



**Strengthening the institutional capacity of the State of Palestine
for sound waste and chemicals management and fostering
stakeholder buy-in under the BRS Conventions and supporting
process towards implementation of the Minamata Convention**

**Desk Analysis of Gaps and Constraints on Waste and Chemicals Management
in Palestine**



February 2023



Strengthening the Institutional Capacity of the State of Palestine for Sound Waste and Chemicals Management

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LIST OF ABBREVIATIONS AND ACRONYMS

3Rs	Reduce, Reuse, and Recycle
AAUP	Arab American University Palestine
ANNU	An-Najah National University
AQU	Al-Quds University
ARIJ	Applied Research Institute Jerusalem
AZU	Al-Azhar University Gaza
BRS	Basel, Rotterdam, and Stockholm Conventions
BRS&M	Basel, Rotterdam, Stockholm and Minamata Conventions
BU	Birzeit University
CA	Competent Authority
CAC	Civil Affairs Coordination and Cooperation Committee of Oslo II Agreement
CD	Civil Défense
CEP	Center for Engineering and Planning
CP	Customs Police
DNACP	Rotterdam Convention Designated National Authority for Industrial Chemicals and Pesticides
EPD	Environmental Planning Directorate
EQA	Environment Quality Authority
FPCCIA	Federation of Palestinian Chambers of Commerce, Industry, and Agriculture
GAC	Global Affairs Canada
GIZ	German Corporation for International Cooperation
HU	Hebron University
HCWM	Health Care Waste Master Plan
HWE	House of water and Environment
HZW	Hazardous Waste
IUG	Islamic University Gaza
JICA	Japan International Cooperation Agency
JSC	Joint Services Council
KfW	Kreditanstalt für Wiederaufbau
LGU	Local Government Unit (Municipalities and Village Councils)
MoA	Ministry of Agriculture
MoFA	Ministry of Foreign Affairs (MoFA)
MoFP	Ministry of Finance and Planning (MoFP)
MoH	Ministry of Health (MoH)
MoI	Ministry of Interior (MoI)
MoL	Ministry of Labour
MoLG	Ministry of Local Government
MoNE	Ministry of National Economy
MoT	Ministry of Transportation
MW	Medical Waste
NDC	Nationally Determined Contributions



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NFP	National Focal Point
NGO	Non-Governmental Organization
NIP	National Implementation Plan
NSSWM	National Strategy on Solid Waste Management
OCP	Official Contact Point
PA	Palestinian Authority
PAPP	Program of Assistance to the Palestinian People
PARC	Palestinian Agricultural Relief Committee
PCBS	Palestinian Central Bureau of Statistics
PCU	Palestinian Contractors Union
PEA	Palestinian Environmental Authority
PFI	Palestinian Federation of Industries
PIC	Prior Informed Consent
PIF	Palestinian Investment Fund
PIPA	The Palestinian Investment Promotion Agency
PLO	Palestine Liberation Organization
PNA	Palestinian National Authority
PPU	Palestine Polytechnic University
PSC	Project Steering Committee
PSI	Palestinian Standards Institute
PTUK	Palestine Technical University
SCC	Standing Cooperation Committee of Oslo II Agreement
SDG	Sustainable Development Goals
SIDA	Swedish International Development Agency
SWM	Solid Waste Management
UG	Universal Group
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	The United Nations Framework Convention on Climate Change
WB	West Bank



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Executive Summary

As a party to several international environmental agreements, Palestine has reporting obligations related to hazardous waste and chemicals management under various treaties and frameworks, including the Basel, Rotterdam, and Stockholm Conventions, the Minamata Convention on Mercury. Waste-related topics are also covered by the United Nations Framework Convention on Climate Change (UNFCCC), and the Sustainable Development Goals (SDGs).

Under the Basel, Rotterdam, and Stockholm Conventions, Palestine is required to report on the management of hazardous waste and chemicals, including the transboundary movements of hazardous waste, and measures are taken to implement the provisions of these treaties.

As a party to the Minamata Convention on Mercury, Palestine is required to conduct inventory of mercury sources, report on its efforts to reduce mercury emissions and releases into the environment, as well as the measures taken to manage and control the use of mercury and its compounds.

In the context of the UNFCCC, Palestine is required to report on its greenhouse gas emissions and mitigation efforts, including those related to waste management. Food waste and other type of waste are growing and contributing to the greenhouse gas emissions, and parties to the UNFCCC are encouraged to reduce waste generation and improve waste management practices to keep their climate targets.

In the context of the SDGs, Palestine is required to report on its progress in achieving Goal 12, which aims to "ensure sustainable consumption and production patterns." This goal includes targets related to waste reduction, improved waste management, and increased recycling and composting.

Above-mentioned international environmental agreements, including the BRS Conventions, Minamata Convention, UNFCCC, and SDGs include reporting obligations that help to track progress and hold governments accountable for their efforts to manage waste and chemicals in an environmentally responsible manner.

The goal of the Special Program project on Institutional Strengthening on Waste and Chemicals, is to identify major barriers to chemicals and waste management in Palestine, develop roadmaps and conduct training to close these gaps and promote awareness of the BRS and Minamata Conventions. Zoï Environment Network works with the EQA of Palestine to build capacity, contribute to awareness rising on a situation with chemicals and waste management in Palestine, improve stakeholder engagement, and promote interdisciplinary learning while strengthening relevant institutions in Palestine.

This report provides an overview and analysis of the current state of chemicals and waste management in Palestine. It identifies the gaps and constraints hindering the progress towards the Basel, Rotterdam, Stockholm, and Minamata Conventions implementation. The report utilizes literature reviews, surveys, and interviews with key stakeholders.

The analysis reveals that while some progress has been made in implementing these conventions, significant gaps and constraints exist in Palestine's chemical and waste management practices.



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These include inadequate legal and institutional frameworks, limited financial resources, and insufficient technical capacity and expertise. The lack of coordination and collaboration among relevant stakeholders, including government agencies and private sector entities, is also a significant constraint.

The report recommends measures to address these gaps and constraints, including developing a comprehensive legal and regulatory framework for chemicals and waste management, increasing financial resources for implementation, enhancing technical capacity and expertise, and promoting stakeholder collaboration and coordination. These measures are intended to support the implementation of the Basel, Rotterdam, and Stockholm Conventions and improve chemicals and waste management in Palestine, promote good practices and contribute to the global efforts to protect human health and the environment.



1. Background

1.1. Project of Strengthening the Institutional Capacity of the State of Palestine

The project is funded by the UNEP's Special Programme. Its goal is to identify significant barriers to chemicals and waste management in Palestine, develop roadmaps, conduct training to close these gaps and promote awareness of the BRS and Minamata Conventions. Zoï Environment Network works with the EQA of Palestine to build capacity, contribute to awareness rising on a situation with chemicals and waste management in Palestine, improve stakeholder engagement, and promote interdisciplinary learning while strengthening relevant institutions in Palestine.

The project started in 2019 and is planned to be completed in 2024. It includes a variety of deliverables through four proposed measures:

- Measure 1: Establish an inter-agency mechanism (steering committee) tasked to review the most pressing issues on hazardous waste and chemicals regularly, discuss overlaps and gaps in institutional settings and regulations and optimize governance.
- Measure 2: Strengthen the institutional structure of the competent authorities, primarily the Environment Quality Authority, and sensitize and train other institutions and local experts on information collection, indicators, and assessment of waste and chemicals issues, including basic reporting under the BRS.
- Measure 3: Collect and refine information on waste and chemicals in Palestine and catalyze inter-agency information sharing.
- Measure 4: Promote the Minamata Convention to create the basis for future implementation.

1.2. Report of Desk Analysis of Gaps and Constraints on Waste and Chemicals Management in Palestine

This report is part of measure 1 of the project. It is a desk study on gaps and constraints analysis to identify the current state of chemicals and waste management in Palestine and better understand the overall progress toward the BRS conventions.

Report findings will be presented at one of the project meetings to collect feedback and inputs from relevant stakeholders as part of the inter-agency coordination mechanism. It will guide certain actions throughout the project and inform the elaboration of the action plan/road map.

1.2.1. Aim and Contents of the Report

This report aims to address the waste management situation in Palestine. It starts by overviewing the process, then discussing the shortcomings and limitations of creating a sustainable process. Furthermore, it addresses the laws and regulations drawn so far by responsible governmental institutions and the role of civil and non-governmental organizations. Additionally, it puts the case of waste management in Palestine into the concerned international agreements perspective, which further helps to identify the impact of different international conventions and global goals on the case study. Moreover, it discusses the steps taken so far to comply with the rules of BRS conventions and Sustainable Development Goals. Finally, it investigates the gaps and shortcomings of policies and regulations, assessing what needs to be changed, improved, or



modified. Overall, this report presents as a starting point to evaluate the performance of involved agencies and institutions in the waste management in light of international conventions and sustainable development goals.

1.3. Project Steering Committee

As part of the project activities, a Project Steering Committee (PSC) was established in January 2023, representing officials from relevant ministries and agencies. Members of the PSC are:

Table 1. Project's Steering Committee

#	Name	Affiliation
1	Ahmad Abo-Thaher	Environment Quality Authority (EQA)
2	Yaser Abu-Shanab	Environment Quality Authority (EQA)
3	Abdul Fattah Al-Qini	Ministry of National Economy (MoNE)
4	Suliman Abu Mofareh	Ministry of Local Government (MoLG)
5	Shireen Abu Hamada	Ministry of Agriculture (MoA)
6	Lutfi Nasser	Customs Police (CP)
7	Safia Kittaneh	Palestinian Central Bureau of Statistics (PCBS)

1.4. Environmental Management in Palestine and Environment Quality Authority

The summary in this section was taken from:

1. The World Bank Report on West Bank and Gaza Environment Priorities Note (2019).
2. UNDP/PAPP Final Evaluation Report on Strengthening Environment Quality Authority Regularity Functions (2014).
3. Organizational Review of the Palestinian Environment Quality Authority (EQA), The Consulate General of Sweden in Jerusalem, drafted by ORGUT (2017).
4. MoLG, Strategic Environmental and Social Assessment for Five Targeted Urban Areas in the West Bank (SESA Report, 2021).

Until May 1995, all environmental responsibilities in Palestine were under the Israeli Administration. Environmental health was mainly limited to inspections, while Palestinian Municipalities provided solid waste and wastewater collection. In October 1994, the PNA Ministry of Planning and International Cooperation established the Environmental Planning Directorate (EPD) to manage environmental protection matters in planning, management, and implementation. Later in December 1996, the Palestinian Environmental Authority (PEA) was established, and in December 1998, the Palestinian Ministry of Environmental Affairs was established with the merger of the PEA and the EPD.

In June 2002, the Environment Quality Authority (EQA) was established, replacing the Ministry of Environmental Affairs, and is currently responsible for environmental legislation, policies, and planning in Palestine. The EQA's mandate is to monitor and implement everything necessary to protect the Palestinian environment and provide a clean and healthy environment for all Palestinians, as guaranteed by the Palestinian Basic Law and Environmental Law. The frequent institutional changes have affected the implementation of environmental measures, and the ongoing Israeli occupation has further impacted the EQA's ability to perform its functions.



1.4.1. EQA Roles and Responsibilities

Environment Law No. 7 for 1999 provides the basis for defining the roles and responsibilities of EQA. Based on it and the expectations raised by many stakeholders interviewed during the review, the following list of expected roles and responsibilities of EQA has been compiled (ORGUT, 2017):

1. Regulator
2. Planner and policy formulator for protection and prevention
3. Supervisor for ensuring compliance with regulations and taking mitigation measures.
4. Provider of environmental knowledge
5. Public awareness mediator and initiator, educator, and advocator
6. Partner for sustainable development
7. The Representative of Palestine internationally in the environment
8. Defender of Palestinian environmental rights.

1.4.2. EQA Organizational Structure

The structure of the EQA (that still in place in the early 2023) comprises a chairperson, and six central administrative departments, each with a set of directorates; a General Director leads each:

1. Environment Protection
2. Environmental Resources
3. Policies and Planning
4. Awareness and Environmental education
5. Projects and international relations
6. Administration and financial affairs

Each General Directorate is divided into several departments, varying from three to seven General Directorates. Each department is further divided into two or three divisions.

In addition, there are ten governorates' offices in the West Bank, one per governorate, all fall under the responsibilities of the General Directorate for Environment Protection.

The organizations structure of EQA in relevant to the BRS&M conventions is shown in Figure 1. The General Directorate of Environment protection is in charge of managing the BRS&M conventions and has 7 departments. ORGUT report described EQA as understaffed; currently, the departments of Environmental Impact Assessment, solid waste and wastewater, chemicals and emergency, and the department of laboratory and measurements has each one staff and in need for other 2 officers. The rest of the departments in the General Directorate of Environment protection has no staff and in need for a manager with two officers.

EQA has in total 42 environmental inspectors in the West Bank, where all under the General Director of Environment Protection. Inspectors are in charge of monitoring waste and chemicals in the country. Field investigations of waste and chemicals are assisted by other involved authorities such as the inspectors of the ministry of agriculture for cases of pesticides, and officers of customs police for smuggling of waste.

EQA defined its staff in Gaza as field experts where no official branch is operating in the strip. The Gaza experts are involved in following and coordinating internationally funded projects, especially when environmental screening or impacts assessments are required as part of the fund.

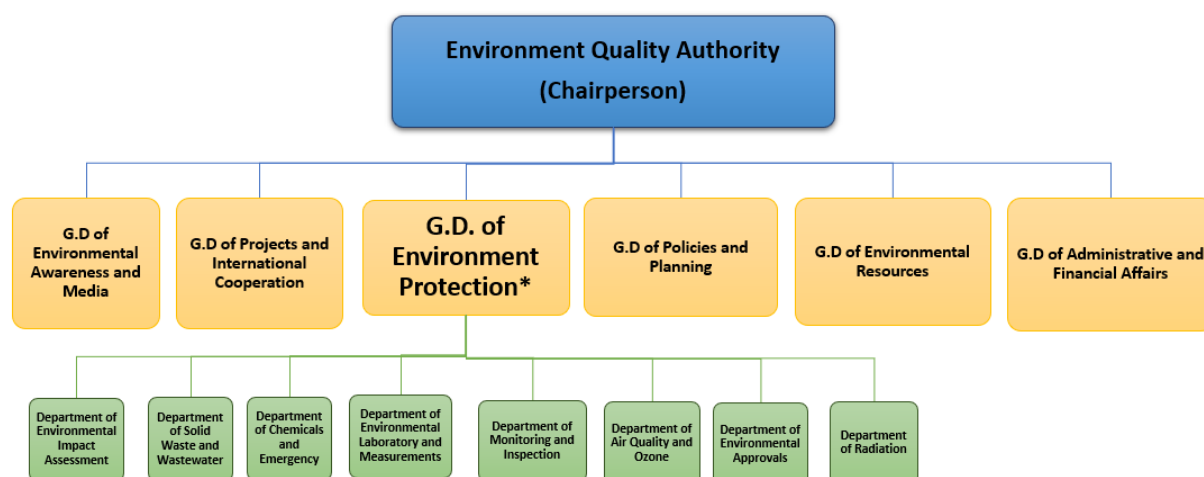


Figure 1. EQA General Directorates (G.D.) with departments of Environment Protection Directorate

1.4.3. International Agreements¹

Article 10, Clause 2 of the Law allows the speedy accession of the State of Palestine to international agreements. Article 77 of the law states that international environmental agreements to which Palestine is a party are integral to national legislation.

As of February 2023, the State of Palestine is a party to:

1. UN Framework Convention on Climate Change (UNFCCC)
2. UN Convention to Combat Desertification (UNCCD)
3. Convention on Biological Diversity (CBD)
4. Basel Convention for the Control of Transboundary Movement and Disposal of Hazardous Waste
5. Vienna Convention for the Protection of the Ozone Layer
6. Barcelona Convention for the Protection of the Mediterranean Sea
7. Minamata Convention on Mercury
8. Stockholm Convention on Persistent Organic Pollutants (POPs)
9. The Rotterdam Convention on the Prior Informed Approval Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

1.4.4. Summary of Relevant International Conventions and Global Goals

Annex 1 provides a summary of Palestine obligations and objectives under BRS and Minamata conventions.

1.4.4.1. BRS and Minamata

Information on BRS and Minamata Convention is given in Table 2, including the focal points.

¹ <http://environment.pna.ps/ar/index.php?p=environmentagreements>



As a party to the BRS and Minamata Conventions, the Palestinian Authority is required to adhere to the following requirements:

1. Develop and implement national regulations and policies for the management of hazardous waste.
2. Cooperate with other parties to the Convention to achieve its objectives.
3. Report regularly to the Secretariat of each Convention on the progress of implementation according to the reporting cycles and formats agreed
4. Provide (share) information with other parties.
5. Participate in the work of the Convention, including conferences of the parties (CoPs), and implementing decisions and considering new chemicals/products.

Specific to the Basel Convention:

6. Control the transboundary movement of hazardous waste and ensure that it is managed in an environmentally sound manner.
7. Promote reducing hazardous waste generation and the environmentally sound management of the produced waste.

Specific to the Rotterdam Convention:

8. Provide prior informed consent before exporting hazardous chemicals and pesticides to other countries.
9. Ensure that the trade of hazardous chemicals and pesticides is informed and transparent.

Specific to the Stockholm Convention:

10. Take measures to eliminate or reduce the release of persistent organic pollutants (POPs) into the environment, including the use and production of POPs.

Specific to the Minamata Convention:

11. Take measures to reduce and, where feasible, eliminate the releases of mercury into the environment, including the phase-out of specific uses and products containing mercury.

1.4.4.2. SDGs

The United Nations adopted the Sustainable Development Goals (SDGs) in 2015, and the Palestinian Authority has been involved in their implementation since then. The Sustainable Development Goals (SDGs) are 17 goals set by the United Nations to end poverty, protect the planet, and ensure peace and prosperity for all by 2030. The SDGs are interlinked and integrated, addressing sustainable development's economic, social and environmental dimensions. The SDGs provide a framework for the Palestinian Authority to address the country's key development challenges and enhance its efforts toward sustainable development.

The Prime Minister Office (PMO) of Palestine established a National SDG Team to oversee the implementation and follow-up of the SDGs, with participation from NGOs and the private sector. Its responsibilities include identifying sustainable development priorities in Palestine and integrating them into the national planning and budgeting framework, as well as leading and coordinating progress reviews towards the SDGs.



Palestine's National Policy Agenda for 2017-2022, which prioritizes government reform, improving services to citizens, and sustainable development, has adopted 75 of the SDG targets, considering the challenges posed by the Israeli occupation, the Palestinian government's fiscal situation, and the decrease of donor aid.

The Palestinian Central Bureau of Statistics (PCBS) is responsible for localizing and monitoring the SDG indicators in coordination with relevant ministries, national institutions, and international organizations, including UN agencies. PCBS maintained a webpage for measuring indicators of adopted targets through: <https://pcbs.gov.ps/MainSDGs.aspx>.

The relevant SGD to this report is No. 12; Responsible Consumption and Production, mainly: Target 12.4: By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, following agreed international frameworks, and significantly reduce their release to air, water, and soil to minimize their adverse impacts on human health and the environment.

Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.

Unfortunately, no data on Palestine is available in the global reporting system, UN SDG data portal (<https://unstats.un.org/sdgs/dataportal>) and the national statistics.

1.4.4.3. UNFCCC

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty to address the issue of global climate warming. It aims to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC has 197 Parties, making it one of the world's most prominent and widely ratified environmental treaties. The Convention provides a framework for international cooperation to mitigate and adapt to the impacts of climate change by creating a transparent and effective global climate regime. On 17 March 2016, the State of Palestine officially became the 197th party to the UNFCCC and, on 22 April 2016, signed and ratified the Paris Agreement, which entered into force on 4 November 2016².

As part of the Paris agreement, Nationally Determined Contributions (NDCs) are commitments submitted by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). NDCs outline a Party's actions to address climate change, including emissions reduction targets and measures to enhance adaptation and resilience. NDCs are intended to be updated and strengthened over time, reflecting Parties' efforts to address climate change's immediate and long-term impacts.

² The State of Palestine's First Nationally Determined Contributions (NDCs) "Updated Submission" October 2021. Accessed through: https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20NDC_%20State%20of%20Palestine_2021_FINAL.pdf



As a Party to the UNFCCC, the Palestine submitted its Nationally Determined Contributions (NDCs) in 2021³ outlining its actions to address climate change and its efforts to reduce emissions. EQA is hosting Palestine's NDC department and acting as the focal point.

1.4.5. Reporting Mechanism at EQA

The Basel, Rotterdam, and Stockholm (BRS) Conventions reporting mechanisms in Palestine are managed by the EQA, which serves as the focal point for the BRS Conventions. The EQA, and through its Environment Protection Directorate / Chemical and Hazardous Materials Section, is responsible for collecting, compiling, and submitting national reports on the implementation of the conventions. Data is being collected from the relevant ministries and governmental agencies, mainly:

- i. MoLG for solid and hazardous wastes
- ii. MoA for POPs and other pesticides
- iii. MoNE for registered recycling facilities and other chemical industries
- iv. CP for illegal traffic of waste
- v. In addition to PCBS, as it acts as a repository for all relevant data

To facilitate data collection and reporting for the signed conventions, in 2017, the first report on Hazardous Waste was issued that described all wastes with an inventory of all waste producers. A committee prepared the report from EQA, MoA, MoNE, and PCBS.

In 2019, a technical committee for the management of hazardous wastes and materials was established by the EQA chair person. The committee was established based on:

- i. the law of environment No.7 for 1999;
- ii. cabinet resolution on hazardous wastes of 2018;
- iii. and in compliance with the requirements of endorsed international conventions.

The committee is headed by EQA, And membered by representatives of:

1. Ministry of Labor
2. Ministry of Agriculture
3. Ministry of Local Government
4. Ministry of Health
5. Ministry of National Economy
6. Customs Police
7. Palestinian Central Bureau of Statistics
8. An-Najah National University
9. Birzeit University
10. Palestine Polytechnic University

The Technical Committee is tasked with:

- Proposing national policies for hazardous waste and chemicals.
- Proposing and reviewing of national plans related to hazardous waste and chemicals.
- Drafting guides and instructions for hazardous waste and chemicals.

³ https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20NDC_%20State%20of%20Palestine_2021_FINAL.pdf



- Proposing legislation, regulations, and instructions for hazardous waste and chemicals, and harmonizing them with international agreements.
- Participating in preparing the national reports on hazardous waste and chemicals.
- Reviewing correspondence and technical documents received from the Secretariat of international agreements to which Palestine has acceded, and making recommendations
- Following up on the implementation of the procedures and instructions contained in the national plans with regard to the management of waste and hazardous chemicals
- Preparing the committee's internal bylaw for their work mechanism.

This technical committee is expected to be replaced by a national committee for hazardous materials and waste, based on the relevant Cabinet Decision No. 6 (2021) on Hazardous Waste Management.

1.4.5.1. *Basel Convention*

Under the Basel Convention, Palestine is required to submit a National Report annually pursuant to paragraph 3 of Article 13, which outlines the country's hazardous waste management practices, including the quantities of hazardous waste generated, the treatment and disposal facilities available, and the steps taken to ensure the environmentally sound management of hazardous waste.

Palestine has submitted its annual national reports, which was appreciated by the Basel Secretariat. However, there is room for improvement of report completeness, especially on sections describing the hazardous waste degeneration, recycling facilities and others.

1.4.5.2. *Rotterdam Convention*

Under the Rotterdam Convention, Palestine is required to submit an import response pursuant to Article 10 of the convention. Import responses are the decisions provided by Parties indicating whether or not they will consent to import the chemicals listed in Annex III of the Convention and subject to the Prior Informed Consent (PIC) procedure. All import responses submitted by Parties are published each June and December in the PIC Circular and are available in the database of import responses⁴. Up to 2022, there are a total of 54 chemicals listed in Annex III, 35 pesticides (including three severely hazardous pesticide formulations), 18 industrial chemicals, and one chemical in both the pesticide and the industrial chemical categories. Palestine has submitted 52 Import Responses⁵ up to 2022.

1.4.5.3. *Stockholm Convention*

Under the Stockholm Convention, Palestine is required to:

1. Preparation and sharing of the national implementation plan (NIP), including amendments
2. Submission of the national reports

Each Party is required to develop a plan to implement its obligations under the Convention, which needs to be transmitted to the Conference of the Parties within two years of the date this Convention enters into force for it (Article 7). The Initial National Implementation Plan (NIP)

⁴ <http://www.pic.int/en-us/procedures/importresponses.aspx>

⁵ <http://www.pic.int/Procedures/ImportResponses/Database/tabid/1370/language/en-US/Default.aspx>



outlines the measures the country will take to eliminate or restrict the production and use of persistent organic pollutants (POPs).

The NIP is followed by National Reports, with four years cycle, which provides updates on the convention's implementation. Palestine has submitted its national report, which contains data gaps, particularly with regard to POPs estimates and inventories. This is due to the lack of NIP. For many developing countries, NIP preparation is sponsored by the GEF, but Palestine is blocked or not eligible for the GEF funding.

1.4.5.4. Minamata Convention

Under the Minamata Convention, Palestine is required to submit national reports under Article 21. Palestine was not a party during the first full reporting period (16 August 2017 to 31 December 2020⁶⁶). Since Minamata is a technical convention, where mercury inventory and assessment is required, GEF can support countries in their initial steps. However, like in the case of Stockholm Convention, Palestine may not be able to access GEF funding and therefore face difficulty in implementing the convention.

Conference of the Parties (COP) to the BRS Conventions allow countries to share information on the challenges and successes of implementing the conventions and develop strategies to address emerging issues. Palestine delegation is invited and regularly participate in COPs. A Palestinian official from EQA is a member of their bureau.

1.4.5.5. Compliance Rate to BRS&M Conventions

The PA and the UN published the atlas of sustainable development (2020), in which the compliance rate for the signed convention was presented. Among BRS&M, the highest compliance was for Basel (80%), Minamata (33%), Stockholm (12%) and the lowest was for the Rotterdam convention (9%). The compliance rate was enhanced in 2022 due to EQA follow-up on the implementation of the conventions, especially for Rotterdam, which can be considered now above 80%. The lowest compliance rate for Stockholm is due to lack of the of the National Implementation Plan for POPs management in Palestine.

To enhance the compliance rate to the signed conventions, a recent project was implemented in Palestine⁷: “Developing Environmentally Sound Management Policies and Legal Frameworks” with the support of the European Union.

The project aimed to focus on developing environmentally sound management policies for wastes and chemicals, including using various guidelines and manuals set under the Basel, Rotterdam, and Stockholm Conventions. The project also intends to identify gaps in the national legal framework related to illegal trade and traffic.

The project has covered:

- Desk and literature review

⁶⁶ <https://www.mercuryconvention.org/en/events/getting-prepared-full-national-reports>

⁷

<http://www.brsmeas.org/Implementation/Illegaltrafficantrade/TechnicalAssistance/Projects/Nationalprojects/Palestine/tabid/9054/language/en-US/Default.aspx>



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- Consultation with key stakeholders on the identification of gaps in the national legal framework
- Meetings and workshops with related partners
- Preparation of a report about effective strengthening of the national legal frameworks in consultation with key stakeholders
- Draft policies, manuals, and guidelines for environmentally sound management policies.



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Table 2. Summary of BRS and Minamata Convention in Relation to the PA.

#	Convention	Date/Start of the Convention	# of Parties (2022)	Objective/Summary of the Convention	Date of PA Signature/ Ratification of the Convention	PA Contact and Focal Point ⁸
1	Basel	1989	187	<ul style="list-style-type: none"> • Reduce the movement of hazardous waste between nations • Minimize the generation of hazardous waste • Promote environmentally sound management of the waste that is produced. • Regulates the transboundary movement of hazardous waste to protect human health and the environment. 	January 02, 2015	<p>Competent Authority (CA): Ministry of Foreign Affairs and Expatriates, and</p> <p>Focal Point (FP): Mr. Yaser Khalil Abu Shanab, Director, Public Health Department, EQA</p>
2	Rotterdam	1998	170	<ul style="list-style-type: none"> • Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade • 	December 29, 2019	<p>Official Contact Point (OCP): Ministry of Foreign Affairs and Expatriates, and</p> <p>Ms. Doaa F.Y Abdallah, Environmental Inspector, Department: Environment Protection Directorate / Chemical and Hazardous Material Section, EQA</p>

⁸ Sources: <http://www.basel.int/Countries/CountryContacts/tabid/1342/Default.aspx>, for BRS; and . <https://www.mercuryconvention.org/en/parties/focal-points>, for Minamata. Accessed online on January 30, 2023.



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#	Convention	Date/Start of the Convention	# of Parties (2022)	Objective/Summary of the Convention	Date of PA Signature/ Ratification of the Convention	PA Contact and Focal Point ⁸
						Designated National Authority for Industrial Chemicals and Pesticides (DNACP): H.E. Ms. Nisreen Tamimi, Chairperson, EQA
3	Stockholm	2001	181	The treaty aims at eliminating or reducing the release of persistent organic pollutants (POPs) into the environment	December 29, 2017	Official Contact Point (OCP): Ministry of Foreign Affairs and Expatriates, and H.E. Ms. Nisreen Tamimi, Chairperson, EQA National Focal Point (NFP): Mr. Yaser Khalil Abu Shanab, Director, Public Health Department, EQA
4	Minamata	2013	129	The treaty aims at protecting human health and the environment from the adverse effects of mercury	June 16, 2019	National Focal Point (NFP): Mr. Ibrahim Absa, EQA



2. Laws and Regulations of Waste and Chemicals Management in Palestine

Palestinian Authority (PA) has inherited legislation traditions from the previous regimes that governed the territory, such as the Ottoman, British, and Jordanian in the West Bank and Egyptian in the Gaza strip. Some of the past laws are still in force. Also, the PA has released several laws and regulations since its establishment in 1995. A complete review of laws and regulations related the waste and chemicals management in Palestine was produced in 2022 through the project “Consultancy services to harmonize the Palestinian legislations with the international environmental agreements and prepare new environmental legislation.” This project produced a draft of the bylaw concerning the hazardous waste management.

Due to the fact that the PA was founded on the Oslo Agreement II in 1995, the following section commences with an examination of this agreement, specifically pertaining to the management of waste and chemicals.

2.1. Oslo Agreement and the bilateral relations in the context of Basel

The Oslo II Agreement, the Interim Agreement on the West Bank and the Gaza Strip, was signed in 1995 between Israel and the Palestine Liberation Organization (PLO). Even though the agreement covered various matters related to the governance and administration of the West Bank and Gaza Strip, it did not explicitly tackle the topic of waste and chemical management as a standalone issue. Instead, it incorporated this matter within the "Environment" sections, which include *Article 12* on Environmental Protection, *Article 27* on Planning and Zoning, and Annex VI on the Protocol for Israeli-Palestinian Cooperation Programs. A summary of these *Articles* of the agreement is given in Appendix 2.

The agreement specifies the transfer of environmental powers and responsibilities, including licensing for crafts and industries and solid waste management, including hazardous waste, to the Palestinian Authority in areas "A" and "B." However, the transfer of authority in "Area C" will only occur after a final agreement between the two parties. As most of the West Bank is in "Area C," the location of waste facilities is subject to Israeli regulations and approvals. The agreement establishes a coordination mechanism between the Palestinian and Israeli sides through the Environmental Experts Committee (inactive since 2000). The agreement also requires both sides to abide by internationally recognized environmental standards that are equivalent and compatible.

Although the agreement provided a mechanism for addressing environmental issues, which could potentially include the management of hazardous waste and chemicals. However, the effectiveness of this mechanism in practice remains unclear. Also, the applicability of the Oslo II agreement based on recent and on-ground escalated conflict is questionable.

EQA reported the Oslo II agreement as a bilateral agreement in waste in the Basel report:

“Both sides shall respectively adopt, apply and ensure compliance with internationally recognized standards concerning the following: levels of pollutants discharged through emissions and effluents; acceptable levels of treatment of solid and liquid wastes, and agreed ways and means for disposal of such wastes; the use, handling, and transportation (following the provisions of Article



38 (Transportation)) and storage of hazardous substances and wastes (including pesticides, insecticides, and herbicides); and standards for the prevention and abatement of noise, odor, pests and other nuisances, which may affect the other side.”

Palestine is partitioned into several clusters, and the area C, covering 60% of the West Bank, is under Israeli control. Essentially all the border perimeter of Palestine is under control of Israel. To make the Basel Convention work effectively for Palestine, proper (custom and other) controls of national borders and land is essential, along with implementation of the Oslo Agreement provisions mentioned above. Israel, in its reporting under the Basel Convention, refers to Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, Article 12 of Annex III and reiterates its position, as submitted to the UN, according to which Palestine does not satisfy the criteria for statehood under international law.

This situation forms the special circumstances of Palestine and has direct implications for domestic waste and chemicals management, international reporting and access to the GEF and other funding.

2.1. Laws

The key laws addressing solid waste, chemical, and hazardous waste in the Palestinian National Authority (PNA) are the Basic Law (2003), Environmental Law (1999), Local Authorities Law (1997), Public Health Law (2004), the Agriculture law, and the Labour Law.

2.1.1. Basic Law

The Basic Law of 2003 establishes the right to a clean and balanced environment as a fundamental human right for all Palestinians. It recognizes the obligation to preserve the environment for future generations (*Article 33*). This *Article* highlights the significance of sustainable development and the preservation of the environment for both present and future generations. Including a clean and balanced environment as a human right in the Basic Law is crucial for further environmental laws and the protection of environmental systems.

2.1.2. Palestinian Environmental Law

The Palestinian Environment Law was released in 1999 and revised in 2003 and 2021. The law covers the main issues relevant to environmental protection and law enforcement. The objectives of this law include:

- Protect the environment from all types of pollution
- Protect public health and social welfare
- Incorporate protection of environmental resources in all social and economic development plans and promote sustainable development to protect the rights of future generations
- Conserve ecologically sensitive areas, protect biodiversity, and rehabilitate environmentally damaged areas

The law has defined the general framework for SWM in Palestine. Accordingly, *Article 1* defined solid waste, HZW, and waste management. *Articles 7, 9, and 11* determined the responsibility of EQA to develop a national SWM plan and supervise its implementation. *Article 8* recommended all parties encourage and support the 3Rs concept in solid waste. *Articles 13 and 63* set penalties



for the import of HZW into Palestine and prohibited the manufacture, storage, or treatment of HZW without the permission of EQA. (*Palestinian Environmental Law*, 1999)

The Palestinian Environmental Law covers the main issues relevant to environmental protection, pesticides, and law enforcement. Pertinent *Articles* of the law:

- *Article 14*: the Ministry, in coordination with the specialized agencies, shall designate the environmental conditions for the import, distribution, manufacturing, use, and storage of pesticides, substances, and agro-chemicals fertilizers, which may pose hazards to the environment.
- *Article 15*: the Ministry, in coordination with the specialized agencies, shall set instructions and standards specified for agrichemicals that are allowed to be imported, manufactured, and distributed in Palestine, and shall ensure observance of it.
- *Article (29)*: The Ministry (i.e., EQA), in coordination with the specialized agencies, shall set standards and norms for collecting, treating, reusing, or disposing of waste and storm water soundly, along with the preservation of the environment and public health.
- *Article (30)*: No person shall be allowed to discharge any solid or liquid, or other substance unless such a process conforms to the conditions and standards that the specialized agencies determine.
- *Article (45)*: In coordination with the specialized agencies, the Ministry shall set standards to determine which projects and fields shall be subject to the environmental impact assessment studies. It shall also prepare lists of these projects and set the rules and procedures for the environmental impact assessment.

Per the Palestine Environment Law, EQA in coordination with the competent agencies prepared the Environmental Assessment Policy.

2.1.2.1. *Palestinian Environmental Assessment Policy*

EQA developed the Palestinian Environmental Assessment Policy in 2000, which mandated EQA as a leading authority to approve environmental impact assessment studies. Basically, for activities concerning waste and chemicals management, the policy is aiming at:

- Ensure an adequate quality of life in all aspects, and ensure that the basic needs and social, cultural, and historical values of the people are not negatively impacted as a result of development activities.
- Preserve the capacity of the natural environment.
- Conserve biodiversity and landscape and promote the sustainable use of natural resources.
- Avoid irreversible environmental damage and minimize reversible environmental damage from development activities.

2.1.3. *Palestinian Public Health Law*

Palestinian Public Health Law No. 20 was developed by the Ministry of Health (MoH) and approved by the Legislative Council in 2004. The law states the role of the Palestinian Authority, as represented by the MoH and other authorities, to control communicable, non-communicable, and genetic diseases by practicable means, including removing health nuisances. Per *Article 45*, in cooperation with appropriate authorities, the MoH is responsible for providing a foundation of necessary conditions to ensure the safety of water wells, springs, and valleys and protection from pollution and misuse.



The law has defined the responsibility of the MoH to license facilities for waste collection, treatment, and disposal. It also determined the conditions for transporting, storing, treating, and disposing of HZW.

2.1.4. The Local Government Law

The Local Authorities Law No. 1, 1997, gave local authorities 27 functions and responsibilities within the regional boundaries falling under their jurisdictions. The law states that “the Council may issue laws, or necessary executive regulations to regulate the function of the local body and to secure its interests and requirements.”

The Local Authorities Law assigns the Ministry of Local Government (MoLG) with the task of establishing policies for local units (LGUs and Joint Service Councils; JSCs) and supervising their responsibilities, as well as monitoring their finances and administration (*Article 2*). According to this law, LGUs are responsible for collecting, transferring, and disposing of solid waste (*Article 15a*). Municipalities may provide these services directly, through the private sector, or in partnership with other municipalities through Joint Service Councils (*Article 15a*). A 2006 bylaw further regulates the formation of Joint Service Councils. In 2010, the MoLG introduced a strategy to support the development of Joint Councils, but this strategy excluded Joint Service Councils for solid waste management.

2.1.5. The Agriculture Law

Palestinian agricultural law No. 2 of 2003 is legislation related to hazardous materials and regulating the circulation of agricultural pesticides, agricultural fertilizers, and agricultural fertilizers, all considered hazardous materials. The MoA has an important role to play in the management of hazardous materials through the powers granted to it under the Agriculture Law concerning agricultural fertilizers and agricultural pesticides, as follows:

1. It is not permissible to issue a license to manufacture agricultural fertilizers or a license to import or prepare them or offer them for sale or sell them except after obtaining the approval of the competent authorities in the MoA.
2. The MoA prepares a system for registering fertilizers and soil conditioners and their circulation and use, to be issued by the Cabinet.
3. Agricultural pesticides may not be manufactured, processed, produced, imported, distributed, sold, stored, or traded without obtaining special permission from the Ministry and under the conditions listed therein.
4. The Ministry shall determine and announce the following:
 - Types of agricultural pesticides that are allowed to be used.
 - Specifications and technical information for pesticides.
 - Conditions for the safety of its circulation, transportation, storage, and how to use it.
 - Degree of toxicity and maximum levels of residues in plants and soil.
 - Procedures for its registration and the form and organization of the register kept by persons engaged in pesticide trade.
 - The Ministry shall form a committee to determine the scientific names of pesticides and agricultural pests.
 - The Ministry of Agriculture is to establish a national scientific committee to register pesticides and specify technical specifications and information related to pesticides.



- The Ministry prepares regulations for regulating the circulation and production of agricultural pesticides, and a decision of the Council of Ministers issues these.

Article 69 of the Agriculture Law also prohibited the circulation of veterinary treatments and vaccines for animals, except after registering them with the competent authorities in the Ministry of Health.

The agriculture law No. 2 for 2003, and in its *Article 55*: Irrigating agriculture crops with wastewater is forbidden unless treated according to the national standard approved by relevant technical authorities. In addition to this main law, the MoA issues several instructions and guidelines for reusing treated wastewater and sludge for agricultural purposes.

2.1.6. The Labor Law

Labor Law; Chapter (4 of 5) (PLL, 2000), and its bylaws for 2005; No. (1) to (7), and related cabinet resolutions in 2003 and 2004 regulating occupational health and safety. Bylaws set standards for indoor air quality covering pollutant emissions and permissible noise levels at the workplace.

In addition to the laws, several cabinet decisions and resolutions were enacted concerning (hazardous) waste and chemical management in Palestine.

2.1.7. The Civil Defense Law

Civil defense law No. 3 (1998) mandates the Civil Defense (CD) department to Organize and determine the conditions for transporting and storing hazardous chemical materials on roads and lands controlled by the PA.

2.2. Cabinet Decisions

It is noted in the literature and technical reports that Palestinian bylaws are also named “Cabinet Decisions,” “regulations,” and “resolutions.” Most decisions were enacted by the cabinet and endorsed by the Palestinian Legislative Council. The legislative Council was suspended in 2008 and dissolved in 2018.

2.2.1. Cabinet Decision No. 3 (2019) on Solid Waste Management

The decision defined the powers and responsibilities of MoLG, MoH, and EQA in the waste management field.

- a- **MOLG:** *Article 5* states MOLG is responsible for supervising waste management by defining specifications and standards for waste collection, sorting, transporting, and taking preventive measures. *Articles 14 and 28* MOLG is authorized to grant licenses and authorize the private sector for all waste management activities. Finally, in *Articles 29 and 30*, MoLG is responsible for establishing the national waste registry and keeping all technical records of solid waste.
- b- **EQA:** *Articles 10, 12, 13.6, 13.18, 14.9, and 14.10* authorized EQA to monitor the specifications of transfer stations and approve environmental management plans for landfills, collection, and treatment of gas and leachate. *Article 11* sets the responsibility



of granting approval for waste treatment by chemical, biological, or physical methods—*article 26* for drawing the list of HZW and regulating their production, transport, and disposal. Also, *Article 26* refers to the respected signed international agreements. Finally, *Article 34* is about approving imports and exports of waste.

- c- **MoH:** *Article 7.5* requires MOH to conduct periodic medical examinations of all workers in waste management and provide the necessary information. *Article 17.2* for approval of health standards related to the closure or rehabilitation of random landfills. *Article 24.2* sets the responsibility of separating, packaging, collecting, and transporting MW while coordinating with local authorities and the private sector. Finally, *Article 25* requires MOH to provide a database related to MW and its dangers, as well as safety requirements related to it.

The decision introduced specific regulations for chemicals and waste management, in summary:

- Landfills must follow specific conditions for operation, closure, and rehabilitation, and automated burning is allowed while random burning is prohibited (*Articles 12, 15-17, 19-21*).
- Reuse and recycling are encouraged (*Article 27*), and waste management fees are proposed by service providers and approved by the MoLG (*Article 35*).
- Hazardous waste must not be mixed, and its import requires approval from competent authorities.

2.2.2. Cabinet Decision No. 6 (2021) on Hazardous Waste Management

The Palestinian regulation Hazardous Waste Management Regulation No. (6) of 2021 is a set of rules and guidelines for the safe and effective management of hazardous waste in the Palestinian territories.

The regulation objectives are:

1. Protecting the environment from pollutants resulting from hazardous waste through environmentally sound management
2. Organizing control and inspection work on hazardous waste management.

The regulation has recognized EQA as the responsible entity for the HZW management system, including developing a comprehensive plan to organize the production, possession, transportation, storage, and treatment of HZW. Moreover, it assured the commitment to the Basel Convention on the movement of HZW and their disposal.

The regulation defines hazardous waste as any waste that has the potential to cause harm to human health or the environment. It outlines the responsibilities of waste generators, transporters, and disposal facilities, as well as the procedures for obtaining permits and licenses for hazardous waste management.

The regulation requires waste generators to classify their waste according to its hazard characteristics and properly label, package, and store it safely. It also mandates the use of licensed transporters and disposal facilities and outlines the requirements for treating and disposing of hazardous waste.



The regulation emphasizes the importance of minimizing hazardous waste generation and promoting sustainable waste management practices. It also provides for establishing a national hazardous waste management database to track and monitor hazardous waste management activities in the Palestinian territories.

Overall, the regulation aims to protect public health and the environment by ensuring the safe and proper management of hazardous waste in Palestine.

The list of hazardous wastes (2021) is based on the provisions of the amended Basic Law and the provisions of Law No. 7 of 1999 regarding the environment (Article 11 thereof), Cabinet Resolution No. (6) of 2021 on the management of hazardous waste has listed the substances subject to control (enclosed in the end of the report). Article (48) of the resolution follows the Basel Convention list and the Palestinian list is uploaded into the Basel Convention website: <http://ers.basel.int/ERS-Extended/downloadFile.aspx?fileid=4807>

2.2.3. Cabinet Decision No. 9 (2012) on agricultural pesticides

This decision regulates the handling of agricultural pesticides, the registration, control, inspection, and trade procedures, their transfer from one place to another, and their negative effects on the environment. It must be noted that there must be compatibility and harmony between this system and the legislation related to hazardous materials management. The legislative structure of this system and some or many of its provisions may help us formulate legislation related to hazardous materials, which may be similar to many *Articles* on the management system of agricultural pesticides.

Article 4: It is prohibited to register any of the following pesticides:

1. Banned pesticides in Palestine.
2. Banned pesticides in the origin country for health or environmental reasons.
3. Pesticides are classified by the World Health Organization and the US Environmental Protection Agency as containing chemicals that cause cancerous tumors, congenital malformations, genetic mutations, or are highly toxic to humans or animals.
4. Pesticides that cause contamination of groundwater.

In addition, The National Scientific Committee of agricultural pesticides to adapt a national Guide list of agricultural pesticides allowed to be used in Palestine. The National Technical Committee for the Management of Chemicals and Hazardous Wastes is to review the chemicals listed in Annex III of the Rotterdam Convention and Stockholm convention and adopted import responses.

2.2.4. Cabinet Decision of 2012 on medical waste

This decision categorizes the types of waste (as per *Articles* 9 and 10) and provides guidelines for identification (*Article* 12). It outlines the procedures for separating and collecting different types of medical waste (chapter 3), healthcare institutions' storage conditions, and transportation requirements (chapters 4 and 5). Chapters 6 and 7 outline the required treatment measures, facilities, and conditions for the disposal of solid medical waste and waste water. The document also outlines the responsibilities of the Ministry of Health, EQA, local authorities, and licensees (chapter 8) and emphasizes the need for exchanging information and having an emergency/contingency plan.



2.2.5. Cabinet Decision No. 16 (2013) on the connection of premises to public sewers

Decision 16 for the year 2013, being commonly agreed upon among PWA, the ministry of local government (MoLG), and the ministry of the national economy (MoNE), and titled: connection of premises to the public sewers, sets out the responsibilities of the service providers, in this case, HWWD, for the proper establishment of technical and financial management of the wastewater services for all users.

The resolution is applied to any person benefiting from water and wastewater services, producing, transporting, or disposing of wastewater inside or outside the boundaries of the service providers. The resolution covers the following areas:

- Setting up the Sewage System
- Setting up of Treatment Plants
- Obligatory Connection to the Public Sewage Network
- Procedures for Connection to Public Sewage Network
- Setting up Septic tanks
- Procedures for Emptying Septic Tanks
- Discharge of Commercial, Industrial, and Agricultural Waste Water
- Permits for Connecting Commercial, Industrial, and Agricultural Facilities' Sewage
- Conditions for Connecting House Connections with the Public Sewage Network
- Treated Wastewater
- Public Sewage Network Connection Fees (investment costs)
- Fees for Emptying Septic tanks
- Sewage System Maintenance and Operation Fees
- Additional Fees for Maintenance and Operation
- Inspection and Administrative Oversight for Connecting Installations to the Public Sewage System
- Stopping or Suspending Approval to Connect Facilities with the Public Sewage Network.

The resolution sets requirements for industrial wastewater entering collection systems and urban wastewater treatment plants. Industrial facilities that discharge wastewater to public sewers are subject to “discharge criteria.” The resolution defines the effluent requirements applicable for discharging industrial wastewater and certain types of wastewater into public sewers. Limits for commercial, industrial, and agricultural wastewater effluents to be discharged into the public sewage network are listed in Appendix 3 (including standards for heavy elements).

2.3. National Strategies and Plans⁹

The most relevant national plans to this report are:

- The National Strategy for Solid Waste Management in Palestine (2017-22).
- The Environment Sector Strategies.

⁹ Adopted from: CESVI: Solid Waste Management in the occupied Palestinian Territory, West Bank including East Jerusalem & Gaza, Overview Report, September 2019



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- The Cross-Sectoral Strategy Environmental 2020-2023.
- Interim Action Plan for Hazardous Waste Management 2011-2014.
- NDC Plans on Waste 2021-2040.
- Health Care Waste Master Plan 2023.

2.3.1. NSSWM 2017-2022

The National Strategy for Solid Waste Management (NSSWM) was adopted in August 2017 as an update to the first National Strategy for SWM (2010-2014) created by the Ministry of Local Government. The first strategy, established in 2004, serves as the overarching framework for all decisions, programs, and investment plans to advance the solid waste sector in Palestine. The updated NSSWM (2017-2022) incorporates the intention to align with the 2030 Sustainable Development Goals, particularly Goals 3 (Health and Well-being) and 11 (Sustainable Cities and Human Settlements).

The strategy has included 8 strategic objectives, 19 sectoral policies, and 95 interventions; schematic of the strategy is shown in the below figure.



Figure 2. Objectives and Policies for the The National Strategy for Solid Waste Management (NSSWM) . Source: MoLG (2023)

The strategic objectives of the current NSSWM are:

1. A modern and effective legislative and organizational framework for SWM;
2. Strong implementing institutions;
3. Effective and environmentally safe management of SW services;
4. Financial sustainability and efficient SWM services and activities;
5. Appropriate treatment and inventory of medical, hazardous, and particular waste;
6. The growing participation of the private sector in SWM;
7. A more participating and aware public;
8. Adequate information and monitoring systems

Selected indicators of the National Strategy expected to be reached by 2022:

- 20% of current random sites are rehabilitated in the WB and Gaza Strip;



- 50% of sanitary landfills have gas treatment systems;
- 80% of particular waste in urban areas is removed;
- 15% reduction of hazardous waste disposal;
- At least six recycling projects are implemented;
- At least three public awareness projects involve the civil society
- 100% of municipalities/JSCs provide accurate information on SW

The MoLG has measured the achievements of the strategy in June 2021 based on the above indicators and percentage of achievements were between 25% for policy and through its policies to be between 25% (for policy #13) and 83% (for policy #4).

The PA has secured funds for several projects to achieve the objectives of the NSSWM 2016-2022, being the largest was for Gaza Solid Waste Management Project, with a total budget of 32 Million USD, and funded mutually by the PA, World Bank, AFD and EU. Other major donors were KfW Germany with 14 Million Euros for the Solid Waste Management Ramallah and Al Bireh Governorate Project, in addition to Enable Belgium and JICA Japan. A complete list of projects, donors, and total contributions with their matching matrix with the strategy's objectives and policies is available at MoLG.

The Palestinian cabinet has decided to extend this strategy and all PA-strategies that ended in 2022 up to the end of 2023 to overcome delays in achieving their interventions due to closure time during COVID19. By the end of 2023, the extended strategies to be updated for the period 2024-2028.

The Special Programme project steering committee could consider the lessons learned and the results de-facto achieved under this strategy and propose the revised targets and actions, also incorporating Palestine BRS domestic and international obligations.

2.3.2. The Environment Sector Strategies

The Environmental Quality Authority (EQA) focused on four interventions in its 2010-2013 strategy: upgrading solid waste collection and disposal services, closing/rehabilitating unauthorized dumpsites, implementing the National Solid Waste Management strategy, and promoting the principles of separation and reduction (3Rs). The EQA's most recent strategy, the Cross-Sectoral Environment Strategy 2017-2022, still prioritizes these same interventions as its 2010-2013 strategy. EQA emphasized the four main directions of the agency's approach to solid waste management: reducing pollution (including solid waste), promoting reuse, recycling, and recovery, strengthening the legal framework and institutional capacities, and increasing waste awareness and education through campaigns and various activities.

2.3.3. The Cross Sectoral-Environment Strategy 2020-2023

The Environmental Quality Authority, in cooperation with its partners, developed the cross-sectoral environment strategy for the years 2020-2023 and defined its strategic objectives and policies in line with the national policy agenda and sustainable development goals for the year 2030. The strategy acts as the main platform for integrating environmental considerations across sectors in Palestine and is being implemented, coordinated, monitored, and evaluated by the Environmental Quality Authority (EQA), which is leading various national and sectoral level



strategies and plans related to the environment. The Cross-Sectoral Environmental Strategy is aligned with other relevant policies and plans,

To achieve the strategic vision of attaining a "clean, sustainable protected environment," the following strategy was developed through collaborative efforts involving governmental institutions, civil society, the private sector, and academic institutions. This strategy emphasizes inclusivity and integration with other strategies, and aims to fulfill the following overarching objectives:

Environmental pollution levels are low and controlled.

1. The natural environment and biodiversity are preserved and managed sustainably.
2. The necessary measures to adapt to the effects of climate change and mitigate greenhouse gas emissions, reduce desertification, and to confront environmental disasters and emergencies, have been taken and adopted.
3. The environmental legislative system is updated, activated, and integrated, the environmental and institutional framework is empowered, and efficient international cooperation is enhanced.
4. Levels of environmental awareness, knowledge, and behavior are enhanced and generalized.

The strategy includes four main pillars:

1. Natural Resource Management and Biodiversity Conservation
2. Pollution Prevention and Control
3. Climate Change Adaptation and Mitigation
4. Environmental Governance and Awareness.

Under each pillar, the PECSS sets out a series of goals, objectives, and actions to be taken by various sectors, including government, civil society, and private sector stakeholders.

The Natural Resource Management and Biodiversity Conservation pillar focus on protecting and enhancing natural resources, preserving biodiversity, and promoting sustainable land use.

The Pollution Prevention and Control pillar aims to address pollution sources and improve air, water, and soil quality while promoting sustainable waste management practices.

The Climate Change Adaptation and Mitigation pillar seeks to reduce greenhouse gas emissions, increase resilience to climate change impacts, and promote renewable energy use.

Finally, the Environmental Governance and Awareness pillar seeks to strengthen environmental governance, enhance public participation and awareness, and promote partnerships between different sectors and stakeholders.

The strategy has covered the main gaps the environment sector faces, these gaps are summarized in the last chapter; Gaps and Constraints.

2.3.4. Interim Action Plan for Hazardous Waste Management 2011-2014.

The Interim Action Plan for Hazardous Waste Management in the Palestinian Territory is a short-term plan focusing on the necessary measures and actions to reduce health and environmental risks related to hazardous waste management. The plan aims to protect the environment through efficient and effective management of hazardous waste, with a long-term goal of achieving "zero



hazardous waste." The plan outlines strategic objectives, including strengthening regulatory and enforcement roles, improving related services, and improving compliance monitoring and enforcement. To increase disaster resilience, interventions include exploring economic instruments, registering and accrediting service providers, promoting tax exemption for compliant industrial sectors, and establishing regional collection points for hazardous waste. The plan also promotes public awareness of hazardous waste issues and precautions. The second part of the plan focuses on management measures for the leather and galvanizing industries, which are priority hot spot areas for hazardous waste management actions.

The action plan was implemented based on a pilot project for the industries in Salfit areas, later it was communicated with the industrial sector in the West Bank. It's worth mentioning that the plan was an initial step for the robust management of hazardous wastes in Palestine. At the time of its preparation, BRS alignment were not covered, but can be considered as a trigger for these conventions signature and ratification.

2.3.5. NDC Plans on Waste 2021-2040.

Two NDC (Nationally Determined Contribution under the UNFCCC – climate change convention) plans were elaborated by Palestine on waste management:

1. Improving waste management
2. Reducing greenhouse gas emissions in the waste management sector.

The first plan "Improving waste management," aims to enhance Palestine's access to climate finance to successfully implement the Nationally Determined Contribution (NDC) by improving waste management. The plan includes three actions: improving leachate management, reducing waste for disposal, and improving waste collection. The plan consists of ten activities to achieve specific targets that align with the NDC actions, such as reducing the volume of leachate, increasing waste re-use and recycling, and modernizing the waste collection system. The indicative cost to achieve these targets is 52 million USD, with a funding gap of 38 million USD. Achieving these targets will reduce GHG emissions and lower impacts on ecosystems and populations. The plan focuses on municipal solid waste.

The second plan "Reducing emissions in the waste management sector," aims to enhance Palestine's access to climate finance to successfully implement NDC by reducing greenhouse gas emissions from waste. The plan includes two actions: reducing methane from landfills and using waste as fuel for electricity generation. The plan seeks to build the infrastructure to collect methane and install equipment to generate electricity from waste combustion. The plan targets existing landfill sites in Palestine and provides a list of legal sites, with approximately 80 illegal dumpsites in Palestine.

2.3.6. Health Care Waste Master Plan 2023

The Health Care Master Plan (HCWM) 2023 was set through the project of Water and Environment Support (WES) in the ENI Neighborhood South Region, by LDK Consultants Global EEIG. The project objectives for Palestine are to:

- Support Palestine in the update of the 2006 Master Plan with its Roadmap for health care waste and to reinforce capacities of different actors to improve management practices.



- Define a set of measures and actions to develop a contingency / emergency plan to be executed in crisis situations, such as: outbreaks, conflicts, earthquakes, and pandemics.

While the master plan objectives were:

1. Strengthen policy, regulatory structure and mechanism for HCWM;
2. Provide infrastructure, commodity supplies and equipment for system strengthening in HCWM;
3. Build capacity among healthcare staff in HCWM;
4. Create awareness and advocacy on HCWM among healthcare workers and policy makers;
5. Prioritize HCWM in the planning process;
6. Develop a Monitoring and Evaluation framework plan and tools for HCWM.

The updated Health Care Master Plan identified healthcare waste management as an area of concern for health care quality. It stated the requirements for enforcement of regulations and standards on the management of waste and waste reduction, including healthcare waste. All to lead to establishing a countrywide integrated healthcare waste management system, without adverse effects on human health and the environment, which shall be environmentally and economically sustainable.

The HCWM covered the requirements of Basel convention with the requirements of labelling all exported wastes.

The HCWM concluded a set of needed modifications in the current legislations, identified a unified system for handling, treating and depositing of health care wastes, and recommended a package of capacity building programs.

2.4. Discussion of Laws and Regulations

Although the set of laws dealing with waste management seems comprehensive, this section critically assesses the gaps and constraints to the laws and regulations mentioned above.

Firstly, the set of institutions active in the field of waste and chemicals management is complex. In addition to the three main governmental actors (MoLG, EQA, MoH) Ministry of Transportation (MoT), Ministry of Labour (MoL), Ministry of Interior through the Customs Police, PSI, CD, and PCBS. Other PA institutes concerned with funding sources are Palestine Investment Fund (PIF) and the Municipal Development and Lending Fund (MDLF). NGOs and civil society organizations also play a vital role in waste management. However, there are overlapping roles between organizations. This gap causes overlaps in distributing tasks and indistinct division of powers. Which often results competition instead of coordination.

Moreover, the coordination and information-sharing levels between related governmental and non-governmental organizations are still below the needed level. Considering this as one of the



imperative challenges, it is crucial to increase coordination between EQA and other developmental agencies to prioritize environmental issues and achieve sustainability simultaneously in all sectors. However, this requires increasing the administrative capacity of all acting organizations, which includes improving communication methods and information interchange. In addition to increasing the efficiency in addressing environmental issues, it will also prevent duplication of projects and actions.

Moreover, the set of laws did not include the 3Rs concept properly. It is argued that the starting point of implementing a sustainable waste management system is to ensure existing infrastructure and the public mindset to allow for the 3Rs to be successfully applied. In addition to the need for high investment in recycling and reducing methods, the binding laws must specify a set of rules that include the existing categories of waste and suggested recycling, reducing, or reusing methods. As mentioned earlier, leaving this gap will introduce individual and private sector initiatives which might do more harm than good – like burning wires and plastic to extract metals.

International organizations and NGOs have also critically assessed the environmental laws in Palestine. For example, the interim action plan for HZW (El-Hamouz et al., 2011) criticized *Articles* of environmental law, calling them very ambitious, lacking the ability to enforce, lacking the needed institutional support for implementation and enforcement, and called for increasing given power to the EQA. Likewise, in their seminal report on Palestine waste management, Thoni & Matar 2019 described SWM as fragmented incomplete *Articles* across many laws. Moreover, it called for changing the top-down approach of writing legislation, as they are of a high level of generality without truly knowing the real needs and constraints at the bottom operational level. Thus, drafting laws concerning waste management should consider a bottom-up approach, considering the specifications and needs of the sector. This includes understanding the process's specialty from the first line of action throughout the complex process.

Similarly, all reviewed literature called for applying and enforcing the already existing laws and regulations. Along the same line, Al-Jabari 2014 argued that the Palestinian legal framework needs to consider specific definitions of locally generated waste, prepare and adopt a waste classification system, adopt a unique definition for HZW, and design a practical waste coding system.

In addition, environmental bylaws were prepared by the incentives of international development agencies. For instance, the United Nations Environment Program (UNEP) and the German Development Agency (GIZ) have motivated activities and funded projects to achieve the set aims in national plans. In 2011-2012, donors spent more on environmental issues than the government in Palestine (PCBS, 2012a). Likewise, the share of GDP for the environment was 0.65% in 2011 and 2012 (PCBS, 2012b). Moreover, only 1% of GDP was spent on the environment in 2015, and the percentage never exceeded 3% throughout the years (EQA, 2021).

Thus, with such a complex combination of entities, close coordination and proper distribution of roles and powers must be made.

2.4.1. Needed Amendments to the Laws and Regulations

Based on the study on the Legislative Heritage of Hazardous Substances in Palestine, part of the project “Aligning legislation with international environmental agreements and preparing new environmental legislation,” a set of recommendations were made to amend the current laws, regulations, and decisions to align with the requirement of the BRS&M convention.



2.4.1.1. Basel Convention

For the Basel Convention, the following amendments were recommended:

At the level of the Environment Law No. 7 of 1999:

- Allow distinction between those who deal with hazardous materials and waste and those who deal with them in an emergency and unusual manner.
- Include solid waste in Article 23 of the law and ban every transaction that violates regulations and instructions for solid waste management.
- Allow the EQA's inspectors to conduct laboratory examination procedures and take the procedures mentioned in Article 52 at the expense of the owners of the facilities or those in possession of the materials or waste or those responsible for them.
- Increase the penalty in Article 62 to a level of felony, which amounts to imprisonment of five years and a fine.
- Replace the penalty of confiscating and destroying waste with the penalty of keeping waste and obliging the violator to return it to its source at his expense.
- Allow employees of the Environmental Quality Authority to take samples and conduct laboratory tests and measurements at any time and at any stage of dealing with hazardous waste.

At the level of bylaws and regulations:

- Adopt special legal provisions related to producer extended responsibility under the amendment of the Environment Law or a new specialized hazardous waste management law.
- Prepare and publish a comprehensive legal framework for liability and adequate and prompt compensation for losses resulting from transboundary transportation and disposal of hazardous waste.
- Activate the "polluter pays" liability principle.
- Regulate provisions for civil liability for environmental damage and provisions for environmental disputes and reconciliation through the proposed law of the National Fund for Environmental Protection and Climate Change.

2.4.1.2. Stockholm Convention

For the Stockholm Convention, the following amendments were recommended:

At the legislative level:

1. Laws should be passed to ensure liability compensation, approve the draft law on the right to access information, and amend the Environment Law by introducing new concepts and provisions.
2. The Environmental Law should be amended to add punitive articles to provisions relating to prohibited and severely restricted hazardous materials.

At the level of rules and regulations:

1. Institutionalize a regular inventory of POPs sources, releases and actions
2. Regulations should be issued for managing and circulating hazardous materials, including persistent organic pollutants.



3. Provisions for issuing and disseminating information to the public, raising awareness, establishing a register, preparing lists of prohibited and restricted hazardous materials, and establishing a National Committee for Management of Hazardous Substances and Wastes.
4. The pesticide management system should be reconsidered to align with the Environmental Law and the Stockholm Convention.

At the level of instructions: Instructions should be issued for safely handling persistent organic pollutants.

2.4.1.3. *Rotterdam Convention*

For the Rotterdam Convention, the following amendments were recommended:

At the level of laws, the following actions are proposed:

- The proposed legislation is similar to the Stockholm recommendations (section above), including laws on the right to obtain information and a law for the National Fund for Environmental Protection and Climate Change.
- Amendments to the Environment Law to add punitive articles for violating the provisions of the law and regulations and to prohibit dealing and trading with prohibited and hazardous materials except with a license, permit, or approval.

At the level of rules and regulations, the following actions are proposed:

- Issuing regulations for managing and handling hazardous materials per the Stockholm Convention and the Rotterdam Convention.
- Reconsidering the system of management and circulation of agricultural pesticides and introducing the requirements of the Environmental Law.
- Issuing the agricultural fertilizer management system.

At the level of instructions, the following actions are proposed:

- Issuing technical instructions for hazardous materials management system materials related to prohibited and severely restricted materials.
- Issuing special and mandatory safety label instructions on packages of highly restricted items.
- Issuing instructions and requirements for importers and exporters of hazardous chemicals to place labels on chemical materials packages that include all information related to risks and/or risks to human health and the environment.
- Submitting rules for international commerce with chemical waste to the Rotterdam Convention.

2.4.1.4. *Minamata Convention*

For the Minamata Convention, the following amendments were recommended:

At the level of laws:

- Amendment of Article 12 of the Environmental Law allows discrimination between regular and emergency handling of hazardous materials and waste.
- Implement a producer extended responsibility law to ensure the safe disposal of electrical and electronic equipment, batteries, and other mercury-containing products.
- Implement the "polluter pays" responsibility principle for those who cause pollution or create hazardous waste.



At the level of laws and regulations:

- Develop a hazardous materials management system and clarify the materials that contain mercury.
- Implement a management system for electrical and electronic equipment and high-intensity light bulbs that contain mercury.

At the level of instructions:

- Institutionalize a regular inventory of mercury sources, releases and actions
- Restrict the use of mercury and its compounds in various industries such as wood preservation, industrial wastewater treatment, packaging materials, paints, and agricultural pesticides.
- Prevent the use of mercury and its compounds in cosmetics and factories that manufacture chlorine and plastics.
- Prevent the use of mercury in dental fillings and find alternatives.
- Prepare Palestinian technical specifications for materials containing mercury compounds.

At the level of decisions:

- Prohibit mercury and its compounds in schools and follow up on dental clinics' use of mercury in dental fillings.
- Issue an import list of dangerous compounds and restrict the import of mercury and its compounds.
- Develop a guide for managing mercury spillage.
- Develop a guide on permissible levels of mercury in various products.



3. Waste Management in Palestine

3.1. General Introduction

Waste management is one of the cornerstones of achieving sustainable development. Accordingly, developed and developing countries need to adapt sustainable waste management processes to limit the negative effects on the surrounding environment and create more viable solutions to get some of the benefits back from it. There is a strong consensus amongst scholars that waste mismanagement leads to serious health and environmental issues (Al-Khatib & Arafat, 2010; Guerrero et al., 2013), affecting the well-being of humans and their surrounding living creatures. Likewise, developing countries still treat unhealthy waste, including uncontrolled dumping and domestic burning (di Maria et al., 2018). Therefore, correct waste treatment is becoming a pressing issue that needs to be addressed promptly and according to international standards.

Waste is defined as the substances or objects that are disposed of or intended to be disposed of (Al-Jabari, 2014). Generally, any human activity generates an amount of waste. However, some waste is defined as Hazardous, which is the fraction of waste that threatens human health and the environment or has hazardous characteristics (Al-Jabari, 2014). Hazardous Waste (HZW) has extreme effects on humans and the environment. If mistreated, it can be mixed with domestic waste, threaten the well-being of landfill workers and animals, spread serious infectious diseases, and most importantly, have irreversible effects on the environment. Therefore, hazardous and chemical wastes must be segregated at source and treated according to international standards. The aim of a sustainable waste disposal process should be to limit its environmental effects of it. For instance, some solid waste disposal methods can be extremely harmful, like burning waste to reduce volumes (Al-Khatib et al., 2007), affecting air quality and the surrounding ecosystem.

However, creating a sustainable waste management process is a complex issue requiring actions on multiple levels. The process depends on high financial input to create sanitary landfills, increase public awareness, employ and train enough crew, and create and enforce the right political and institutional frameworks. For instance, Guerrero et al. 2013 concluded that failure in waste management in developing countries is mainly caused by inadequate technical, environmental, financial, and institutional aspects. Along the same line, Al-Khatib et al. 2007 argue that upgrading policies and practices for the sustainable disposal of waste are more difficult in developing countries than in developed ones. Similarly, Guerrero et al. 2013 state that developing countries typically lack appropriate financial and technical resources to improve waste management processes.

It is widely recognized that waste management is not only a technical issue. In addition to the cruciality of financial resources and technological means, it is highly influenced by politics, legislation, and socio-cultural and economic parameters (Al-Khatib & Arafat, 2010; Kum et al., 2005). Good governance is essential to achieve sustainable development through foreign aid (Kim, 2019). More specifically, good governance includes the administrative capacity of the country – its ability to carry the burden of reporting and measurements of development projects (Halimanjaya, 2015). Moreover, it also includes the ability to draw the right regulations and enforce them. These aspects are vital for creating a sustainable waste management process. Therefore, crucial aspects that foreign aid projects must address in developing countries are increasing the administrative capacity, improving institutions' role, promoting and enforcing laws

and regulations, and increasing accountability (Winters, 2010). This also applies to waste management as an integrated aspect of sustainable development.

3.2. Institutional Arrangement - Stakeholders Analysis

Based on the previous chapter and review of the mandates, activities, and projects of the PA ministries, authorities, and other stakeholders, a stakeholders' mapping analysis was conducted on Palestine's waste and chemicals management sector. Identified stakeholders can play a major to a minor role in providing information required for reporting to the secretariat of the BRS&M conventions.

A longer version of the analysis is listed in Appendix 4

For the list of ministries and other government authorities (Table 3). At the operational level, it is still considered part of the official level for the JSCs and LGUs and the private sector (PS) (Table 4). Other supporting non-governmental stakeholders are listed in Table 5.

Table 3. Governmental Stakeholders of waste and chemicals management sector in Palestine.

#	Agency	Responsibilities/Activities for the implementation of the signed BRS&M conventions
1	Palestinian Council of Ministers (Cabinet)	<ul style="list-style-type: none"> Overseeing Assigning national focal points or coordinating committees Enacting legislation and regulations to ensure compliance. guidance and support Monitoring and reporting mechanism Cooperating with other countries Raising awareness
2	Environment Quality Authority (EQA)	<ul style="list-style-type: none"> Drafting regulatory frameworks Technical assistance and training Environmental approvals and permits for hazardous materials and waste Monitoring and inspection International meetings Public awareness Reporting to the BRS&M secretariat, serving as focal point
3	Ministry of Finance and Planning (MoFP)	<ul style="list-style-type: none"> Identifying and securing funding sources Managing and monitoring funds Upgrading policies and strategies Updating national plans
4	Ministry of Foreign Affairs (MoFA)	<ul style="list-style-type: none"> Stands as the CA for Basel and Stockholm Promoting the effective implementation Cooperating with other countries Building strategic partnerships and coalitions with other countries Facilitating the exchange of data and information Advocacy
5	Ministry of Local Government (MoLG)	<ul style="list-style-type: none"> Coordinating and collaborating with LGUs and JSCs Developing local regulations and guidelines Providing technical assistance and training Monitoring and inspection Raising awareness Reporting data and information



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#	Agency	Responsibilities/Activities for the implementation of the signed BRS&M conventions
6	Ministry of Agriculture (MoA)	<ul style="list-style-type: none"> Developing policies and regulations to ensure the safe and environmentally sound use and disposal of pesticides and other hazardous chemicals, as required by the conventions. Technical assistance and training to farmers and agricultural workers Monitoring and inspection programs Raising awareness Promoting sustainable agricultural practices International meetings on trade in hazardous chemicals used in agriculture.
7	Ministry of Health (MoH)	<ul style="list-style-type: none"> Developing policies and regulations Technical assistance and training for health professionals Monitoring and surveillance programs Raising awareness among the public and health professionals International meetings related to the protection of public health from the harmful effects of hazardous chemicals and wastes. Exchange information and best practices
8	Ministry of National Economy (MoNE)	<ul style="list-style-type: none"> Developing policies and regulations on environmentally sound trade Technical assistance and training to businesses and industry Monitoring and inspection programs Raising awareness Economic development Exchange information and best practices
9	Ministry of Transport (MoT)	<ul style="list-style-type: none"> Developing policies and regulations Technical assistance and training to transport companies and workers Monitoring and inspection Raising awareness Ensuring sustainable and environmentally friendly transportation practices Exchange information and best practices
10	Ministry of Labour (MoL)	<ul style="list-style-type: none"> Developing and enforcing regulations to protect workers from exposure to hazardous chemicals and wastes Technical assistance and training to employers and workers Monitoring and inspection programs Raising awareness Promoting sustainable and environmentally friendly workplace practices Exchange information and best practices
11	Ministry of Interior (MoI) - Civil Defence (CD) - Customs Police (CP)	<p>CD:</p> <ul style="list-style-type: none"> Developing emergency response plans and procedures to deal with accidents or incidents involving hazardous chemicals and wastes, as required by the conventions. Providing technical assistance and training on emergency response Conducting exercises and drills Coordinating with other government agencies Raising awareness Exchange information and best practices <p>CP:</p> <ul style="list-style-type: none"> Enforcing customs regulations Inspecting shipments of hazardous chemicals and wastes Coordinating with other government agencies Raising awareness among customs officials and the public



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#	Agency	Responsibilities/Activities for the implementation of the signed BRS&M conventions
		<ul style="list-style-type: none"> Conducting investigations and prosecutions of cases Developing and implementing customs control measures and procedures
12	Palestinian Central Bureau of Statistics (PCBS)	<ul style="list-style-type: none"> Collecting and compiling data on the production, import, export, and use of hazardous chemicals and wastes in Palestine Conducting surveys and studies to assess the risks. Maintaining databases on hazardous chemicals and wastes Sharing data and information Raising awareness among the public and decision-makers
13	Palestine Standards Institute (PSI)	<ul style="list-style-type: none"> Developing and maintaining standards for the production, handling, transport, and disposal of hazardous chemicals and wastes Conducting inspections and audits of facilities that produce, handle, transport, or dispose of hazardous chemicals and wastes to ensure compliance with national and international standards. Developing and promoting best practices for managing hazardous chemicals and wastes. Raising awareness among stakeholders, including producers, importers, and users of hazardous chemicals and wastes Providing training and capacity building to government officials and other stakeholders Participating in international negotiations and meetings related to the conventions, particularly those related to setting and enforcing standards for hazardous chemicals and wastes. Developing and implementing a certification system for managing hazardous chemicals and wastes to help ensure compliance with standards and best practices.
14	Municipal Development and Lending Fund (MDLF)	<ul style="list-style-type: none"> Providing loans and grants to municipalities for the development and implementation of hazardous waste management systems Supporting municipalities in establishing hazardous waste treatment and disposal facilities, including developing technical and financial feasibility studies and providing technical assistance and training. Providing technical assistance to municipalities in the identification and characterization of hazardous wastes, as well as in the development of waste management plans. Raising awareness among municipalities and local communities about the importance of managing hazardous chemicals and wastes in a safe and environmentally sound manner. Facilitating cooperation and coordination among municipalities and other stakeholders in managing hazardous chemicals and wastes. Providing technical assistance and support to national authorities responsible for implementing the conventions, particularly in managing hazardous chemicals and wastes at the local level.
15	Palestine Investment Fund (PIF)	<ul style="list-style-type: none"> Providing loans, grants, and investments to private sector entities Supporting the establishment of public-private partnerships (PPPs) for managing hazardous chemicals and wastes, including developing feasibility studies, project planning, and risk assessment.



Table 4. Operational Level Stakeholders of waste and chemicals management sector in Palestine.

#	Agency	Responsibilities/Activities
1	JSC of Solid Waste	<ul style="list-style-type: none"> Involved in collecting and transporting solid waste, landfilling, recycling, and waste treatment. Developing and implementing policies and programs related to hazardous chemicals and wastes management Developing guidelines and standards for the management of hazardous chemicals and wastes Technical assistance and support to relevant ministries and agencies Public awareness and education campaigns to promote the safe management of hazardous chemicals and wastes. Developing and maintaining databases and information systems
2	LGUs	<ul style="list-style-type: none"> Developing and implementing local policies and regulations related to hazardous chemicals and wastes management Establishing local monitoring and reporting systems Promoting and supporting the adoption of environmentally sound practices Public awareness and education campaigns Participating in the development of national policies and regulations related to hazardous chemicals and wastes management Providing technical assistance and support to relevant ministries and agencies Cooperating and coordinating with other LGUs and with relevant ministries and agencies
3	UNRWA	<ul style="list-style-type: none"> Providing essential services to Palestinian refugees in the region Involved in the collection and transport of solid waste from refugee camps Raising awareness among the refugee community Developing and implementing training programs for staff Establishing systems for the safe handling, storage, and disposal of hazardous chemicals and wastes generated in the camps Promoting and supporting the adoption of environmentally sound practices Monitoring and reporting on the generation, transport, and disposal of hazardous chemicals and wastes in the camps Coordinating with other UN agencies, NGOs, and relevant stakeholders to share information and resources. Advocating for the needs and concerns of Palestinian refugees concerning hazardous chemicals and wastes management at the local, regional, and international levels
3	PS	<ul style="list-style-type: none"> Adopt sustainable and environmentally-friendly practices Comply with regulations and standards Invest in green technologies and innovation. Participate in public-private partnerships Collaborate with government agencies, civil society organizations, and international donors to support initiatives Engage in capacity-building and awareness-raising activities

Table 5. Supporting None-Governmental Stakeholders of waste and chemicals management sector in Palestine

#	Agency	Institutes	Responsibilities/Activities
1	UN Organizations	Major Organizations: UNEP UNDP WHO FAO UNRWA	<ul style="list-style-type: none"> • Technical assistance, capacity building, and financial support • Support the development and implementation of national policies and strategies. • Conduct research, collect, and analyze data. • Provide guidance and best practices. • Facilitate international cooperation and partnerships. • Support the development and implementation of regional and global initiatives related to hazardous chemicals and waste management.
3	Donors	Major Contributors: JICA Japan GIZ Germany KfW Germany SIDA Sweden GAC Canada World Bank	<ul style="list-style-type: none"> • Provide funding for planning and establishing advanced waste management schemes, landfills and waste treatment facilities, and other WtE solutions. • Provide funding for capacity building, training programs, technical assistance, and equipment. • Support research and data collection • Promote international cooperation and partnerships
4	Unions	Palestinian Federation of Industries (PFI) The Palestinian Investment Promotion Agency (PIPA) Federation of Palestinian Chambers of Commerce, Industry, and Agriculture (FPCCIA) Palestinian Contractors Union (PCU)	<ul style="list-style-type: none"> • Provide training and technical assistance to its members • Engage with international organizations and donors to secure funding and support • Facilitate reporting to EQA. • Provide guidance and support to potential investors • Ensure that new investment projects are environmentally sustainable • Promote awareness • Raise awareness • Guide its members on compliance, • Encourage its members to adopt best practices and standards for handling and transporting hazardous substances and chemicals. Collaborate with relevant government agencies and international organizations • Promote sustainable and responsible economic development • Facilitate reporting to EQA • Provide guidance and training on the proper handling and disposal of hazardous waste Advocate for adopting sustainable practices in the construction industry. Encourage the



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			use of environmentally friendly materials and technologies
5	Academia	Major Institutes: An-Najah National University (ANNU) Birzeit University (BU) Al-Quds University (AQU) Arab American University Palestine (AAUP) Palestine Technical University (PTUK) Palestine Polytechnic University (PPU) Hebron University (HU) Al-Aahar University Gaza (AZU) Islamic University Gaza (IUG)	<ul style="list-style-type: none"> Promoting awareness and providing education and training Researching the implementation of these conventions in Palestine. Provide technical support and advice to government agencies, private sector organizations, and civil society Contribute to developing relevant policies and regulations to facilitate the effective implementation of the conventions.
6	INGOs	Major INGOs: CESVI We World	<ul style="list-style-type: none"> Provide technical assistance, training, capacity building, fundraising, and awareness-raising activities for relevant stakeholders. Report on the implementation of the conventions Advocate for the adoption of best practices Collaborate with local partners to ensure the effective application of the conventions in Palestine.
7	Local NGOs	Major NGOs: Applied Research Institute Jerusalem (ARIJ) Palestinian Agricultural Relief Committee (PARC) House of Water and Environment (HWE)	<ul style="list-style-type: none"> Monitor the implementation of the conventions Advocate for better policies Engage with local communities to promote sustainable development practices. Collaborate with international organizations, government institutions, and the private sector to ensure the conventions are effectively implemented and enforced in Palestine.
8	Consultancy Companies	Major Companies: Center for Engineering and Planning (CEP) Universal Group (UG) Enfra Consultants	<ul style="list-style-type: none"> Provide technical assistance, training, and advisory services on managing hazardous chemicals and wastes, including risk assessment, pollution prevention, and waste minimization. Support the development of policies, procedures, and programs that align with these conventions' requirements.

3.3. Waste Management Practices in Palestine

For a comprehensive overview of waste management in Palestine, this section covers three main aspects aligned with the aims of this report. First, it introduces the status of waste collection and disposal, and then it addresses hazardous and chemical waste. Finally, it concludes with recycling initiatives and challenges to improving the recycling sector.

3.3.1. Generation, collection, and disposal of waste

As a developing country with high fragility due to the ongoing occupation, Palestine lacks the needed infrastructure and adequate systems for waste collection and treatment (di Maria et al., 2018). The prevailing types of waste generated in Palestine are domestic, industrial, medical, agricultural, municipal, construction, sewage, and chemicals from various industries, maintenance stations, and leather factories (Al-Jabari, 2014).

In 2019, the estimated collected waste per day was around 4,333 tons/person, averaging 0.9 kg/capita/day in the West Bank and 0.7 kg/capita/day in Gaza, with a 4% annual increase in the total amount (Figure 3; Atallah, 2020). Figure 2 also summarizes the main components of waste composition and the destination of the produced waste. In 2021, the amount of produced of solid waste by the Palestinian Central Bureau of Statistics (PCBS) was 1.91 million tons. According to the Ministry of Local Government, 99% of the solid waste collected in 2022 was properly disposed of in landfills.

The National Strategy for Solid Waste Management in Palestine (NSSWM) 2017—2022 set a target to increase the coverage of sanitary landfills from 53 percent in 2017 to 100 percent by 2022, though the ministry of local government is anticipating to reach 100% by 2023 (PCBS 2022; press release).

The amount of solid waste produced is of concern due to the poor infrastructure and the absence of sustainable methods for waste disposal. The most common method of waste management is disposal at landfills (Al-Khateeb et al., 2017). However, there are only three regulated landfills for safe waste disposal in the West Bank (WB):

1. Zahrat Al-Finjan (North WB)
2. Al-Minya (South WB)
3. Jericho (Central East WB)

and two in Gaza Strip:

4. Al-Fakhari-Sofa (South Gaza Governorates)
5. Johr Al Deek (Central and North Governorates)

– See Figures in Appendix 5.

In addition to these five landfills, a dumpsite in Beit Anan, Jerusalem governorate, was upgraded into a small landfill in 2018 and used for dumping waste from the surrounding areas of Jerusalem, Ramallah, and Al-Bireh.

Zahret Al-Finjan Landfill, which serves all North governorates of WB and used to serve Ramallah and Al-Bireh, is overloaded and suffers from subsequent fires.

Subsequently, the high cost of transporting solid waste from areas that do not have available landfills (Central West Bank) is one reason why random dumpsites are common (Ministry of Local

Government, 2017). However, there are three ways to waste disposal in Palestine, according to Al-Khatib et al. 2007:

- i) open random dumps inside and outside residential areas boundaries
- ii) semi-covered dumping site
- iii) selling waste to Israel for a fee.

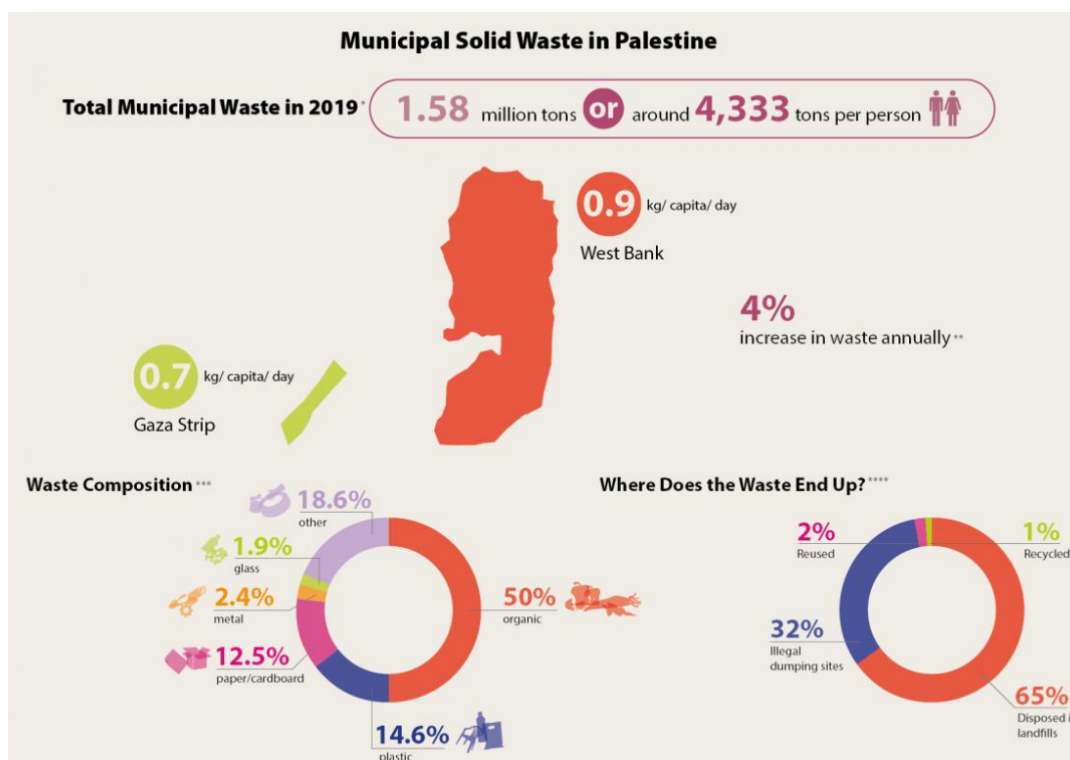


Figure 3. Solid Waste in Palestine. Source: Atallah (2020)¹⁰

Values in Figure 3 for the percentages of solid waste destinations differ from other official and literature sources. The midterm review report of the national policy agenda in 2019 states that 92% of solid waste is disposed of in landfills, and the remaining 8% is disposed of in random dumpsites – reaching up to 74 dumpsites (EQA, 2021). However, this high percentage does not represent a good strategic approach. Al-Jabari (2014) stated that solid waste disposal in Palestine is mostly uncontrolled. Likewise, Di Maria et al. (2018) stated that 80% of waste is open dumped. Subsequently, the use of random small and medium dumpsites around Palestine is widespread. Moreover, most of these dumpsites are casually set on fire to reduce the volume (Al-Khatib et al.,

¹⁰ Atallah (2020), Palestine, Solid Waste Management under occupation. Plastic Atlas. A report summarized three studies:

1. Information provided by the Palestinian Environmental Quality Authority, July, 2020.
2. SWEEPNET: Country Report on the Solid Waste Management in Occupied Palestinian Territories, April 2014, p.16
3. Ministry of Local Government (MoLG)- Japan International Cooperation Agency (JICA): Data Book Solid Waste Management of Joint Service Councils West Bank, November 2017.
4. CESVI: Solid Waste Management in the occupied Palestinian Territory, West Bank including East Jerusalem & Gaza, Overview Report, September 2019, p.31. Accessed through <https://ps.boell.org/en/2020/10/07/palestine-solid-waste-management-under-occupation> - January 30, 2022

2007), which has concerning health effects. Most recently, the minister of Local Government announced in 2022 a plan to start generating energy from waste at the Zahrat Al-Finjan landfill.

Nevertheless, the current approach to SWM is of poor environmental performance and requires immediate intervention (di Maria et al., 2018). Moreover, the system faces financial and technical challenges, like collecting service fees and minimizing waste (Al-Khateeb et al., 2017). Overall, the strategy of the environmental sector (EQA, 2021) concluded the gaps and constraints in SWM as follows:

1. Different levels and abilities of SWM according to geographical location.
2. Widespread open, random, and uncontrolled landfills.
3. Shortage of controlled landfills.
4. Lack of official systems to manage particular types of solid waste, like construction and demolition waste.
5. There is no segregation at source to the mixed waste – where HZW is mixed with municipal waste.
6. Lack of official managing system for industrial waste containing HZW.
7. The need for institutional and legal reforms for the SWM sector.
8. Lack of accountability on SWM operations.
9. Lack of a national database for solid waste, including hazardous and chemical waste.
10. Lack of autonomy on borders.

3.3.2. Hazardous and chemical waste

In 2017, the PCBS reported 19,118 industries and 640 construction-related institutions in Palestine (excluding East Jerusalem), accounting for 14.1% and 0.5% of the total distribution of economic enterprises, respectively. The major industrial sectors include food and beverage, mining and quarrying, textile, furniture, chemical, metal, pharmaceuticals, and construction. According to the National Development Plan 2014-2016, there were 30 hazardous and healthcare waste treatment facilities in Palestine (PNA, 2014) and 49 entities involved in waste collection, disposal, treatment, and recovery (Thoni & Matar, 2019).

The percentage of treated hazardous waste was 7% of the total waste produced in 2022, which is expected to reach 10% by 2023 (PCBC, 2022).

In addition to the definition suggested by Al-Jabari 2014, the strategy for the environmental sector (EQA, 2021) included the common types of HZW generated in Palestine. The categories are electronic waste, chemical, agricultural waste, medical waste, industrial chemical waste, used batteries, used tires, used car oil, infected animal corpses, and body parts (EQA, 2021). However, the most challenging barrier to treating HZW is the lack of information and measurements.

Nevertheless, the strategy stated an average of 914 Tons of medical waste were generated monthly. Similarly, a strand of literature has investigated medical waste (MW) in Palestine thoroughly (Al-Khatib et al., 2020; Darwish & Al-Khatib, 2006; Sarsour et al., 2014). According to Sarsour et al. (2014), medical waste consists mainly of used needles, body parts, diagnostic samples, blood chemicals, radioactive materials, and pharmaceuticals. Therefore, MW is highly contaminating; it can spread diseases and affect the landfills' staff. MW is the category with substantial information in Palestine (EQA, 2021).



There is a strong consensus that the major issue in MW management is lack of awareness. For instance, Sarsour et al. (2014) concluded that most interviewed health workers in the Gaza Strip who are in direct contact with MW did not receive basic training or knowledge about MW treatment, segregation, or place of storage. MW management has not received adequate consideration in hospitals (Sarsour et al., 2014). Likewise, Darwish & Al-Khatib 2006 stated that the disposal of dental waste is inadequate and contributes to environmental contamination. Moreover, Al-Khatib et al. 2020 argue that the segregation of MW according to types is not thoroughly applied in Jenin hospitals. However, MW's most common segregation method is for used sharp objects, which are stored in impenetrable containers (Sharp boxes) before they are added to mixed waste. Although a bylaw for MW management was issued in 2012, most relevant healthcare institutions lack the financial resources to establish waste management systems (Al-Khatib et al., 2020). Worthy of noting, all MW goes to regulated landfills or random dumpsites, while no special treatment plants for MW have been in place until now (EQA, 2021).

One major challenge is smuggling the HZW to the Palestinian territories by the Israeli companies. The amount of smuggled waste from Israel is difficult to be estimated since this action is majorly done during nighttime or early mornings. Though, it is estimated that around 200,000 tons of waste are generated by Israeli settlements in the West Bank each year, with most of this waste being toxic and hazardous.

As mentioned earlier, Palestine faces a strong barrier against its' ability to achieve sustainable development – lack of autonomy, border control, and independence. The PA must implement and enforce effective laws against smuggling to stop this phenomenon. However, this cannot be done without proper political reform to the meant institutions and providing training and providing the needed budget.

The institutional power of EQA has decreased over the years, mainly due to changing its' status from Ministry to Authority. Moreover, staff of governmental institutions lack the needed awareness to support environmental acts as superior to other fields – environmental concerns are often at the bottom of the list.

Overall, the operation of collecting, segregating, and treating HZW is absent in Palestine. Moreover, no landfills or treatment units are available for HZW, except for a designated site in Johr Al-Deek in Gaza. Most importantly, there is not enough capacity to apply accountability and enforce punitive laws against the mistreatment of HZW.

EQA has reported to Basel secretariat the following facilities for HZW treatment in Palestine:

Table 6. EQA reported HZW treatment facilities to Basel. Source Basel website.

Facility/operation or process (Name, address, organization/company, etc.)	Description of the facility, operation or process	Capacity of the facility (in metric tons)	Does the facility treat imported waste
Microwave, autoclave, and incinerators treatments plants present in the Palestinian governorates	<ul style="list-style-type: none"> 4 incinerators treatments plants in Qalqilia, Ramallah, Jericho 4 Microwaves in Bethlehem, Nablus, Tulkarem, Qalqilia 1 autoclave Jenin 2 Microwaves in Gaza 	806.26	No



Leather tanning-waste treatment plant – Hebron	Treatment plant for chrome removal	10	Yes
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3.3.3. Recycling and waste efficiency

All reviewed literature agreed on implementing the 3Rs: Reduce, Reuse, and Recycle. However, the principle is still not applied nor enforced in legislation in Palestine (Al-Khateeb et al., 2017). Initiating such a concept within Palestinian society requires enormous efforts in multiple fields. First, it needs to be embedded within the public understanding of recycling's importance as well as the effects of waste. Moreover, it requires political and legislative reforms to include the existing behaviors – using the stick and carrot concept of reward and punishment. In addition, the 3Rs concept needs proper infrastructure for recycling and reusing, which indeed needs a heavy inflow of investments and the free-market principles to utilize the profit gap in this field.

Recycling initiatives are limited in Palestine. Most recycled waste comprises metal, paper, and glass (Al-Khatib & Arafat, 2010). Individual waste collectors sell the recyclable waste to Israeli firms which recycle it (Al-Khatib et al., 2007). If the needed infrastructure existed in Palestine, the incentive to recycle would be higher. However, Di Maria et al. 2018 argue that recycling initiatives in Palestine depend on individuals' entrepreneurial capacity and international organizations' intervention. Thus, international organizations can provide workshops to increase public awareness and a first step towards implementing the 3Rs concept.

Moreover, it can spark entrepreneurship according to the specific waste types in Palestine. Al-Khatib et al. 2017 assessed residents' attitudes toward waste management and treatment in Palestine. They concluded that raising awareness is one crucial factor, and most importantly, workshops must be more geographically inclusive – as some areas already have high level of understanding and knowledge of the existing problems.

As the PA does not propose incentives for establishing recycling initiatives (di Maria et al., 2018), all recycling activities were launched either individually or by the private sector – regardless of the market's ability to generate profit from this field. Consequently, the absence of regulations and accountability causes more harm to the surrounding environment and the well-being of citizens. For instance, metals are extracted from wires and e-waste by fire in open areas. Additionally, child labor is widespread in the metal collecting business. Moreover, private companies collect HZW (used car oil) and sell to Israeli companies (El-Hamouz et al., 2011).

It was widely accepted by business owners to put cardboard aside for the waste vehicles to collect it up. However, this initiative failed after a few years of operation due to the high expenses of collecting, transporting, and selling to Israel. Now some private companies in Palestine are producing organic gas from paper waste.

Overall, the 3Rs concept is crucial to transition to sustainable waste management. However, as explained earlier, it needs collective efforts from all involved parties. Most importantly, international organizations can firmly steer and increase recycling opportunities by assisting with a fund to procure the needed machinery for recycling and by exporting the know-how methods and technologies. Moreover, it can be nonnegligible in increasing awareness and creating momentum for institutional reform to include recycling and sustainable use of waste in the Palestinian legislative and acting entities. In conclusion, the interim action plan (El-Hamouz et al., 2011) explained the lack of HZW recycling by the absence of regulations in that field. Likewise,

the impact of underestimating the value of by-products (waste) is a crucial factor that supports neglecting recycling opportunities (El-Hamouz et al., 2011). Thus, it is essential to increase the market opportunity to allow private firms to invest in the field (di Maria et al., 2018), which will surely benefit the waste management sector and the overall economic performance of the country.

EQA has reported the following recycling facilities in the country for waste, these are:

Table 7. EQA reported recycling facilities to Basel. Source Basel website.

Facility/operation or process	Description of the facility, operation or process	Capacity of the facility (in metric tons)	Does the facility treat imported waste
Lead For Metal Recycling	Recycling of Car Batteries	300	No
National Aluminum & Profile Co. (NAPCO)	Manufacturing of Aluminum Profiles	1750	No
Ecotech recycling	Electronic waste recycling	10	No
The Palestinian Mineral Oil Company	Used oil recycling	66	No
AL Rehab for recycling metallic oil	Used oil recycling	500	No
Batteries Assembly Factory – Ithna-Hebron	Recycling of Car Batteries	66	Yes

3.3.4. Waste collection, transfer, and treatment tariff in Palestine

Waste collection and transfer operations are performed mainly by Joint Service Councils, Municipalities, and the UNRWA. The NSSWM 2017-2022 (Ministry of Local Governorate, 2017) planned strategic objectives to reach financial sustainability in waste collection and transfer. Achieving these objectives is approached in two directions: to perform cost recovery and self-financing of the sector and to cover the actual costs of collection and transportation of waste. However, it is argued that reaching higher economic viability of a more efficient waste management approach is problematic in Palestine due to the already high costs of paid fees (di Maria et al., 2018). Collecting service fees for waste collection is a significant obstacle to achieving a sustainable waste management system in Palestine (Al-Khateeb et al., 2017). The insufficiency of collecting waste disposal fees causes a cut down of collection services (Al-Khatib et al., 2007; Al-Khatib & Arafat, 2010). It is worth noting that major cities charge higher collection fees than villages due to larger amounts of waste, including other services like cleaning public areas and repetitive waste collection cycles (Al-Khatib et al., 2007). It is worth noting that refugee camps do not pay waste collection fees, as this service is solely provided and funded by the UNRWA.

However, one major gap El-Hamouz et al. described is the common domestic dumping of HZW (El-Hamouz et al., 2011). In general, collection fees depend on the weight and the land area occupied rather than the type of waste. Subsequently, this mix severely impacts any attempt to improve the waste management sector. Moreover, it represents a missed opportunity to profit from recycling HZW and protect the environment simultaneously.

Al-Khatib et al. (2007) have extensively investigated waste collection and transfer fees in their study. They concluded that although the collection service is provided in almost all surveyed municipalities and councils, the collection frequency is relatively low – an inefficient system that still prevails in some major urban areas of the West Bank. The main reasons are weak financial means, short budgets, and insufficient waste collection fees. This utterly contradicts the aims set by NSSWM. When waste collection fees are hard to get and insufficient to cover the basic cost, they are also expected to achieve self-financing and sufficiency.

Based on phone-call interviews with officials from the municipalities and JSCs, it is clear that there is no unified tariff system for solid waste collection in Palestine. All LGUs and JSCs endorse their tariff by the MoLG. Generally, the tariff for solid waste collection by LGUs varies from NIS 10-25 per month. Also, Landfilling tariff in the WB is NIS 30/ton at the Al-Minya landfill and NIS 33/ton in Zahret Al-Finjan, and the transportation tariff is varied from NIS 35-90/ton.

Nevertheless, the seminal work of Thoni & Matar 2019 has addressed the waste collection fees matter. The report overviews fee amounts in all West Bank and Gaza Strip Palestinian districts. Moreover, it concluded that the cost recovery rate in the West Bank is substantially higher than in Gaza Strip. For instance, the mentioned numbers in the report claimed that the range of cost recovery rate percentage in the West Bank is between 40 – 100%. Meanwhile, in Gaza Strip, the highest cost recovery rate is in Khan Younis – 39%, while other Gazan districts did not reach 17%. Table 8 shows the rates of collection fees between 2015 – 2018 (Thoni & Matar, 2019).

Table 8. JSC fees collection rates

Year	Cumulative Debts (NIS)	Fee collection %
2015	11,162,477	64%
2016	11,092,641	100%
2017	12,212,028	68%
2018	12,375,099	94%

However, MoLG has identified the tariffs for waste collection according to categories. The fees for public sanitation and waste collection and transfer are defined according to six categories as follows:

1. Domestic Waste
2. Commercial Waste
3. Institutional Waste
4. Municipal waste from factories and workshops
5. Medical waste institutions
6. Transferring and burial of private waste containers per unit weight and volume.

Table 9 is for the MoLG is an example assigned fees for industrial wastes from factories and workshops for several localities in the West Bank. all MoLG rates for the collection of solid waste are flat and per time, regardless of the quantity.

Table 9: Monthly fees for collection and transferring waste from factories and workshops (Set by MOLG)

#	Category/Craft	Monthly fees (NIS)
1	Cigarettes and tobacco	100
2	Carpentry	90
3	Aluminum workshops	90
4	Glass	90
5	Blacksmith/metal workshop	90
6	Sewing	90
7	Soap factory	100
8	Oils and perfumes	100
9	Chemicals and drugs	100
10	Canvas and textile	100
11	Quarries	100
12	Asphalt	100
13	Paint	100
14	Carwash	90
15	Gas station	150
16	Lathing/metal fabrication	90
17	Garages	90
18	Quarries	100
19	Furniture	90
20	Shoe repair	30

It is clear, therefore, that the decided fees can not cover the actual costs of sustainable treatment, transportation, or collection of the waste above categories – as some of them are chemicals and hazardous, requiring further special treatment and separation.

3.3.5. Economical Waste Management Tools

Economic waste management tools, in general, are:

1. Extended producer responsibility (EPR) - makes the producer of a product responsible for its waste management, incentivizing them to reduce waste in the first place
2. Pay-as-you-throw (PAYT) - a pricing system for waste management where customers pay based on the amount of waste they generate.
3. Recycling programs - collection and processing of materials for reuse
4. Fees and taxes - fees charged for disposing of waste in a landfill, which can encourage waste reduction and recycling
5. Market-based instruments - such as emissions trading and deposit-refund systems- put a monetary value on waste and incentivize its reduction and efficient management.
6. Zero waste programs - aim to reduce waste generation through source reduction, reuse, and recycling practices



The West Bank and Gaza Strip face some challenges in terms of waste management, including limited landfills, insufficient infrastructure, and a lack of funding. Despite these challenges, some of the economic waste management tools that have been applied in the region include:

1. Landfill management - a limited number of landfills have been established in the West Bank and Gaza Strip to manage waste. However, their sustainability and proper management are a challenge.
2. Recycling programs - there are some small-scale recycling initiatives in the West Bank and Gaza Strip, including paper, plastic, and metal recycling. However, the lack of a centralized recycling system and limited funding for waste management remains a challenge.
3. Waste-to-energy - there is some potential for waste-to-energy in the region to provide electricity and to reduce the amount of waste sent to landfills. However, significant investment is needed to develop the necessary infrastructure and technology to support this. Future plans in the country include starting a waste-to-energy (WtE) plant at the Zahret Al-Finjan landfill in Jenin, the project is still at its planning and feasibility stage.
4. Community engagement and education - community involvement and education is important in promoting waste reduction and recycling initiatives. This can include initiatives to encourage households to sort and separate waste for recycling and awareness-raising and education programs to promote sustainable waste management practices.

Despite these efforts, the waste management sector in the West Bank and Gaza Strip continues to face significant challenges, including limited resources, outdated infrastructure, and a lack of political stability. Addressing these challenges will require significant investment and coordination between stakeholders, including the government, the private sector, and civil society.

Beyond the fees for solid waste collection and disposal and limited recycling programs, economic waste management tools are not implemented in Palestine.

3.4. International & Bilateral Context

Internationally addressing waste management issues is pivotal. Regardless of where it is generated, the effects of waste disposal can grow outside of borders and result in negative effects overall. Therefore, several international bodies and conventions have been created to regulate and channel efforts. Five goals of Sustainable Development Goals (SDGs) are relevant to waste management and pollution control: SDG6 (Clean water and sanitation); SDG11 (Sustainable cities and communities); SDG12 (Responsible consumption and production); SDG14 (Life below water); and SDG15 (Life on land).

Palestine ratified 4 major conventions on hazardous waste and chemicals: Basel (2015), Rotterdam (2017), Stockholm (2017) and Minamata (2019).

Implementation of these conventions require local technical capacities, expertise and financing. The PA is interested in gaining international recognition in the international community. The Basel convention may, in theory, empower joint border control and other cooperative arrangements between the West Bank and Israel on prevention and inspections of the containers and other ways of transferring or smuggling waste to Palestine. The Basel Convention may reinforce domestic regulations on environmental protection and help hold complicit actors accountable.



Currently, limitations of applying the Basel Convention are linked to the lack of border control and non-recognition of the State of Palestine by Israel, which keeps open possibilities of illegal waste traffic and uncontrolled exports/imports, transport and other operations. The Palestinian institutions have not yet developed a procedure to document and report the illegal waste traffic to the Basel Secretariat. Since 2015, the EQA has observed numerous instances of hazardous waste transport / smuggling into the West Bank. Abdel-Qader & Roberts-Davis 2018 argued that due to the insufficient information and measurements provided when filing complaints, none resulted in serious accountability procedures nor publicly exposed the environmental injustice. Furthermore, the international / bilateral context of the Basel convention application has not been utilized. The limitations in environmental sampling of the smuggled suspected hazardous waste are technical, and Palestine need further capacity-building in this field. For this the PA can address the BRS Secretariat, financial mechanism (GEF) of conventions and the parties to provide technical and other capacity development support to the EQA in sampling, monitoring, and measurement of hazardous waste (Abdel-Qader & Roberts-Davis, 2018). The Basel reporting by Israel and Palestine need to be independently reviewed for gaps and differences and identify solutions.

The current lack of robust statistical and factual data, measurements and of the communication products on hazardous waste by the EQA weakens its argumentation. It results in overlooking and even dismissing important EQA claims and making it difficult to publicize the incidents and communicate to the competent authorities in Israel on HZW smuggling (Abdel-Qader & Roberts-Davis, 2018). Thus, the EQA should raise the quality and completeness of waste data and reports on illegal waste transfers and smuggling. Coordination with local researchers and NGOs should be further improved to monitor illegal waste activities domestically in Palestine, and in relation to waste transfers to/from Israel.



4. Conclusions: Summary of Gaps and Constraints

4.1. Terminology

For the sake of analysis, the following terminologies were used for barriers, gaps, constraints, and limitations concerning the PA to adhere to the BRS&M conventions:

1. Barriers (B) refer to obstacles or hindrances that prevent Palestine from adhering to the Conventions. Examples include limited financial resources, inadequate technical capacity, and political instability.
2. Gaps (G): These refer to areas where Palestine's compliance with the Conventions falls short or is incomplete. Examples include inadequate regulatory frameworks, insufficient infrastructure for managing hazardous substances, and a lack of public awareness.
3. Constraints (C) refer to limitations or restrictions that hinder Palestine's ability to comply with the Conventions fully. Examples include limited access to international markets and limited cooperation from other countries.
4. Limitations (L): factors that restrict or constrain the ability of Palestine to fully adhere to the Conventions. Some examples of limitations may include limited financial resources, lack of access to advanced technologies and equipment, and limited support from international organizations.

Also, all the barriers, gaps, constraints, and limitations can be categorized as internal and external factors that impact the ability of the Palestinian Authority to adhere to the various Conventions:

- Internal factors (IF): refer to factors within the control of the Palestinian Authority, such as policy decisions, resource allocation, and technical capacity where the current project can provide help. Some internal factors include the lack of internal financial resources through the PA budget, and political instability, as in the case of Gaza.
- External factors (EF): are factors that are beyond the control of the Palestinian Authority, such as the geopolitical situation (discussed in report 2 of the project), access to international markets, and cooperation from other countries.

Based on the goals and activities in section 5.1, the current project will address some of the internal factors, mainly capacity building, and awareness, and pave the road to achieve other factors.

4.2. UNEP Special Programme project contribution and links with others

The UNEP Special Programme project supports Palestine in:

- i. identifying gaps and constraints to sound chemicals and waste management;
- ii. designing recommendations and roadmaps (action plans);
- iii. conducting trainings to close the gaps and contribute to capacity building;
- iv. promoting overall awareness of the BRS and Minamata Conventions

This report serves or contributes to:

1. discussions at the steering committee level about the gaps in institutional and regulatory settings and ways to optimize chemicals and waste management.



2. development of an action plan and next steps for Palestine, including inputs to the inter-agency coordination
3. reporting on waste at large and the BRS Conventions

4.2.1. Cross-Sectoral Environment Strategy 2020-2023

The Cross-Sectoral Environment Strategy 2020-2023, was prepared by EQA and representatives of line ministries, and has identified several gaps at multiple levels, from the legislative system to the operational level. A summary of these gaps:

- The legal system that regulates solid waste management lacks clear responsibilities, which results in inconsistencies between regulations and stakeholders.
- The challenges in the solid waste management include:
 - the disparity in effective management of solid waste between regions,
 - spread of random and open landfills,
 - shortage of sanitary landfills,
 - no approved system for special waste management,
 - lack of sorting and treatment of hazardous waste,
 - lack of special management of industrial waste,
 - weakness of environmental control and inspection system,
 - lack of a unified national database for solid waste,
 - no control over transboundary waste,
 - and, the prevailing pattern of solid waste disposal is still sanitary or random dumps, which is unsustainable in the long term.
- There is a lack of available information on hazardous waste, which makes it challenging to manage and dispose of it properly. Healthcare centers generate over 900 tons of medical waste per month, but there are no landfills for medical waste in Palestine except for some pilot projects.
- Recycling initiatives, such as organic waste composting and producing energy from waste, are limited, and biogas extraction from waste is not yet activated.

4.2.2. EQA report on “Aligning legislation with international environmental agreements and preparing new environmental legislation” (2022)

The EQA report by Al-Thiqa Co. for the project “Aligning legislation with international environmental agreements and preparing new environmental legislation” (2022), and after analyzing the Palestinian legislation related to hazardous materials and waste, as well as international conventions, discussions with specialists from the Environmental Quality Authority identified several challenges and obstacles in applying legal provisions. These challenges stem from poor legislative harmony and deficiencies, the absence of specific regulations on hazardous materials in Palestine. The most pressing issues are:

1. Weakness of the legislative framework governing hazardous materials management
2. Absence of a national strategy or unified plan for hazardous materials management
3. Lack of clarity in procedures for licensing the handling of hazardous materials
4. Issues related to importing and exporting hazardous materials
5. Challenges associated with transporting hazardous materials
6. Problems related to the storage of hazardous materials, with multiple authorities determining storage conditions
7. Challenges related to the use, manufacture, and distribution of hazardous materials



8. Absence of legal regulation for extended product liability
9. No explicit legal regulation for civil liability compensation for environmental damage
10. The assortment of regulatory authorities for hazardous materials management
11. Ineffective penalties in the Environment Law
12. Absence of a system or environmental information center for hazardous materials management

In addition, the report summarized the current institutional status of hazardous materials management as follows:

- The various agencies responsible for managing hazardous materials often have overlapping responsibilities, leading to confusion and inefficiencies.
- Without a comprehensive national strategy for managing hazardous materials, it is challenging to prioritize actions and allocate resources effectively.
- Poor coordination and cooperation among government agencies responsible for hazardous materials management can lead to gaps in oversight and enforcement.
- The effectiveness of laws and regulations and punishment for violators depends heavily on the competence and dedication of workers in the field.
- The environmental control and inspection system for managing hazardous materials and waste is weak, particularly concerning treatment and disposal operations.
- The use of hazardous materials continues to increase in response to industrial and agricultural demands, creating ongoing challenges in managing their risks.
- The lack of specialized laboratories creates obstacles to effectively testing and monitoring hazardous materials.
- A list of prohibited and restricted hazardous materials has not been issued, leaving the possibility of dangerous substances being used without adequate oversight.

Consequently, the study suggests several recommendations:

The issuance of new specific legislation or regulations on hazardous materials management aligned with international agreements. Such legislation should establish a unified coordinating mechanism consisting of competent authorities for managing hazardous materials to:

- i. organize the management stages of hazardous materials from import to disposal,
- ii. determine responsibilities and develop provisions regulating extended producer liability,
- iii. develop compensation system for environmental damage,
- iv. establish a register of hazardous materials,
- v. Introduce incentive systems,
- vi. Impose penalties for violations.

4.2.3. World Bank Report 2019

The World Bank Report on West Bank and Gaza Environmental Priorities (2019), based on literature review, discussions with officials from EQA, donor representatives, and World Bank staff, concludes the following:

1. Uncontrolled and increasing pollution in Palestine is coming from:
 - Solid waste (municipal and industrial)
 - Municipal and industrial wastewater
 - Hazardous waste (healthcare; used batteries from photo-voltaic (PV) systems and oils)
2. Threats to Natural Resources



- Land degradation (e.g., from quarrying) and biodiversity loss
 - Encroachment on critical habitats
 - Droughts and desertification
 - 3. Climate change impacts on key sectors, such as water, agriculture, energy, health, coastal and marine, urban/infrastructure.
 - 4. Weak environmental governance related to institutional capacities and responsibilities.
- Challenges and gaps related to governance and institutional framework include:
- i. weak coordination mechanisms on environmental issues;
 - ii. inadequate human and financial resources required to address environmental challenges;
 - iii. unclear accountability or understanding of environmental challenges from some key decision makers, which can result in a lack of support and empowerment for EQA.

4.2.4. UNDP/PAPP Evaluation Report 2014

The UNDP/PAPP Final Evaluation Report on Strengthening Environment Quality Authority Regularity Functions (2014) summarized the following challenges that face the environment sector and EQA specifically (The full text is included in Appendix 5):

- Lack of control over limited natural resources due to Israeli Occupation.
- Lack of funding and investment by the PA and the international community.
- Poor environmental governance, including conflicting rules and responsibilities, weak enforcement of environmental law.
- Challenges facing EQA:
 - Conflicting laws and procedures and different understandings of these laws by ministries.
 - Limited capacity and resources for EQA to monitor and inspect environmental violations.
 - Poor conditions in EQA's workplace hinder efficiency and perception of the institution.

4.2.5. SIDA Report (2017)

This study found that the EQA faced several challenges that impacted its effectiveness and ability to fulfill its mandate, including inadequate funding, limited capacity, and a weak regulatory framework, including:

1. Inadequate funding and resources hinder EQA's ability to implement its plans and fulfill its mandate.
2. Limited capacity of EQA staff and technical capabilities prevents effective enforcement of environmental regulations and standards.
3. Weak inter-ministerial coordination creates conflicting mandates and limits cooperation between EQA and other institutions.
4. Complex and protracted decision-making lead to delays in implementing environmental projects and initiatives.
5. A lack of public awareness and engagement on environmental issues hinders the EQA's ability to mobilize public support for its activities and initiatives.

Recommendations for EQA: improve organizational structure and streamline decision-making, improve inter-ministerial coordination, enhance staff capacity. Increased funding from the PA and the international community to strengthen the EQA's ability to protect the environment.



To address part of the identified limitations, two amendments at the legislative and governance levels were implemented in 2021-2022:

1. Decree-Law No. 26 of 2022 on the Zahrat Al-Finjan landfill project concession.
2. Cabinet Decision No. 6 of 2021 on Hazardous Waste Management.

4.3. Geopolitical Situation

Report 2 of this assignment covered the geopolitical context concerning the PA's adherence to BRS&M conventions. Such concerns are related to the Israeli occupation and control of borders and crossing points, also seen as mostly external factors. As a summary:

1. Non-recognition of Palestine as a state or based on the UN definition as a non-member observer state that implicates the application of BRS&M conventions, especially for articles related to the transport of materials into another country, which in return lead to waste smuggling into the WB and operation of many waste hazardous materials dumpsites wither in designated spaces or arbitrary dumping, and some recycling facilities inside the settlements.
2. Consequences of Oslo II agreements regarding the land divisions of the WB to A, B, C, H1, and H2 area, and the lack of full Palestinian authority over major lands of the WB. In addition to the prior requirements of Israeli license for all structural works in Area C. Area C is mostly the most suitable location for some environmental solutions such as wastewater treatment plants and other sewerage works, drinking water abstraction wells and networks, and chemicals and waste recycling facilities and landfills.
3. Suspension of peace negotiations by the Israeli authorities and so many of the crucial issues that we were delayed to the final negotiations are still open.
4. No clear definition of the Borders between Israel and Palestine and the on-ground practices. The border from Palestine to Israel is seen as an “international border” that requires prior coordination to pass personnel and goods. From Israel to Palestine is seen as do not exist as most of the border is adjacent to Area C lands of the WB. The Israeli can enter without restrictions, except for billboard precautions for the Israeli to enter Area A of the WB.
5. Israel controls supplied materials to the WB and Gaza and bans some materials categorized as dual use. Such a step implicates many structural and industrial activities.

The analysis presented in Table 10 encompasses all the factors related to the PA's challenges in adhering to international conventions, including barriers, gaps, constraints, and limitations. These challenges have common consequences, and solutions to address them are similar.

Table 10. Barriers, Gaps, Constraints and Limitations Analysis with Proposed Solution.

#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
At the PA Level						
1	Political Situation (External)	Palestine is a politically unstable region., Even though the UN identified the country as a non-member observer state, Palestine is still under the occupation and control of Israel.	The PA continues its diplomatic mission for worldwide recognition and assuring stability on the ground	Political instability, conflicts, and violence can disrupt waste and chemicals management operations. The ongoing conflict between Israel and Palestine has made implementing effective waste and chemicals management policies challenging.	The government could promote political stability and security in the region to create a conducive environment for implementing effective sound management of chemicals and hazardous waste policies and regulations.	PA
2	Political Situation (Internal)	Gaza has a separate government, including EQA, in addition to the official employees of the PA government	PA governmental officials in Gaza are still involved at the projects' implementation level.	Data gathering from Gaza necessary for BRS&M reporting will be a challenge. The Gaza government might obstruct the implementation of PA regulations and policies	PA governmental officials in Gaza are to be included in the capacity-building program. Data to be collected through different channels, such as academic publications and online sources	EQA
3	Cooperation with other Countries	Cooperation with other countries can be at multi-levels from the official level to international and national agencies level, and to achieve technical and financial support and knowledge sharing	Palestine has engaged in various forms of cooperation with countries and international organizations to promote its development, strengthen its position on the global stage, and improve the lives of its people. However, much of this cooperation has been limited by the ongoing conflict with	Palestine may face challenges in obtaining the necessary cooperation from other countries to effectively manage chemicals and hazardous wastes, including obtaining required permits and approvals for the import/export of chemicals and transboundary movement of such wastes according to BRS	Palestine could work to strengthen its relationships with other countries and international organizations to improve cooperation and collaboration in managing hazardous chemicals and wastes, including obtaining necessary permits and	PA



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#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
			Israel and the broader political and security challenges facing the region	Conventions requirements	approvals for transboundary	
At the Regulatory Level (Ministries and Authorities)						
1	Regulatory Framework	Laws, regulations, cabinet, and ministerial decisions.	EQA has identified major gaps in legislation to adhere to various international conventions. Some of these gaps were filled through cabinet decisions such as the solid waste, hazardous waste, and medical waste bylaws	Limited regulatory framework: Palestine has limited regulations to effectively manage waste and chemicals. The government needs to develop a comprehensive regulatory framework that addresses the transportation, storage, and disposal of waste and chemicals.	The government of Palestine could develop a comprehensive regulatory framework that addresses the transportation, storage, and disposal of waste and chemicals, including registration, classification, and labeling of hazardous substances and the production, use, and disposal of POPs. The regulatory framework should be enforced with substantial penalties for non-compliance	EQA with other ministries
2	Financial Resources	Financial resources include domestic revenues, foreign aid, remittances, and private-sector investment.	The PA is working to adopt and operate policies of the polluter pay principle, economical tools for waste and chemicals management, and the activation of the public-private partnership. All of these tools will guarantee internal funding for the waste and chemicals in the country	Palestine has limited financial resources to manage hazardous waste effectively. The government's limited budget makes investing in waste and chemicals management infrastructure and training programs challenging. In addition to financial obstacles posed by an international institution such as	Palestine could collaborate with international organizations such as the United Nations Environment Program (UNEP) and the Basel Convention Regional Centre for Training and Technology Transfer for the Arab States in Egypt and Stockholm Convention Regional Center in Kuwait to	PA, MoFP, EQA with other ministries



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#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
				<p>GEF - the implementing agency for Stockholm convention- which prohibit the State of Palestine to get the required funds in order to comply with Stockholm Convention such as preparing the NIP.</p> <p>EQA depends mainly on the PA budget for its operational expenses and has no revenue system for its services, such as the EIA services.</p>	access technical support and financial resources to enhance waste and chemicals management.	
At the Operational Level						
1	Infrastructure	Infrastructure for waste management ranges from storage, collection, and transportation system to treatment and disposal	Palestine has a comprehensive solid waste collection system and recently operated landfills to serve most of the West Bank and Gaza population. Only one hazardous waste pit and several incinerators for medical waste are operated West Bank and in the Middle of Gaza Strip	Palestine lacks the necessary infrastructure to manage hazardous chemicals and waste properly, including POPs and other chemicals. There are no adequate treatment facilities, storage facilities, or disposal sites, which makes it challenging to manage hazardous waste safely	The government of Palestine could invest in developing hazardous waste and chemicals management infrastructure such as treatment facilities, storage facilities, and disposal sites. This would require significant financial resources, and the government could seek support from international organizations and donors.	EQA, MoLG, MoA, MoH
2	Technical Capacity	This includes the knowledge, skills, and expertise	The international signed conventions and other international	Palestine may lack the necessary technical capacity to effectively identify, measure,	Palestine could develop its technical capacity by providing	EQA, MoLG, MoA, MoH



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#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
		required to safely and efficiently manage waste and chemicals	development agencies are the main channels to build and develop the technical capacity	and monitor hazardous wastes and properly dispose of them. This can make it difficult to comply with the technical requirements of the Basel Convention.	training and education to its personnel, utilizing advanced technologies and equipment, and improving the quality and availability of data related to waste and chemicals.	
3	Public Awareness	public awareness is essential in promoting informed decision-making and action	Various means are available in Palestine to raise public awareness such as the official education system, mass media, social media, and workshops.	The general public lacks awareness of the risks associated with hazardous waste and chemicals, and this lack of awareness makes it challenging to implement effective policies.	The government could initiate public awareness campaigns to educate the general public on the risks associated with waste and chemicals. This would involve engaging with communities, schools, and other stakeholders to promote awareness of proper waste management practices.	EQA, MoA, MoLG, and MoH. MoE and MoHE
4	Access to International Market			Palestine's limited access to international markets may limit its ability to manage hazardous waste and chemicals generated within the country effectively.	Palestine could seek to expand its access to international markets by improving the quality of its hazardous waste and chemicals management practices and by working to comply with international regulations and signed conventions.	MoFA
At the Reporting Level						
1	Data	Inventory and database of all waste and	PCBS has experience in creating and	No national database is available for	To establish a unified database for all chemicals	EQA, PCBS, MoLG,



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#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
		chemicals produced in the country	operating databases	hazardous waste and chemicals with no robust system/statistics to measure; Limited information is available at PCBS; there is a contradiction in published data from various sources	and wastes in the country.	MoNE, MoA and others
2	Staff		EQA and related Ministries and Authorities built experience in managing requirements for reporting to various conventions	EQA and related Ministries and Authorities is understaffed, mainly for daily management, monitoring and control activities, and reporting activities	Need capacity building – Current project	EQA, and related Ministries and Authorities (MoA, MoH, CP, Environmental Police, etc....)
3	Reporting	Mainly for signed international conventions			Need capacity building – Current project	EQA, and related Ministries and Authorities (MoA, MoH, CP, Environmental Police, etc....)
4	Interagency	Coordination with main stakeholders for the hazardous waste and chemicals	EQA is managing most of its activities through national and technical committees that involve the main stakeholders	Contradiction in laws, regulations, and responsibilities	Enhance coordination among stakeholders involved in the hazardous waste and chemicals management through: -Establish a coordinating body: A coordinating body, such as a task force or committee, identifies common goals and priorities and develops waste and chemicals management strategies.	EQA



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#	Factor	Description	Feature	B, G, C and L	Proposed Solution	Responsibility
					<ul style="list-style-type: none"> -Develop a shared vision and action plan - Strengthen the existing Technical Committee of Hazardous Waste and Chemicals and endorse a bylaw for its work -Foster communication and information sharing -Encourage stakeholder participation and engagement -Build capacity and share knowledge 	



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Appendices

Appendix 1 : Summary of PA-Signed Conventions

Basel Convention

The Basel Convention is an international treaty aimed at reducing the movement of hazardous waste between nations, minimizing the generation of hazardous waste, and promoting environmentally sound management of the waste produced. It regulates the transboundary movement of hazardous waste to protect human health and the environment. The convention was adopted in 1989 and has been ratified by 187 parties. The convention establishes a framework for cooperation and coordination among parties to achieve its objectives.

As a party to the Basel Convention, the Palestinian Authority is required to adhere to the following requirements:

1. Control the transboundary movement of hazardous waste and ensure that it is managed in an environmentally sound manner.
2. Develop and implement national regulations and policies for the management of hazardous waste.
3. Cooperate with other parties to the Convention to achieve its objectives and prevent the illegal traffic of hazardous waste.
4. Promote the reduction of the generation of hazardous waste and the environmentally sound management of the produced waste.
5. Provide information to other parties on the measures taken to implement the Convention.
6. Report regularly to the Secretariat of the Basel Convention on implementing the Convention in its jurisdiction.

Rotterdam Convention

The Rotterdam Convention is an international treaty governing the trade of hazardous chemicals and pesticides. It aims to protect human health and the environment by ensuring that the trade of hazardous chemicals and pesticides is informed and transparent. The Convention was adopted in 1998 and has been ratified by 170 parties. It requires parties to provide prior informed consent before exporting hazardous chemicals and pesticides to other countries. The Convention establishes a framework for cooperation and coordination among parties to achieve its objectives and promote sustainable development.

As a party to the Rotterdam Convention, the Palestinian Authority is required to adhere to the following requirements:

1. Provide prior informed consent before exporting hazardous chemicals and pesticides to other countries.
2. Ensure that the trade of hazardous chemicals and pesticides is conducted informed and transparently.



3. Develop and implement national regulations and policies for managing hazardous chemicals and pesticides.
4. Cooperate with other parties to the Convention to achieve its objectives and prevent the trade of hazardous chemicals and pesticides that may adversely affect human health and the environment.
5. Report regularly to the Secretariat of the Rotterdam Convention on implementing the Convention in its jurisdiction.

Stockholm Convention

The Stockholm Convention is an international treaty aimed at eliminating or reducing the release of persistent organic pollutants (POPs) into the environment. POPs are chemicals that persist in the environment, bioaccumulate in living organisms, and adversely affect human health and the environment. The Convention was adopted in 2001 and has been ratified by 181 parties. It requires parties to take measures to eliminate or reduce the release of POPs into the environment, including eliminating certain uses and production of POPs. The Convention establishes a framework for cooperation and coordination among parties to achieve its objectives and promote sustainable development.

As a party to the Stockholm Convention, the Palestinian Authority is required to adhere to the following requirements:

1. Take measures to eliminate or reduce the release of persistent organic pollutants (POPs) into the environment, including eliminating certain uses and production of POPs.
2. Develop and implement national regulations and policies for the management of POPs.
3. Cooperate with other parties to the Convention to achieve its objectives and prevent the release of POPs into the environment.
4. Report regularly to the Secretariat of the Stockholm Convention on implementing the Convention in its jurisdiction.
5. Participate in the work of the Convention, including implementing its decisions and considering new chemicals for inclusion in the Convention.

Minamata convention

The Minamata Convention on Mercury is an international treaty aimed at protecting human health and the environment from the adverse effects of mercury. The Minamata Convention is named after Minamata, Japan, where a devastating mercury poisoning incident occurred in the 1950s and 1960s. The Convention was adopted in 2013 and has been ratified by 129 parties. It requires parties to take measures to reduce and, where feasible, eliminate the release of mercury into the environment, including the phase-out of specific uses and products containing mercury. The Convention establishes a framework for cooperation and coordination among parties to achieve its objectives and promote sustainable development.

As a party to the Minamata Convention, the Palestinian Authority is required to adhere to the following requirements:

1. Reduce and, where feasible, eliminate the release of mercury into the environment, including the phase-out of certain uses and products containing mercury.



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2. Develop and implement national regulations and policies for the management of mercury.
3. Cooperate with other parties to the Convention to achieve its objectives and prevent the release of mercury into the environment.
4. Report regularly to the Secretariat of the Minamata Convention on implementing the Convention in its jurisdiction.
5. Participate in the work of the Convention, including implementing its decisions and considering new uses and products for inclusion in the Convention.



Appendix 2 : Summary of related *Articles* of Oslo II agreement to Waste and Chemicals ana management in Palestine

The agreement, and in *Article* 12; Environmental Protection, stated:

“A. Transfer of Authority

The Palestinian side and Israel, recognizing the need to protect the environment and to utilize natural resources on a sustainable basis, agreed upon the following:

1. This sphere includes, inter alia, licensing for crafts and industry, and environmental aspects of the following: sewage, solid waste, water, pest control (including antimalaria activities), pesticides and hazardous substances, planning and zoning, noise control, air pollution, public health, mining and quarrying, landscape preservation and food production.
2. The Israeli side shall transfer to the Palestinian side, and the Palestinian side shall assume, powers and responsibilities in this sphere, in the West Bank and the Gaza Strip that are presently held by the Israeli side, including powers and responsibilities in Area C which are not related to territory. In Area C, powers and responsibilities in this sphere related to territory (which only include environmental aspects of sewage, solid waste, pesticides and hazardous substances, planning and zoning, air pollution, mining and quarrying and landscape preservation) will be transferred gradually to Palestinian jurisdiction that will cover West Bank and Gaza Strip territory except for the issues that will be negotiated in the permanent status negotiations, during the further redeployment phases, to be completed within 18 months from the date of the inauguration of the Council.

B. Cooperation and Understandings

3. Both sides will strive to utilize and exploit the natural resources, pursuant to their own environmental and developmental policies, in a manner which shall prevent damage to the environment, and shall take all necessary measures to ensure that activities in their respective areas do not cause damage to the environment of the other side.
4. Each side shall act for the protection of the environment and the prevention of environmental risks, hazards and nuisances including all kinds of soil, water and air pollution.
5. Both sides shall respectively adopt, apply and ensure compliance with internationally recognized standards concerning the following: levels of pollutants discharged through emissions and effluents; acceptable levels of treatment of solid and liquid wastes, and agreed ways and means for disposal of such wastes; the use, handling and transportation (in accordance with the provisions of *Article* 38 (Transportation)) and storage of hazardous substances and wastes (including pesticides, insecticides and herbicides); and standards for the prevention and abatement of noise, odor, pests and other nuisances, which may affect the other side.
6. Each side shall take the necessary and appropriate measures to prevent the uncontrolled discharge of wastewater and/or effluents to water sources, water systems and water bodies, including groundwater, surface water and rivers which may affect the other side, and to promote the proper treatment of domestic and industrial wastewater, as well as solid and hazardous wastes.
7. Both sides shall ensure that a comprehensive Environmental Impact Assessment (EIA) shall be conducted for major development programs, including those related to industrial parks and other programs detailed in Schedule 2.



8. Both sides recognize the importance of establishing new industrial plants in their respective areas within planned and approved industrial zones, subject to the preparation of comprehensive EIAs, and shall endeavor to ensure compliance with the above.
9. Both sides recognize the importance of taking all necessary precautions to prevent water and soil pollution, as well as other safety hazards in their respective areas, as a result of the storage and use of gas and petroleum products, and shall endeavor to ensure compliance with the above.
10. Pending the establishment of appropriate alternative sites by the Palestinian side, disposal of chemical and radioactive wastes will be only to the authorized sites in Israel, in compliance with existing procedures in these sites. The construction operation and maintenance of the alternative facilities will follow internationally accepted guidelines, and will be implemented pursuant to the preparation of EIAs.
11. Both sides shall cooperate in implementing the ways and means required to prevent noise, dust and other nuisances from quarries, which may affect the other side. To this end the Palestinian side shall take all necessary and appropriate measures, in accordance with the provisions of this Agreement, against any quarry that does not meet the relevant environmental standards.
12. Both sides recognize the importance of taking all necessary and appropriate measures in their respective areas for the monitoring and control of insect-transmitted diseases including sand flies, anopheles and all other mosquito species, and shall endeavor to ensure compliance with the above.
13. Both sides shall cooperate in implementing internationally accepted principles and standards relating to environmental issues of global concern, such as the protection of the ozone layer.
14. Israel and the Palestinian side shall cooperate in implementing principles and standards, which shall conform with internationally accepted principles and standards, concerning the protection of endangered species and of wild fauna and flora, including restriction of trade, conservation of migratory species of wildlife and preservation of existing forests and nature reserves.
15. Israel and the Palestinian side shall respectively operate an emergency warning system in order to respond to events or accidents which may generate environmental pollution, damage or hazards. A mechanism for mutual notification and coordination in cases of such events or accidents will be established.
16. Recognizing the unsatisfactory situation of the environment in the West Bank, and further recognizing the mutual interest in improving this situation, Israel shall actively assist the Palestinian side, on an ongoing basis, in attaining this goal.
17. Each side shall promote public awareness on environmental issues.
18. Both sides shall work on appropriate measures to combat desertification.
19. Each side shall control and monitor the transfer of pesticides and any internationally banned and restricted chemicals in their respective areas.
20. Each side shall reimburse the other for environmental services granted in the framework of mutually agreed programs.
21. Both sides shall cooperate in the carrying out of environmental studies, including a profile, in the West Bank.
22. For the mutual benefit of both sides, the relevant Israeli authorities and the Palestinian Environmental Protection Authority and/or other relevant Palestinian authorities shall cooperate in different fields in the future.”



In *Article 27*; Planning and Zoning, the agreement stated: “

3. a. The Palestinian side shall ensure that no construction close to the Settlements and military locations will harm, damage or adversely affect them or the infrastructure serving them.

b. Accordingly, when the Palestinian side considers that a proposed Planning Scheme pertains to construction which may fall within subparagraph a. above (in particular: waste disposal sites; electric power stations and projects regarding sewage, hazardous materials or which may have a polluting impact), it shall provide the Civil Affairs Coordination and Cooperation Committee (CAC) with a copy of such a Planning Scheme prior to its entry into force.”

In Annex VI; Protocol on Israeli-Palestinian Cooperation Programs, the agreement stated in the “Environment” section that: “

- a. The two sides shall promote cooperation in preventing the deterioration of the environment, controlling pollution and ensuring the proper protection and rational use of natural resources in their respective areas, with a view to ensuring environmentally sustained development and promoting regional environment projects.
- b. Cooperation in the protection of the environment will focus, inter alia, on preparing proposals for projects, studies, and recommendations on:
 - (1) development and implementation of appropriate treatment of liquid, solid and hazardous wastes and the control, storage, discharge transportation and disposal of hazardous materials, pollutants, and radioactive waste,
 - (2) prevention and control of marine pollution from ships and from land-based sources;
 - (3) preventing and minimizing the harmful effects of pollution on soil, water and air quality;
 - (4) use of appropriate tools of environmental management and environmental monitoring methods, including the adoption of and use of internationally accepted environmental principles and standards of Environment Impact Assessment and environmental information systems;
 - (5) development of programs of combating desertification and protection of nature and endangered species and the preservation of forests and natural reserves;
 - (6) promotion of environmental education and awareness programs.
- c. Both sides shall cooperate in preventing the transfer of internationally banned and restricted chemicals including, pesticides, insecticides, and fertilizers between their respective areas.
- d. Both sides shall cooperate in setting an emergency warning system to respond to events or accidents which may generate environmental pollution, damage, or hazards.

The Environmental Experts Committee established under this Agreement will implement the environmental cooperation proposed above in coordination with the Standing Cooperation Committee (SCC).”

Appendix 3 : Limits of the Cabinet Decision No. 16 (2013) regarding the connection of Premises to Public Sewers

Table 11. Limits for Domestic, Industrial, Commercial, and Agricultural Discharges into public sewers according to resolution 16 for the year 2013.

No.	Parameter	Unit	Limit according to 16/2013
1	Temperature	°C	65
2	Total Suspended Solids (TSS)	mg/L	600
3	Suspended solids, weight > 1.5 g/cm ³	mg/L	50
4	Chemical oxygen Demand (COD)	mg/L	2,000
5	Fat, Oil and Grease	mg/L	100
6	Phenol	mg/L	10
7	Mineral oils	mg/L	20
8	Detergents (MBAS)	mg/L	40
9	Phenol (non-halogenated)	mg/L	100
10	Chloride (Cl ⁻)	mg/L	500
11	Sulphate (SO ₄)	mg/L	1,000
12	Sodium (Na)	mg/L	500
13	Aluminum (Al)	µg/L	10,000
14	Arsenic (As)	µg/L	5,000
15	Copper (Cu)	µg/L	4,500
16	Iron (Fe)	µg/L	50,000
17	Manganese (Mn)	µg/L	10,000
18	Nickel (Ni)	µg/L	4,000
19	Selenium (Se)	µg/L	50
20	Cadmium (Cd)	µg/L	1,000
21	Zinc (Zn)	µg/L	15,000
22	Cobalt (Co)	µg/L	50
23	Chrome (Cr)	µg/L	5,000
24	Boron (B)	µg/L	5,000
25	Cyanide (CN)	µg/L	2,000
26	Mercury (Hg)	µg/L	500
27	Lead (Pb)	µg/L	600
28	Silver (Ag)	µg/L	1000
29	Vanadium (V)	µg/L	100



Appendix 4 : Main Actors concerning the BRS&M conventions

Table 12. Governmental Stakeholders of waste and chemicals management sector in Palestine.

#	Agency	Department	Responsibilities/Activities
1	Cabinet		<p>has a role in overseeing the implementation of the signed BRS&M conventions in Palestine. This could include:</p> <ol style="list-style-type: none"> 1. Assigning national focal point or coordinating committee to oversee the implementation of the conventions. 2. Enacting domestic legislation and regulations to ensure compliance with the conventions. 3. Providing guidance and support to relevant government agencies to implement the conventions effectively. 4. Establishing monitoring and reporting mechanisms to track progress in implementing the conventions. 5. Cooperating with other countries and international organizations to exchange information, best practices, and technical assistance in implementing the conventions. 6. Raising awareness among the public and private sectors about the importance of complying with the conventions and taking steps to protect the environment and public health.
2	EQA		<p>has a role in ensuring the proper application of the signed BRS&M conventions in Palestine. This could include:</p> <ol style="list-style-type: none"> 1. Establishing regulatory frameworks and guidelines to ensure the safe and environmentally sound management of hazardous chemicals and wastes, as required by the conventions. 2. Providing technical assistance and training to relevant government agencies and other stakeholders to help them implement the conventions effectively. 3. Issuing Environmental approvals and permits for hazardous materials and waste 4. Conducting monitoring and inspection programs to ensure compliance with the conventions and taking enforcement action as necessary. 5. Participating in international negotiations and meetings to promote the effective implementation of the conventions and to advance Palestine's interests in the global environmental governance. 6. Raising awareness among the public and private sectors about the importance of complying with the conventions and taking steps to protect the environment and public health. 7. Collecting and reporting data and information on the state of the environment and the implementation of the conventions in Palestine, as required by the conventions.
3	MoFP		<p>has a role in coordinating and allocating the necessary financial resources for the implementation of the signed BRS&M conventions. This could include:</p>



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#	Agency	Department	Responsibilities/Activities
			<ul style="list-style-type: none"> Identifying and securing funding sources Managing and monitoring the use of those funds to ensure they are used effectively and efficiently.
4	MoFA		<p>Stands as the CA for Basel and Stockholm</p> <p>Has a role in promoting the effective implementation of the signed BRS&M conventions in Palestine and in advancing Palestine's interests in the global environmental governance. This could include:</p> <ol style="list-style-type: none"> Participating in international negotiations and meetings to promote the effective implementation of the conventions and to advance Palestine's interests in the global environmental governance. Cooperating with other countries and international organizations to exchange information, best practices, and technical assistance in implementing the conventions. Building strategic partnerships and coalitions with other countries and organizations to advance common goals related to the conventions. Raising awareness among the international community about the importance of complying with the conventions and taking steps to protect the environment and public health. Facilitating the exchange of information and data on the state of the environment and the implementation of the conventions in Palestine with other countries and international organizations. Advocating for Palestine's interests in the development of new conventions or amendments to existing conventions related to hazardous chemicals and wastes. Developing policies and strategies to promote compliance with the conventions
5	MoLG		<p>could have a role in implementing the signed BRS&M conventions at the local level in Palestine. This could include:</p> <ol style="list-style-type: none"> Coordinating and collaborating with local government entities, such as municipalities and governorates, to ensure compliance with the conventions. Developing local regulations and guidelines to ensure the safe and environmentally sound management of hazardous chemicals and wastes, as required by the conventions. Providing technical assistance and training to local government entities to help them implement the conventions effectively. Conducting monitoring and inspection programs to ensure compliance with the conventions at the local level. Raising awareness among the public and private sectors at the local level about the importance of complying with the conventions and taking steps to protect the environment and public health.



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#	Agency	Department	Responsibilities/Activities
			6. Cooperation for Collecting and reporting data and sharing information on the state of the environment and the implementation of the conventions at the local level, as required by the conventions.
6	MoA		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to the management of pesticides and other hazardous chemicals used in agriculture. This could include:</p> <ol style="list-style-type: none"> 1. Developing policies and regulations to ensure the safe and environmentally sound use and disposal of pesticides and other hazardous chemicals, as required by the conventions. 2. Providing technical assistance and training to farmers and agricultural workers to help them use and dispose of pesticides and other hazardous chemicals safely and responsibly. 3. Conducting monitoring and inspection programs to ensure compliance with the conventions in relation to the use and disposal of pesticides and other hazardous chemicals in agriculture. 4. Raising awareness among the farming community about the importance of complying with the conventions and taking steps to protect the environment and public health. 5. Promoting sustainable agricultural practices that reduce the use of hazardous chemicals and promote the use of safer alternatives. 6. Participating in international negotiations and meetings related to the conventions, particularly those related to the trade in hazardous chemicals used in agriculture.
7	MoH	Environmental Health Department	<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to protecting public health from the harmful effects of hazardous chemicals and wastes. This could include:</p> <ol style="list-style-type: none"> 1. Developing policies and regulations to ensure the safe and environmentally sound management of hazardous chemicals and wastes, as required by the conventions, with a focus on protecting public health. 2. Providing technical assistance and training to health professionals to help them identify and respond to health risks associated with exposure to hazardous chemicals and wastes. 3. Conducting monitoring and surveillance programs to identify health risks associated with exposure to hazardous chemicals and wastes and to track trends in the incidence of related diseases and conditions. 4. Raising awareness among the public and health professionals about the risks associated with exposure to hazardous chemicals and wastes and about the importance of taking steps to protect public health. 5. Participating in international negotiations and meetings related to the conventions, particularly



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#	Agency	Department	Responsibilities/Activities
			<p>those related to protecting public health from the harmful effects of hazardous chemicals and wastes.</p> <p>6. Cooperating with other government agencies and international organizations to exchange information and best practices related to protecting public health from the harmful effects of hazardous chemicals and wastes.</p>
8	MoNE		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to the trade and management of hazardous chemicals and wastes. This could include:</p> <ol style="list-style-type: none"> 1. Developing policies and regulations to ensure the safe and environmentally sound trade and management of hazardous chemicals and wastes, as required by the conventions. 2. Participating in international negotiations and meetings related to the conventions, particularly those related to the trade in hazardous chemicals and wastes. 3. Providing technical assistance and training to businesses and industry to help them comply with the conventions and adopt safer and more environmentally friendly practices. 4. Conducting monitoring and inspection programs to ensure compliance with the conventions in relation to the trade and management of hazardous chemicals and wastes. 5. Raising awareness among the private sector about the importance of complying with the conventions and taking steps to protect the environment and public health. 6. Promoting sustainable and environmentally friendly economic development that reduces the use of hazardous chemicals and promotes the use of safer alternatives. 7. Cooperating with other government agencies and international organizations to exchange information and best practices related to the trade and management of hazardous chemicals and wastes.
9	MoT		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to the transportation of hazardous chemicals and wastes. This could include:</p> <ol style="list-style-type: none"> 1. Developing policies and regulations to ensure the safe and environmentally sound transportation of hazardous chemicals and wastes, as required by the conventions. 2. Providing technical assistance and training to transport companies and workers to help them comply with the conventions and adopt safer and more environmentally friendly practices. 3. Conducting monitoring and inspection programs to ensure compliance with the conventions in relation to the transportation of hazardous chemicals and wastes.



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#	Agency	Department	Responsibilities/Activities
			<ol style="list-style-type: none"> 4. Raising awareness among the transport sector about the importance of complying with the conventions and taking steps to protect the environment and public health. 5. Promoting sustainable and environmentally friendly transportation practices that reduce the risks associated with the transportation of hazardous chemicals and wastes. 6. Participating in international negotiations and meetings related to the conventions, particularly those related to the transportation of hazardous chemicals and wastes. 7. Cooperating with other government agencies and international organizations to exchange information and best practices related to the transportation of hazardous chemicals and wastes.
10	MoL		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to protecting workers from the risks associated with exposure to hazardous chemicals and wastes. This could include:</p> <ol style="list-style-type: none"> 1. Developing and enforcing regulations to protect workers from exposure to hazardous chemicals and wastes, as required by the conventions. 2. Providing technical assistance and training to employers and workers to help them identify and respond to health and safety risks associated with exposure to hazardous chemicals and wastes. 3. Conducting monitoring and inspection programs to ensure compliance with regulations designed to protect workers from exposure to hazardous chemicals and wastes. 4. Raising awareness among workers and employers about the risks associated with exposure to hazardous chemicals and wastes and about the importance of taking steps to protect worker health and safety. 5. Promoting sustainable and environmentally friendly workplace practices that reduce the use of hazardous chemicals and promote the use of safer alternatives. 6. Participating in international negotiations and meetings related to the conventions, particularly those related to protecting workers from the risks associated with exposure to hazardous chemicals and wastes. 7. Cooperating with other government agencies and international organizations to exchange information and best practices related to protecting workers from the risks associated with exposure to hazardous chemicals and wastes.
11	MoI	CD CP	<p>CD could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to emergency response and preparedness in case of accidents or incidents involving hazardous chemicals and wastes. This could include:</p>



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#	Agency	Department	Responsibilities/Activities
			<ul style="list-style-type: none"> Developing emergency response plans and procedures to deal with accidents or incidents involving hazardous chemicals and wastes, as required by the conventions. Providing technical assistance and training to emergency response teams to help them respond to accidents or incidents involving hazardous chemicals and wastes in a safe and effective manner. Conducting exercises and drills to test emergency response plans and procedures related to hazardous chemicals and wastes. Coordinating with other government agencies and international organizations to ensure an effective and timely response to accidents or incidents involving hazardous chemicals and wastes. Raising awareness among the public about the risks associated with hazardous chemicals and wastes and about the importance of taking steps to protect themselves in case of an emergency. Participating in international negotiations and meetings related to the conventions, particularly those related to emergency response and preparedness in case of accidents or incidents involving hazardous chemicals and wastes. Cooperating with other government agencies and international organizations to exchange information and best practices related to emergency response and preparedness in case of accidents or incidents involving hazardous chemicals and wastes. <p>CP could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to controlling the import and export of hazardous chemicals and wastes. This could include:</p> <ul style="list-style-type: none"> Enforcing customs regulations related to the import and export of hazardous chemicals and wastes, as required by the conventions. Inspecting shipments of hazardous chemicals and wastes at border crossings and ports of entry to ensure compliance with international regulations and standards. Coordinating with other government agencies and international organizations to share information and best practices related to the import and export of hazardous chemicals and wastes. Raising awareness among customs officials and the public about the risks associated with hazardous chemicals and wastes and about the importance of controlling their import and export to protect human health and the environment. Participating in international negotiations and meetings related to the conventions, particularly those related to controlling the import and export of hazardous chemicals and wastes.



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#	Agency	Department	Responsibilities/Activities
			<ul style="list-style-type: none"> Conducting investigations and prosecutions of cases related to the illegal trafficking of hazardous chemicals and wastes. Developing and implementing customs control measures and procedures to prevent the illegal trade of hazardous chemicals and wastes.
12	PCBS		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to collecting and analyzing data on hazardous chemicals and wastes. This could include:</p> <ul style="list-style-type: none"> Collecting and compiling data on the production, import, export, and use of hazardous chemicals and wastes in Palestine, as required by the conventions. Conducting surveys and studies to assess the risks associated with hazardous chemicals and wastes and their impact on human health and the environment. Developing and maintaining databases on hazardous chemicals and wastes, which can be used to support policy-making and decision-making related to the conventions. Sharing data and information with other government agencies and international organizations to support the implementation of the conventions. Raising awareness among the public and decision-makers about the importance of collecting and analyzing data on hazardous chemicals and wastes to support policy-making and decision-making related to their management. Participating in international negotiations and meetings related to the conventions, particularly those related to the reporting and sharing of data on hazardous chemicals and wastes. Developing and implementing monitoring and reporting systems to track progress in implementing the conventions and to identify areas where further action is needed.
13	PSI		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to setting and enforcing standards for hazardous chemicals and wastes. This could include:</p> <ul style="list-style-type: none"> Developing and maintaining standards for the production, handling, transport, and disposal of hazardous chemicals and wastes, in line with the requirements of the conventions. Conducting inspections and audits of facilities that produce, handle, transport, or dispose of hazardous chemicals and wastes to ensure compliance with national and international standards. Developing and promoting the use of best practices for the management of hazardous chemicals and wastes. Raising awareness among stakeholders, including producers, importers, and users of hazardous



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#	Agency	Department	Responsibilities/Activities
			<p>chemicals and wastes, about the importance of complying with standards and best practices to protect human health and the environment.</p> <ul style="list-style-type: none"> • Participating in international negotiations and meetings related to the conventions, particularly those related to setting and enforcing standards for hazardous chemicals and wastes. • Collaborating with other government agencies and international organizations to develop and implement national and regional standards for the management of hazardous chemicals and wastes. • Developing and implementing a certification system for the management of hazardous chemicals and wastes to help ensure compliance with standards and best practices.
14	MDLF		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to providing support for municipalities in the management of hazardous chemicals and wastes. This could include:</p> <ul style="list-style-type: none"> • Providing loans and grants to municipalities for the development and implementation of hazardous waste management systems, in line with the requirements of the conventions. • Supporting municipalities in the establishment of hazardous waste treatment and disposal facilities, including the development of technical and financial feasibility studies, and the provision of technical assistance and training. • Providing technical assistance to municipalities in the identification and characterization of hazardous wastes, as well as in the development of waste management plans. • Raising awareness among municipalities and local communities about the importance of managing hazardous chemicals and wastes in a safe and environmentally sound manner. • Facilitating cooperation and coordination among municipalities and other stakeholders in the management of hazardous chemicals and wastes. • Providing technical assistance and support to national authorities responsible for implementing the conventions, particularly in relation to the management of hazardous chemicals and wastes at the local level.
15	PIF		<p>could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to providing financial resources and investments to support the development and implementation of projects related to hazardous chemicals and wastes management. This could include:</p> <ol style="list-style-type: none"> 1. Providing loans, grants, and investments to private sector entities that are engaged in the management of hazardous chemicals and wastes, including the development of waste treatment and disposal



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#	Agency	Department	Responsibilities/Activities
			<p>facilities, and the implementation of clean technologies.</p> <ol style="list-style-type: none"> Supporting the establishment of public-private partnerships (PPPs) for the management of hazardous chemicals and wastes, including the development of feasibility studies, project planning, and risk assessment. Providing financing for research and development of new technologies for the management of hazardous chemicals and wastes, including those related to waste reduction, recycling, and disposal. Investing in the development of infrastructure for the collection, transport, and disposal of hazardous chemicals and wastes, such as waste collection centers, hazardous waste storage facilities, and treatment plants.

Table 13. Operational Level Stakeholders of waste and chemicals management sector in Palestine.

#	Agency	Responsibilities/Activities
1	JSC of Solid Waste	<p>Involved in collection and transport of solid waste, landfilling, recycling and treatment of waste.</p> <p>Could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to coordinating the efforts of various Palestinian ministries and agencies to develop and implement policies and programs related to hazardous chemicals and wastes management. This could include:</p> <ol style="list-style-type: none"> Coordinating with the various ministries and agencies responsible for implementing the conventions to ensure that their policies and programs are aligned and effective. . Conducting research and analysis related to hazardous chemicals and wastes, to inform the development of policies and programs. Providing technical assistance and support to relevant ministries and agencies, particularly in relation to the implementation of policies and programs related to hazardous chemicals and wastes management. Developing public awareness and education campaigns to promote the safe management of hazardous chemicals and wastes. Developing and maintaining databases and information systems related to hazardous chemicals and wastes, to facilitate monitoring and reporting on the implementation of the conventions.
2	LGUs	<p>Involved in collection and transport of solid waste</p> <p>Could have a role in implementing the signed BRS&M conventions in Palestine, particularly in relation to hazardous chemicals and wastes management at the local level. This could include:</p> <ol style="list-style-type: none"> . Establishing local monitoring and reporting systems to track the generation, transport, and disposal of hazardous chemicals and wastes, in accordance with the conventions. . Developing public awareness and education campaigns to inform the public about the hazards associated with hazardous chemicals and wastes, and to promote the adoption of safe management practices. Participating in the development of national policies and regulations related to hazardous chemicals and wastes management, to ensure that the needs and concerns of local communities are taken into account.



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#	Agency	Responsibilities/Activities
		<ol style="list-style-type: none"> 6. . 7. Cooperating and coordinating with other LGUs and with relevant ministries and agencies to share information and resources, and to promote the adoption of best practices for the management of hazardous chemicals and wastes.
3	UNRWA	<p>As the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is responsible for providing essential services to Palestinian refugees in the region, and involved in collection and transport of solid waste from refugee camps, it could have a role in implementing the signed BRS&M conventions in the camps. The specific role of UNRWA in relation to the conventions could include:</p> <ol style="list-style-type: none"> 1. Raising awareness among the refugee community in the camps about the hazards associated with hazardous chemicals and wastes, and promoting the adoption of safe management practices. 2. Developing and implementing training programs for staff, including health care workers, to ensure they are equipped with the knowledge and skills to identify, handle, and dispose of hazardous chemicals and wastes in accordance with the conventions. 3. Establishing systems for the safe handling, storage, and disposal of hazardous chemicals and wastes generated in the camps, in accordance with the conventions. 4. Promoting and supporting the adoption of environmentally sound practices for the management of hazardous chemicals and wastes by local businesses and industries operating in the camps. 5. Monitoring and reporting on the generation, transport, and disposal of hazardous chemicals and wastes in the camps, and collaborating with relevant ministries and agencies to ensure that any breaches of the conventions are addressed. 6. Coordinating with other UN agencies, NGOs, and relevant stakeholders to share information and resources, and to promote the adoption of best practices for the management of hazardous chemicals and wastes in the camps. 7. Advocating for the needs and concerns of Palestinian refugees in relation to hazardous chemicals and wastes management at the local, regional, and international levels, and participating in relevant forums and working groups to influence policy and decision-making processes.
3	PS	<p>The private sector in Palestine can play a crucial role in implementing the signed BRS&M conventions by investing in recycling of used materials, adopting sustainable and environmentally-friendly practices, complying with regulations and standards related to the management of hazardous waste, chemicals, and other pollutants, and investing in green technologies and innovation. Private companies can also participate in public-private partnerships and collaborate with government agencies, civil society organizations, and international donors to support initiatives related to environmental protection and sustainable development. Additionally, the private sector can engage in capacity building and awareness-raising activities to promote sustainable practices among their employees and stakeholders.</p>

Table 14. Supporting None-Governmental Stakeholders of waste and chemicals management sector in Palestine

#	Agency	Institutes	Responsibilities/Activities
1	UN Organizations	Major contributors:	UN organizations in Palestine can play a key role in supporting the application of signed BRS&M conventions. They can provide technical assistance, capacity building, and financial support to the Palestinian Authority
		UNEP	
		UNDP	
		WHO	



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#	Agency	Institutes	Responsibilities/Activities
		FAO UNRWA	and other stakeholders involved in implementing the conventions. UN organizations can also support the development and implementation of national policies and strategies related to hazardous chemicals and waste management, pollution control, and sustainable development. In addition, UN organizations can conduct research, collect and analyze data, and provide guidance and best practices related to the conventions. They can also facilitate international cooperation and partnerships for the implementation of the conventions, and support the development and implementation of regional and global initiatives related to hazardous chemicals and waste management. Overall, UN organizations can play a critical role in promoting sustainable development and protecting the environment and public health in Palestine.
3	Donors	Major contributors:	can play an important role in supporting the application of the signed BRS&M conventions in Palestine. They can provide financial and technical support to the Palestinian Authority and other stakeholders involved in the implementation of the conventions, including local government units, civil society organizations, and the private sector. Donors can provide funding for capacity building and training programs, technical assistance, and equipment and infrastructure necessary for the safe management of hazardous chemicals and waste. They can also support research and data collection efforts, and the development and implementation of national policies and strategies related to the conventions. In addition, donors can promote international cooperation and partnerships, including through the support of regional and global initiatives related to hazardous chemicals and waste management. Donors can also play a role in advocating for the inclusion of hazardous chemicals and waste management in national and international development agendas, and in raising awareness about the potential risks associated with hazardous chemicals and waste. Overall, the support of the donors community can be critical in promoting sustainable development and protecting public health in Palestine.
		JICA	
		GIZ	
		KfW	
		SIDA	
		GAC	
4	Unions	PFI	could play a role in promoting the application of the signed BRS&M conventions among its member industries and advocating for their implementation to the relevant government bodies. The PFI could also provide training and



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#	Agency	Institutes	Responsibilities/Activities
			technical assistance to its members to help them comply with the requirements of these conventions, including the proper management and disposal of hazardous wastes and chemicals. Additionally, the PFI could engage with international organizations and donors to secure funding and support for the implementation of the conventions in Palestine.
		PIPA (The Palestinian Investment Promotion Agency)	could play a role in promoting investment in industries and projects that align with the requirements of the signed BRS&M conventions. PIPA could provide guidance and support to potential investors in complying with the environmental regulations and standards set forth by these conventions. Additionally, PIPA could work with the relevant government bodies to ensure that new investment projects are environmentally sustainable and meet the requirements of the conventions. PIPA could also promote awareness of the importance of these conventions among the business community in Palestine and encourage their adoption and implementation in business practices.
		FPCCIA Federation of Palestinian Chambers of Commerce, Industry and Agriculture	The Federation of Palestinian Chambers of Commerce, Industry and Agriculture (FPCCIA) could play a role in promoting the implementation of the signed BRS&M conventions among its members, which include Palestinian businesses engaged in trade, industry, and agriculture. The FPCCIA could raise awareness of the conventions and their requirements, provide guidance to its members on compliance, and encourage its members to adopt best practices and standards for the handling and transport of hazardous substances and chemicals. The FPCCIA could also collaborate with relevant government agencies and international organizations to support the implementation of the conventions and to promote sustainable and responsible economic development in Palestine.
		PCU Palestinian contractors union	The Palestinian Contractors Union could play a role in promoting and ensuring compliance with the BRS&M conventions by its members who are engaged in construction and development projects. The union could provide guidance and training on the proper handling and disposal of hazardous waste and other potentially harmful substances to protect human health and the environment, as well as advocate for the adoption of sustainable practices in the construction industry. Additionally, the union could encourage the use of environmentally friendly materials and technologies in building



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#		Agency	Institutes	Responsibilities/Activities
				projects to minimize the impact of construction on the environment.
5		Academia	Major contributors:	could play a role in promoting awareness and providing education and training on the principles and requirements of the signed conventions, as well as conducting research on the implementation of these conventions in Palestine. They could also provide technical support and advice to government agencies, private sector organizations, and civil society on how to comply with the conventions' requirements and best practices. Additionally, academic institutes could contribute to the development of relevant policies and regulations to facilitate the effective implementation of the conventions.
			An-Najah National University	
			Birzeit University	
6		INGOs	Major contributors:	International non-governmental organizations (NGOs) could play a role in supporting the implementation of the signed conventions in Palestine. They can provide technical assistance, training, capacity building, fund raising, and awareness-raising activities for relevant stakeholders, including government agencies, private sector, and civil society. They can also monitor and report on the implementation of the conventions, advocate for the adoption of best practices, and collaborate with local partners to ensure the effective application of the conventions in Palestine.
			CESVI	
			We World	
7		Local NGOs	Major contributors:	Local NGOs can play a crucial role in raising awareness and promoting the implementation of the signed BRS&M conventions in Palestine. They can monitor the implementation of the conventions, advocate for better policies, and engage with local communities to promote sustainable development practices. Local NGOs can also collaborate with international organizations, government institutions, and the private sector to ensure that the conventions are effectively implemented and enforced in Palestine.
			ARIJ	
			PARC	
			HWE	
8		Consultancy Companies	Major contributors:	Consultancy companies can play a role in helping organizations in Palestine to understand and comply with the requirements of the signed BRS&M conventions. They can provide technical assistance, training, and advisory services on issues related to the management of hazardous chemicals and wastes, including risk assessment, pollution prevention, and waste minimization. Additionally, consultancy companies can support the development of policies, procedures, and programs that are in line with the requirements of these conventions.
			CEP	
			UG	
			Enfra Consultants	

Appendix 5 : Illustrative maps related to waste management in the West Bank and Gaza Strip

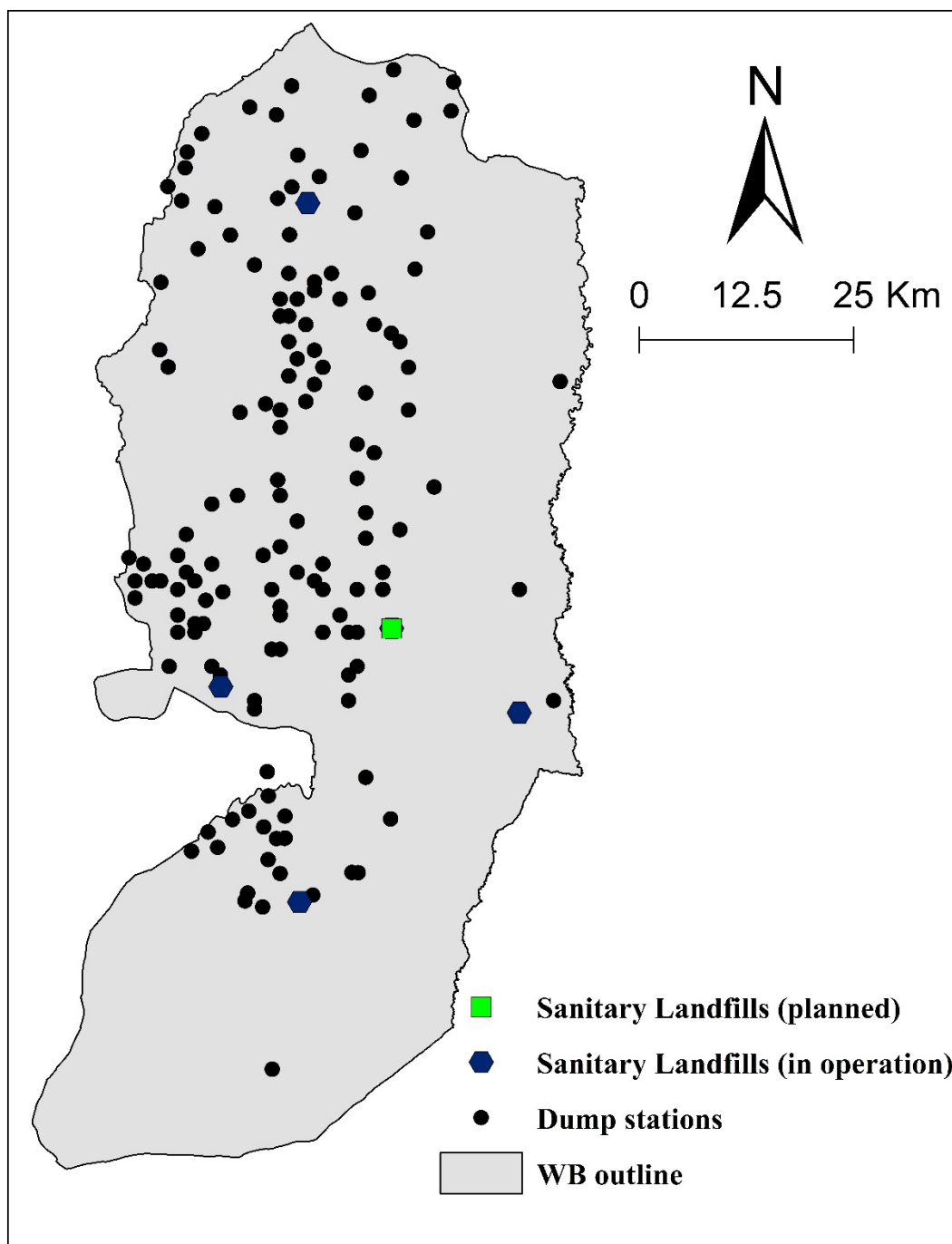


Figure 4: Sanitary landfills and dump stations in the West Bank

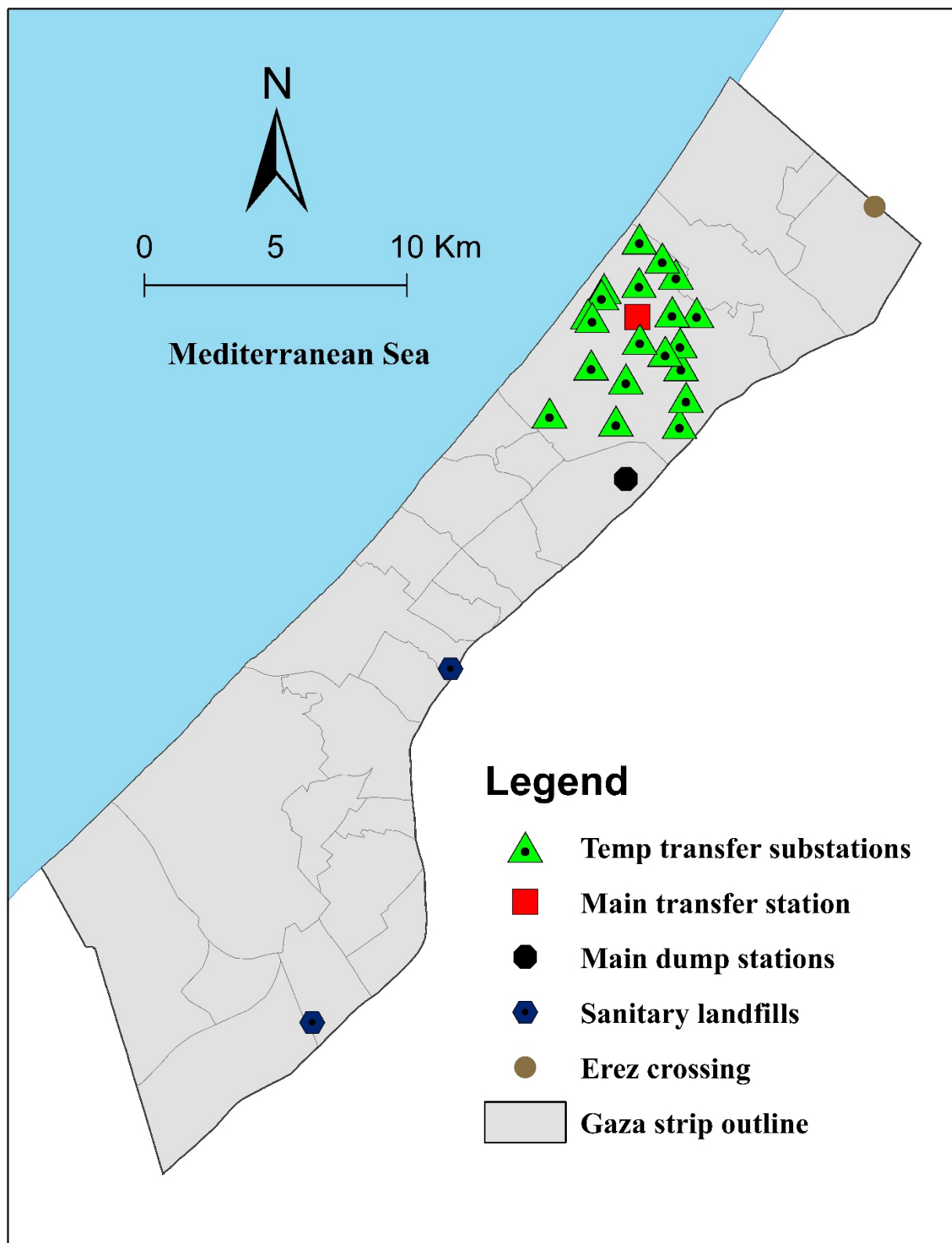


Figure 5: Sanitary landfills, dump-stations, and transfer substations in Gaza Strip

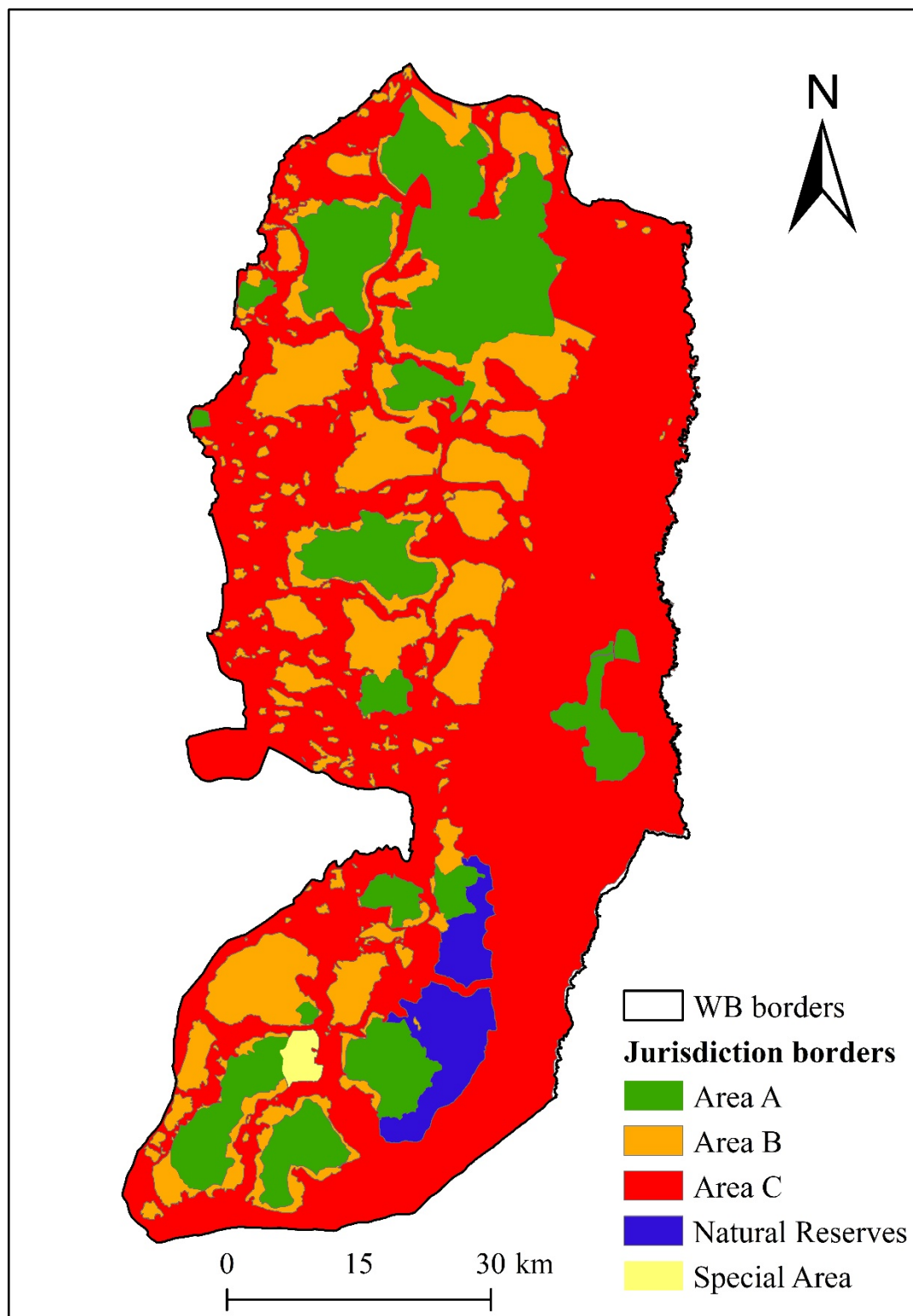


Figure 6: Jurisdiction borders in the West Bank according to Oslo agreements

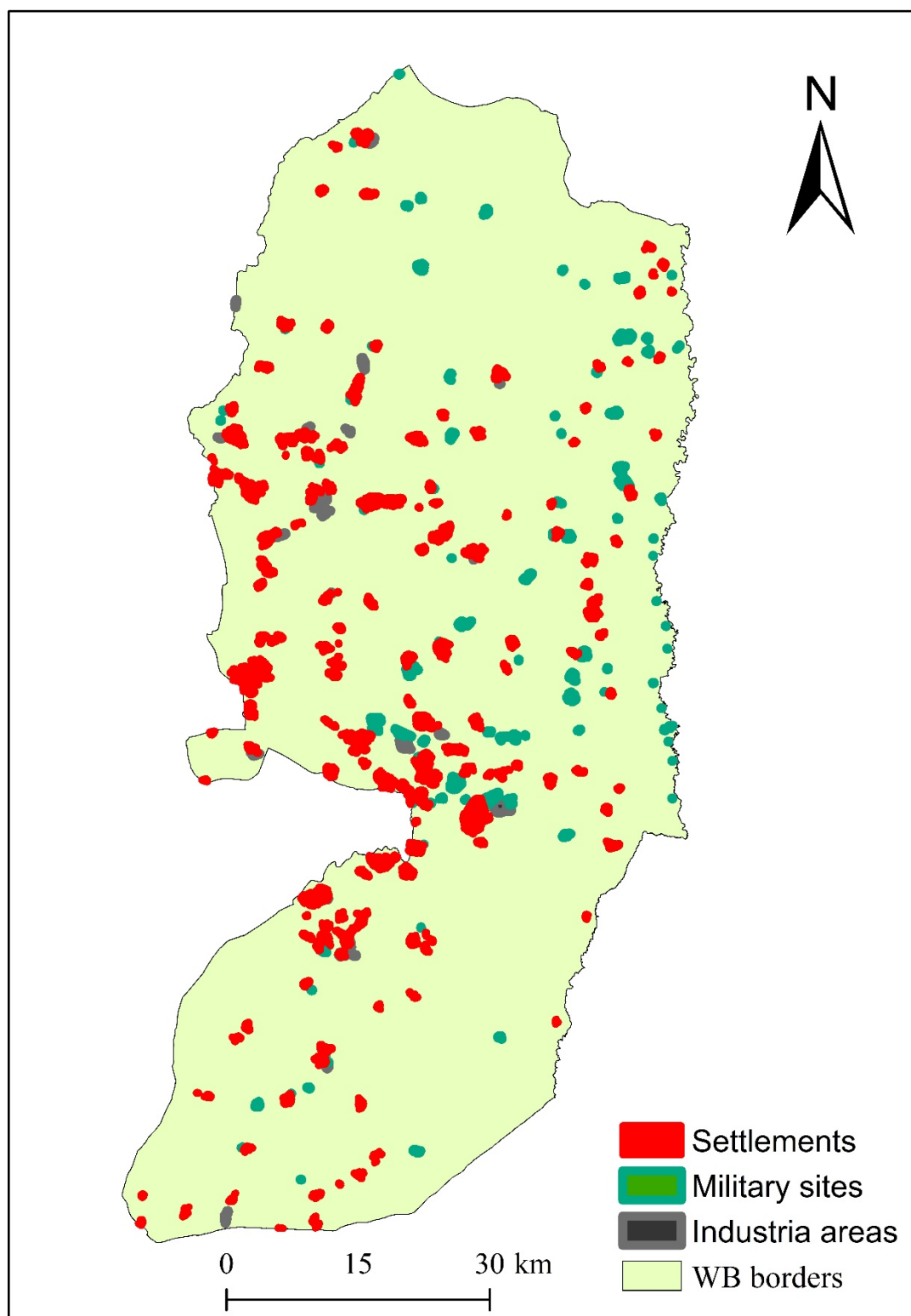


Figure 7: Settlements, military sites, and industrial areas in the West Bank

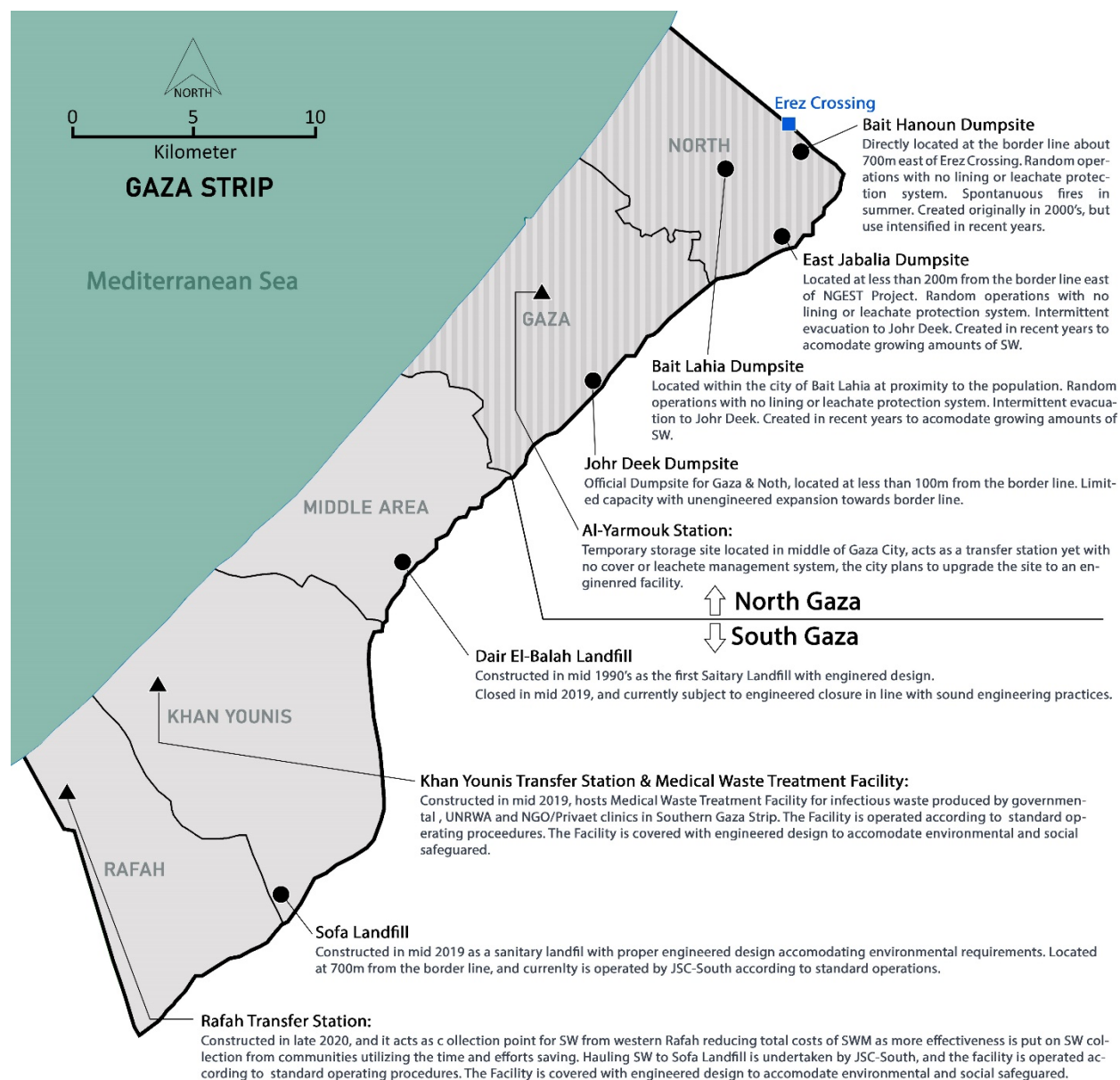


Figure 8: Landfills in Gaza Strip



Appendix 6 : Gaps and Challenges Identified in the UNDP/PAPP Final Evaluation Report on Strengthening Environment Quality Authority Regularity Functions (2014)

The UNDP/PAPP Final Evaluation Report on Strengthening Environment Quality Authority Regularity Functions (2014) summarized the following challenges that face the environment sector in general and EQA in specific:

Challenges facing the environment in Palestine:

The environmental sector is relatively new in Palestine and faces enormous challenges that need to be addressed immediately to avoid the irreversible consequences of the ongoing environmental deterioration. In summary

1. Lack of control over limited natural resources: The Israeli Occupation presents the main obstacle to the sector's development due to its control over the land and natural resources. The PNA has no control over 60 % of the area in the West Bank. Essential infrastructure environmental-related projects such as sanitary landfills, central wastewater treatment plants, and any other projects planned to be constructed in Area C require the approval of the Israeli Authority. This decision-making structure has hindered the PA's ability to develop its natural resources and improve the quality of environmental services in the West Bank.
2. Lack of funding: Since the establishment of the PA in 1993, the environmental sector hasn't received sufficient attention from the PA or the international community. Over the last two decades, the sector has received little considerable investment in other sectors, such as water, solid waste, and infrastructure. Furthermore, EQA, since its establishment in 1996, hasn't received the required funds from the PA general treasury to implement its environment investment plans, as it is not seen as a revenue-generating agency by the PNA.
3. Poor environmental governance: The environmental governance of Palestine has not been effective yet. The key factors that contribute to poor governance include Conflict in rules and responsibilities and lack of inter-agency coordination:
 - i. Conflict related to overlapping mandates appears in many areas but is especially prevalent between institutions such as the MoH, MoA, MoLG, and MoNE.
 - ii. Insufficient regulatory framework and weak enforcement of environmental law.

Challenges face EQA:

- a. Conflicting laws, procedures, and the different understandings of these laws by the various line ministries have contributed to the inefficiency and lack of coordination toward protecting the environment.
- b. The negative perception of some ministries on the capacity and role of EQA is an issue of concern that EQA must address as soon as possible to allow for better influence and coordination.
- c. The limited capacity and resources available for EQA to perform its function in monitoring and to inspect environmental violations. The current human resources of EQA at the HQ and regional offices are not sufficient to cover all geographic areas of Palestine, and the available equipment for EQA to perform inspection functions are not



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adequate for carrying out all inspection and monitoring tasks. Finding a sustainable and holistic solution to the weak capacity and limited resources remains a priority that should be discussed at higher political levels.

- d. The conditions of the workplace of EQA are not helping the institution work efficiently or to act as a good model for environmentally friendly buildings. Renovations and improvement in the workplace is an urgent needs to enhance the efficiency of the staff and improve the public perception of the institution itself.



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Enclosure: Lists of Hazardous Materials and Prohibited and Controlled Substances in Palestine



List of Hazardous Materials in Palestine



List of Controlled and Restricted Substances