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## The State of Palestine's Nationally Determined Contribution (NDC) implementation plans: Waste – Reducing emissions in the waste management sector

Report for Palestine's Environment Quality Authority and the Islamic Development Bank under the NDC Partnership's Climate Action Enhancement Package



Environment Quality  
Authority



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## List of abbreviations

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AFD	French Development Agency (Agence Francaise de Developpment)
GCF	Green Climate Fund
GHG	Greenhouse gas
GIZ	German Development Cooperation
JG	Japanese Government
KfW	KfW Development Bank
MoLG	Ministry of Local Government
MoWA	Ministry of Women's Affairs
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
UNDP	United Nations Development Programme
UNWRA	United Nations Relief and Works Agency
WB	World Bank

# 1 Introduction

## 1.1 Overview

This plan for “**Reducing emissions in the waste management sector**” is intended to enhance Palestine’s opportunities to access climate finance and thereby facilitate successful implementation and delivery of Palestine’s Nationally Determined Contribution (NDC). Details of the methodology used to develop this plan are provided in Annex 1.

The plan lays out steps to deliver the following NDC actions that are conditional on being able to secure international funding:

- Reduction of methane from landfill
- Use of waste for electricity generation.

The solid waste management sector in Palestine currently has limited capacity to handle the country’s solid waste effectively and safely. Consequences include greenhouse gas (GHG) emissions from landfill sites, random dumpsites, and the illegal burning of waste. It is, therefore, urgent to solve solid waste management issues for climate mitigation, which will also contribute to climate adaptation through minimising other negative effects on the environment and on people’s health.

This plan seeks to reduce GHG emissions from existing landfill sites in Palestine by building the infrastructure to collect methane gas and installing the necessary equipment to generate electricity from the gas collected and from combustion of solid waste. This will be achieved through completion of six activities, each contributing to the following targets that align with the NDC actions:

- 30% reduction of methane emissions from landfill sites by 2030 and 70% reduction by 2040
- 80MW of electricity produced from combustion of solid waste and methane at landfill sites in the West Bank and the Gaza Strip by 2030 and 140MW by 2040.

Table 1 below identifies the locations of the legal landfill sites mentioned in this plan. There are also approximately 80 random, illegal dumpsites located around Palestine.

Table 1 Landfill sites in Palestine

Name of landfill site	Location	
	West Bank	Gaza Strip
Al-Foukhary (Sofa)		✓
Al-Minya	✓	
Beit Anan	✓	
Deir Al Balah		✓
Jericho	✓	
Johr Al-Deik		✓
Yatta	✓	
Zahrat Al-Finjan	✓	

The indicative total cost of achieving this NDC implementation action plan's target is 542 million USD. Taking national contributions into account, there is a total funding gap of 392 million USD. Achieving the targets will provide considerable benefits for Palestine by substantially reducing GHG emissions and by reducing the sensitivity of ecosystems and populations to indirect impacts from the direct impacts of climate change on the waste, health and energy sectors. There is strong government support to undertake the NDC actions that are the focus of this plan, which feature in national and sectoral strategies.

A public-private partnership is being commissioned to pilot combustion of solid waste for generating electricity at Zahrat-Al Finjan. This pilot project is expected to produce 20-25 MW and operate for around 25 years. This pilot has been by the Ministry of Local Government (MoLG), Palestine Energy and National Resources Authority, Palestine Electricity Transmission Company and Environment Quality Authority, and is funded by private investors. Following the successful implementation of the pilot project and based on experience developed, the aim is to replicate it at other landfill sites in Palestine.

## 1.2 Geographical scope

Activities in this NDC implementation action plan are an equal priority for the whole of the Occupied Palestinian Territory, i.e. the West Bank, including East Jerusalem, and the Gaza Strip. However, the consequences of Israel's military actions during May 2021 have major implications for the waste sector, related infrastructure and the capacity of the MoLG to provide services to the Palestinian people living in the Gaza Strip. As this plan was developed in the months immediately prior to Israel's military actions, there is an urgent need to re-assess the waste sector's needs for rehabilitation before implementing specific activities in the Gaza Strip. Hence, the activities laid out may need to be revisited to address resultant damage to waste infrastructure, as well as the additional waste created.

## 2 Relevance of the GCF Country Programme

The Green Climate Fund (GCF) Country Programme includes a funding proposal for the: "*Promotion of Sustainable Waste Management programme to reduce GHG emissions and local pollution*". This is to be achieved through three outputs. The second output may seem partially relevant to this NDC implementation action plan, as it focuses on promoting a small-scale biodigester for utilizing methane. This plan, however, focuses on collecting methane from landfill sites and generating electricity from the gas collected, as well as from combustion of solid waste.

## 3 Reasons for prioritisation of NDC actions

The two NDC actions that can be implemented through this plan, seek to reduce emissions in the waste management sector. National stakeholders scored the relevance and feasibility of these actions based on the extent to which the Government's existing national and sectoral policies, strategies and plans already acknowledge their importance (High = 10, 5, 0 = Low); their adaptation and mitigation benefits (Very positive = 10, 5, 0, -5, -10 = Very negative) and the capacity and technology available to achieve them (High = 5, 2.5, 0 = Low).



The capacity scores reflect that the activities in this plan are not currently being implemented, although this plan aims to increase the capacity available, as necessary, to address constraints. The results are shown in Table 2.

Table 2 Priority scores for NDC actions

NDC actions	Government support	Adaptation benefits	Mitigation benefits	Capacity available	Technology available	Total
Reduction of methane from landfill	10	5	10	2.5	2.5	<b>30</b>
Use of waste for electricity generation	10	5	10	0	2.5	<b>27.5</b>

These scores draw upon and are justified by information in the following sub-sections that address each of the priority criteria.

### 3.1 Government support

The NDC action “Reduction of methane from landfill” is featured in the National Strategy for Solid Waste Management in Palestine (2017-2022)<sup>1</sup>, which seeks to minimise the release of GHGs to the atmosphere by prohibiting the use of random dumpsites. The NDC action “Use of waste for electricity generation” is featured in the National Strategy for Solid Waste Management in Palestine (2017-2022)<sup>2</sup>, the Energy Strategy for Palestine (2015-2020)<sup>3,4</sup>, and in the Overall Strategy for Renewable Energy – the second phase of Renewable Energy (2016-2020)<sup>4</sup>. These documents also specifically identify methane from landfill as a potential source of energy in Palestine. There is, therefore, strong government support to reduce methane from landfill and for use of waste for electricity generation.

### 3.2 Benefits for adaptation to climate change

Future climate scenarios for Palestine project an increase in temperature and a decrease in average annual rainfall, translating into an increase in the risk of drought. The wettest days may also become more frequent, leading to an increased risk of flood.<sup>5</sup> Waste management

<sup>1</sup> Text reads: “Strategic Objective Three: Effective and environmentally-safe management of solid waste services... Policy 5: Safe and efficient disposal of SW in regional sanitary landfill sites servicing all communities or using proper advanced technological methods.... Policy 7: Prohibiting the use of random dumpsites and closing or rehabilitating the existing sites gradually to limit their negative impact on health and environment. Policy 8: Minimise the amount of GHGs emitted as a result of solid waste activities to reduce its impact on climate change”.

<sup>2</sup> Text reads: “Establish a gas collection system for GHG emitted from sanitary landfill sites and using these gases to produce energy according to the standards to be formulated... Construct and operate the necessary stations to transfer the gases emitted from Al-Minya and Yatta landfill sites to electrical energy”.

<sup>3</sup> Text reads: “By 2020, 38% of the installed capacity of renewable energy should be covered by Photovoltaics...biogas fired plants should cover 16%...”

<sup>4</sup> Note that there is an updated strategy currently being developed – ‘National Renewable Energy Plan (2021-2030)’

<sup>5</sup> The State of Palestine’s National Adaptation Plan, p.109-110. Accessible [here](#)

operations are sensitive to such extreme weather conditions, and impact on local communities in the following ways:

- Methane leakage into the atmosphere may increase with extreme heat and droughts, and cause respiratory and cardiac problems, further increasing the population's climate sensitivity
- Higher temperatures increase the odours, flies and diseases associated with waste, which have a direct impact on local communities' health and hygiene as waste is, currently, left close to residential areas.

Palestine's electricity supply, which is mostly imported through Israel from other countries, is also sensitive to climate change. An associated increase in the magnitude and frequency of extreme weather events may disrupt electricity supply chains, potentially leading to more frequent and longer power cuts in Palestine.

The NDC actions that are the focus of the NDC implementation action plan will help alleviate the above impacts by:

- Reducing the amount of methane emitted into the atmosphere
- Expanding sanitary landfill sites and closing illegal dumpsites
- Facilitating local electricity generation and thereby reducing Palestine's dependency on importing electricity to meet demands.

### 3.3 Benefits for mitigating climate change

The primary methods of disposing of waste in Palestine are to send it to sanitary landfill sites or to random dumpsites. Illegal burning of waste in dumpsites and containers also takes place<sup>6</sup>. Both sanitary landfill sites and random dumpsites are major sources of GHG emissions, particularly methane, which is emitted during the decomposition of waste. Methane is a powerful GHG, more than 25 times as potent as carbon dioxide at trapping heat in the atmosphere. It is estimated that methane accounts for more than 75% of GHG emissions from the waste sector in Palestine<sup>7</sup>.

The NDC actions "Reduction of methane from landfill" and "Use of waste for electricity generation" both have important mitigation benefits by reducing the amount of methane from landfill that is left to escape to the surroundings. By implementing these actions, landfill gases will be collected and flared or collected and used for electricity generation. Both methods will lead to an overall reduction of emissions from the waste sector.

### 3.4 Capacity available

There is some experience in the collection of methane gas from landfill sites. However, the practice has only been implemented at one landfill site and so the NDC action "Reduction of methane from landfill" will require some training and capacity-building activities.

The NDC action "Use of waste for electricity generation" has not been implemented in Palestine before. Capacity-building activities will, therefore, be required to enhance

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<sup>6</sup> Solid Waste Management in the Occupied Palestinian Territory, West Bank including East Jerusalem and Gaza, CESVI

<sup>7</sup> The State of Palestine's Initial National Communication Report. Accessible [here](#)



knowledge and understanding of the technology required to generate electricity from the methane collected, as well as from combustion of solid waste.

### 3.5 Technology available

The technology required for methane gas collection from landfill sites has already been used in Palestine at the Yatta and Al-Minya landfill sites, where the methane gas is flared after collection. Yatta landfill is now closed, hence some parts of the gas collection system from this landfill site are now available for redeployment elsewhere.

Electricity generation from methane gas and from combustion of solid waste requires additional technology, such as gas cleaning equipment and engines for electricity generation. These technologies have not previously been used in Palestine but can be readily imported.

## 4 Gender mainstreaming

### 4.1 Rationale for mainstreaming gender in this plan

The impacts of climate change are not gender neutral<sup>8</sup>. Globally, women and girls are disproportionately affected by the impacts of the climate crisis, as existing vulnerabilities are intensified and intersect with a range of social, economic and political inequalities<sup>9</sup>. A business-as-usual approach is likely to exacerbate existing inequalities and limit the opportunities for gender-sensitive and, where appropriate, gender-responsive adaptation actions that may improve gender equality.

At the UNFCCC's 25<sup>th</sup> Conference of the Parties in 2019 the Enhanced Lima Work Programme on Gender and its gender action plan acknowledged the need for gender mainstreaming through all relevant targets and goals, noting that gender-responsive implementation of climate policy and action can raise ambition, enhance gender equality, and promote a just transition of the workforce<sup>10</sup>. Integrating gender equality into development leads to better outcomes in terms of economic efficiency, productivity and policy choices<sup>11</sup>. Gender responsive solutions can help to tackle poverty and inequality while providing better community representation and technical solutions<sup>12</sup>.

### 4.2 Gender mainstreaming in this plan

All activities and targets under this plan have been reviewed by a team of gender experts, including a representative of the Ministry of Women's Affairs (MoWA). Activities identified as

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<sup>8</sup> Toolkit for a Gender-Responsive Process to Formulate and Implement National Adaptation Plans (NAPs) (2019), p.2, available online at: <https://www4.unfccc.int/sites/NAPC/Documents/Supplements/NAPGenderToolkit2019.pdf>

<sup>9</sup> Climate change, agriculture and gender in Gaza: Assessing the implications of the climate crisis for smallholder farming and gender within olive and grape value chains in Gaza (2020), p.5. Accessible [here](#)

<sup>10</sup> Report of the Conference of the Parties on its twenty-fifth session, held in Madrid from 2 to 15 December 2019 (2019), p.6-15. Accessible [here](#)

<sup>11</sup> World Development Report 2012: Gender Equality and Development (2012). p.3-6. Accessible [here](#)

<sup>12</sup> Implementation of gender-responsive climate action in the context of sustainable development (2016). Accessible [here](#)

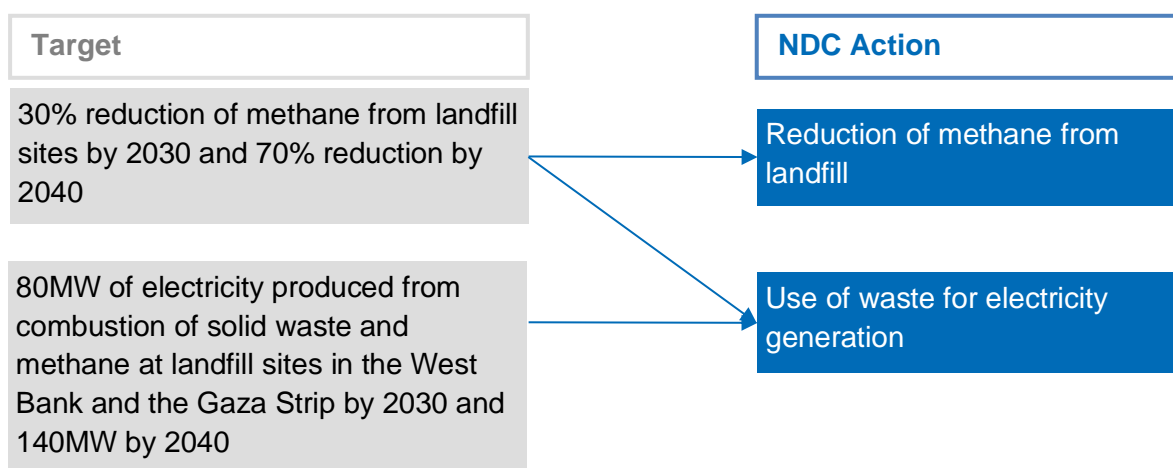
“gender-relevant” were devised to ensure that they are at least gender-sensitive<sup>13</sup> and at best gender-transformative<sup>14</sup>. More specifically, this implementation plan addresses the following gender issues identified in the waste sector:

- Palestine’s women are often responsible for household waste management, while also facing challenges regarding the accessibility and safety of public services. Hence, the plan ensures that women are a target of awareness campaigns, and that barriers for accessing waste management services are addressed.
- Women face more barriers than men in securing employment. This plan ensures that developing sustainable waste management represents an opportunity for education, training and employment for women, for example, in the operation and maintenance of landfill-gas-electricity power stations.

## 5 Activities

The targets set by national stakeholders to facilitate implementation of this plan and achieve the prioritised NDC actions are outlined in Figure 1.

Figure 1 Targets for reducing emissions in the waste management sector



In total, six activities were identified to achieve these targets. They are listed in Figure 2. Further details are provided in the subsequent sections.

<sup>13</sup> Gender-sensitive programmes and policies are Level 3 in the WHO Gender Responsive Assessment Scale and is defined as “Considers gender norms, roles and relations; Does not address inequality generated by unequal norms, roles or relations; Indicates gender awareness, although often no remedial action is developed”. Accessible [here](#)

<sup>14</sup> Gender-transformative programmes and policies are Level 5 in the WHO Gender Responsive Assessment Scale, which is defined as “Considers gender norms, roles and relations for women and men and that these affect access to and control over resources; Considers women’s and men’s specific needs; Addresses the causes of gender-based health inequities; Includes ways to transform harmful gender norms, roles and relations; The objective is often to promote gender equality; Includes strategies to foster progressive changes in power relationships between women and men”. Accessible [here](#)

Figure 2 Summary of activities to reduce methane from landfill

Reduction of methane from landfill			
<b>30% reduction of methane from landfill sites by 2030 and 70% reduction by 2040</b>		16.923m USD (total)	
		16.618m USD (gap)	
Assessing methane generated from landfill sites in Palestine	0.120m USD (total) 0.114m USD (gap)		
Implementing methane-collection solutions for each landfill site	3.923m USD (total) 3.918m USD (gap)		
Modifying existing landfill sites	12.880m USD (total) 12.586m USD (gap)	Target	NDC Actions

Figure 3 Summary of activities for use of waste for electricity generation

Use of waste for electricity generation			
<b>80MW of electricity produced from combustion of solid waste and methane at landfill sites in the West Bank and the Gaza Strip by 2030 and 140MW by 2040</b>		525.435m USD (total)	
		375.414m USD (gap)	
Assessing the feasibility of generating electricity from landfill gas and from waste in Palestine	0.120m USD (total) 0.114m USD (gap)		
Implementing the technology for electricity generation from landfill gas in Zahrat Al-Finjan	150.105m USD (total) 0.100m USD (gap)		
Implementing the technology for generating electricity at other landfill sites	375.210m USD (total) 375.200m USD (gap)	Target	NDC Actions

## 5.1 Activities to reduce methane from landfill sites

National stakeholders have identified specific activities that need to be undertaken to achieve the target: “30% reduction of methane from landfill sites by 2030 and 70% reduction by 2040”. These activities are listed below:

### 1. Assessing methane generated from landfill sites in Palestine

Landfill sites in Palestine differ in their levels of development. This has implications for the type of methane-collection solutions that can be deployed at each site.

The study will help to identify which methane-collection solutions and technology is most suitable for legal landfill sites and random dumpsites in the West Bank and the Gaza Strip, based on the quantities and properties of solid waste and associated methane production. Legal landfill sites that will be assessed are Jericho, Johr Al-Deik and Al-Foukhary, Zahrat Al-Finjan, Deir Al Balah and Beit Anan. Approximately 80 additional random, illegal dumpsites will also be included in the study.

### 2. Implementing methane-collection solutions for each landfill

Implementing the methane-collection solutions selected in Activity 1 will be commissioned through an international bidding process.

Based on the outcomes of the assessment study, methane-collection infrastructure will be constructed and the necessary technology installed at the following landfill sites: Jericho, Johr Al-Deik and Al-Foukhary, Zahrat Al-Finjan, Deir Al Balah and Beit Ana. The infrastructure will also be installed at random dumpsites, which the assessment study identifies are suitable for methane collection.

#### a. Designing the methane-collection infrastructure for each landfill site

The optimal design for the necessary infrastructure at each landfill site will be determined.

#### b. Construction

Once the design has been complete, the methane-collection infrastructure will be constructed at each landfill site.

#### c. Operation and maintenance

Once construction is completed, the methane-collection technology will be maintained to ensure its smooth operation.

#### d. Capacity building

Administrative and technical training will be delivered to staff and technicians from the MoLG to build their capacity to operate the methane-collection technologies and monitor the landfill sites. The opportunity will be taken to create jobs for unemployed, highly-educated women who face gender barriers to employment and to target such training to them.

### 3. Modifying existing landfill sites

#### a. Carrying out preliminary studies for expanding the existing landfill sites

Due to the size of existing sanitary landfill sites and limited space to expand them, random, illegal dumping of waste has rapidly increased in Palestine. Waste is often also burnt at illegal, random dumpsites, leading to high levels of GHG emissions. To avoid illegal sites and associated methane emissions from increasing, the capacity of

sanitary landfill sites will be expanded. Preliminary studies will assess how to expand and increase the capacity of each existing legal landfill site.

**b. Expanding the existing sanitary landfill sites**

Based on the outcome of the preliminary studies, any necessary construction will be carried out to expand the existing legal sanitary landfill sites.

**c. Closing illegal and unsanitary dumpsites**

Once the capacity of sanitary landfill sites has been increased, the illegal, random dumpsites in Palestine will be closed and their waste transported to the legal, sanitary landfill sites, which will have adequate measures in place to minimise methane emissions to the atmosphere.

## 5.2 Activities for use of waste for electricity generation

National stakeholders have identified specific activities that need to be undertaken to achieve the target: *“80MW of electricity produced from combustion of solid waste and methane at landfill sites in the West Bank and the Gaza Strip by 2030 and 140MW by 2040”*. These activities are listed below:

**4. Assessing the feasibility of generating electricity from landfill gas and from waste in Palestine**

A study will be commissioned to determine the feasibility of producing electricity from the methane generated and collected in landfill sites in the West Bank and the Gaza Strip and from combustion of solid waste at those sites. This will include consideration of connecting the sites to the electricity grid

An environmental and social impact assessment will also be undertaken to ensure that the infrastructure and technology required to generate electricity do not lead to negative impacts on the environment or on vulnerable communities.

**5. Implementing the technology for electricity generation from landfill gas in Zahrat Al-Finjan**

The infrastructure for collecting methane gas at Zahrat Al-Finjan will be assessed and implemented under Activities 1 and 2. Equipment and infrastructure will then be required to generate electricity from the methane collected. This equipment will be additional to that already being commissioned for generation of electricity from combustion of solid waste at Zahrat Al-Finjan.

Associated activities to implement the technology for electricity generation from landfill gas comprise:

**a. Designing the plant**

A detailed design of the electricity-generation plant at Zahrat Al-Finjan will be developed. This will identify the appropriate technologies for gas treatment and the most appropriate engine for electricity generation.

**b. Building and commissioning**

The detailed design of the electricity-generation plant will be used as the basis for commissioning its construction by an international company.

**c. Operation and maintenance**

The company that undertakes construction of the electricity-generation plant will be responsible for operating and maintaining the facility for 20 years. This responsibility will be gradually passed on to MoLG staff, who will become fully responsible for operating and maintaining the plant by the end of the 20-year period.

**d. Capacity building**

During the 20-year transition period, the engineering company commissioned for operating the plant will deliver technical training to MoLG staff to improve their knowledge of the technology required to generate electricity from landfill gas. Additional training on administration and supervision will be delivered, to ensure that MoLG staff can effectively operate and maintain the plant before becoming fully responsible for its operation.

These training activities represent an opportunity to create jobs for unemployed, highly-educated women facing gender barriers to employment. Hence, women will be specifically targeted.

**6. Implementing the technology for electricity generation at other landfill sites**

Based on the experience of generating electricity from landfill gas and from combustion of waste at Zahrat Al-Finjan, the electricity-generating technology will be rolled out to other sites, as soon as the technology for generation of electricity from solid waste and from methane is operational, including at Al-Minya, Jericho, Johr Al-Deik, Beit Anan and Al-Foukhary. Total electricity generation from all these sites is estimated at 20MW for the Gaza Strip, 10MW for the middle of the West Bank, and 20MW for southern areas of the West Bank, based on the amount of solid waste collected each year. The specific activities to roll out this technology will be the same as those for Activity 5, albeit with reference to generation of electricity from combustion of waste as well as from landfill gas:

- a. Designing the plant for each landfill**
- b. Building and commissioning**
- c. Operation and maintenance**
- d. Capacity building.**

## 6 Timeframes, indicative costs, existing funding and likely sources of funding

For each of the activities and sub-activities, Table 3 (below) identifies:

- The indicative implementation period
- Indicative costs
- National contributions, where relevant
- Existing international funding, where relevant
- Any remaining funding gap, and
- Indicative options to secure international public funding to address funding gaps. Note that international public funders' and development partners' priorities are subject to change and negotiation.



## 7 Institutional arrangements

Figure 4 (below) sets out the institutional arrangements for implementing this NDC implementation action plan. It identifies the MoLG as the lead organisation for a cross-ministerial Project Steering Committee, as well as project delivery partners and other project stakeholders. The organisations involved will be specific to the activities, as relevant to their interests and may change over time. The MoLG is intended to be the main contact point with international public funders. The committee will aim for equal gender representation in order to encourage gender mainstreaming throughout plans and activities.

It will be of key importance for the MoLG to allocate appropriate financial and administrative resources and clearly secure internal ownership of each activity in the implementation plan. This way, the MoLG can ensure that the implementation plan is delivered, and the Project Steering Committee is functional, delivering the activities to achieve the targets of the plan while adhering to timescales.

## 8 Recommendations for an enabling environment

The successful delivery of this plan will be ensured by developing a supportive enabling environment where it does not yet exist. This may include updating or developing legislation, regulations, statutory guidance (and standards), national or sectoral policies and strategies, and incentives (including fiscal measures) that would contribute to ensure the successful implementation of the activities or remove potential barriers to implementation.

Key recommendations for development of the enabling environment to support the implementation of this plan identified by national stakeholders that will be given further consideration include:

- **Palestine's Environment Law Amendment** that is yet to be enacted **should be used as an enabling context** for the development of the legislation, regulation, statutory guidance, policies, strategies or incentives that are relevant to this plan.
- **Developing statutory standards and codes of practice for waste management.** There are no standards in place for many aspects of solid waste management in Palestine<sup>15</sup>. As a result, Palestine's waste management practices can have negative impacts on people's health and on the environment.
- **Harmonising strategies and plans.** The policy cycle of reviewing and updating strategies and plans regarding waste should continue to develop ever greater coherence of targets and activities within the sector, with other sectors, and across geographies.

The need to review strategies in other sectors includes the Palestine Strategy for Renewable Energy, to consider the implications for the energy sector of generating electricity from methane and from combustion of solid waste.

- **The MoLG's ongoing update of the National Strategy for Solid Waste Management in Palestine (2017-2022)** should ensure that it:

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<sup>15</sup> National Strategy for Solid Waste Management in Palestine (2017-2022)

- References the NDC and NAP, as well as the targets and activities from this NDC implementation action plan
- Explains the relevance of solid waste management for climate change mitigation and adaptation, outlining the positive impacts which will be achieved through successful implementation of this plan
- Explains that the targets will be achieved through methane collection from landfill sites and from generating electricity from the gas collected and from combustion of solid waste, subject to international funding.
- **Exploring and establishing means of enabling the private sector to invest in methane collection and electricity generation**, e.g. through changes to legislation, regulation and incentives (including fiscal measures, such as tax exemptions for the first x years of operation and/or reductions in tariffs for electricity produced from methane and from combustion of solid waste)
- **Developing regulations for employers** to ensure that training activities are included within the terms of their employment, so that individuals are paid to attend during working hours. This will improve women's access to such activities, by addressing their time and economic constraints. Implementing this recommendation requires securing formal approval from the Council of Ministers.
- **Developing regulations and statutory guidelines to enforce gender budgeting**, i.e. analysing all budget lines and financial instruments for climate adaptation and mitigation from a gender-perspective, to ensure gender-sensitive or gender-responsive investments in relevant programmes (e.g. addressing technology transfer and capacity building needs, such as here in this plan). MoWA can be responsible for taking forward this recommendation and securing formal approval from the Council of Ministers.

## 9 Challenges for implementation

Israeli control over Palestinian territories is no impediment to the implementation of this plan. Palestine's unique geo-political situation since 1995 means that the MoLG and its delivery partners have adapted to the requirements and restrictions enforced by Israel's various levels of control and occupation across the West Bank and the Gaza Strip<sup>16</sup>. Efficient decision-making and implementing structures have been developed to circumvent restrictions, including by communicating with the Israeli authorities.

Over the years, the MoLG has worked with a range of international development partners, including the World Bank, the French Development Agency, UNWRA, GiZ, KfW JICA and others. In doing so, it has assisted them in navigating the administrative procedures required to ensure that programmes can be successfully implemented.

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<sup>16</sup> Palestine constitutes the Occupied Palestinian Territory, which is made up of the West Bank (including East Jerusalem) and the Gaza Strip, based on the borders of June 1967 and are separated by Israel, the occupying power. The Oslo II Accord, formally entitled the 'Interim Agreement on the West Bank and the Gaza Strip of 1995', created three territorial zones in The West Bank: Area A, where the Palestinian Government has responsibility for public order and internal security; Area B, where the Palestinian Government assumes responsibility for public order for Palestinians, while Israel controls internal security; and Area C, where Israel maintains exclusive control.

Regarding this plan for reducing emissions in the waste management sector, constraints arising from Israel's occupation could have prevented increasing the number of sanitary landfill sites to compensate for the closure of random dumpsites. The implementation plan has addressed this challenge by focusing on the expansion of existing sanitary landfill sites rather than creating new ones. Palestine will secure any permissions demanded by Israel through official coordination channels, particularly in Area C where Israel maintains exclusive control. International development partners can also intervene to assist in obtaining permissions from Israel and in implementing projects, guided by the MoLG.

Table 3 Timeframes, indicative costs, existing funding (USD million) and likely sources of funding

Activity	2021 -	2026 -	2031 -	Unit cost	No. units	Unit type	Total cost	National contribution	International funding	Funding gap	Indicative options to secure international public funding to address funding gaps
	2025	2030	2040								
1				0.020	6	Landfill sites	0.120	0.006 <sup>17</sup>	0.000	0.114	AFD; WB; UNDP; JICA; JG; UNWRA; GiZ; KfW
2a,b,c				0.004 <sup>18</sup>	1040 <sup>19</sup>	Dunum	3.827	0.000	0.000	3.827	
2d				0.008	12	Trainees	0.096	0.005 <sup>20</sup>	0.000	0.091	
3a				0.040	2	Studies	0.080	0.004 <sup>20</sup>	0.000	0.076	
3b				- <sup>20</sup>	6	Landfill sites	-	0.000	0.000	-	
3c				0.160	80	Dumpsites	12.800	0.064 <sup>20</sup>	0.225 <sup>21</sup>	12.511	
4				0.060	2	Studies	0.120	0.006 <sup>20</sup>	0.000	0.114	
5a,b,c 22				7.500 <sup>23</sup>	25 <sup>24</sup>	MW	150.000 <sup>25</sup>	150.000 <sup>26</sup>	0.000	0.000	
5d				0.008	10 <sup>27</sup>	Trainees	0.080	0.004 <sup>20</sup>	0.000	0.076	

<sup>17</sup> Staff time, providing data, support with logistics.

<sup>18</sup> \$/dunum for gas collection based on the project at Yatta landfill. A detailed breakdown is not known at present. Note that this is an estimate and final costs will vary based on the outcomes of the study in Activity 1.

<sup>19</sup> Amount in dunum.

<sup>20</sup> No cost estimate as this should be based on the results of the study in Sub-activity 7b.

<sup>21</sup> For ongoing rehabilitation of Jericho landfill site. Funds provided from UNRWA and the MoLG. Note that this funding does not contribute to the total funding required for this sub-activity.

<sup>22</sup> Cost estimated based on the tender value for Zahrat Al-Finjan. A detailed breakdown is not known at present therefore Sub-activities 2a, 2b and 2c have been combined in Table 2.

<sup>23</sup> Per MW of electrical power generated including design, construction, commissioning and operation and maintenance.

<sup>24</sup> MW of electrical power (Note that this is an estimate and the final quantity of electricity generated will be understood and optimised based on the results of the assessment study).

<sup>25</sup> This is the cost of equipment that will be used to generate electricity from combustion of solid waste at Zahrat Al-Finjan. The cost of equipment for also generating electricity from the methane collected needs to be determined.

<sup>26</sup> This income is expected to be received through award of a tender to generate electricity from combustion of solid waste at Zahrat Al-Finjan.

<sup>27</sup> Number of trainees for technical training.

Activity	2021 -	2026 -	2031 -	Unit cost	No. units	Unit type	Total cost	National contribution	International funding	Funding gap	Indicative options to secure international public funding to address funding gaps
	2025	2030	2040								
				0.005	5 <sup>28</sup>	Trainees	0.025	0.001 <sup>20</sup>	0.000	0.024	
6a,b,c <sup>29</sup>				7.50 <sup>30</sup>	25 <sup>31</sup>	MW	375.000	0.000 <sup>32</sup>	0.000	375.000	
6d				0.008	20 <sup>33</sup>	Trainees	0.160	0.008 <sup>20</sup>	0.000	0.152	
				0.005	10 <sup>34</sup>	Trainees	0.050	0.002 <sup>20</sup>	0.000	0.048	
<b>TOTAL</b>							<b>542.358</b>	<b>150.102</b>	<b>0.225</b>	<b>392.031</b> <sup>3536</sup>	

<sup>28</sup> Number of trainees for the administrative and operations training.

<sup>29</sup> Cost estimated based on the tender value for Zahrat Al-Finjan. A detailed breakdown is not known at present, therefore, sub-activities for Activity 3 have been combined in Table 2.

<sup>30</sup> Per MW of electrical power generated including design, construction, commissioning and operation and maintenance.

<sup>31</sup> MW of electrical power (Note that this is an estimate and the final quantity of electricity generated will be understood and optimised based on the results of the assessment study).

<sup>32</sup> If it is feasible/profitable, it will attract the private sector but, if not, funding will be required.

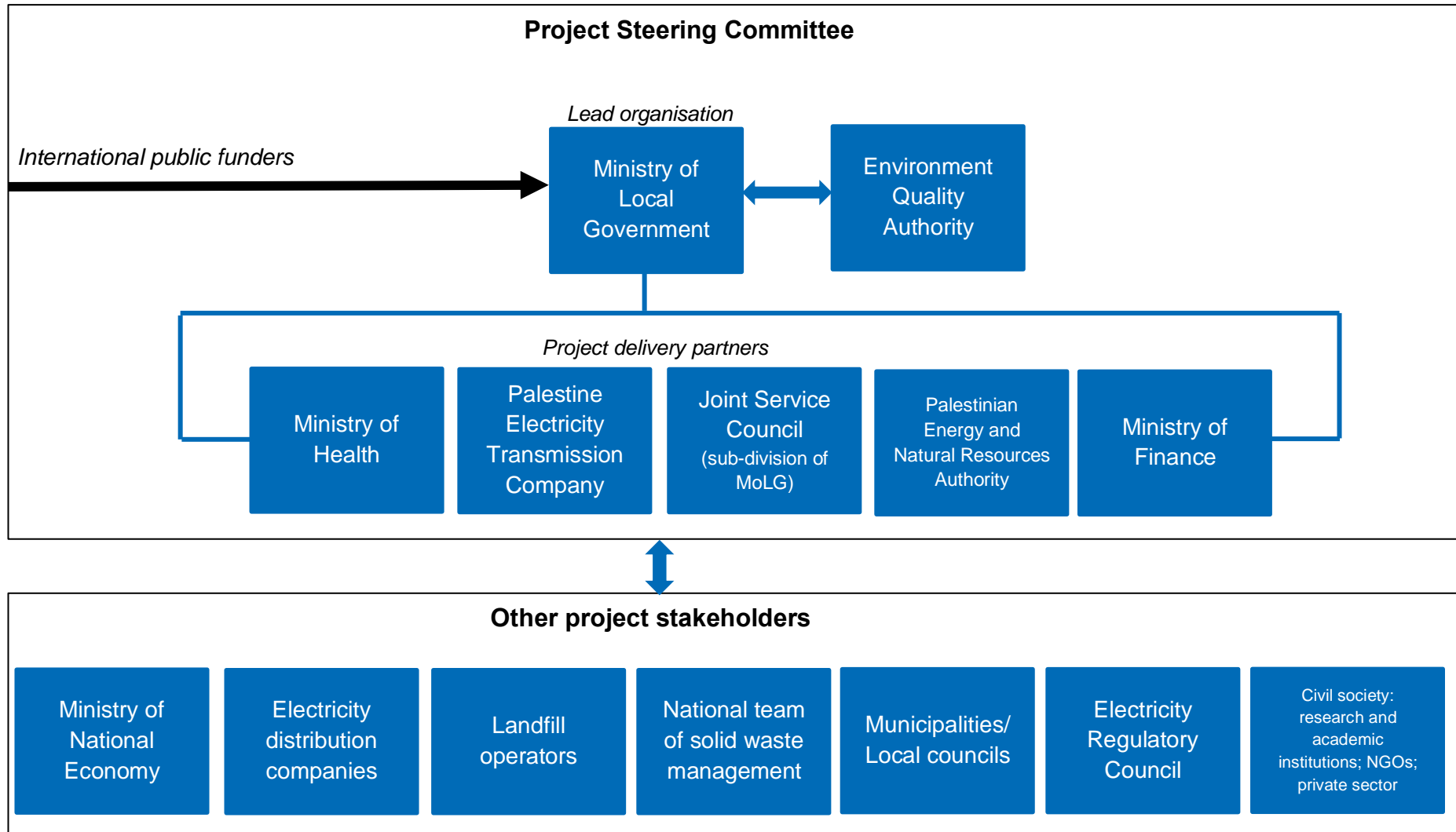
<sup>33</sup> Number of trainees for technical training.

<sup>34</sup> Number of trainees for the administrative and operations training.

<sup>35</sup> Total price excludes the costs of expanding the existing sanitary landfill sites.

<sup>36</sup> Total price is subject to rounding errors.

Figure 4 Institutional arrangements for implementation







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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

State of Palestine  
Ministry of Local Government



دولة فلسطين  
وزارة الحكم المحلي

Date....23/8/2021.....: التاريخ

No. ....4268.....: الرقم

Excellency Mr. Jameel Mtour

Chairman of Environment Quality Authority

**Subject: Endorsement of the NDC Implementation Plans for the Solid Waste Sector**

The Ministry of Local Government sends you best regards and wishes you good health in these difficult days of COVID 19, and would like to thank you for your extended and continued efforts to protect the Palestinian Environment.

Reference is made to the subject and to your kind request for an endorsement letter, and in my capacity as Minister of Local Government, this is to confirm that Ministry of Local Government fully endorse the NDC Implementation Plans for Solid Waste Sector, that was prepared with Ministry of Local Government, National Committee for Climate Change and key stakeholders as part of the project implemented by Environment Quality Authority and NDC Partnership and funded by the Islamic Development Banks.

List of Plans and estimated budget:

1. Reducing emissions in the waste management sector, estimated budget: 542.358 M USD
2. Improving waste management, estimated budget: 52.457 M USD

I would like to reiterate that these plans are in conformity with the National Priorities and relevant Sectoral Strategies as well as the guidance of the Palestinian Council of Ministers.



Majdi Al Saleh

Minister of Local Government

سليمان ابو مفرح

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

State of Palestine  
Ministry of Local Government



دولة فلسطين  
وزارة الحكم المحلي

Date....23/8/2021..... التاريخ

No. ....٤٢٦٨..... الرقم

معالي الاخ جميل مطور حفظه الله

رئيس سلطة جودة البيئة

الموضوع: اعتماد خطط العمل لتنفيذ المساهمات المحددة وطنيا في قطاع النفايات الصلبة

Subject: Endorsement of NDC Implementation Plans: Solid Waste Sector

تحية طيبة وبعد،

تهديكم وزارة الحكم المحلي أطيب التحيات وتتمنى لكم موفور الصحة والعافية وتتقدم لكم بجزيل الشكر على جهودكم الموصولة والهادفة لحماية البيئة الفلسطينية، بالإشارة إلى الموضوع أعلاه وبناء على طلبكم يرجى العلم بأن وزارة الحكم المحلي تؤيد وتدعم خطط العمل لتنفيذ المساهمات المحددة وطنيا والتي تم اعدادها بالتنسيق والتعاون مع وزارة الحكم المحلي وأعضاء اللجنة الوطنية لتغير المناخ والشركاء ذوي العلاقة وذلك ضمن نشاطات المشروع المنفذ من قبل سلطة جودة البيئة وشراكة المساهمات المحددة وطنيا وبدعم من البنك الاسلامي للتنمية.

قائمة بأسماء الخطط والكلفة الاجمالية لها حسب رسالة سلطة جودة البيئة:

1. تقليل الانبعاثات الناتجة عن ادارة النفايات الصلبة، بموازنة تقديرية ( 542.358 M USD).

2. تحسين ادارة النفايات الصلبة، بموازنة تقديرية (52.457 M USD)

مع العلم بان هذه الخطط تأتي انسجاما مع توجيهات مجلس الوزراء وبما يتوافق مع الاولويات الوطنية و الاستراتيجية الوطنية لقطاع النفايات الصلبة (2017-2022).

وتقبلوا فائق التقدير والاحترام



سليمان ابو مفرح