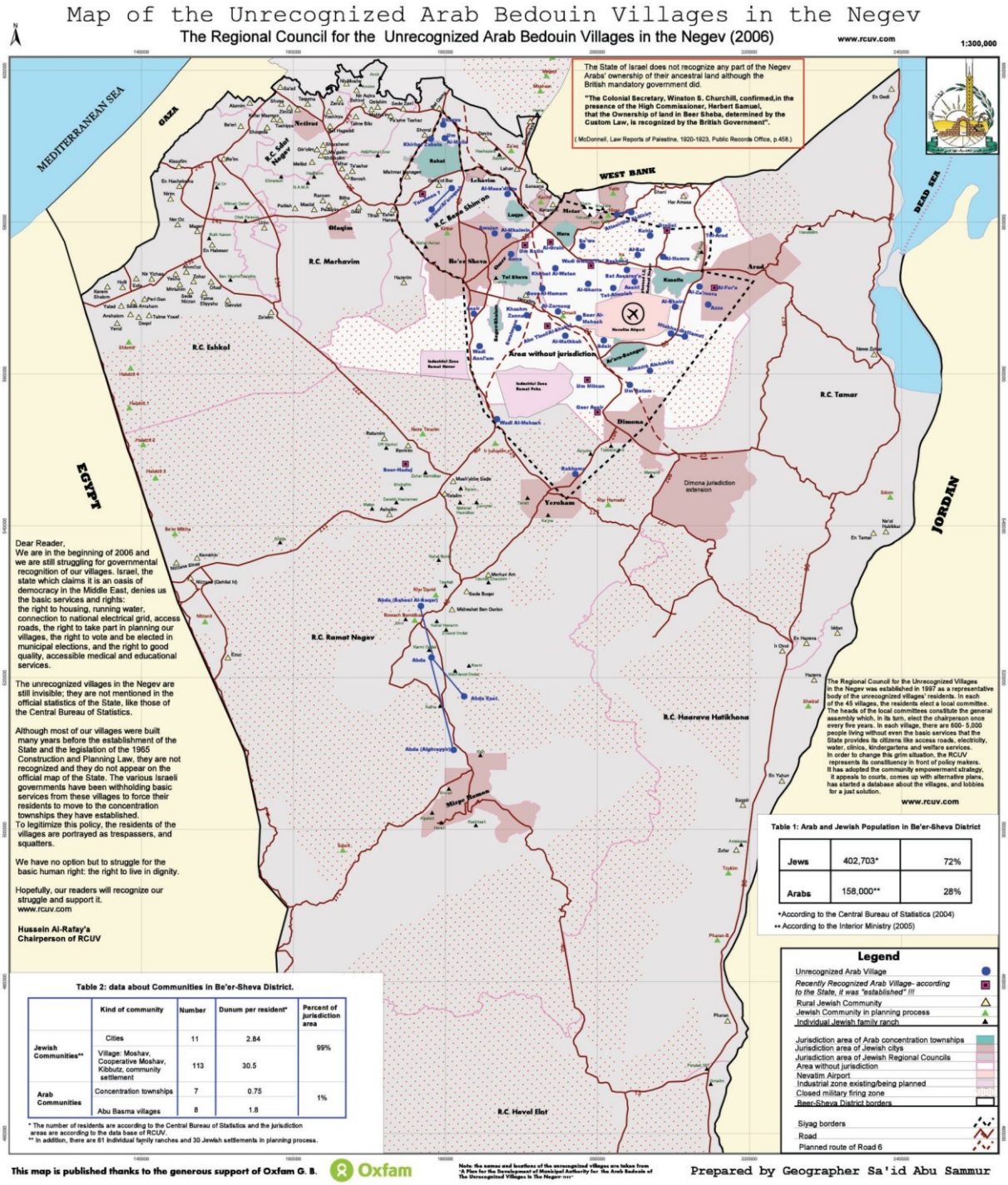
Village	סה"כ אוכלוסייה Total Population 2002	הכפר
Total	***76,364***	***סה"כ***
az-Zaʿrurah	2,756	א-זערורה
az-Zarnug	1,323	א-זרנוק
as-Sder	550	א-סדיר
as-Sarr	2,000	א-סר
as-Sarrah	1,170	א-סרה
as-Saray^ʿih	520	א-צראיעה
ash-Shahbiy/ Abu-Tlul	3,550	א-שהבי/ אבו תלול
al-Bat	1,100	אל-באט
al-Bherah	1,750	אל-בחירה
al-Humrah	882	אל-חומרה
al-Madhbah	1,300	אל-מד'בח
al-Mazraʿah\ Osh-Shahba	551	אל-מזרעה/ א-שהבא
al-Mkimin	1,103	אל-מכימן
al-Msaʿidiyyih	570	אל-מסאעדיה
al-Gharra	1,814	אל-ע'רא
al-furʿah	3,700	אל-פורעה
al-Gren	3,700	אל-קרין
Amm Mitnan	3,859	אם-מתנאן
Amm Ritam	900	אם-רתאם
Amm Batin	3,308	אם בטין
Amm Namilih	1,654	אם נמילה
Bir al-Hamam	2,000	ביר אל-חמאם
Bir al-Mashash	882	ביר אל-משאש
Bir Haddaj	4,410	ביר הדאג'
Dhahiyyih	662	דחייה
Drayjat	1,000	דריג'את
Wadiy An-Naʿam	4,500	ואדי א-נעם
Wadiy Al-Mshash	850	ואדי אל-משאש
Wadiy Ghwin/ Tlaʿ Rashid	3,037	ואדי ע'וין/ תלאע רשיד
Chirbit al-Watan	2,400	ח'רבת אל-וטן
Chirbit Zbalih	772	ח'רבת זבאלה
Chashm Zannih	2,205	ח'שם זנה
Kuhlih	500	כוחלה
Karkur	2,205	כרכור
Saʿawih	700	סעוה
Ghazzih	525	ע'זה
ʿAbdih	900	עבדה
ʿAwajan	2,000	עוג'אן
ʿAmrah	1,000	עמרה
ʿAttir/ Amm al-Hiran	500	עתיר/ אם אל-חיראן
Swewin	600	צויוין
Gatamat\ al-Mathar	1,200	קטמאת/ אל-מטהר
Gasr as-Sirr	2,756	קצר א-סר
Rachamah	1,100	רח'מה
Tall al-Malih	800	תל אל-מלח
Tall ʿArad	800	תל ערד

Source: Statistical Yearbook of the Negev Bedouin 2004

Note: data presented in the table is for the year of 2002. Since then ten villages were recognized; eight of them were established following Government Resolution 881on 29 of September 2003.

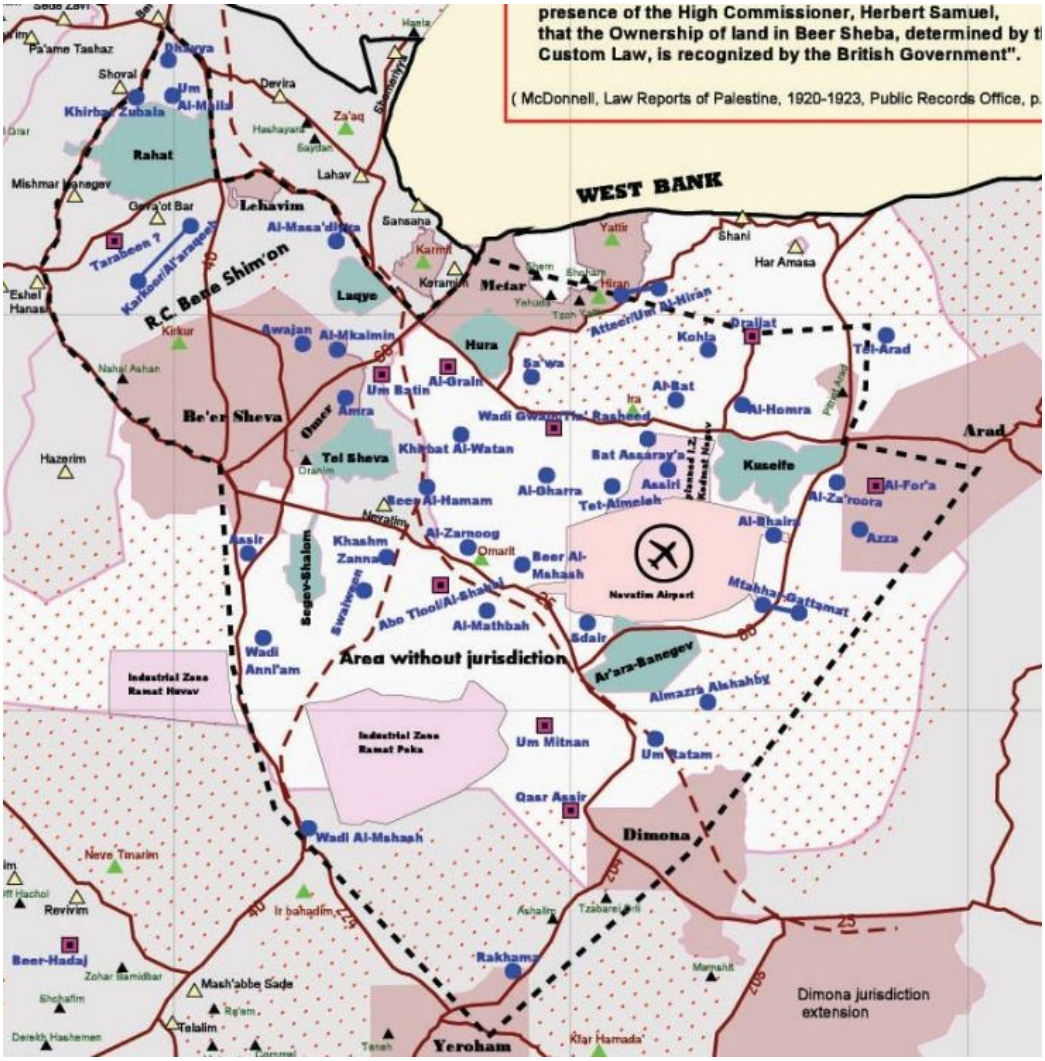
APPENDIX II. Maps

Figure 1A. Map of the Unrecognized Arab Bedouin Villages in the Negev, Israel



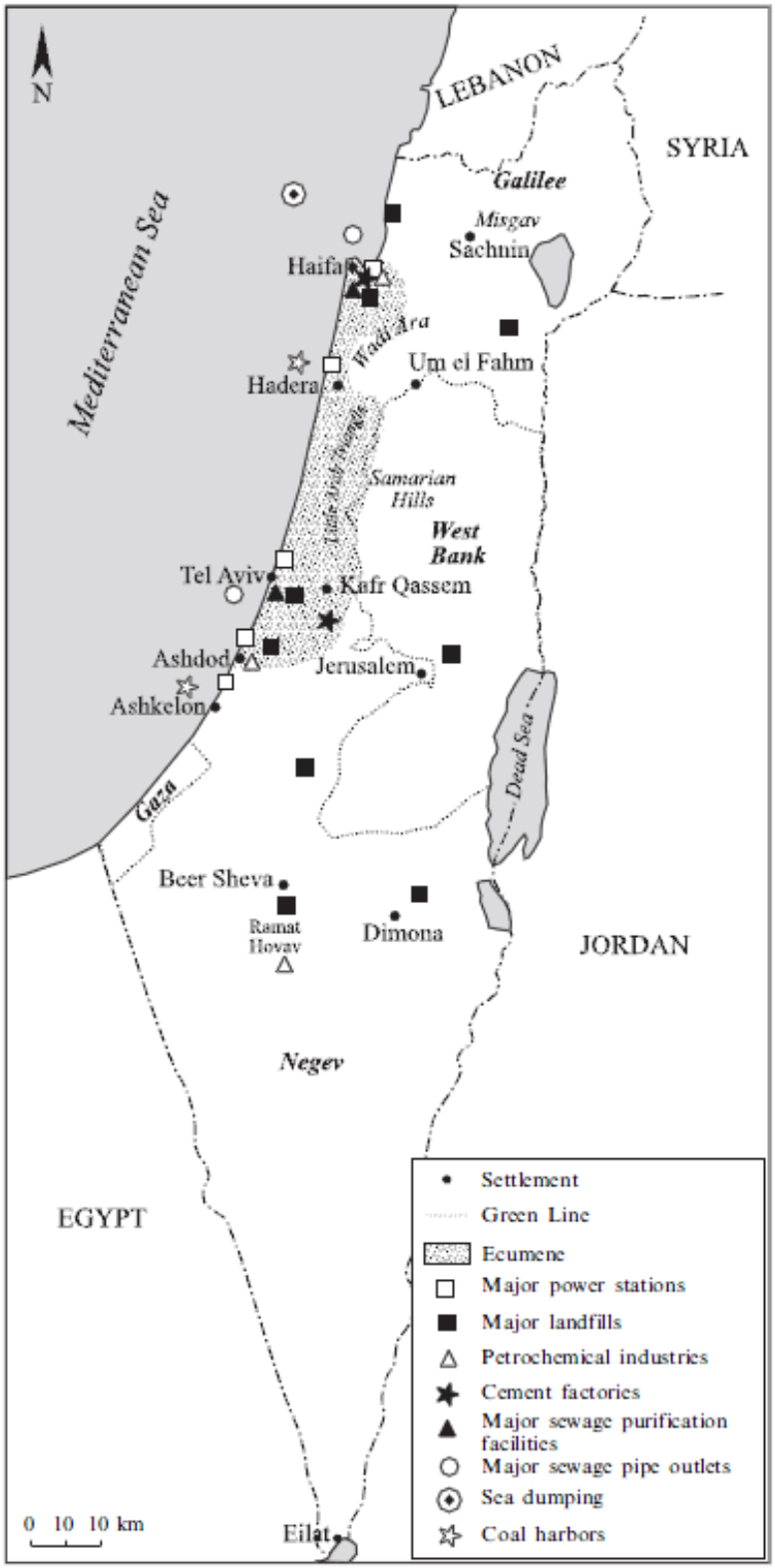
Source: Regional Council of Unrecognized Villages (RCUV) 2006

Figure 2A. Recognized and Unrecognized Villages within the "Siyag" borders



Source: Regional Council of Unrecognized Villages (RCUV) 2006

Figure 3A. Environmental risk point sources in Israel.



Source: Shmueli 2008

APPENDIX III. Field research

4A. Interviews

Name	Position	Date
Raed Al-Mickawy	Director, BUSTAN	June 7, 2010
Dr. Uri Gordon	Lecturer, Arava Institute for Environmental Studies	June 8, 2010
Dr. Nadav Davidovich	Senior Lecturer, Department of Health System Management, Ben-Gurion University of the Negev	June 12, 2010
Elad Orian	Co-founder of Comet-Me (Community, Energy, and Technology in the Middle East), human rights activist	June 12, 2010
Alon Shepon	Deputy Director, BUSTAN	June 14, 2010

5A. Personal communication

Ilana Meallem	Graduate of the Arava Institute for Environmental Studies, involved in Bedouin Biogas Project
Mazen Zoabi	Graduate of the Arava Institute for Environmental Studies, involved in Bedouin Biogas Project
Sharon Benheim	Director of Alumni Projects, the Arava Alumni Peace and Environmental Network (AAPEN) and Arava Internships
Student	Blaustein Institutes for Desert Research Ben-Gurion University
Student	Blaustein Institutes for Desert Research Ben-Gurion University

6A. Question for the interviews (for activists, NGOs, professionals):

What are the environmental conditions in Bedouin-Arab villages and Jewish settlements?

What is the distribution of water resources?

What is access to safe water supply in Bedouin-Arab villages and Jewish settlements?

Is there any impact from exposure to household waste? or from proximity to industrial and military zones?

How is the solid waste collected? How is it managed after collection?

Are there any injuries/deaths caused by environmental conditions?

What are the housing conditions?

To what extent are Bedouin-Arabs aware of their rights and of policies and legislation?

What are their sources of information?

What are their links with local NGOs and government?

Is their differentiated exposure to environmental threats and access to environmental benefits between Bedouin Arabs and Jews?

What is access to electricity in Bedouin villages? Jewish settlements?

Are there any alternatives to municipal services?

7A.Observation:

Source: adopted from Steger *et al.* 2007

Housing	What are the types of housing in the villages? Are the villages located in proximity to environmental hazards (industrial zones, dumping sites, high voltage)? Are villages located in proximity to green areas?
Water	Do villages have access to water? How water is used? Is it reused?
Electricity	Do villages have access to electricity?
Sanitation Facilities	Does waste water treatment exist in the village? Does sewage exist in the village?
Waste	Is there waste dumped in the villages?
Health	Availability of health services (hospitals, doctors) in the villages?

8A.Check-list for comparative evaluation of Bedouin-Arab villages and Jewish settlements

Source: adopted from Filcak 2007

ASPECTS	INDICATOR	RELATIVE EVALUATION
Housing	Legality (property rights)	⊡same ⊡ better ⊡ worse
	Quality of construction (safety)	⊡same ⊡ better ⊡ worse
	Residential segregation (distance from the city/village)	⊡same ⊡ better ⊡ worse
	Distance from environmental hazards	⊡same ⊡ better ⊡ worse
	Land ownership	⊡same ⊡ better ⊡ worse
	Number of people per square meter	⊡same ⊡ better ⊡ worse
	Distance from transport infrastructure	⊡same ⊡ better ⊡ worse
	Security of location (floods)	⊡same ⊡ better ⊡ worse
Access to Water	Distance to source/Proximity	⊡same ⊡ better ⊡ worse
	Availability of water	⊡same ⊡ better ⊡ worse
	Guarantee of water as public good	⊡same ⊡ better ⊡ worse
	Water quality	⊡same ⊡ better ⊡ worse
Electricity	Access to electricity	⊡same ⊡ better ⊡ worse
Sanitation Facilities	Access to waste water treatment	⊡same ⊡ better ⊡ worse
	Access to canalization	⊡same ⊡ better ⊡ worse
	Maintenance of sanitation	⊡same ⊡ better ⊡ worse
	Quality of waste water services	⊡same ⊡ better ⊡ worse
Waste Management	Access to waste collection	⊡same ⊡ better ⊡ worse
	Number of waste/trash containers and bins	⊡same ⊡ better ⊡ worse
	Extent of dumping	⊡same ⊡ better ⊡ worse
	Exposure to waste dumps	⊡same ⊡ better ⊡ worse
Access to Justice	Number and scope of policies/laws	⊡same ⊡ better ⊡ worse
	Availability of legal aid	⊡same ⊡ better ⊡ worse
Access to Information	Availability of information relating to environment and health	⊡same ⊡ better ⊡ worse

	Proper notification and proactive provision of information on environmental issues	⊡same ⊡ better ⊡ worse
Security	Personal security	⊡same ⊡ better ⊡ worse
	Law enforcement	⊡same ⊡ better ⊡ worse
Education	Availability and quality of education	⊡same ⊡ better ⊡ worse
	Literacy rate	⊡same ⊡ better ⊡ worse
	Grade level completion	⊡same ⊡ better ⊡ worse
Healthy Environment	Access to health services	⊡same ⊡ better ⊡ worse
	Extent of health services	⊡same ⊡ better ⊡ worse
	Prevalence of diseases	⊡same ⊡ better ⊡ worse
	Birth defects	⊡same ⊡ better ⊡ worse
	Infant mortality	⊡same ⊡ better ⊡ worse
	Life expectancy	⊡same ⊡ better ⊡ worse
Access to Resources	Land tenure	⊡same ⊡ better ⊡ worse
	Access to recreational areas	⊡same ⊡ better ⊡ worse
	Access to green areas	⊡same ⊡ better ⊡ worse
Fair share in infrastructure development	Investment and distribution of funds	⊡same ⊡ better ⊡ worse
Access to representation	Participation in the elections and in the environment-related decision-making	⊡same ⊡ better ⊡ worse

APPENDIX IV: Houses Demolished through March 2005
Source: Almi 2006

Village	Houses Demolished	Date	Implementing Body
Qattamat	2 homes	May 26, 2001	Ministry of the Interior
Almezr`a	6 homes	November 7, 2001	Ministry of the Interior
Almakimen	14 homes	June 12, 2002	Ministry of the Interior
Bir Hadaj	2 homes	June 27, 2002	Ministry of the Interior
Wadi Alna`am	4 homes	July 3, 2002	Ministry of the Interior
Algrin	1 home	July 10, 2002	Ministry of the Interior
Wadi Alna`am	1 home	December 29, 2002	Ministry of the Interior
Algrin	1 container	December 29, 2002	Ministry of the Interior
Tel Almaleh	Mosque	February 5, 2003	Ministry of the Interior
Abu Talul	4 containers	February 24, 2003	Ministry of the Interior
Bir Alhamam	3 containers	February 24, 2003	Ministry of the Interior
Bir Almashash	1 club	February 24, 2003	Ministry of the Interior
Bir Almashash	4 homes	February 24, 2003	Ministry of the Interior
Bir Alhamam	1 container	April 14, 2003	Ministry of the Interior
Alsder	1 home	April 14, 2003	Ministry of the Interior
RaKhme	1 sheep shelter	May 15, 2003	Green Patrol
Atir / Umm Alhieran	1 home	May 21, 2003	Ministry of the Interior
Wadi Alna`am	1 container	May 21, 2003	Ministry of the Interior
Chirbet Aras	1 home	May 21, 2003	Ministry of the Interior
Alfur`a	1 home	May 21, 2003	Ministry of the Interior
Khashm Zna	2 homes	May 22, 2003	Green Patrol
Khashm Zna	1 home	May 27, 2003	Green Patrol
Umm Matnan	8 homes	June 9, 2003	Ministry of the Interior
Umm Matnan	1 water reservoir	June 9, 2003	Ministry of the Interior
Dachiyya	2 homes	July 1, 2003	
Almasadiya	3 homes + 1 sheep shed	July 15, 2003	Green Patrol
Albhira	2 shops	July 15, 2003	Green Patrol
Sawa	5 buildings	August 11, 2003	
Algrin	1 building	August 11, 2003	
Wadi Ghwain	3 buildings	August 11, 2003	
Qattamat	1 building	August 11, 2003	
Umm Ratam	3 buildings	September 9, 2003	
Alsser	2 buildings	September 9, 2003	
Alzarura	1 building	September 9, 2003	
Um Ratam	2 buildings	October 20, 2003	
Alzarura	1 building	October 20, 2003	
Wadi Alna`am	1 building	October 20, 2003	
Al-Mezr`a	6 buildings	December 19, 2003	
Alzarura	Mosque	December 29, 2003	Police
Qattamat	6 homes	December 29, 2003	Police
Abu Jamda family (near Ar'arat)	1 home	December 29, 2003	Police
Alarakib	1 home	January 15, 2004	
Umm Batin	2 homes	January 20, 2004	Israel Lands Admin.
Algrin (Alsayid)	1 home	January 20, 2004	Israel Lands Admin.
South of Rahat (Abu Zayed)	12 homes	May 10, 2004	Ministry of the Interior ?
Umm Alhieran (north of Hura)	2 homes	June 14, 2004	
Umm Batin	1 home	June 14, 2004	
Umm Matnan	4 homes	August 25, 2004	
Abu Talul	1 home	August 25, 2004	
South of Bir Hadaj	3 homes	February 10, 2005	Ministry of the Interior

Total	127		