

In the Field

The Exposure of Bedouin Women to Waste Related Hazards

Gender, Toxins and Multiple Marginality in The Negev (Israel)

Ilana Meallem
Dr. Yaakov Garb

Traditional semi-nomadic pastoralist Bedouin lifestyles generated little waste that was hazardous or non-organic. As Bedouin adopted more sedentary and westernized lifestyles, however, the nature of their consumption changed, generating volumes and kinds of waste that require organized disposal. Because of deep levels of deprivation and other social factors, however, the Negev Bedouin settlements lack the means to adequately dispose of these wastes, resulting in severe health and environmental hazards. Women — a marginalized segment within this already marginalized population — are hardest hit.

The context

The Bedouins of the Negev, Israel, are a minority population estimated at between 140,000 and 159,000 people, geographically and socio-culturally distinct from other Israeli Arabs and Jews. In many Near Eastern and African countries, the relations between nomadic peoples and the state have grown increasingly tense over the course of the last century, with nomads becoming increasingly constrained spatially and politically. In Israel, this situation was intensified by the Israeli-Arab conflict. The Bedouin suffering massive out-migration following the 1948 war and establishment of the State of Israel, followed by years of military administration, loss of use of their traditional range lands, forced relocation, and, beginning in the late 60s, unilateral policies of urbanization that left them without traditional livelihoods on the one hand, and scarce possibilities for employment on the other.

After decades of these policies, currently about half of the Bedouin live in 7 planned settlements and the remainder in 46 unofficial settlements termed “unrecognized villages.” Even in the former, conditions are very harsh; they rank lowest on Israel’s socio-economic index and suffer from limited access to resources, sources of employment, and the inadequate provision of municipal services. The level of infrastructure and services in unrecognized villages is far worse; they lack formal infrastructure and services almost entirely. Electricity, running water, sewage and solid waste disposal, proper access roads, and the provision of decent health, educational and social services are mostly absent. This material “invisibility” from the state’s perspective is reflected even at the symbolic level, as unrecognized settlements do not appear on official maps nor do they have road signs indicating their presence. Though some of these settlements predate the state of Israel, and are located on lands that traditionally had been Bedouin and were expropriated by the state, dwellings in these settlements are classified as “illegal” and subject to fines and demolition. Consequently, dwellings are mostly shacks and tents. Understandably, such conditions compromise the ability of these settlements to safely deal with the increased amounts of solid waste they produce.

The changing face of waste: from resource to burden

Traditionally the pastoral semi-nomadic lifestyles of the Negev Bedouin revolved around raising livestock (camels,

goats and sheep) and practicing rain-fed agriculture (wheat, barley, olives and figs). The traditional kinds of waste were organic (e.g. slaughter waste, manure, carcasses and food scraps) and were put to use, either as food for guard dogs or livestock, fertilizer for land, or sources of energy for heating and cooking. Old clothes were reused as rags for sanitation purposes, or as patches to repair clothes and tents. Hides from slaughtered animals were used to make bags, shoes and rugs. Wool or hair from livestock was used as stuffing for mattresses or pillows, to weave tents or make decorations.

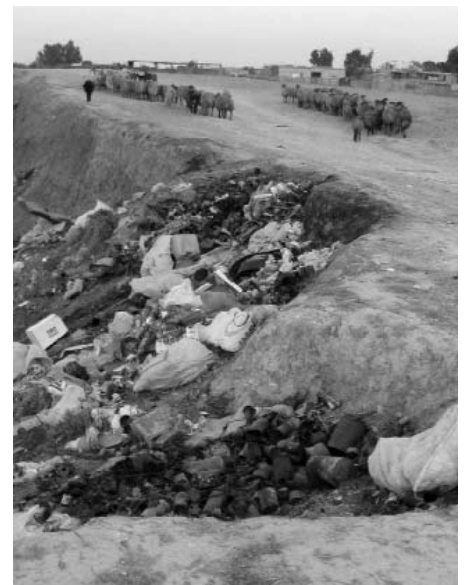


Figure 1: Contrast between traditional and new consumer lifestyles: a herd of sheep and goats pass one of the largest waste dumping and burning sites in the village of Um Batin, located along the banks of the Hebron Stream. Waste includes tin cans, plastic pipes and bags, concrete blocks, animal carcasses, motor parts, shoes, old clothes and diapers.

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In the past 25-30 years, government policies to fully sedentize the Negev Bedouin and their increased engagement with modern lifestyles and western consumer culture has resulted in a shift from the traditional “closed cycle” and “waste free” lifestyles. Present day consumption levels are much higher and the kinds and amounts of solid waste being produced and needing disposal in Bedouin settlements have changed dramatically. Home grown tomatoes that could be dried and salted to last all year were replaced by tins of tomatoes paste; fresh milk from herds has given way to shop bought sachets or powered products; breast milk replaced or supplemented by powdered milk formula — the list is endless. These “new” products almost all come in some form of packaging, whether tin, aluminium, plastic, glass, cardboard, or simply the plastic carrier bags used to bring home food. Residents in Bedouin settlements describe initially disposing of this “new waste” by simply throwing it out of the tent opening or windows. But over time it became obvious that this waste did not disappear, and, indeed, could be hazardous to children and livestock.



Figure 2: Backyard burning in an open pile just meters in front of a resident's house in Um Batin. Visible on the pile are incombustible objects such as tin cans and canisters which will be removed periodically by the women to a dumping site or buried in their yard. Children were observed playing around this pile and handling objects potentially contaminated by ash

Backyard burning: a toxic solution

Despite the large volumes of new forms of waste, municipal waste disposal services are inadequate or entirely absent, especially in the unrecognised villages, and residents resort to informal waste disposal methods. In particular, waste burning has become a common practice in backyards, in or adjacent to ephemeral streams (that fill with water a few times a year after heavy rains), and in open areas. For example, in the village of Um Batin (pop 4500), where a pilot study was conducted, over 70% of households surveyed reported using backyard burning in barrels or earthen pits as the primary mode of disposal.

Informal burning is highly hazardous since the types of solid waste generated by the Bedouin contain materials that are non-combustible (e.g. tin, glass, aluminium), explosive (e.g. pressurized canisters, closed bottles) or produce harmful chemicals when burned (plastics, polystyrene, chromated copper arsenate-CCA, pressure-treated wood, and bleached or colored papers). The lower incineration temperatures and poor combustion conditions in burning barrels or pits means fires tend to smolder and produce large amounts of



Figure 3: As the only daughter still living at home, this 18 year old resident of Um Batin is responsible for handling her family's waste. The highly hazardous method of indiscriminate backyard burning is used.

harmful chemicals.

Dioxins and furans are the most problematic air pollutants emitted during waste burning — only a very small amount of chlorinated material (found in all plastics) needs to be present in waste for their release. The predominant pathway of exposure for humans is air-to-leaf, followed by bio-concentration (build up) in animal fat and consumption (especially animal fats and dairy products). For other pollutants, such as fine particulates, inhalation is the pathway of greatest concern. Also, the ash residue from backyard burning may contain toxic pollutants (mercury, lead, chromium, and arsenic), which can contaminate vegetables if scattered in gardens, or be ingested through hand to mouth contact.

As a result of the state's policies of restricting access to traditional grazing lands and the forced shift from semi-nomadic to sedentary lifestyles, only Bedouin with large herds (over 100 sheep, goats and camels) are able to migrate seasonally, while the majority cannot access grazing lands. The smaller unauthorized herds are kept out of the authorities' sight, inside pens or enclosures next to the owners' home, where they are fed fodder. This results in the exposure of these animals to pollutants from burning trash. In Bedouin settlements, waste burning sites were observed mere meters from livestock fodder stocks and on a number of occasions poultry was seen pecking at food waste left out for them on piles of burnt debris.

In addition to waste burning as an informal method of disposal, cooking and heating fires often use scavenged wood (which may be painted or pressure-treated), and plastic waste is often used as an ignition aid. Women and children were often seen sitting around these fires (making bread, cooking or keeping warm) and are at great risk of inhaling toxic fumes. Regular burning of waste or contaminated wood 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, vomit-

ing, and the worsening of existing respiratory and heart problems. A study by Cwikel and Barak on the health and welfare of Bedouin Arab women (aged 22-75) in the Negev, found high levels of hypertension (25%) and respiratory tract illnesses or asthma (13%). In Um Batin, the head doctor in the local health clinic and the head nurse at the Mother-Child clinic both saw respiratory illnesses as amongst the most common health problems. While their assumption has been that wood cooking fires are the major source of exposure to airborne pollutants and respiratory irritation, in fact, waste disposal practices may be a major factor.

Bedouin women: less social power, greater exposure to risk

Exposure to informal waste disposal and its hazards is tied to the social conditions and power relations characterizing Bedouin settlements. An overwhelming factor is the extreme and systematic deprivation of the Bedouin settlements, especially the unrecognized ones, which lack almost all state infrastructures and services, including those for solid waste disposal. The impacts of this general incapacity fall most heavily on women, since, in Bedouin society the interaction of men with household waste is largely stigmatized, while women do most of the household work. Unless waste is dumped at a distance from the home (which requires transportation), the task of household waste disposal always falls largely or entirely on the women (from teen age upwards) who light household and waste fires, and are most likely to use plastic waste as a ignition aid or use contaminated wood in cooking or heating fires. Often, the movement of women is largely confined to the household compound where backyard burning occurs, and they are exposed to the air pollutants for prolonged periods of time (especially if they “guard” fires to keep children away or to stop it from spreading out of control). Thus, women are more at risk than men to injuries and diseases relating to waste disposal.

Further, in a patriarchal society, exposure to waste-related hazards correlates with a women’s access to the assistance and goodwill of men. Even within the

adjacent individual homes making up a single household compound in Um Batin, different methods of waste disposal — and thus impacts — were documented. Since women in unrecognized villages hardly ever have driving licenses or access to cars, they are dependent on men to help distance their waste. Women of lesser social power (who are not from the local tribe or are uneducated) are less able to demand that their husbands take part in the waste disposal process by removing the waste to a municipal container or to a distant dumpsite. When there is no man, they have no option but to backyard burn

or dump household waste in close proximity to their homes. This is the case for single mothers who are separated from their husband or widowed, or for women who see their husbands infrequently, such as those in a polygamous marriage and not privileged to regular visits or whose husband is largely absent from the village grazing herds, imprisoned, or working in a distant factory.

Double hazard in poorer households

The gendered division of labour experienced by Bedouin women and their resultant exposure to toxins from waste

Regular burning of waste or contaminated wood 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.



Figure 4: Mother and children standing adjacent to the family’s burning barrel. A widow with no access to transport or a large backyard, this woman has no option but to burn her household waste directly in front of their home (visible in the far right of the photo). The children were observed washing dishes and playing outside next to the barrel as waste was burnt in it.



Figure 5: A resident of Um Batin collects wood from a pile outside her home for cooking traditional Bedouin bread and heating. Pressure-treated or painted wood can emit toxic fumes when burnt.

disposal is compounded by poverty. Bedouin women from poorer households are at even greater risk of exposure to waste related hazards. They are more likely to use wood fires (rather than gas or electricity) for cooking and heating, and to live in exposed houses (such as tin shacks) which are very difficult to seal from the cold, pests and air pollution from waste burning. Additionally, poorer households are more likely to raise livestock for subsistence use, (e.g. cows for milk, chickens for eggs) and be exposed to bioaccumulated toxins in the animal products they consume. Scavenging and storage of bulky waste in backyards for later reuse, a common practice among poorer residents, also increases a family's chances of exposure to the vermin or snakes sheltered by this waste.

When tradition aggravates waste management practices

Many practices in traditional Bedouin society are strongly based on blood relations, lineage and cooperative units. Scholars of Bedouin society, such as Ben-David, have seen this as an adaptation to the unpredictable and resource scarce environment of the desert, where being a member of a cooperative group requires loyalty and commitment, but ensures protection and increases the chances of survival. The structures found today are not timeless, however, as the Bedouin are themselves an amalgam of several groups, the constellation of tribal affiliations and definitions changed under Turkish, British, and Israeli rule. In particular, as with other areas in Israel, tribal chiefs (Sheikhs) gained considerably in power under Israeli rule as intermediaries between the Arab population and the Israeli authorities.

Abu Lughod, Dinero, Hundt, Marteu and Nelson have illustrated various and shifting modalities of power that women have in Bedouin society. They were largely (and perhaps increasingly) excluded from political life under Israeli rule which is dominated by the strengthened position of sheikhs, intensification of tribal patronage relationships, and, most recently, the rise of party politics in the Bedouin sector. It has also been argued that the need

of Bedouin men for domestic control has heightened corresponding to their subjugation and frustrations within the Jewish state and the loss of traditions and social continuity. In the last decade, however, new spaces and channels have opened up for Bedouin women to participate in or bypass male-dominated politics through the feminist stances of (and associated funding by) national and international NGOs, as well as new forms of organizing by the Islamic movement, educational opportunities for women, and the activities of non-profit associations working in health, domestic and educational spheres.

Our study found several ways in which tribal ties undermine the ability to protest harmful waste practices, and the organization of sounder arrangements. Bedouin tradition and limited access to land leads sons to build their homes in close proximity to their fathers' and men in polygamous marriages to locate the homes of their wives adjacent to each other in one compound so that dwellings and waste burning occur in dense quarters. And, though a consolidated burn location and time would make it possible to keep children away and reduce exposure, household waste piles are perceived as "personal" and not for open display. Conflicts between wives from polygamous marriages are common, also hindering co-operation. At the same time, respect for family members and caution in maintaining peaceful relations makes it very difficult to complain about the waste burning smoke of one's neighbours, who are often relatives. "We have reached a level of too much respect," said one Um Batin resident in frustration when this circumspection came at the expense of health and safety. Similarly, in a second Bedouin village we studied that does have official state recognition and resources allocated for formal waste disposal, traditional tribal patronage relations undermined the allocation and governance of municipal capacities so that the situation of residents with respect to toxic waste exposures was not much better than in Um Batin.

Toward waste management education: women as agents of change

While solid waste disposal is a major

public health issue for Bedouin women and their families, awareness of waste handling options and hazards is low, with almost no educational efforts by the relevant authorities (e.g. Ministry of Health, Ministry of Education, and local health clinics). In the local clinics in the village of Um Batin, for example, there were educational displays on earthquake procedures and two educational events on nutrition and household hazards were organized for women, but no mention of the dangers of waste disposal. Indeed, the (non-Bedouin) Head Nurse in Um Batin's Mother-Child clinic had no idea how residents disposed of their waste, even though respiratory problems are among the most common complaints in the clinic. In a pilot survey among Um Batin residents, only a small minority considered plastics to be potentially hazardous if burnt, and about half were more concerned about the spread of diseases from mosquitoes than about inhaling air pollutants from burning waste piles. Over two-thirds of the houses who burn their household waste include empty insect spray canisters in the burn. One woman was scarred for life when one of these exploded in her face, as she watched over the waste fire.

In the longer term, a fundamental solution to these exposures must address the nested set of social forces discussed above. Equality in the eyes of the state and the provision of effective municipal infrastructures and services, sustainable livelihood options that allow reduction of the disposed waste stream, and more egalitarian household relations are key. But in the shorter term, the education of women regarding waste hazards and options for improved practices is an immediate means to begin mitigating the impacts of harmful informal waste disposal practices. Despite restrictions on the Bedouin women's movement, such information needs to reach women in their homes.

A model for such a program is provided by an innovative program conducted in 2001 by Ben Gurion University, Center for Women's Health Studies and Promotion empowering Jewish and Bedouin women to work as Community Health Activists (CHA). This program,

described by Hadjes and others, gives training in project implementation, leadership skills and knowledge in women's health to CHA's who were then able to educate women in their own communities by holding small group meetings in different households. A similar format could help educate women about waste related hazards and environmental health, modify the behaviour of their families (especially their children) and help improve health conditions for the entire household. This awareness campaign needs to be coordinated with local health clinics; posters in Arabic with clear diagrams can be put up in waiting rooms and a waste disposal hazards section included in the existing "household safety" education program. It is also imperative that doctors and nurses be educated about the living conditions of their patients. Other actions would include separation of plastics and other hazardous materials from burn piles, organization into collectives to remove household waste to municipal bins in other settlements, and, possibly, the reuse of agricultural and organic waste to generate biogas, which can be a source of energy for cooking heating and lighting.

Conclusions: the overlaid marginalizations of Bedouin Women

Exposure to toxic effects from solid waste is a major health threat, and also a metaphor for the toxic social situations of Bedouin woman in the Negev. Bedouin women are triply marginalized as Arabs in a Jewish state, residents of Israel's periphery, and females in a sharply patriarchal society. Also, solid waste is itself a "mar-



Figure 6: Thick smoke from a backyard burning barrel in which household waste and an old synthetic carpet is burnt.

ginal" problem: diffuse, banal, less well known — and quite literally at the "disposal" and "waste" end of the cycle of production and consumption that so preoccupies society. These forms of marginalization interact with each other making it harder to develop adequate responses. But while women feel the impacts of improper waste disposal most severely, it is not only the waste handlers, but their neighbours, all the residents of the settlements, and also populations living well beyond the boundaries of the Bedouin settlements who suffer, as waste dumped in riverbeds is carried long distances. These overlapping forms of discrimination will need to be overcome in order for Bedouin women to obtain the status, resources and services afforded to other citizens of Israel.

Ilana Meallem manages environmental projects for the Arava Institute for Environmental Studies. She has conducted research on waste disposal in the villages of Um Batin and Tel Sheva, and has a masters degree (2006) from Ben Gurion University's Blaustein Institutes of Desert Research, Israel.

Dr. Yaakov Garb is a Lecturer in the Blaustein Institutes for Desert Research, Ben Gurion University where he conducts and teaches interdisciplinary environmental analysis. He also supervised Ilana Meallem's graduate research.

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