

## **Solid Waste Management in Emergency: A Case Study from Ramallah and Al-Bireh Municipalities**

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### **Introduction**

During the past three decades, the Israeli military occupation brought about a deterioration of the environment and infrastructure services, and the depletion of natural resources in the Palestinian lands. For instance, the Palestinian Independent Commission for Human Rights reports that since 1967, Israeli authorities have uprooted more than one-half million trees, 70 percent of which were olive trees.

Many infrastructure services connected to environmental health, such as solid waste management, were also badly affected by the occupation. All stages of collection, transfer, and disposal, which were fully under Israeli control prior to the establishment of the Palestinian Authority in 1995, had not received adequate consideration and support. With the establishment of the Palestinian Ministry of Environmental Affairs (MEnA) in 1998, priority was given to assert environmentally sound construction and rehabilitation of waste disposal. During the past seven years, the Palestinian Authority (PA) has had to manage and improve an inherited vulnerable environmental situation that continues to be a serious problem in the Palestinian territories.

The Palestinian Central Bureau of Statistics reported in 2001 that 137 randomly located dumpsites were distributed in the Palestinian territories, the majority of 133 located in the West Bank. Although these dumps were once located in rural sections, urban areas expanded and many of these sites are now situated near residential areas. These open dumpsites, the only current method for the disposal of wastes, are threatening public health and the environment, especially in the locations where open-air burning of solid wastes is the only available technique to reduce the volume and odor.

The Palestinian MEnA began plans for the construction of three to five regional sanitary landfills in the West Bank to replace these random dumpsites. Environmental impact assessments had been conducted at some selected locations, such as Zahrat Al-Finjan in Jenin district. A new sanitary dumpsite was suggested to be constructed in Deir Dibwan, about 30 kilometers from Ramallah city, which would have served the entire governorate of Ramallah and al-Bireh, but was refused because it is in Israeli controlled 'C' area. The Israeli military occupation continued to restrict plans for suitable locations in areas under their control.<sup>1</sup> In the light of restrictions in

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<sup>1</sup> 'C' areas are fully controlled by the Israeli military forces. 'A' areas, controlled by the PA, are mostly urbanized and not suitable for landfills. 'B' areas are administratively operated by the PA, but militarily controlled by the Israelis, and landfill sites are restricted. 'C' areas are less urbanized, far from populated areas, and would be potentially adequate for constructing new sanitary landfills.

finding suitable dumping sites, the recent closure of many landfills by the Israeli military authorities has complicated the problems of solid waste management in the West Bank.

This brief study will discuss the problems of solid waste management in Ramallah and al-Bireh municipalities where there is currently no sanitary landfill site available since the closure of al-Bireh landfill site by Israeli occupation forces in 2000.

## Historical Background

The Ramallah landfill was established in the late 1960s, with an original area of about 4500 m<sup>2</sup>. Although it was a random dumpsite, it was located far from the urban area. Burning the garbage was common so that the total accumulation of solid waste was limited. Since the early 1990s, however, the municipality stopped burning wastes as the built-up areas expanded to the dumpsite and smoke and toxins spread over residential and industrial areas in Ramallah and Beituniya. (as shown in Photo 1)



As a result, the accumulation of wastes reached risky levels, with piles of more than 40 meters high. In 1995, the Ramallah municipality tried to close the dump and searched for an alternative site. Choices were very limited in the overpopulated and confined city. The problem became more complicated when the nearby town of Beituniya closed its landfill, as this site was also located in the populated area within the boundaries of its municipality and became harmful for public health, and began to use the Ramallah landfill in 1996.

*Photo No.1: Ramallah Dumpsite: near residential areas*

The al-Bireh municipality, adjacent to Ramallah, had its own dumping site outside its boundaries since 1981. The landfill is considered to be in area C, controlled by the Israeli military, and outside the jurisdiction of the Palestinian Authority. Over the years, this site served other communities in A, B, and C areas, including the al-Ama'ari, Qalandia and al-Jalazun refugee camps, Ramallah and Beituniya municipalities in emergency situations, and Jerusalem district areas, including al-Ram and Bir-Nabala neighborhoods. The total population served by this dumpsite reached around 100,000 in the year 2000. Moreover, the Israeli settlements of Beit Eil and Psagot are, illegally and by force, using the al-Bireh dumping site.

In the summer of 2000, and before the beginning of the al-Aqsa Intifada, Ramallah municipality reached an interim arrangement with the municipality of al-Bireh to use its dumpsite. The al-Bireh dumpsite has a projected service life of about 20 years for other surrounding communities including Ramallah and Beituniya.

### **Closure of al-Bireh Landfill Site**

Since 5 October 2000, one week after the beginning of the Second Palestinian Uprising (*Intifada*), the Israeli military forces closed al-Bireh municipality dumpsite. The Israeli military forces in the settlement of Beit Eil claimed that the al-Bireh dumpsite is not sanitary, although settlers continue to use this site. Interestingly, landfills of al-E'zariah near Jerusalem and Azzoon in Qalqilia district that are used by settlers are also not sanitary. In addition, Palestinians are concerned that the Israelis may have disposed hazardous waste as happened once before when the Palestinian Ministry of Health noticed an unknown type of waste originating from the Israeli settlements in the al-Bireh site. There is no way to confirm these suspicions in the current situation.

Since the closure of al-Bireh site, all surrounding Palestinian communities - about 100,000 persons - have had to find other alternatives. Al-Ram and Bir-Nabala began to use the unsanitary landfill in the nearby neighborhood of al-E'zariah in Jerusalem district, which is located in area C. The Israeli military charges 40 NIS, about US\$8.60, per ton for the Palestinians to use the dumpsite (Musleh & Giacaman, 2001).

Al-Bireh municipality and al-Ama'ari refugee camp began to utilize the closed Ramallah landfill site. With 350 tons of garbage per day, almost three times the original disposal rate, being shifted back to the overloaded landfill, a mountain of garbage located near the industrial area is now more than 60 meters high (as shown in Photo2). During winter, rain makes the dumpsite less stable and there is danger of a collapse on the adjacent residential and industrial areas, with potentially devastating results. The garbage would cover additional areas and lead to soil and ground water pollution.



*Photo No. 2: Ramallah Dumpsite: reaching a 60 m height*



*Photo No.3: Al-Jinan newly opened dumpsite in al-Bireh city*

Because of the dangerous situation of the dumpsite, the Ramallah municipality formally requested that al-Bireh refrain from using the site as of October 2002. With no other solution, the al-Bireh municipality has been using an unsanitary site owned by local citizens near al-Jinan neighborhood to the northeast of al-Bireh since the end of November. This site is close to houses and a newly established school, and it is located in agricultural land cultivated with olives and fig trees, with the risk that soil and/or ground water in the area may become contaminated. (Photo 3)

In addition, during the two-month period before this solution was found, large amounts of solid waste of different types accumulated in residential areas. The municipality had to stop the garbage collection, as there was no place to dispose of it. Because residents burned garbage in the containers in order to reduce the smell and volume of accumulated solid wastes, most of the garbage containers owned by al-Bireh municipality have been partially or fully destroyed. This added to the previous destruction of garbage containers during the March/April 2002 Israeli reinvasion, when Israeli tanks destroyed about 250 garbage containers of different sizes in al-Bireh municipality and about 220 in Ramallah municipality.

### **Reactions to the Closure of al-Bireh Landfill Site**

Since the beginning of the closure of al-Bireh dumpsite by the Israeli forces, the Palestine Ministry of Environmental Affairs formally and repeatedly requested immediate reopening of the landfill. The Israeli forces rejected most of the requests. As a result, the Palestinians protested in a large civil peaceful march on 21 February, 2001. Representatives of the Palestinian Ministry of Environmental Affairs, the Ministry of Health, Ramallah and al-Bireh governorate, and Ramallah, al-Bireh, and Beituniya municipalities carried signs demanding the reopening of the main road leading to the dumping site of al-Bireh municipality, and the immediate end of the Israeli violation against the environment in the Palestinian territories.

The dumpsite was reopened in a scattered way a few times, and then closed immediately within one to three days later. For example, the Israeli military forces opened the dumpsite at the beginning of March 2001, but closed it three days later referring to security reasons when settlers of the nearby settlements opened fire against the Palestinian garbage trucks and detained many of them.

It was difficult to schedule disposal since the status of the site was not always known and this situation interrupted collection service in al-Bireh and those communities using this landfill.

Trash accumulated in the streets and flowed from the overloaded garbage containers. Citizens had no choice but to burn the accumulated garbage.

Since the beginning of the crisis, and in addition to actions done on the ground, the two municipalities of al-Bireh and Ramallah have continued to stress the urgency of this situation. They have contacted civil institutions concerned about the environment urging them to monitor the degrading situation, and to persuade the Israelis, in all possible ways, to terminate the intentional closure of the Palestinian garbage dumps. Peaceful marches and non-violent protests have taken place several times without resulting in a suitable solution. The media, military and the international community paid no attention to those peaceful actions.

### **Other Impacts of the Israeli Siege and Re-invasions on the Solid Waste Sector**

In addition to the dangerous situation in the solid waste management sector resulting from closure of the Palestinian landfill sites, many of the waste collection workers, who live in the surrounding villages, were unable to reach their work regularly because of the continuous Israeli invasions and sieges imposed on the cities of Ramallah and al-Bireh. Many of these workers were exposed to Israeli gunfire while on the job.

Reports indicate that smashed cars, frames and tires, destroyed furniture, utilities and equipment, and industrial waste, some of which is hazardous, was generating 70 tons of waste per day inside and around the overflowing garbage containers in Ramallah and al-Bireh, especially during the April 2002 invasion. During that period, 6 tons of medical waste - of which 2.6 tons are hazardous - was also generated. Unfortunately, there was no convenient treatment for dangerous wastes, and so it was either burned or dumped later in the Ramallah landfill.

### **Concluding Remarks**

The Israeli aggressions against the Palestinian infrastructure have affected all aspects of life for Palestinian civilians, including environmental conditions. The case of closing the largest landfill site of al-Bireh, and imposing restrictions on finding a suitable alternative for the overloaded landfill of Ramallah is one example among many that demonstrates the deliberate targeting of the Palestinian infrastructure. This situation has resulted in the spread of garbage in the streets in addition to many randomly distributed dumpsites in residential areas, threatening the environmental health of the Palestinian population.

The effect of these actions has threatened the public health of nearly 100,000 people living in this one urban area of occupied Palestine. Similar situations are occurring in other Palestinian areas as well. Wide national and international campaigns to uncover Israeli violations on the ground lead only to temporary remedies for the problem. What is needed is a political settlement that holds accountable all the illegal actions of the Israelis on Palestinian land, and compensation for the Palestinian communities. Such a solution can only be achieved with the end of the Israeli military occupation.

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