SOLID WASTE CRISIS IN THE WEST BANK

Avenues for improving E.U. policy

ALIX BURGUN
Sine Qua Non

info@sinequanon-eu.com

EXECUTIVE SUMMARY

State of play

The West Bank faces a burgeoning solid waste crisis. In 2018, the occupied Palestinian territories generated 1,59 million tons of solid waste, amounting to 4356 tons per day. Despite the efforts of the Palestinian Authority pertaining to the protection of the environment since the transfer of responsibilities enacted by the Oslo II Accord, the situation in the West Bank is alarming. In fact, two of the four sanitary landfills have reached their full capacities. The lack of disposal sites has been compensated by the creation of dumpsites often managed without appropriate sanitary measures. It is estimated that only 65% of the collected waste is disposed in controlled landfills, less than 3% is recycled, while the remaining 32% is disposed in random dumpsites.

Oslo II has proven to be a failure, providing the illusory perception that it would lead to the joint management of environmental matters. The context of occupation has created, and continuously deepens, structural deficiencies by increasing the quantity of waste while impeding the Palestinians' ability to create a sustainable solid waste management system. In the West Bank, 80% of the waste generated by Israeli settlements is illegally sent to landfills or randomly dumped. In addition, Israeli industries have used the West Bank as a "sacrifice zone" due to the high cost of waste treatment combined with stringent environmental laws. This increase in waste production is compounded by the lack of continuity required for waste management, resulting from the lack of control over borders, the necessity to pass through checkpoints, and the risk of unexpected road closures. Furthermore, solid waste management is in a deadlock as its improvement relies on Israeli approval to expand or construct a new landfill.

In addition to the complex political situation, the establishment of a comprehensive solid waste management also faces legal, organizational, technical, and cultural challenges. The fees for waste services collected by municipalities do not cover further investments to expand and improve the solid waste system in the West Bank. Overall, only 40% of the fee is collected. Furthermore, governorates located farther away from the landfills are only able to cover 20% through tax collection due to the high transportation cost. As a result, these governorates send their waste to random dumpsites. The fee only covers operational costs but does not allow for long-term investments. Thus, equipment deteriorates rapidly and the landfills cannot benefit from upgraded technology without the support of external funding.

Meanwhile, solid waste management in the West Bank has disastrous implications on the environment and public health. The inappropriate management is contributing to the deterioration of the Palestinian nature and biodiversity, and poses a severe threat to air quality and public health. Concerns revolve around increased risks of cancer, congenital malformation, low birthweight, hepatitis, and respiratory diseases. As a consequence, the current management is driving significant negative externalities resulting in economic losses.

EU and EUMS policy

Waste management in the West Bank relies on donors' support in terms of investments. The European Union has funded the main Palestinian landfill, Zahrat-al-Finjan, and provided the equipment needed for waste services. Nonetheless, the aid only provides short-term benefits. In fact, contract durations are often overestimated, especially in the context of an increase in waste quantities resulting from economic development, population increase, and rapid urbanization rate.

The EU and the EUMS have also failed to deal with the main issue that results from occupation, namely access to land. The geographical division of the oPt prevents the development of adequate waste facilities. The construction or expansion of landfills is dependent on permit approval by the Israeli authorities. This process has put on hold the construction of a new landfill for a decade. Moreover, the restriction over the land and the inability to construct in Area C have led to an increase in housing prices of around 24 percent. The future of solid waste is thus put into question as infrastructure and land acquisition to expand or build facilities will be more costly.

Furthermore, aid has not fostered capacity-building. In fact, the experts and equipment required to execute the projects have frequently been provided by the donor countries. This has limited opportunities for Palestinian companies to bid on projects and develop technical and strategic expertise.

Finally, and despite the EU's major role in the establishment of a waste facility in Gaza, the Joint Strategy 2017-2020 does not mention the solid waste urgency. The absence of reference to solid waste is a pitfall considering the cross-cutting impacts that improper management has on both health and environment. European aid towards agricultural, economic, and medical development could prove to be inefficient if it does not integrate solid waste considerations.

Policy recommendations

In light of the above, this paper suggests a number of recommendations for steps that may be taken with a view to establishing effective management of solid waste in the West Bank:

- Re-directing the Joint Strategy for 2022 towards a coherent foreign policy that aligns with the EU's commitment to implementing the 2030 Agenda. A guideline should be created with the objective to ensure that each action maximizes co-benefits and responds to the specificities of social and environmental transition within the Palestinian context.
- Improving solid waste management by: drafting a national strategy and action plan to tackle recycling; funding pilot projects to develop composting; supporting the PA in data collection; drafting standards and result indicators for hazardous waste based on European guidelines; ensuring the appropriate training and equipment for workers at risk in landfills; developing awareness campaigns and educational programs.
- Working towards the viability of electronic waste flows by supporting the capacities of informal businesses; by supporting the PA in subsidizing this sector to upgrade the current informal facilities; by exerting diplomatic pressure, with the approval of the PA, to amend the Israeli E-waste law.
- Creating a waste-to-energy plant also corresponds to a window of improvement. The EU or its member states could help in funding and establishing a plant. This would directly serve the EU's ambitions of providing affordable and sustainable access to energy.
- Exerting diplomatic pressure on Israel's Ministry of Environmental Protection regarding the illegal disposal of industrial and settlement waste, while also pressuring the Israeli government to uphold international laws that are currently violated.

GLOSSARY

ACB	Accredited Compliance Body
EQA	Environmental Quality Authority
EU	European Union
EUMS	European Union Member State
GIZ	Gesellschaft für Internationale Zusammenarbeit
ICA	Israeli Civil Administration
JICA	Japanese International Cooperation Agency
JSC	Joint Service Council
KfW	Krefitanstalt für Wiederaufbau
LGU	Local Government Unit
MEnA	Ministry of Environmental Affairs
MoEP	Ministry of Environmental Protection
MoLG	Ministry of Local Government
MSW	Municipal Solid Waste
oPt	occupied Palestinian territories
PA	Palestinian Authority
SIDA	Swedish International Development Cooperation Agency
SWM	Solid Waste Management
UNRWA	United Nations Relief and Works Agency
WtE	Waste-to-Energy
ZAF	Zahrat-al-Finjan

CONTENTS

ABSTRACT

The occupied Palestinian territories (oPt) currently face a generalized waste crisis that has been fueled by the rapid population growth and urbanization rate of the last decades. The solid waste crisis has, however, received little attention amongst academics and governmental institutions. As such, this research aims to overcome the lack of information by investigating the existing practices of waste management since the failure of the Oslo II Accord with respect to environmental issues. The paper examines the array of social, political, and economic conditions that have participated to the worsening of the crisis despite the efforts of the Palestinian Authority pertaining to the protection of the environment. It demonstrates that the Israeli occupation has created a deadlock, aggravating already-existing detrimental effects on Palestinian environment and health.

As such, it seeks to analyze the past development aid provided by the European Union (EU) and its member states towards this sector. This analysis reveals a number of contradictions that have maintained a *status quo* rather than contributing to the establishment of an independent state. It thus questions the current inaction of the EU, especially in light of its commitments to supporting healthcare, access to self-sufficient water and energy, and agricultural and private sector development. It argues that the EU and its member states are funding infrastructure and programs which are likely to accentuate the solid waste crisis if not addressed in an integrated manner. The paper thus concludes with a set of technical and diplomatic recommendations to compensate for the lack of action and references to solid waste in the European Joint Strategy in support of Palestine 2017-2020.

PART I
Origins and implications of the solid waste crisis

Part I begins by introducing the historical background related to waste management in the West Bank. It presents the failures of the Oslo II Accord in jointly coping with environmental issues as it was shaped by the structures of occupation laid down by Israel in the preceding decades.[1] It continues by examining the factors that have led to the worsening of the crisis: overloaded landfills compounded by the inability to define new convenient sites, as well as the lack of fee collection to develop the sector. This introduction reveals that waste management in the West Bank is confounded by the disparity between the responsibility for waste *production* versus the responsibility for its *management*. Thereafter, this section explores the environmental and sanitary impacts of the current management to highlight the need for a change in approach.

1.1 The Oslo II Accord: Environmental cooperation as an illusion

The solid waste sector has suffered from neglect under the Israeli occupation of the West Bank and the Gaza Strip starting from 1967, during which the Israeli Civil Administration (ICA) provided infrastructure services with no concern for the environment.[2] Environmental responsibilities were only transferred to the Palestinian Authority (PA) in 1995 under the Israeli-Palestinian Interim Agreement on the West Bank and Gaza Strip, also known as the Oslo II Accord. Article 12.2 stipulates that "the Israeli side shall transfer to the Palestinian side, and the Palestinian side shall assume, powers and responsibilities in this sphere[3], in the West Bank and Gaza Strip that presently held by the Israeli side, including powers and responsibilities in Area C which are not related to territory."[4] The Oslo II Accord was the first document to be explicit about Palestinian environmental rights and was presented as a milestone for environmental negotiations. In addition, the intertwined geography of the Palestinian territories and Israel with the presence of shared aquifers and watershed led to the definition of common environmental concerns. Cooperation was thus recognized as an indispensable instrument to manage the externalities one action could have on both territories. The inclusion of an environmental component within the agreement raised previously neglected matters and provided a common ground for collaboration. As such, both parties agreed to cooperate in preventing environmental damages and utilizing natural resources in a sustainable manner.[5]

Despite its ambitions, Oslo II has proven to be a failure, providing the illusory perception that it would lead to the joint management of environmental matters. The structures of the occupation laid down by Israel in the preceding decades shaped the unfolding of the agreement.[6] First, the logic of the settlement construc-

1 Adam Hanieh, "The Oslo Illusion," *Jacobin Magazine,* March 4, 2013.

2 Jad Isaac et al., *Analaysis of Waste Mangement Policies in Palestine: Domestic Solid Waste and Wastewater* (Bethlehem: The Applied Research Institute of Jerusalem, 2005), 1.

3 This sphere refers to sewage, solid waste, water, pest-control, pesticides and hazardous substance, noise control, air pollution, landscape preservation, and food production.

4 Israel Ministry of Foreign Affairs, 28 Sept 1995, https://mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/the%20israeli-palestinian%20interim%20agreement%20-%20annex%20iii.aspx#app-12.

5 Ibid.

6 Adam Hanieh, "The Oslo Illusion," *Jacobin Magazine,* March 4, 2013.

tion, embodied by the Allon Plan (1967) and the Sharon Plan (1981), allowed Israel to seize land and resources. These two major strategic plans enabled the displacement of Palestinians while constructing settlements on top of water aquifers and fertile agricultural land. The asymmetry of control over land meant that the contours of a sustainable waste management program were dependent on Israel, especially in a context in which the Palestinian land had already been transformed "into a patchwork of isolated enclaves"[7]. Moreover, the Article 12 obliged both parties to "establish an Environmental Experts Committee for environmental cooperation and understandings."[8] Despite the mutual understanding on shared environmental responsibilities, the Israeli committee was "given a veto over the Palestinian decisions."[9] Palestinians could thus not interfere with the decisions taken by the Israeli committee on their activities and practices in the West Bank.[10] Finally, and as it will be described in section 1.2, the Israeli authorities did not comply with actions and measures agreed in Oslo II.

1.2. The difficult establishment of solid waste management by the Palestinian Authority

The transfer of authority, enacted by Oslo II, led to the creation of environmental directorates within the Ministry of Planning and International Cooperation, the Ministry of Local Government (MoLG), the Ministry of Agriculture, and within the Ministry of Health. Furthermore, in 1998, the PA established a Ministry of Environmental Affairs (MEnA) to protect public health and the environment. The MEnA, which has been replaced by the Environmental Quality Authority (EQA), formulated environmental laws and developed a Palestinian Environmental Strategy. This strategy proposed short-term and long-term objectives regarding wastewater and solid waste management, which were recognized as the "two most urgent environmental priority elements."[11] The strategy was developed into a National Environmental Action Plan that described relevant actions to be taken for each element. At the operational level, the MoLG was, and is still, responsible for the financial and administrative monitoring of the relevant actors as defined by the Local Authorities Law no. 1 of 1997.

Numerous actions could, however, not be enforced due to the impediments caused by Israeli occupation authorities and the outbreak of the second Intifada in 2000.[12] In fact, the 'Intifada Al-Aqsa' had devastating consequences on solid waste management (SWM) because Israeli roadblocks and checkpoints led to the closure of the Palestinian localities and of the main roads.[13] This was accentuated by the uprisings that damaged the equipment and deteriorated public services.[14] The Intifada exacerbated the solid waste problem leading to both the accumulation of waste in the streets and an increase in the number of random dumping sites. Finally, the construction of the Separation Barrier in 2002, impeded the development of centralized

7 Adam Hanieh, "The Oslo Illusion," *Jacobin Magazine,* March 4, 2013.

8 Israel Ministry of Foreign Affairs, 28 Sept 1995, https://mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/the%20israeli-palestinian%20interim%20agreement%20-%20annex%20iii.aspx#app-12.

9 Jad Isaac et al., *Analaysis of Waste,* 2.

10 Ibid.

11 Ministry of Environmental Affairs, 2000 cited in Jad Isaac et al., *Analaysis of Waste,* 4. Also found in: Radwan J. El-Kelani et al., "Geospatial Implications Assessment of Zahrat Al Finjan Solid Waste Landfill, North of West Bank, Palestine," *IUG Journal of Natural Studies* 25, no. 2 (March 2017): 2.

12 This refers to the construction of the segregation wall, the lack of sovereignty over the land, namely the absence of jurisdiction and of right to develop environmental projects in Areas C and B.

13 Jad Isaac et al., *Analaysis of Waste,* 23.

14 Hassan A. Arafat et al., « Effects of prevailing conditions during second Palestinian uprising on solid waste management system in Nablus city in Palestine," *International Journal of Environmental Health Research* 16, (2006): 1.

projects and hindered the transportation and disposal of solid waste in the West Bank.

The complex system of control established throughout the previous decades has supported corruption while limiting political options. It produced profound political changes that made it difficult to implement an effective solid waste management program. In addition to the political situation that has resulted in limited control over land and resources, the process of establishing a comprehensive SWM also faced legal, organizational, technical and cultural challenges.[15] The development of this sector has been limited due to the lack of managerial receptiveness and financial resources, as well as the limited public awareness of the negative effects on health and environment.[16]

The increasing political and geographical fragmentation made Local Government Units (LGUs) preponderant actors in service provision.[17] These units are responsible for the collection, transportation, transfer, and disposal of solid waste within their jurisdiction. There are 427 LGUs in the West Bank, hence they represent the lowest level of governance. In addition to serving as key public service providers, they fulfill a critical role representing citizens through the elected councils.[18] However, the traditional methods of waste collection and disposal have been scaled up to dispose larger quantities of waste in the face of the growing supply. The result was the development of a centralized management that relies on large-scale disposal facilities to manage waste accumulation, especially in urban areas. The MoLG has thus adopted a municipal merger policy to allow LGUs to associate and cooperate in delivering services in order to reduce costs through the creation of Joint Service Councils (JSCs). There are currently thirteen JSCs in the West Bank, which administer waste management within their respective jurisdictions. With the exception of the Higher Council of Bethlehem that ensures global coordination, all the JSCs provide waste management services and infrastructure within their defined geographical area. In addition, four JSCs also supervise the sanitary landfills.

Nowadays, the operational level is divided between three actors: LGUs, JSCs, and United Nations Relief and Works Agency (UNRWA) responsible for SW in refugee camps. The JSCs have become the main actors within the solid waste sector by facilitating administrative expenses and providing services to larger areas. In fact, they provide 87% of the services for the LGUs.[19] In 2018, they collected 65% of municipal waste in the West Bank; the remaining being managed by LGUs or UNRWA.[20] The JSCs are regulated by the 2016 JSC Bylaw, and currently work within the framework of the third National Strategy for Solid Waste Management, adopted in 2017. This strategy aligns with the United Nations' sustainable development goals for 2030 and defines specific indicators to be reached by 2022, including the rehabilitation of 20% of the random dumpsites, the removal of 80% of special waste (i.e. electronic waste, health-care waste, construction and demolition waste, industrial waste) in urban areas, and 50% of the sanitary landfills should obtain gas treatment systems.[21] Unfortunately, compliance rates are still low and conformance with these objective has been limited.

15 JICA, *Data Book Solid Waste Management of Joint Services Councils West Bank and Gaza* (Ministry of Local Governments, 2019), 9.

16 Jad Isaac et al., *Analaysis of Waste,* 5.

17 World Bank Group, *The Performance of Palestinian Local Governments: An assessment of service delivery outcomes and performance drivers in the West Bank and Gaza* (Washington: The World Bank, 2017), 4.

18 World Bank Group, *The Performance of Palestinian Local Governments,* 4.

19 Valérie Thöni, and Samir K.I. Matar, *Solid Waste Management in the Occupied Palestinian Territories: West Bank including East Jerusalem and Gaza Strip* (CESVI, 2019), 25.

20 JICA, *Data Book,* 10.

21 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 11.

1.3. The West Bank: An Israeli "sacrifice zone"

The Oslo II Accord provided a common ground for collaboration on shared environmental and health concerns between Israel and the oPt. However, the economic prosperity witnessed by Israel following Oslo II was concomitant with the expansion of the Israeli chemical industries, and by correlation the growth in hazardous waste production.[22]

The high cost of local waste treatment combined with stringent environmental laws led Israel to seek a "sacrifice zone."[23] In the past decades, Israel has abused its status as an occupying power to use the West Bank as the dumping ground for obsolete appliances and materials. In fact, Israeli companies have taken advantage of this situation by illegally dumping their hazardous waste. In addition, numerous Israeli industrial zones discharge liquid and solid waste, including hazardous components, on Palestinian land, some of which are agricultural. These facilities operate with little supervision and are not required to report the amount of waste processed because of the less rigorous regulations applied in these zones.[24] The Israeli government has made profitable the operation of waste treatment facilities in the West Bank rather than in Israel profitable thanks to tax breaks and subsidies.[25]

The transboundary movement of discarded electronic waste (e-waste) from Israel to the West Bank has also sparked debate. The transfer of e-waste is mainly concentrated in south-west Hebron (Beit Awa, Deir Samit, Idhna), an area that saw high agricultural productivity before the building of the Separation Wall.[26] Theses villages receive 500-650 tons of e-waste and metal scrap every day, turning the land into "an electronic graveyard."[27] This transboundary movement results from unregulated transfers of waste from Israel and Israeli settlements. These practices are violating the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal (1989-03-22, art. 4) stipulating that each party should take appropriate measures to "ensure the availability of adequate disposal facilities, for the environmentally sound management of hazardous wastes and other wastes, that shall be located, to the extent possible, within it, whatever the place of their disposal" of which the State of Palestine, Israel, and the European Union are signatories. None of the principles described in the Convention are respected: ensuring health and environmental protection; treating hazardous waste as close as possible to the site; and exporting waste solely to countries able to insure an environmentally sound management. As such, numerous associations (i.e. B'tselem, Women's Center for Legal Aid and Counselling) have called upon the Israeli occupation administration to immediately stop the illegal dumping in the oPt.

It is however essential to note that Palestinians living in south-west Hebron have become dependent on the informal recycling of Israeli e-waste. In 2015, this hub processed 20,000 tons of e-waste, which led to the creation of 381 enterprises and 1,098 jobs.[28] In other words, US$28.5 million gross value was added to the Pal-

22 Illan Alleson, et al., « Peace and Pollution : An Examination of Palestinian-Israeli Transboudary Hazardous Waste Management 20 years after the Oslo

23 B'tselem, 5.

24 B'tselem, 6.

25 Ibid.

26 Applied Research Institute Jerusalem, *The impacts of electronic waste disposal on the environment and public health in the occupied Palestinian territory*

27 Jad Isaac et al., *Status of the Environment in the State of Palestine* (Bethlehem: The Applied Research Institute of Jerusalem, 2015), 103.

28 John-Michael Davis, and Yaakov Garb, "A model for partnering with the informal e-waste industry: Rationale, principles, and a case study," *Resources,*

estinian economy.[29] As a result, in Idhna, 80% of the households rely on recycling and refurbishing e-waste.[30] This informal sector emerged as a value chain operating without subsidy and with a network ranging from individual pickers to businesses.[31] This network functions with little operational costs as it is outside of regulated working conditions and externalizes environmental consequences. In fact, the process of dismantling waste usually involves burning electronic components which leads to health damages as well as air, soil, and water quality deterioration. Although these practices threaten the health and the environment of Palestinians, the livelihood this sector offers is crucial in a landscape of little alternatives.[32]

Moreover, the Israeli occupation is contributing to the accumulation of solid waste. Israeli settlements produce solid waste that is disposed in the regions of Safit, Jenin, Tubas, Nablus and Abu Dis when not discharged in landfills. It has been estimated that around 80% of the waste generated by settlements is being disposed in the West Bank.[33] Palestinians lack information about what is dumped in their landfills, on farmlands, and in waterways.[34] In addition, there is a "denial to access critical information" as the Israeli army surrounding the settlements prevents the Palestinian authorities to collect and analyze water and soil samples.[35]

Finally, the construction of industrial zones, colonies, and bypass roads has uprooted thousands of trees rather than preserving forests as defined in Article 14 of Oslo II.[3637] The lack of control over borders, the necessity to pass through checkpoints, and the risk of unexpected route closures have also led to the disruption of the continuity needed for effective solid waste management.[38] In addition, the management of solid waste relies on Israeli authorization to expand landfills or construct new ones.

There is a global recognition of Israeli practices in affecting the Palestinian health and environment. Already in 2005, the UN General Assembly had called upon Israel "to cease the dumping of all kinds of waste materials in the oPt, which gravely threaten their natural resources and pose an environmental hazard and health threat to the civilian populations."[39] Also, in 2015, the State of Palestine declared that the Israeli occupation's practices have destroyed Palestinian ecosystems. The oPt are thus deprived of meaningful means to advance towards an integrated and sustainable SWM.

29 Ibid.

30 Tamir Kalifa, "The toxic trash that is poisoning the West Bank," *New York Times*, September 12, 2019, https://www.nytimes.com/2019/09/12/opinion/sunday/west-bank-e-waste.html.

31 John-Michael Davis, and Yaakov Garb, "A model," 78.

32 John-Michael Davis, and Yaakov Garb, "Quantifying flows and economies of informal e-waste hubs: Learning from the Israeli-Palestinian e-waste sector," *The Geographical Journal* 185, (2019), 91.

33 Ramzy Baroud, and Romana Rubeo, "Israel's 'environmental crisis' is of its own making", *Al Jazeerah*, July 7, 2019, https://www.aljazeera.com/indepth/opinion/israel-environmental-crisis-making-190702152022497.html.

34 Heather Aidy, Tanya Lee, and Meriel Watts, *Human Rights and Toxic Chemicals in the Occupied West Bank (Palestine)* (Arab Group for the Protection of Nature and the PAN Asia Pacific: 2016), 7.

35 Ibid.

36 Jad Isaac et al., *Analaysis of Waste,* 2.

37 Israel Ministry of Foreign Affairs, 28 Sept 1995, *https://mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/the%20israeli-palestinian%20interim%20agreement%20-%20annex%20iii.aspx#app-12*.

38 Resilient Ramallah, 22.

39 United Nation, "Resolution adopted by the General Assembly, December 2005, *https://www.un.org/unispal/document/auto-insert-183712/*

1.4 An acute solid waste crisis

"We are dealing with a ticking bomb",[40] explained Iyad Aburdeineh, the executive director of the Bethlehem JSC. The major concern for waste management is its disposal, especially in a context where landfilling and open dumping have remained the most common methods of Municipal Solid Waste (MSW) disposal.

The West Bank comprises four landfills, two of which have already reached their full capacity. The **Zahrat-Al-Finjan** (**ZAF**) landfill, located in Area B[41] and operated by the Jericho JSC, was built in 2007. The landfill was designed to receive the MSW from Jenin and Tubas; however, it has been receiving waste from all the Northern governorates as well as from Ramallah and Al-Bireh "due to the closure of their dumpsite by the Israelis."[42] As a result, it has reached its maximum capacity. An additional landfill was opened in 2007 in **Jericho** to receive the waste from Jericho and Nablus governates. The landfill was expanded in February 2017, but it has also reached maximum capacity with no possibilities for further expansion as the site is adjacent to Area C. A current governmental project involves cell rehabilitation to expand the period of use for 2 years; yet, the PA's "financial situation" does not enable the project to be developed.[43] The **Beit Anan** landfill, located in the Jerusalem governorate, was only opened in September 2018 due to the time required to obtain the permit delivered by the Israeli authorities as the site is in Area C.[44] The estimated lifespan of this landfill is three to four years, and its expansion is dependent on financial support.[45]

To manage the accumulating waste, the authorities have opened a fourth landfill called **Al-Minya** in 2014 in the Bethlehem district in Area C. The landfill was originally designed to receive 630 Ton/day but currently receives 1100 T/day despite the protests from the surrounding areas due to leachate spreading.[46] In addition, Israeli settlements send an average of 65T/day which are not charged.[47] The disposal area has already reached half of its capacity by completing four out of eight cells. Its future will depend on the possibility to buy new land to expand the landfill.[48]

The future of the waste management system thus relies on the construction of the **Rammun landfill** in Area C. This disposal area is considered as a national priority by all the relevant actors. The construction of this additional landfill was first proposed in 2003 to the ICA. In 2009, the **Krefitanstalt für Wiederaufbau** (KfW), the German state-owned development bank, agreed in providing €10 million to support the construction of this disposal site. The Ramallah and Al-Bireh JSC is responsible for shepherding permit applications and overseeing its construction.[49] The Israeli Supreme Court had suspended the approval, accepted in 2018, "upon request of the Israeli settlers and the ICA." On November 8th, 2020, the construction of the landfill has finally been approved by the Supreme Court.[50]

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40 Interview with Iyad Aburdeineh, May 27, 2020.

41 The Oslo Accord II has divided the West Bank into three administrative divisions with a distinct governance: Areas A, B, and C. Area A (18% of the territory) is administered by the PA; Area B (21%), by both the PA and Israel; Area C (61%), which contains the Israeli settlements, is exclusively administered by Israel. Israeli authorities have security control over the three areas.

42 Jad Isaac et al., *Status of the Environment in the State of Palestine* (Bethlehem: The Applied Research Institute of Jerusalem, 2015), 97.

43 Interview with Suleiman abu Mfarreh, August 4, 2020

44 Applied Research Institute Jerusalem, *Beit Anan Town Profile* (Bethlehem: The Applied Research Institute of Jerusalem, 2012), 16.

45 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 36.

46 Ibid, 33.

47 Ibid. This number varies from the source: In 2015, the ARIJ report indicated 40T/day (page 98).

48 Interview with Iyad Aburdeineh, August 4, 2020.

49 Ben Hatten, "West Bank landfills acting as pits for foreign aid," *Middle East Eye,* February 12, 2015, https://www.middleeasteye.net/big-story/west-bank-landfills-acting-pits-foreign-aid

50 Interview with Husain Abuoun, November 18, 2020.

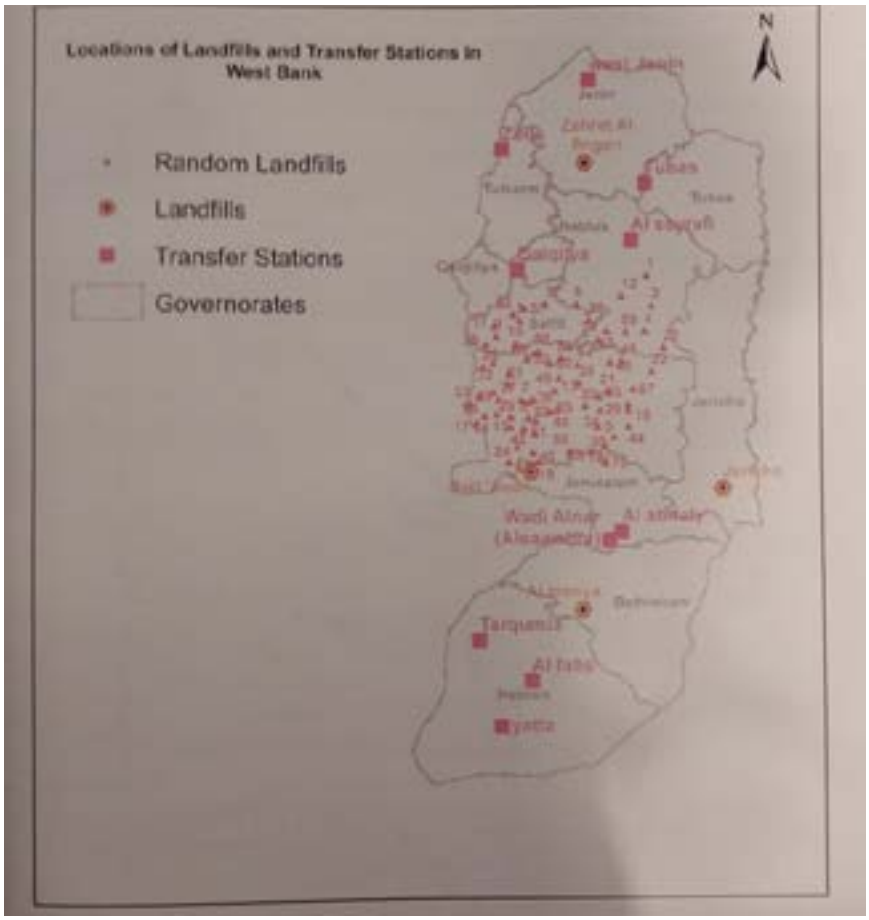

FIGURE 1. *LOCATION OF THE LANDFILLS, TRANSFER STATIONS, AND RANDOM DUMPSITES IN THE WEST BANK (DATA SOURCE: MOLG DATABASE)*[51]

As a result, **random dumpsites** have been made common in the West Bank. Ramallah, Al-Bireh, Salfit, Qalqilya and Nablus host most of the West Bank's dumpsites due to the lack of sanitary disposal sites and the long distance to the existing ones. To compensate for the lack of available landfills, the JSCs have allowed the creation of temporary dumping sites. The West Bank currently has 71 random dumpsites managed by the JSC or municipalities. These sites are free of environmental controls; waste is left untreated, unsegregated and managed without the appropriate sanitary measures. In such a situation, the current efforts undertaken by the authorities to close dumpsites are compromised. As a matter of fact, the Salfit governorate sends 100% of the collected waste to random dumpsites, and the Ramallah and Al-Bireh governorate, 85%.[52] Overall, it is estimated that 65% of the collected waste is disposed in controlled landfills, less than 3% is recycled, and 32% is illegally dumped.[53] As stated by Husain Abuoun, the executive director of the JSC from Al-Bireh and Ramallah, "these random dumpsites are only temporary but provide an essential short-term solution."[54]

51 Map retrieved from: JICA, *Data Book,* 13.

52 JICA, *Data Book,* 47.

53 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 31.

54 Interview with Husain Abuoun, December 12, 2019.

FIGURE 2. *CONTROLLED RANDOM DUMPSITE IN AL-BIREH GOVERNORATE (BY A. BURGUN, DECEMBER 2019)*

Furthermore, the different types of solid waste, some including hazardous components, are mixed with municipal waste. Many governorates and towns do not have a system to separate hazardous waste from municipal waste. This is the case, for instance, of Beit Anan, where municipal waste often includes PVC, plastics, tires, paint pots, etc.[55] In addition, in 2017, 82.5% of the economic establishments[56] in the West Bank, generating 13.4 thousand tons of waste per month in the West Bank, have disposed their waste using local authority disposal services.[57] In fact, 77.5% of these economic establishments disposed their waste in the nearest containers and 4.6% in dumpsites or random sites, and 16.3% had their waste collected directly by a relevant actor.[58] Within these economic establishments, only 16.7% of the ones generating chemical waste separate it.[59] Moreover, studies on medical waste from hospitals – which produce hazardous waste – have revealed that a major fraction of infectious waste is not separated. Hazardous waste composes 21% of the total medical waste; yet, only 20% is treated in an adequate manner.[60] The issue of medical waste in the West Bank is a major concern as it is mostly managed together with domestic waste, and often remains there for "much longer time than recommended by the World Health Organization."[61]

1.5. Solid waste: The burden of municipalities

Solid waste management has thus developed to become one of the most concerning challenges for municipal authorities because it requires solid capacities in procurement, professional and unionized labor man-

55 Applied Research Institute Jerusalem, *Beit Anan,* 16. Reference also includes: Jad Isaac et al., *Status of the Environment,* 96. This is supported by fieldwork conducted by the author.

56 "An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out or in which the principal productivity accounts for most of the value added." In Palestinian Central Bureau of Statistics, *Environmental Economic Survey, 2017 Main Findings* (Ramallah: Palestinian Central Bureau of Statistics, 2017), 13.

57 Palestinian Central Bureau of Statistics, *Environmental Economic Survey, 2017 Main Findings* (*Ramallah: Palestinian Central Bureau of Statistics,* 2017), 16.

58 Valérie Thöni, and Samir K.I. Matar, *Solid Waste,* 64.

59 Palestinian Central Bureau of Statistics, *Environmental Economic Survey,* 16.

60 Ibid, 10.

61 Issam A. Al-Khatib, "Problems of management of medical solid waste at primary health care centers in the Palestinian Territory and their remedial measures," *Eastern Mediterranean Health Journal* 19, (2013): 157.

agement, contract management, as well as ongoing expertise.[62]

The lack of these prerequisites has made solid waste management a burden for the relevant actors in the West Bank. In addition, the obstacles that hinder the performance of the JSCs are the financial matters, the fluctuation of the funding provided by the Ministries or grants, and the inability of municipalities to collect fees.[63] Even though they are not directly responsible for SWM, municipalities collect fees from residents and transfer the money to the entitled organization.[64] There is often a gap between the cost of waste collection, transportation and disposal compared to the amount of fees collected by each municipality. There are two explanatory factors to understand the persistence of this gap.

On one hand, this gap results from the **high transportation cost** for cities farther from the landfills. This is the case of the Ramallah and Al-Bireh governorate that is located 100 kilometers away from the ZAF landfill. Consequently, the Ramallah municipality is only able to cover 19% of the costs through tax collection, due to the high cost of transportation to the landfill, 80 NIS/ton.[65] For that reason, JSCs have no other choice than to send their waste into random dumpsites in order to save money. The JSCs are thus dependent on municipalities for cost-recovery, which is often around 80%.[66] The other 20% is recovered through the transportation fees collected by the central government from which a portion is paid to the JSCs until they are capable of recovering 100% of the cost.[67] Cost-recovery however does not imply a sustainable SWM as it only covers operational costs but does not allow any long-term investments (i.e. replacement of equipment, rehabilitation of transfer stations, new cells, leachate management, etc.).

As a consequence, the equipment often falls out of service after a few years. As presented in Table 1, most of the trucks used by the Joint Service Councils are either deteriorated or deteriorating. The cost-recovery does not allow JSCs to acquire new equipment even though an important portion of the trucks were manufactured in 1999. In addition, the recent compactors from 2009 have been used for more than a service per day and the JSCs cannot provide the necessary maintenance. The quality of the equipment in turn impedes the coverage percentage. For instance, the low percentage of service coverage in Nablus and Hebron governorates is correlated to their inability to expand the service because of the lack of functioning vehicles.[68]

JSC	No. of vehicles	Vehicles with bad/not working status
Jenin	30	22
Tubas	4	3
Nablus	5	3
Tulkarem	10	8
Qalqilia	12	7
Salfit	8	2

62 Daniel Hoornweg, and Perinaz Bhada-Tata, *What a Waste: A Global Review of Solid Waste Management* (Washington: The World Bank, 2012), 1.

63 Majd Mohammad Salah, "Evaluation of Solid Waste Management in Northern West Bank, Palestine" (MSc diss., University of Birzeit, 2016), 6.

64 With the exception of refugee camps that do not pay, the service being entirely covered by the UNRWA.

65 Valérie Thöni, and Samir K.I. Matar, Solid Waste, 48.

66 Ibid, 49.

67 Interview with Suleinman abu Mfarreh, August 4, 2020

68 JICA, Data Book, 35.

Jericho	16	3
Ramallah	16[69]	0
N & NW Jerusalem	9	6
Bethlehem	25	0
Hebron	27	12
Khan Younis, Rafah, Middle Area	24	9

TABLE 1. *THE NUMBER OF VEHICLES PER JOINT SERVICE COUNCIL AND THEIR CONSIDERED STATUS*[70]

Furthermore, the remaining LGUs and smaller municipalities lack equipment and, as a consequence, the management relies on weekly door-to-door collection.[71] The lack of steady waste collection results in over-filled garbage. As such, when the waste is not arbitrarily disposed, it is often burnt within the containers by the nearby residents.

On the other hand, many residents are **reluctant to pay collection fees.** In 2014, the fee collection rate was around 40%, apart for the Northern governorates where it is included in the water and electricity bill.[72] Other governorates such as Bethlehem, Ramallah, Jerusalem and Jericho, rely on the private firm Jerusalem District Electricity Company to provide electricity services. The latter however refuses to include the fee within the electricity bill.[73] The addition of the collection fee in the electricity and water bill provides a binding factor, especially in a context in which residents lack awareness about the necessity to pay municipal fees. This reluctance to pay stems from the low belief that it would result in a better management, notably due to the PA's systematic corruption. [74] In addition, certain households lack the financial resources to pay for waste collection fees. [75] As a result, this low rate has forced municipalities to accumulate debt and find external funding to cover the full cost of waste management

Although the JSCs have launched awareness programs focused on SWM and recycling in the past years, their action remains heterogenous and isolated. The lack of public understanding is detrimental to the creation of a sustainable and effective management. In fact, the pilot programs to introduce composting in Deir al Balah and Rafah have failed because of the lack of competitive compost on a market dominated by Israeli companies, but also because of societal obstacles.[76] In 2017, 81.6% of the residents surveyed in Ramallah and Jericho were not willing to separate food from other wastes. [77] Moreover, many residents also refuse to build composting plants near urban areas.[78] The establishment of an effective system thus requires to raise social awareness on the importance of paying and participating.

69 Husain Abuoun, Interview, April 19, 2020.

70 Data obtained from the databook published in 2020 by the JICA and the MoLG.

71 European Environment Agency, *Horizon 2020 Mediterranean Report Annex 5: Palestine* (Luxembourg: Publications Office of the European Union, 2014), 16.

72 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 48.

73 Interview with Iyad Aburdeineh, August 4, 2020.

74 Ammar J. Al-Khateeb, Majed I. Al-Sari, Issam A. Al-Khatib, and Fathi Anayah, "Factors affecting the sustainability of solid waste management system – the case of Palestine," *Environmental Monitoring Assessment* 189, (2017): 9.

75 Ibid.

76 Jad Isaac et al., *Status of the Environment in the State of Palestine* (Bethlehem: The Applied Research Institute of Jerusalem, 2015), 102.

77 Ammar J. Al-Khateeb, Majed I. Al-Sari, Issam A. Al-Khatib, and Fathi Anayah, "Factors affecting," 6.

78 Jad Isaac et al., *Status of the Environment*, 102.

The authorities have recognized that MSW has become a critical issue and have thus heavily invested for its development. Nonetheless, the field of SWM receives the most complaints in large municipalities.[79] As a matter of fact, a report by the World Bank from 2017 revealed that only 59% of households in the West Bank were satisfied with the quality and reliability of solid waste collection services.[80]

1.6. Concerning environmental and health impacts

The current solid waste management system has disastrous implications on the environment and public health. One of the greatest consequences of landfills and open dumps is the contamination of ground and surface water due to the absence of waste and leachate treatment. Leachate is the liquid draining from landfills or stockpiled materials that contains metals, salt, soluble or suspended components, and products from the decomposition of waste.[81] This percolation can put the water quality of the region at risk by polluting streams and rendering the aquifer unreliable for use.[82] Random dumpsites and certain transfer stations, where the waste is directly disposed on the ground, also contaminate the land and groundwater sources neighboring these sites.

Furthermore, inadequate solid waste management can contribute to the deterioration of nature and biodiversity, which has detrimental consequences on the functionality and the complexity of ecosystems and their services. Wildlife is indeed affected by the pollution and the disruption of ecological flows caused by landscape deterioration. This is concerning because the West Bank is home to five different ecosystems and constitutes around 3% of global biodiversity.[83]

In addition, the persistent organic pollutants[84] emissions as well as the frequent burning of solid waste pose a severe threat to air quality and public health. The smoke particles from burning waste contaminate the site and the surrounding areas through wind transportation. The health and environmental threats are even more acute as hazardous waste is often mixed with municipal solid waste during both the collection and disposal phases.[85] In fact, the lack of monitoring has produced "dangerous air pollutants when burnt that create a dangerous toxic smoke."[86] Exposure to smoke particles and air-borne bacteria in particulate matter[87] can directly get inhaled into the lungs. This leads to higher risks of asthma, heart and lung diseases.

There are also concerns about an increased risks of cancer, congenital malformation, low birthweight, hepatitis, and respiratory diseases in regards to electronic waste.[88]As a matter of fact, researchers demonstrated that there is a strong correlation between the proximity to an e-waste burning site and childhood cancer rates

79 Cecilia Karlstedt, Torbjörn Öckerman, Muna Dajani, and Suleiman Daifi, *Organisational Review of the Palestinian Environment Quality Authority* (EQA). (Jerusalem: SIDA, 2014), 19.

80 World Bank Group, *The Performance,* VII.

81 Australian Environmental Protection Agency, *Waste Guidelines: Waste Definitions,* (Adelaide: Government of Australia, 2009), 6.

82 Radwan J. El-Kelani et al., "Geospatial," 3.

83 Environment Quality Authority, *State of Palestine Fifth National Report to the Convention on Biological Diversity* (2015), 18.

84 Persistent organic pollutants (POPs) are molecules defined by the following properties: toxicity, bioaccumulation, long-range transport, and resistant to environmental degradation. Anthropogenic POPs are used as pesticides, solvents, pharmaceuticals, and industrial chemicals.

85 Jad Isaac et al., *Status of the Environment,* 90.

86 Ibid.

87 Particulate matter (PM) are all solid and liquid particles suspended in air (i.e. dust, smoke, liquid droplets, pollen, soot). They vary in size, composition, and origin.

88 WHO, p15. ; Jad Isaac et al., *Status of the Environment*, 105.

based on a dataset from 1998 to 2007 in rural villages in south-west Hebron (p=0.0071) and Ramallah and Al-Bireh (p=0.0001).[89] The study also showed causal evidences between site proximity and the high rate of childhood lymphoma in Hebron (p=0.0023).[90]

The location of certain dumpsites and landfills (ie. Zahrat-al-Finjan) at an unreasonable distance from residential areas is also putting populations living near disposal sites at risk.[91] Diseases from stray animals and insects living off these sites have become a growing public health issue. Mosquitoes breeding in waste-clogged sewers and drains are a vector for epidemic spreading. In addition, the inhabitants' well-being is affected by odors and aesthetic nuisances. As a result, 78.5% of the residents within a radius of one kilometer from ZAF landfill suffer from the odors emitted, and 87% suffer from the spread of insects, rodents and animals.[92]

The current management causes negative externalities that result in economic losses. In 2003, the diseases arising from inappropriate management have cost US$21 million to the government.[93] Disease incidents are even more preponderant in urban areas, of which 11,249 hectares are affected by open discharge.[94] The creation of disposal sites has also resulted in the displacement of villages as well as the transformation of agricultural land into dumping sites. In total, 27,472 ha of agricultural land – a key sector for food security and employment - has been deteriorated.[95] More specifically, in Idhna and its surrounding area, around 10 ha of arable land have been converted into e-waste burning sites.[96] Consequently, not only is this improper management contributing to the degradation of soil quality in the concerned areas, but it is also making the land unfit for agricultural activities. These effects generate economic loss for the population that needs to buy appropriate medicines as well as products to compensate for land degradation.

PART II

EU and EUMS policy: From dependence on funding to funding dependency

Part II analyses foreign aid from the international community and more particularly from the European Union (EU) and the EU member states (EUMS) towards solid waste management. The development of an effective waste management in the West Bank relies on foreign funding. This part, however, demonstrates that this aid has been unsustainable and ineffective as it has resulted in dependency. By doing so, it sheds lights on the EU and EUMS' inability to tackle the structural constraints linked to occupation. Part II concludes by addressing the current inaction of the EU, especially in light of its commitments to support healthcare, access to self-sufficient water and energy, agricultural and private sector development. It argues that the EU and its member states are funding infrastructure and programs likely to accentuate the solid waste crisis. The benefits of the foreign aid could thus be limited if not addressed in an integrated manner.

89 John-Michael Davis, and Yaakov Garb, "A strong spatial association between e-waste burn sites and childhood lymphoma in the West Bank, Palestine," *International Journal of Cancer* 144, (2019).

90 Ibid.

91 Radwan J. El-Kelani et al., "Geospatial," 6.

92 Majd Mohammad Salah, "Evaluation," 30.

93 Jad Isaac et al., *Analaysis of Waste,* 105.

94 Ibid, 109.

95 Ibid.

96 Applied Research Institute Jerusalem, *Impacts of electronic waste disposal,* 7.

2.1. The solid waste sector, dependent on foreign funding

The occupation has impeded the development of effective management while increasing the quantity of waste. In addition, the low rate of fee collection does not allow any further investments that would be required to expand and improve SWM in the oPt. These factors have led the PA to become dependent on foreign aid.

The Palestinian waste management system relies on strong donor-support in terms of investments. The majority of the aid comes from non-Arab countries.[97] From 2012 to 2014, the main donors included the United States, UNRWA, the EU, Norway and Germany, providing 70% of the total aid.[98] European aid totaled 5,964 billion euros between 2000 and 2015, of which 43% was provided as direct budget support to the PA.[99] In 2011 and 2012, according to Palestinian Central Bureau of Statistics' data on public environmental expenditures—which covers solid waste, waste water, and water infrastructures—, the main donors were the World Bank, the EU and the KfW.[100]

In the West Bank, international agencies have mobilized important funds to provide equipment and infrastructure. The purchase of equipment, such as compactors, has been done gradually to replace the pre-existing overused. For instance, the JSC of Ramallah and Al-Bireh acquired its nineteen vehicles through KfW funds and the older ten vehicles from the European Union in 2011.[101] The Japanese International Cooperation Agency (JICA) also donated thirteen additional vehicles to the Ramallah and Al-Bireh JSC in 2020. The vehicles were financed through Municipal Development and Lending Fund (MDLF) or were directly brought to the West Bank through the agencies' own procurement procedures.[102] The service councils are thus dependent on foreign aid to purchase the basic equipment necessary to provide solid waste services.

There is also a gap between the estimated and the actual duration of sanitary landfills, all built using foreign funds. The construction of the West Bank's largest sanitary landfill, Zahrat-al-Finjan, was jointly financed by the World Bank (US$9 million), the European Union (US$3.75million) as well as local authorities (US$1.25 million).[103] This investment was dedicated to purchase 240,000 m^2 of land for the construction of the facility as well as to rehabilitate the random dumpsites. The sanitary landfill was completed in 2007 to support the JSC of Jenin and Tubas in delivering services to 600,000 people. Although the landfill was designed to serve these governorates for 30-35 years, it has recently reached its maximum capacity as it has been receiving solid waste from all the northern governorates as well as from Ramallah and Al-Bireh.[104] Moreover, the Al-Minya landfill, constructed to extend waste disposal to southern West Bank, was mainly financed by the World Bank. In fact, in 2009, the governorates of Hebron and Bethlehem lacked a sanitary landfill despite producing 20% of the total solid waste.[105] The Al-Minya landfill became operational in 2014 and has bene-

97 PA Ministry of finance. OECD database says 89% from the top 12 donors.

98 Alaa Tartir, and Jeremy Wildeman, *Mapping of Donor Funding to the Occupied Palestinian Territories 2012-2014* (Palestine: Aid Watch Palestine, 2016), 17.

99 Ibid.

100 Cecilia Karlstedt, et al., *Organisational Review*, 8.

101 Interview with Husain Abuoun, April 19, 2020.

102 Interview with Husain Abuoun, November 18, 2020.

103 "Joint Services Council for Solid Waste Management Project," Europa.eu, 2008.https://ec.europa.eu/environment/archives/greenweek2008/sources/pres/2_7_Shawahneh.pdf

104 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 31.

105 Ibrahim Dajani, and Mary Koussa, "Working amid fragility: Delivering results in essential services in Palestine," The World Bank, February 2016, https://www.worldbank.org/en/news/feature/2016/02/17/working-amid-fragility-delivering-results-in-essential-services-in-palestine

fited to 840,000 people since then. This number has, however, increased to include the services provided to settlements. Furthermore, the Jericho landfill was expanded in 2017 thanks to the Government of Japan, who invested US$3.1 million for the construction of new cells and a transfer station, as well as for equipment. This expansion aimed to serve over 50,000 residents for another five years[106] yet the landfill has reached its maximum capacity in 2019, three years before the expected date.[107]

Finally, the main solid waste infrastructure project involving a European member state is the construction of the Rammun landfill, exclusively supported by the KfW. The village of Rammun had been identified as the best site for the construction of a landfill amongst thirteen other sites.[108] However, the project was on hold until 2020 even though the German agency had agreed to provide €10 million. In addition, the Israeli Minister from the Ministry of Environmental Protection (MoEP) has indicated that the authorization would be granted under the condition that Israelis from the surrounding settlements would be able to dump their waste in the landfill.[109] The situation became even more complex as the Palestinian population began protesting against the construction of the landfill, fearing that it would damage the surrounding agricultural fields. These protests have also been supported by Israeli settlers for reasons related to the decrease in land value and pollution, especially if they are not allowed to benefit from the disposal site. These tensions combined with the political situation and its location in Area C have been obstacles in constructing the sanitary landfill. It was only in November 8th, 2020, more than a decade later, that the Israeli Supreme Court gave its approval for the landfill's construction.[110] Although the KfW's obligation to finance the sanitary landfill ended in 2019, the German agency has confirmed the extension of their support and declared that its construction will not benefit Israeli settlements. Nonetheless, once constructed the landfill may not last the expected duration. Zahrat-al-Finjan landfill is indeed in overcapacity due to the deadlock on this matter, which entails that more governorates than expected might use the new disposal site. In addition, its duration will also be dependent on the extent to which the settlements will make use of it.

The SWM sector still must be expanded in order to become sustainable, despite the past and current foreign aid. Investments by international donors have had limited benefits. First, the contract durations have often been overestimated. Secondly, the equipment provided or acquired through foreign funds is overused, and this rapid depreciation has not been not considered. As a result, and because the fees collected do not cover further investments, the JSCs are dependent on other foreign funds to cover operation and maintenance costs or to provide new equipment. In addition, donor countries often do not consider projections that account for the increase in waste quantities resulting from economic development, population increase, and the rapid urbanization rate. International aid has thus cultivated dependency due to its failure to reinforce state actors while turning a blind eye to Israeli occupation.

106 UNDP, "Under the auspices of the Minister of Local Government – The Government of Japan and UNDP inaugurate solid waste landfill in Jericho," UNDP, February 2017, https://www.ps.undp.org/content/papp/en/home/presscenter/pressreleases/2017/02/08/under-the-auspices-of-the-minister-of-local-government-the-government-of-japan-and-undp-inaugurate-solid-waste-landfill-in-jericho-.html

107 Interview with Suleiman abu Mferreh, August 4, 2020.

108 Interview with Iyad Aburdeineh, May 11, 2020.

109 Toi Staff, "Israel said to nix German plan for garbage dump to be used only by Palestinians," *Times of Israel,* August 13, 2018, https://www.timesofisrael.com/israel-nixes-german-plan-for-dump-to-be-used-only-by-palestinians-report/

110 Interview with Husain Abuoun, November 18, 2020.

2.2. Israel: A stalemate for the creation of a sustainable SWM

The development of the solid waste system has been dependent on foreign investments in the past decades. This is the result, in part, of the donors' inability to address the situation with a politicized perspective by refusing to call into question Israeli occupation. There is a discontinuity between the aim, which is to strengthen PA's infrastructures and civilian capacities, and the actual result. In fact, the decontextualized approach of foreign investors has participated in the perpetuation of the problem. For instance, Al-Minya landfill has been receiving waste from Israeli settlements. The license and approval granted by the World Bank stated that the landfill aims to benefit "the inhabitants of the region."[111] This confusing terminology has been turned by Israeli settlements to their advantage. The Israeli settlers, even though they are not authorized to dump their waste in Al-Minya, have been imposing themselves "by force and setting their own rules."[112] The World Bank did not interfere with Israeli settlers although the stated objective was to "move the Palestinian economy from its current state of excessive donor dependence."[113] In addition to the illegal use of the landfills, the equipment financed by the EU and its member states also has limited benefits within the context of occupation (i.e. roadblocks, checkpoints, lack of landfills).

Foreign aid also avoids dealing with one of the main issues that results from occupation, namely access to land. The development of an effective SWM relies on access to land in order to provide services to the population, especially with the constant increase in population density and construction in Areas A and B. The geographical division of the West Bank and the Israeli occupation have prevented the development of adequate facilities. Expansion remains impossible due to the discriminatory permit system that restricts and prevents any construction. In the West Bank, applying for a permit to the Israeli authorities is considered "complex, time-consuming and expensive" while it "rarely results in the granting of a building permit for Palestinians."[114] In fact, it is almost impossible for Palestinians to obtain a permit as only 1.5% of the applications for building permits in Area C were approved from 2010 to 2014.[115] Consequences are threefold. First, this situation impacts public infrastructure as well as access roads and utility lines needed to connect the different zones.[116] In addition, the delays to grant building permits have also compromised numerous projects, including the Rammun landfill, which was on hold for a decade. Meanwhile, the Ramallah and Al-Bireh governorate had to pay for transportation and access to ZAF while relying on random dumpsites that have damaged the environment and health of the residents. A report analyzing Beit Anan revealed that the lack of a sanitary landfill is "due mainly to the obstacles created by the Israeli authorities for local and national institutions in granting licenses to establish a landfill, because the appropriate land is within Area C and under Israeli control."[117] Finally, the restriction over the land and the inability to construct in Area C have led to an increase in housing prices of around 24 percent in the West Bank.[118] This was the case for Beit Anan: land acquisition had become unaffordable without the support of external funding. The latter might be a major issue in expanding certain landfills, like Al-Minya. The future of solid waste is thus put into question as infrastructure for sustainable management will be more costly to expand or build.

111 Interview with Suleiman abu Mferreh, August 4, 2020.

112 Interview with Iyad Aburdeineh, May 11, 2020.

113 "Public Diplimacy Program on Public Private Partnerships in the Palestinian Authority Territories," 2019, https://events.jspargo.com/SWANApalooza19/

114 OCHA, *Under Threat: Demolitions orders in Area C of the West Bank,* (East Jerusalem: United Nations, 2015), 3.

115 World Bank Group, *Area C and the Future of the Palestinian Economy*, (Washington: The World Bank, 2013), 16.

116 Ibid.

117 Applied Research Institute Jerusalem, **Beit Anan,** 15.

118 World Bank Group, **Area C**, 19.

Furthermore, demolitions of European-funded structures by the Israeli Defense Forces have added pressure on the solid waste sector. In 2020, 73 infrastructures financed by the EU were demolished.[119] Nonetheless, since 2000, the European Commission has provided around €770 million in humanitarian assistance. First, the unprecedented scale of demolitions noticed since 2019 "has resulted in EU aid not reaching of benefiting Palestinians."[120] As a matter of fact, on November 5th, 2020, the EU reiterated its call on Israel to halt demolitions, including EU-funded structures, especially in light of the impacts of the coronavirus pandemic.[121] Secondly, the demolition waste adds to the intense construction activity of the last two decades. In 2012, 16.3% of construction waste from contractors was disposed randomly "on open land and beside public roads" as well as 15.1% in "inappropriate locations."[122] The constant demolition of infrastructure by the Israeli forces aggravates the solid waste issue in the West Bank, and development projects will not be sustainable on the long-term without any political breakthrough. Suleinman Abu Muffereh, in charge of SWM at the MoLG, has thus expressed: "there is very little solution on the long-term as any strategy under occupation will hardly work."[123]

Finally, and as presented in Part I, the recycling of e-waste imported from Israel represents major employment opportunities. In February 2016, the Swedish International Development Cooperation Agency (SIDA) built a recycling plant in Idhna to develop grinding as an alternative to burning, worked on the burning sites rehabilitation, and conducted educational campaigns. SIDA was however unable to extend their actions due to political hurdles arising from coordination with Palestinian authorities.[124] In addition, the Green Land Society for Health Development, funded by the EU, has also launched awareness programs on the dangers of burning waste amongst the local population.[125] These initiatives, if uncoordinated with Israel, could face a regulatory deadlock in the near future. In fact, in July 2012, the Israeli government passed an E-waste Law, that entered in force in 2014, to regulate this sector by recognizing a legal framework in which importers need to pay a certified organization to collect and recycle e-waste. The law thus imposes sanction on producers that do not contract with an Accredited Compliance Body (ACB). As of January 2019, the Israeli MoEP accredited two ACBs: M.A.I Recycling and Ecommunity.[126] These companies are responsible for the collection and the recycling of electric and electronic waste, and batteries. The enactment of this law has been minimal, at least until 2017.[127] In fact, the economic opportunities provided by the informal sector resulted in large amounts of waste being collected and transferred through alternative routes across the Green Line.[128] An EU funded study estimated that around 62 trucks cross the border every day into the South Hebron Hills region, carrying 70 metric tons (certain amounts are much larger, ranging from 200 to 400 T/day).[129] However, a

119 Data given until October 2020. OCHA, "West Bank demolitions and displacement: an overview," *UNOCHA occupied Palestinian territory,* November 2020, https://www.un.org/unispal/document/west-bank-demolitions-and-displacement-an-overview-october-2020-ocha-publication/.

120 Matt Carthy, "Parliamentary questions", *European Parliament,* December 2019, https://www.europarl.europa.eu/doceo/document/E-9-2019-004387_EN.html.

121 Peter Stano, "Statement by the Spokesperson on the Israeli demolitions of Palestinian structures," European Union External Action, November 5, 20 20. https://eeas.europa.eu/headquarters/headquarters-homepage/88156/statement-spokesperson-israeli-demolitions-palestinian-structures_en.

122 Majed al Sari et al., "A study on the attitudes and behavioral influence of construction waste," *Waste Management and Research* 30, (2012).

123 Interview with Suleiman abu Mferreh, December 10, 2019.

124 Tamir Kalifa, "The toxic trash."

125 Hugit Eva Shammai, *Electronic Waste in Israel: An overview and Legal Analysis of the Electric and Electronic Waste Market in Israel, and Relations between the Formal and Informal Markets,* (V'Din Adam Teva and AJEEC-NISPED, 2017), 41.

126 Ministry of Environmental Protection, "Recycling Appliances, Electronics, Batteries Soon to Get Easier," Gov.il, January 15, 2019, https://www.gov.il/en/departments/news/easier_recycling_electronic_waste.

127 Hugit Eva Shammai, *Electronic Waste in Israel,* 44.

128 Ibid, 38.

129 Ibid, 40.

strict enforcement of this law could shut off e-waste flows. In 2019, the MoEP declared its intention to prevent "the disposal of e-waste in open areas, where it is illegally burned" and for the companies to supervise recycling plants to which e-waste is transferred.[130] The Israeli MoEP aims at collecting and processing 50% of all the generated e-waste through these certified organizations by 2021. This measure could have dramatic impacts for Palestinian recyclers, especially in a context in which the Israeli Extended Producer Responsibility (EPR)[131] policy has been formulated "without extensive knowledge of the existence and extent of the Palestinian informal sector."[132] On the other side, Palestinian workers lacked information with regards to the Israeli e-waste legislation and arrangements when it was issued.[133] Resulting from this asymmetry of information was the impossibility for them to pro-actively negotiate and prepare their relation to the formal sector.[134] Furthermore, a strict enactment of this law would not provide employment opportunities for Palestinian recyclers as it prohibits the ACBs to hire non-Israeli citizens or residents.[135]

2.3. The paradoxical nature of European aid

The dependency on foreign aid has hindered capacity-building efforts in support of an independent solid waste management in the long-term. The Bisan Center for Research and Development has shed light on the troubling attitudes of foreign aid actors. According to their report from 2011, the EU "requires that all equipment needed to execute the projects should be brought from the European Union countries as a precondition for funding."[136] By doing so, development projects prevent this sector from achieving independence by creating capacities for operating and maintaining the equipment. In addition, EUMS have not developed the Palestinian waste expertise through project funding. In fact, *Gesellschaft für Internationale Zusammenarbeit* (GIZ) has donated US$593,744 in "donations in-kind" to the JSC of Ramallah and Al-Bireh from 20210 to 2012 for the Rammun landfill. [137] This donation represents the "cost of experts mandated by GIZ to provide technical know-how assistance to the programs."[138] Similarly, an article by Middle East Eye revealed that around €2 million from the KfW's fund had been allocated to German private contractors, such as the AHT Group AG.[139] The KfW has favored German companies over Palestinian ones for two reasons. First, this intentional decision comes from the fact that "they did not trust Palestinians to manage the project."[140] Secondly, it also results from the prerequisites required, notably the quality of the expertise, for a company to bid and qualify for a development project.[141] European aid has thus participated in creating dependency rather than devel-

130 Ministry of Environmental Protection, "Recycling Appliances, Electronics, Batteries Soon to Get Easier," **Gov.il**, January 15, 2019, https://www.gov.il/en/departments/news/easier_recycling_electronic_waste.

131 The E-Waste law applies the EPR principle, based on the European Waste, Electrical and Electronic Equipment directive. This principle includes the obligation for producers and importers that end-of-life products is treated in manners that protect the environment and meet the recycling targets set by the law.

132 John-Michael Davis, and Yaakov Garb; "A model", 77.

133 Ibid.

134 Ibid.

135 Hugit Eva Shammai, *Electronic Waste,* 45.

136 Ayat Hamdan, *Foreign Aid and the Molding of the Palestinian Space,* (Ramallah: Bisan Center for Research and Development, 2011), 36.

137 Joint Service Council Ramallah and Al Bireh Governorate, Financial Statements and Independent Auditors' Report as of December 2012, p15, http://www.jscrab.ps/data/uploads/files/Board%20Approval%20Joint%20Council%20Eng_%202012(1).pdf.

138 Ibid.

139 "Solid waste management – Ramallah and Al Bireh Governorate Consulting Services Accompanying Measures to the JSC Investment Programme," **AHT-Group.com,** AHT Group AG Management and Engineering, Accessed in August 2020, https://www.aht-group.com/cms/index.php?id=274&L=0.

140 Ben Hatten, "West Bank landfills acting as pits for foreign aid," *Middle East Eye,* February 12, 2015, https://www.middleeasteye.net/big-story/west-bank-landfills-acting-pits-foreign-aid..

141 Ibid.

oping the local economy and creating know-how within the Palestinian community.

Today, the major problem to be addressed is the European Union's inaction. The European Joint Strategy in Support to Palestine 2017-2022, even though it covers "Sustainable Service Delivery" and "Sustainable Economic Development", lacks references to sustainable solid waste practices. The first pillar "Sustainable Service Delivery" includes a subsection on the health sector, which aims at strengthening "the health system functions and reinforc[ing] healthcare provision." However, in the West Bank, medical waste is currently not treated and separated properly both at the collection and disposal phases. If this aspect is not taken into consideration, then the prevention programs "to better tackle non-communicable diseases and multi-morbidity" will appear *de facto* inefficient.

Furthermore, Pillar 5 "Sustainable Economic Development" focuses on private sector and agricultural development. The geographic division of the West Bank has created insular economies, which have increased and localized waste production. The economic development of the Ramallah governorate, for instance, led to an increase in waste production. Waste is however disposed in inadequate areas as the region lacks a sanitary landfill. Similarly, the Joint Strategy recognizes agriculture as a major force of the Palestinian economy as it provides employment, food security, and resilience. The absence of reference to solid waste is a pitfall considering the cross-cutting impacts of an unsustainable management has on the environment and health. As has been presented in Part I, an ineffective system has adverse impacts on the quality of soils and water resources by polluting streams, groundwater, and phreatic zones. It consequently reduces the possibility to cultivate land. The domino effects and functional disturbances of development action in other related areas should be considered to avoid distributing inefficient aid. That is, the 2019 contribution of €2.37 million by the EU "to support Palestinian farmers and agro-businesses in the West Bank"[142] as well as the French government's commitment of €20 million to support the Palestinian agricultural and water sectors in Area C of the West Bank[143]. This could also call into question the construction of the new sanitary landfill in Rammun even though it remains a priority. This village is mostly composed of farmers and agricultural workers who cultivate the surrounding fertile lands, also located with an aquifer underground.[144] Solid waste, because of its concomitant growth with a developing economy and negative feedback loops regarding the environment and health, should be systematically considered in any project.

PART III
Policy recommendations: Funding independency

The current practices for managing MSW in the West Bank include collecting and disposing waste in sanitary landfills, which have already exceeded their capacities or are expected to do so within a few years. The ultimate strategy is thus to ensure the clean disposal of waste in the future while decreasing waste generation at the source. Part III draws out key elements from development projects and combines insights provided in the earlier parts to highlight the prerequisites that would improve solid waste management in the West Bank.

142 The Office of the European Union Representative, 2019, "The European Union Provides €2.37 Million To Support Palestinian Farmers", https://eeas.europa.eu/delegations/palestine-occupied-palestinian-territory-west-bank-and-gaza-strip/57442/european-union-provides-€237-million-support-palestinian-farmers_en, Accessed July 2020.

143 Rasha Abou Jalal, 2019, "France to support Palestinian agriculture in West Bank areas under Israeli control", https://www.al-monitor.com/pulse/originals/2019/12/france-palestinian-agreement-agriculture-water-west-bank.html, Accessed November 2020.

144 Dina Omar, "Trashing Four Generations of Palestinian Inheritance", *Al Shabaka,* June 2013, https://al-shabaka.org/commentaries/trashing-four-generations-of-palestinian-inheritance/

3.1. Rethinking the European Joint Strategy 2017-2020

The main contributor to the development of a sustainable solid waste system is currently the JICA.[145] Some EUMS are also involved with this sector in the West Bank, notably Germany and Belgium. The European Union no longer acts towards the development of the solid waste sector, as reflected by the absence of reference in the Joint Strategy. However, as stated in Part II, it is their responsibility to ensure that economic, water, and agricultural developments are aligned with a sound solid waste management. The contrary would aggravate already existing environmental and health damages, thus rendering these investments inefficient.

Traditional tools for development are no longer efficient in removing the fundamental obstacles that persist in the West Bank. However, coordinating aid at a European level would partake in achieving sustainable and coherent development, that would further participate in creating an independent state of Palestine. This implies that each development action must integrate the logical framework of resilience into its design. An integrated and systemic approach would account for the interrelation of different areas as well as for the cross-cutting environmental and health impacts. The objective would be to ensure that each action maximizes co-benefits and responds to the specificities of social and environmental transition within the Palestinian context.

This proposition is in line with the Joint Strategy, which aims at creating more synergies between each sector.[146] It also supports the EU's commitment to implement the 2030 Agenda[147] "both in its internal and external policies."[148] In fact, the EU and EUMS have agreed to incorporate the sustainable development goals in their approach to international and development policy.[149]

3.2. Improving the Palestinian solid waste management

Solid waste management in the West Bank requires drastic reforms to address waste issues in the long-term. Transitory changes such as the development of landfill facilities can only temper immediate issues, but do not provide a solution for sustainable waste management.[150] Instead, a profound overhaul of the current production, consumption, and disposal behavior needs to be implemented in order to fully address the situation. Creating policies that limit the production of unrecyclable material, raising public awareness about responsible consumption and disposal practices, incentivizing waste separation and recycling, while acknowledging the informal sector for its integration within a defined management are a few steps that can be taken to confront the waste crisis in the West Bank.[151]

145 Interview with Suleiman abu Mfarreh, August 4, 2020.

146 European Union, *European Joint Strategy in Support of Palestine 2017-2020*, (2017), 27.

147 The 2030 Agenda, adopted in 2015 at a special UN summit, provides a global vision towards sustainable development. It includes 17 sustainable development goals (SDGs) focused on the improvement of soil and water, the reducing of pollution and waste, the combat against climate change, the creation of healthy ecosystems, the increase in resource efficiency, and the safeguard of the oceans.

148 "EU approach to sustainable development," European Commission, https://ec.europa.eu/info/strategy/international-strategies/sustainable-development-goals/eu-approach-sustainable-development-0_en, accessed August 2020.

149 "EU approach to sustainable development," European Commission.

150 Meriem Abazeri, "Rethinking Waste in India: Innovative Initiatives in Waste Management (MA diss., Sciences Po, 2014), 31.

151 Ibid.

Recycling

Solid waste management must work towards the maximization of recovery options (ie. reusing, recycling, composting). The high content of cardboard and plastic within residential solid waste offers a window of improvement. To do so, waste needs to be segregated at the source. Promoting source separation is a difficult aspect of sustainable management and thus requires awareness campaigns and educational programs. The development of recycling should be accompanied by a strong national message on its importance both in terms of environment and health.

The EU and EUMS should invest in alternative systems to reduce the Palestinian reliance on disposal in already over-capacitated landfills. Current recycling initiatives remain isolated and this field is "moving slowly."[152] Initiatives financed by member states have already taken place in the West Bank, but should be consolidated and sustained.[153] In order to develop recycling, the PA needs to create incentives and strengthen the private sector.

Recommendations include:

- Supporting the PA in drafting a national strategy and action plan to tackle recycling within the West Bank. This needs to be accompanied by a fund supporting the JSCs in waste segregation as well as the development of the private sector.
- Disseminating knowledge on the best practices for raising awareness amongst the population.

Composting is a technology that consists in organic waste degradation under aerobic conditions. The final product is a stabilized fertilizer, that results in a growing economy and a clean environment. Composting programs at the central level had already been launched to create fertilizers. It was, however, a failure due to the low price of Israeli compost and the lower quality of the Palestinian one, which made it uncompetitive.[154] Thus, the composting option is limited as no market is opened to this initiative.

Recommendations include:

- Funding new pilot projects and a composting plant to increase access to compost at a competitive price, to favor agricultural development, and to reduce the dependency on chemical fertilizers. An emphasis on developing compost aligns with the agricultural development support of the EU and alliances with France.[155] The recommendation also aligns with the Pillar 5 aiming at "working towards sanitary and phyto-sanitary standards and systems that meet the World Trade Organization's expectations."[156]
- Developing academic partnerships between European and Palestinian universities to research on the optimization of organic waste collection and composting for local agriculture.

Hazardous waste

To this date, hazardous waste from industries and hospitals is disposed with municipal waste. The presence of hazardous material stems from the lack of separation at the collection and disposal phases. Attention must

152 Interview with Iyad Aburdeineh, May 11, 2020.

153 Ibid.

154 Interview with Suleiman abu Mfarreh, 2020

155 This refers to the declaration of intent between the Ministries of Agriculture during the France-Palestine intergovernmental Seminar in 2018, the cooperation in the agro-ecology domain, and the exchange of experience on the development of protected geographical indications.

156 European Union, *European Joint Strategy*, 38.

be drawn to an important difference with other forms of waste as the main priority in regard to hazardous waste is not the reduction of landfilling but rather ensuring an environmental management of end-of-life products.

Recommendations include:

- Precise collection of data is missing in the West Bank. Although supervision activities exist for waste collection and disposal, monitoring and evaluation remain limited.[157] It is thus urgent to complete a comprehensive data collection of hazardous waste to evaluate the state of play.
- Supporting the PA in drafting standards and result indicators for hazardous waste. Supporting the EQA in setting up a strategic plan for hazardous waste collection and disposal.
- In operational terms, workers are at risk when manipulating MSW due to the presence of hazardous materials and the improper training and equipment used to handle this type of waste. When funding a transfer station or a sanitary landfill, the EU and its member states should ensure appropriate equipment, training, and vaccines for workers at risk.[158]

Waste-to-energy

The EU and EUMS could also invest in a waste-to-energy (WtE) plant, a complementary treatment method to recycling. In fact, this technology creates energy by burning municipal waste which would otherwise be sent to the landfills. WtE converts non-recyclable waste in steam, electricity or hot water. This technology would benefit the West Bank for the following reasons: creating independency in power supply while generating revenues for municipalities; lowering the risks of environmental and health damages; decreasing the volume of waste (up to 80% for certain WtE plants),[159] which is an essential asset considering the current situation.

This technology has been in use around the world and notably in developing countries. For instance, Pakistan's National Electric Power Regulatory Authority is building its first WtE plant in Lahore. The plant aims at processing 2000 T of waste per day for an electricity production of 40MW.[160] This project, expected to be operational in 2022, cost an estimated $220 million. Similarly, in Addis Ababa, a plant was inaugurated in 2018. The facility has cost over $100 million and processes 1400 T/day for an electricity production of 25MW.[161]

WtE has been evoked by Suleiman Abu Mfarreh from the MoLG and should be further discussed with all stakeholders and local authorities. In fact, WtE relies on cooperation between the companies, JSCs, and municipalities to provide waste and land sites to enable stable and predictable cash flow.[162]

157 Valérie Thöni, and Samir K.I. Matar, *Solid Waste*, 84.

158 Valérie Thöni, and Samir K.I. Matar, *Solid Waste,* 86.

159 Laith Hadidi, Ahmed Ghaithan, Awsan Mohammed, and Khalaf Al-Ofi, "Deploying Municipal Solid Waste Management 3R-WTE Framework in Saudi Arabia: Challenges and Future," *Sustainability* 12, n°5711 (July 2020), 2.

160 Ebenezer Nyarko Kumi, and Sakhi Shah, 2019, "Waste-to-energy: One solution for two problems?", Energy for growth hub, https://www.energyforgrowth.org/memo/waste-to-energy-one-solution-for-two-problems/, Accessed September 2020.

161 Ibid.

162 Laith Hadidi et al., "Deploying Municipal Solid Waste Management."

Recommendations include:

- Developing awareness campaigns. The latter is a prerequisite in order to reach an initial stage of separation between recyclable and non-recyclable waste.
- Assessing the possibility of implementing WtE technology in the West Bank as a solution for the burgeoning solid waste crisis.

The GIZ has created a guide indicating the steps for the creation of a WtE plant in developing and emerging countries.[163] For more information, it is possible to consult the guide at the following link: https://www.giz.de/en/downloads/GIZ_WasteToEnergy_Guidelines_2017.pdf

Electronic waste

Electronic recycling represents crucial employment opportunities. The handling of e-waste represents around 60% of the economy in certain villages despite the negative impacts it has on the environment and workers' health. As described by Davis and Garb[164], and Shammai[165], a strict enforcement of the Israeli E-waste law as well as relocating value to centralized and large companies would harm the economy of the South Hebron Hills villages. Nonetheless, the e-waste sector will still require an informal sector for the large amount of waste not treated through these formal channels even though the target for 2021 of 50% processed and collected by the ACBs is reached. As a result, these recommendations promote a pragmatic approach that recognizes and harnesses the positive aspects of the informal market, without compromising safe working conditions and unharmful environmental practices.

Recommendations include:

- Supporting the PA and local authorities in regularizing the informal business. This includes supporting the capacities of informal businesses, and drawing on the strength of the existing informal and emerging formal systems, while engaging relevant stakeholders and consulting e-waste recyclers.[166] It is proposed for the EU and its MS to support the PA in upgrading the existing informal facilities through projects and subsidies.
- Pursuing efforts pertaining to electronic waste safety with awareness programs and business models that can economically process.
- Exerting diplomatic pressure, with the approval of the PA, to amend the Israeli E-waste Law passed that currently prohibits plants to hire workers that are not Israeli citizens or residents.
- Exerting pressure, with the approval of the PA, on the MoEP to consider the establishment of recycling facilities in the West Bank.[167]

For other recommendations intended to the Israeli MoEP and related to the Israeli E-waste law, please consult the 2017 report: *Electronic Waste in Israel: An overview and Legal Analysis of the Electric and Electronic Waste*

163 GIZ, *Waste-to-Energy Options in Municipal Solid Waste Management: A guide for Decision Makers in Developing and Emerging Countries,* (Bonn: GIZ, 2017), 1

164 See sources: John-Michael Davis and Yaakov Garb, "A model." John-Michael Davis and Yaakov Garb, "Quantifying flows"

165 See source: Hugit Eva Shammais, *Electronic Waste in Israel: An overview and Legal Analysis of the Electric and Electronic Waste Market in Israel, and Relations between the Formal and Informal Markets,* V'Din, Adam Teva and AJEEC-NISPED, 2017.

166 Recommendation based on John-Michael Davis and Yaakov Garb, "Quantifying flows."

167 Recommendations based on Hugit Eva Shammai, *Electronic Waste in Israel,* 48.

Market in Israel, and Relations between the Formal and Informal Market written by Hugit Eva Shammai through Adam Teva V'Din and the Arab-Jewish Center for Emporwerment, Equality, and Cooperation – Negev Institute for Strategies of Peace and Economic Development (AJEEC-NISPED), and supported by the EU and the Embassy of Finland in Tel Aviv.

Other recommendations

- Waste disposal will remain a major problem in terms of management in the West Bank. It is proposed to accompany an investment in the agricultural sector with a relocation of temporary dumpsites when found nearby a field.
- Investments in the agricultural, health, and water sectors could include the implementation of a leachate control to avoid soil contamination and underground water pollution in the landfills that are lacking one.

3.3. Ensuring the Palestinian right to self-determination

Through the implementation of a sustainable solid waste management, the EU and EUMS should ensure the Palestinian right to self-determination. The problem is twofold. First, the Ramallah and Al-Bireh governorate faces unsanitary or costly waste disposal options since the creation of the new dumpsite was put on hold by the ICA for a decade. Secondly, Israeli facilities and settlements are currently disposing their residential waste and hazardous waste by force in Palestinian landfills or on Palestinian land, which adds pressure on the inhabitants' health and environment. In addition, Israel illegally sends electronic waste to the West Bank. In doing so, there is a lack of environmental control and monitoring according to Israeli standards, while transparent information on the waste being disposed is missing. The latter violates international law notably the Art 12 of the International Covenant for Economic, Social and Cultural Rights; Art 43 and 55 of the Laws and Customs of War on Land, and the Basel Convention.

Recommendations include:

- The EU and EUMS must exert diplomatic pressure on the Israeli government, and notably the MoEP, for facilities and settlements to stop using Palestine as an expendable zone. Given the geographical proximity, and by correlation the shared underground aquifers and watersheds, pollution from unsafe disposal of waste has detrimental implications for the sustainability of the ecosystems.
- The EU and EUMS should ensure and support the construction of the Rammun landfill, approved by the Supreme Court in November 2020, and should ensure it will not benefit nearby Israeli settlements.
- The EU and EUMS should to exert diplomatic pressure on the Government of Israel to comply with environmental international law. The EU should support the complaints of the PA with regards to Israel's violations of the Basel Convention, of which the EU, Israel and Palestine are signatories.

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