



State of Palestine

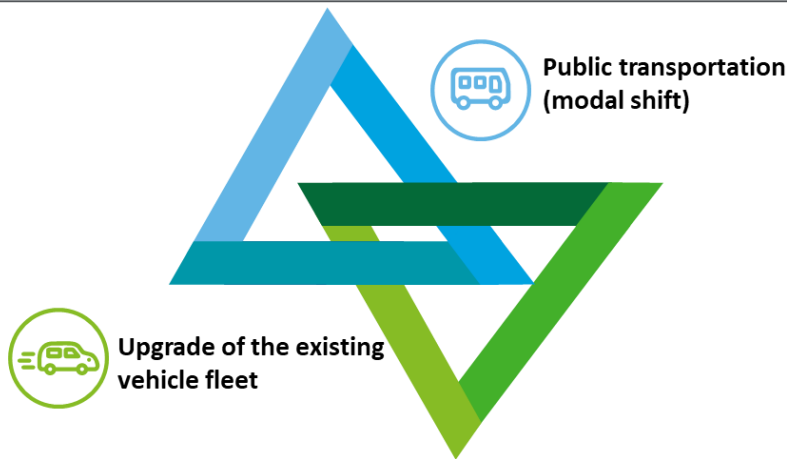
Policy Brief

Transport Sector

What is the Technology Roadmap?

“The Technology Roadmap for the Implementation of Climate Action Plans in Palestine offers solutions for technology deployment and remove barriers and risks for the implementation of prioritized technologies in Palestine across different sectors.”

Technologies prioritized



Palestine and climate change

- The State of Palestine is vulnerable to the impacts of climate change with severe implications for its economy and development.
- Projected impacts of climate change on Palestine include: higher temperature, lower rainfall, more frequent extreme weather events and rise in sea level.

Situation of the sector

- Road networks in Palestine are weak and inefficient. Despite the Palestinian Government’s effort to lead major developments to improve existent road networks and new networks, Israeli occupation has obstructed further development of the sector.
- Public transportation sector suffers from several predicaments, including an outdated bus fleet, in which service provision is yet inefficient and irregular.
- Measures to improve the transport sector are important climate mitigation actions for Palestine. Lack of and inefficient road networks are resulting in inefficient flow of traffic inside and outside of cities. This causes traffic congestions, which, coupled with operation of outdated vehicles, result in higher GHG emissions and pollution.

Proposed actions under the Technology Roadmap

4.1 Overall capacity building and awareness raising

4.3 Development of the inspection process

4.5 Upgrade of existing vehicle fleet

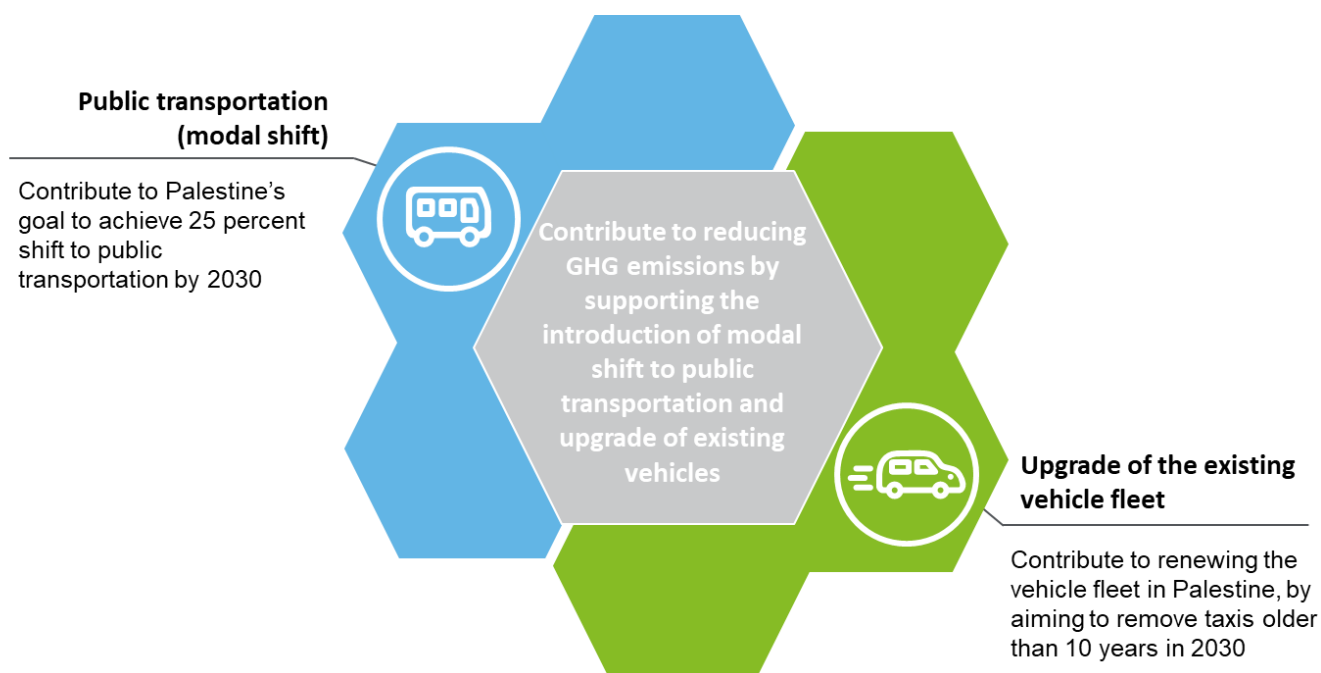
4.2 Development of the enabling environment

4.4 Dissemination of public transportation (modal shift)

4.6 Development of infrastructure

Objectives of the Sector's Implementation Action Plan

The successful implementation of the prioritized technologies for the transport sector will help achieve the country's objectives for the sector, meeting its NDC targets, and achieve a low-carbon development and sustainable growth:



Outcomes under the Roadmap

Clean, efficient public transportation services

Upgraded fleet leading to less GHG emissions

Co-benefits



Mobility and access to employment opportunities increased including for women and youth



Decreased pollution, access to safe vehicles and roads, leading to health benefits



Improved time management, leading to decreased domestic burden

Financing and implementation



Total expected costs:
USD 564,350,000



Expected sources of financing:
International and bilateral partners, Domestic resources, Local financial institutions, Private sector



Leading agencies:
Ministry of Transport

For more information kindly visit:

www.environment.pna.ps/ar/

<http://www.mot.gov.ps/>



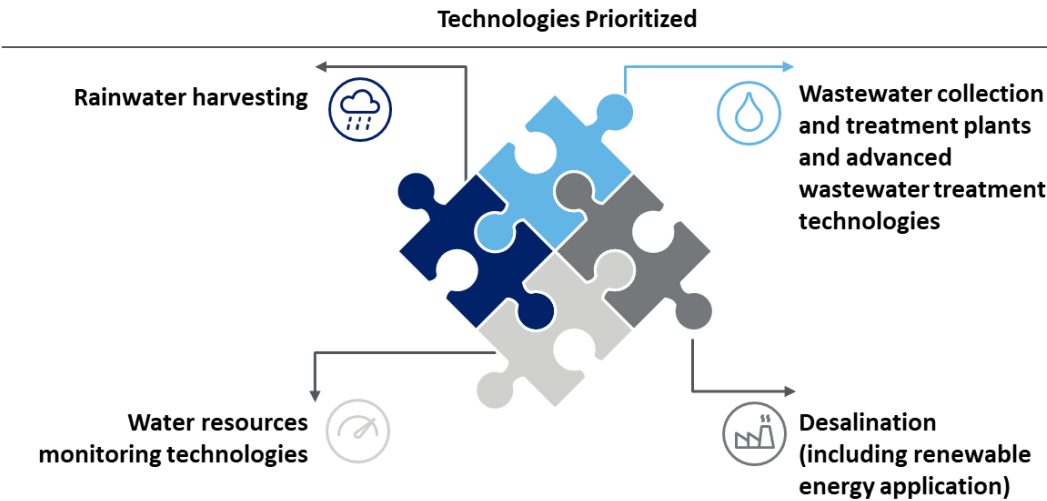
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Policy Brief

Water and Wastewater Sector

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Situation of the sector

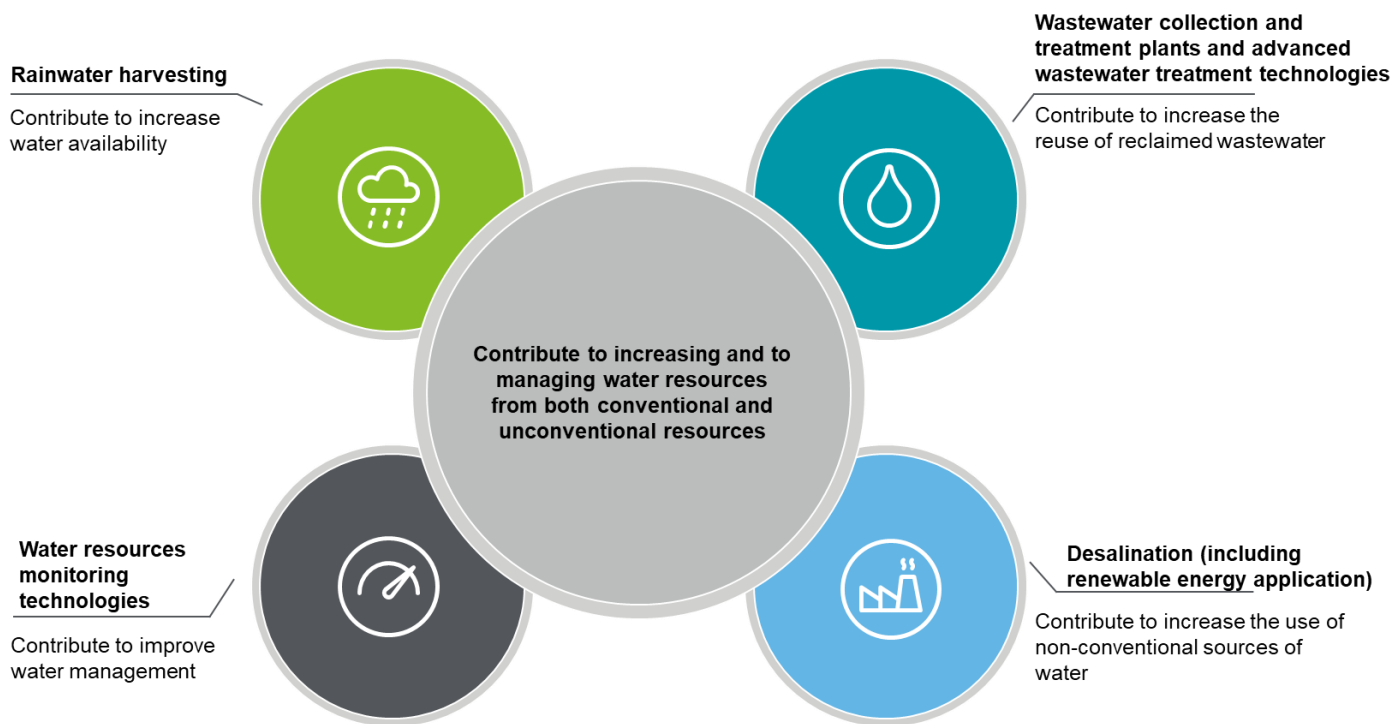
- Sustainable management of water resources is vital to Palestinian’s long-term prosperity. For Palestine, the sustainable management of water resources is not easy as the ongoing Israeli occupation and control over the vast majority of water resources limits Palestine’s access to its water resources.
- Palestine is mostly reliant on groundwater where the majority of Palestinian water supply comes from either by wells or by springs. However, abstraction of water already far exceeds natural recharge, placing additional pressure to the already limited water resource in Palestine.
- Palestine also suffers from poor sanitation system. In the West Bank, only main cities have access to partial coverage in most cases, which makes wastewater treatment infrastructure incapable of dealing with all collected wastewater quantities.
- Since water resources are scarce and there is an increasing demand for water, the Palestinian Government has started to focus on developing non-conventional resources such as desalinated water and reuse of treated wastewater

Proposed actions under the Technology Roadmap

- | | | |
|---|---|---|
| 3.1 Overall capacity building and awareness raising | 3.4 Dissemination of onsite small-scale wastewater treatment plants | 3.7 Deployment of large-scale wastewater collection and treatment plants |
| 3.2 Development of the enabling environment | 3.5 Technology transfer of relevant water resources monitoring technology applicable for Palestine | 3.8 Negotiations for land use for large-scale projects |
| 3.3 Dissemination of rooftop rainwater harvesting technologies | 3.6 Deployment of large-scale rainwater harvesting technologies | 3.9 Development of desalination plants in Gaza |

Objectives of the Sector's Implementation Action Plan

The successful implementation of the prioritized technologies for the energy sector will help achieve the country's objectives for the sector, meeting its NDC targets, and achieve a low-carbon development and sustainable growth:



Outcomes under the Roadmap

Improved water supply

Disease prevention from contaminated water

Co-benefits

- Decreased household spending on health services and medicament
- Increase school attendance, health and hygiene
 - Enable women and girls to meet their personal hygiene needs
- Decreased domestic burden

Financing and implementation

- Total expected costs:** USD 1,719,450,000
- Expected sources of financing:** International and bilateral partners, Domestic resources, Local financial institutions, Private sector
- Leading agencies:** Palestinian Water Authority

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<http://www.pwa.ps/>



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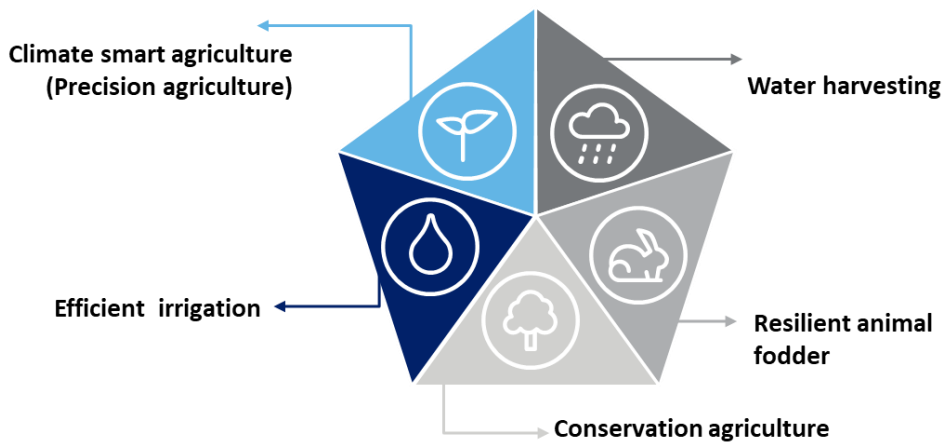
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Agriculture Sector

What is the Technology Roadmap?

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Technologies Prioritized



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Situation of the sector

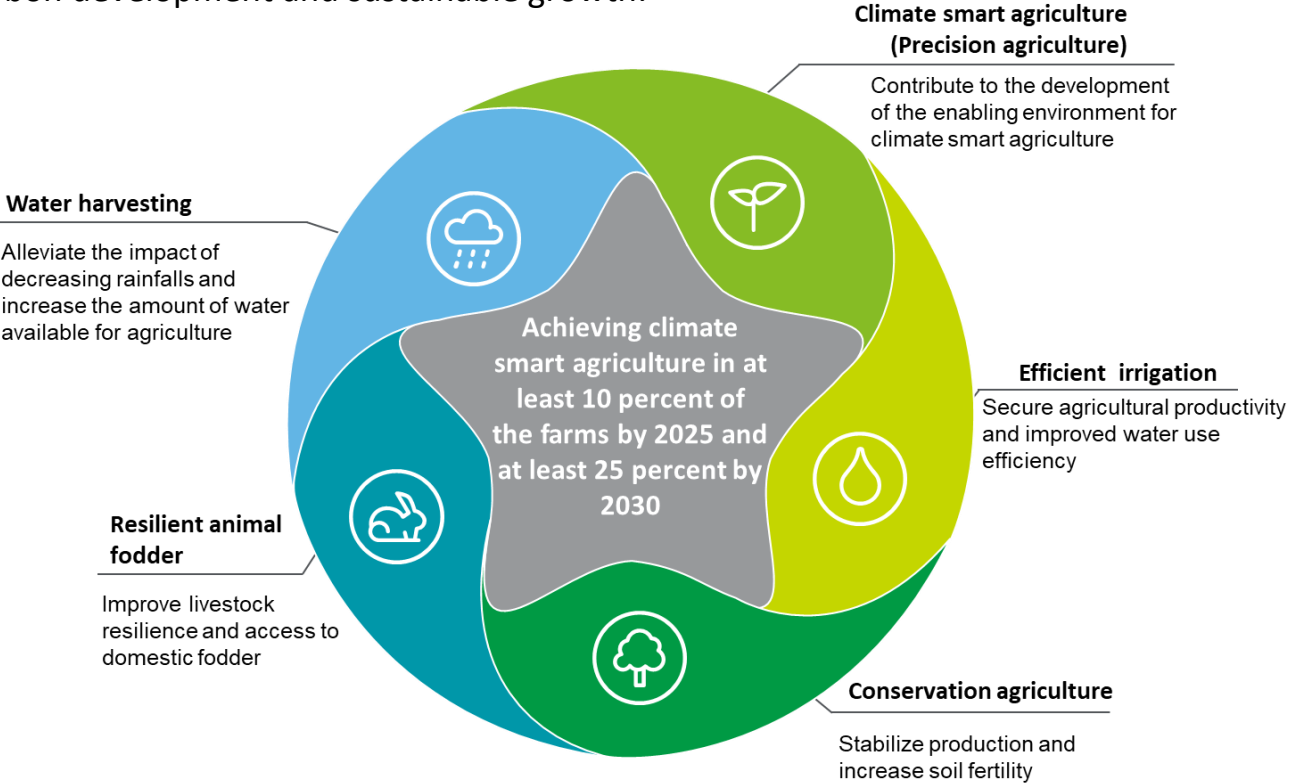
- The Palestinian agriculture sector is diverse in terms of agricultural production. More than 70 percent holdings focus on plant production, while a minority, less than 10 percent, are livestock producers. Olive tree cultivation covers the largest agricultural area in the West Bank.
- Access to water is extremely limited throughout Palestine, due to the control of Israel over water. Restriction over water management is a significant barrier for the development of an irrigated agriculture in Palestine.
- Climate change poses a major and growing threat to water and food security. Changing rainfall patterns, drought, flooding and other results of climate change have direct impact on agricultural production.
- Irrigated areas will need to increasingly rely on storage systems to respond to the decreasing availability of water.
- In rain-fed areas, changes in rainfall patterns are expected to lead to increased variations in soil moisture. Water scarcity is expected to become even more severe, which will make it more difficult for local livestock producers to produce their own fodder and to rely on grazing resources, which will decrease over time.

Proposed actions under the Technology Roadmap

- | | | |
|--|---|---|
| <p>2.1 Overall capacity building and awareness raising</p> <p>2.2 Development of the enabling environment for private sector engagement in climate-smart agriculture</p> <p>2.3 Dissemination of conservation agriculture practices</p> | <p>2.4 Dissemination of efficient irrigation, solar pumps and climate-smart water management</p> <p>2.5 Technology transfers, such as climate resilient species and resilient fodder</p> <p>2.6 Dissemination of water harvesting technologies</p> | <p>2.7 Introduction of alternative cropping technologies</p> <p>2.8 Introduction of large-scale silos</p> <p>2.9 Introduction of climate resilient seeds</p> |
| <p>2.10 Introduction of technologies for soil and crop monitoring and management, including remote sensing</p> | <p>2.11 Introduction of other technologies</p> | |

Objectives of the Sector's Implementation Action Plan

The successful implementation of the prioritized technologies for the agriculture sector will help achieve the country's objectives for the sector, meeting its NDC targets, and achieve a low-carbon development and sustainable growth:



Outcomes under the Roadmap

Building knowledge related to Climate Smart Agriculture

Improved practices in water management

Co-benefits

-  Improved food security and resilience, including in female-owned or female-led farms
-  Increased income available for men and women
-  Improved access to water

Financing and implementation

-  **Total expected costs:** USD 111,475,000
-  **Expected sources of financing:** International and bilateral partners, Domestic resources, Local financial institutions, Private sector
-  **Leading agencies:** Ministry of Agriculture, Palestinian Water Authority

For more information kindly visit:
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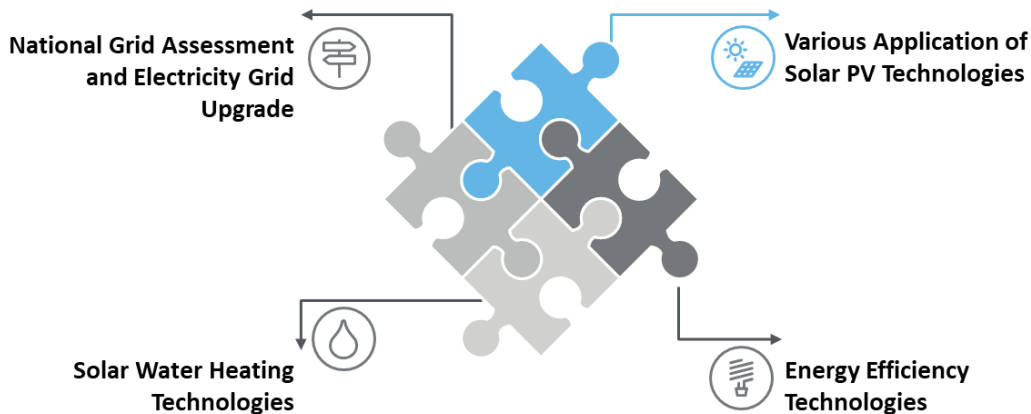
Policy Brief

Energy Sector

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Situation of the sector

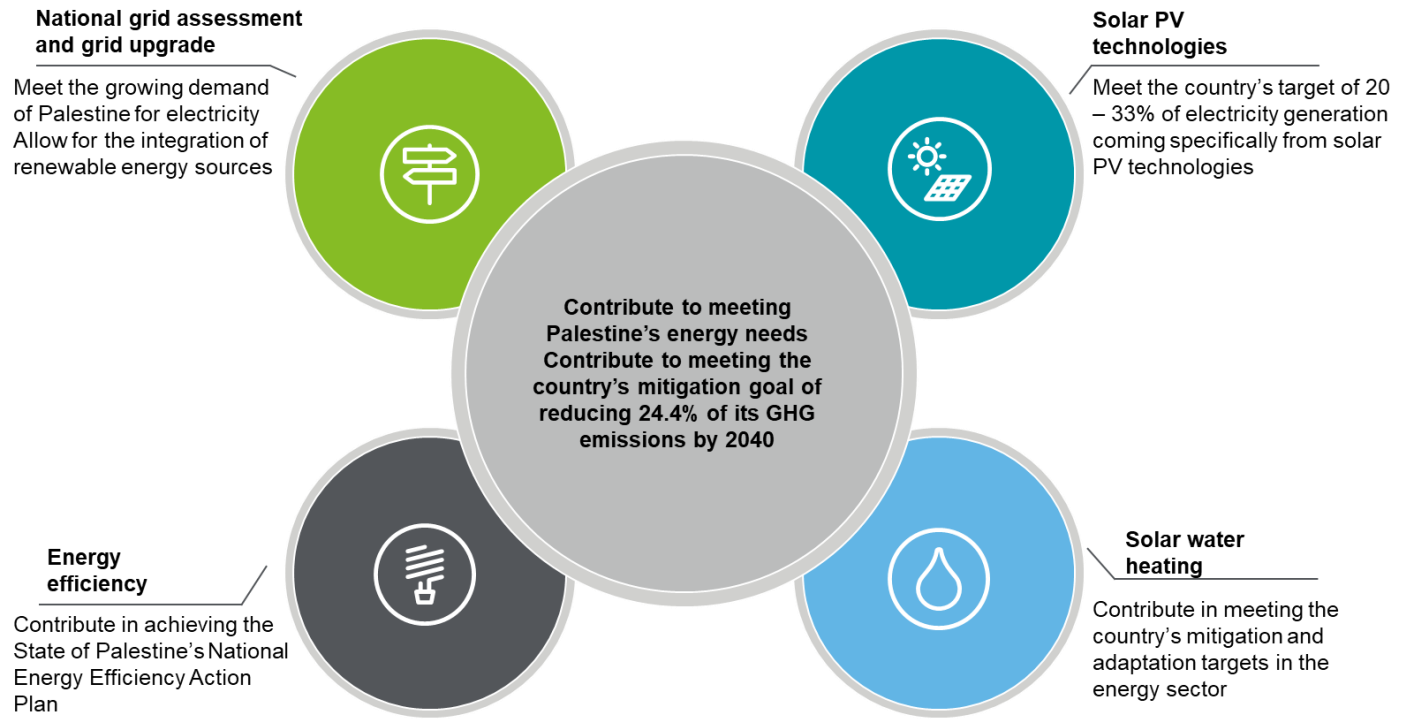
- The energy sector is crucial to the development and economic growth of Palestine.
- In recent years, energy demand is growing due to high population growth, increased industrial activities and increased living standards in the country.
- However, the sector is facing challenges in meeting electricity demand. Due to the limited power supply, electricity is rationed through rolling blackouts.
- Palestine relies primarily on electricity imports from Israel to meet its energy needs. About 90 percent of their electricity was supplied by the Israeli Electric Corporation (IEC) in 2015 and about 4 percent supplied from Jordan and Egypt combined, in addition to limited electricity generation in Gaza Strip.

Proposed actions under the Technology Roadmap

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|------------|--|------------|--|------------|---|
| 1.1 | Capacity building and awareness raising for grid upgrading | 1.4 | Overall capacity building and awareness raising | 1.7 | Dissemination of larger scale solar PV technologies |
| 1.2 | National grid assessment | 1.5 | Development of policy, standards and financing schemes | 1.8 | Dissemination of solar water heating technologies |
| 1.3 | Electricity system grid upgrading | 1.6 | Dissemination of solar rooftop PVs | 1.9 | Deployment of energy efficient technologies |

Objectives of the Sector's Implementation Action Plan

The successful implementation of the prioritized technologies for the energy sector will help achieve the country's objectives for the sector, meeting its NDC targets, and achieve a low-carbon development and sustainable growth:



Outcomes under the Roadmap

More stable electricity supply

Use of solar and energy efficiency technologies



Less time spent on domestic chores leading to more time for women and girls to pursue educational, work related or leisure activities



Improved access to healthcare services



Increased economic opportunities for women and men.

Co-benefits

Financing and implementation



Total expected costs:
USD 3,620,800,000



Expected sources of financing:
International and bilateral partners, Domestic resources, Local financial institutions, Private sector



Leading agencies:
Palestinian Energy and Natural Resources Authority, Palestinian Electricity Transmission Company Ltd.

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Solid Waste Sector

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Technologies Prioritized



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Situation of the sector

- The management of the growing solid waste generated in Palestine has been gaining attention over the years due to the environmental, social and economic impacts of this problem. Solid waste management in the country faces significant hurdles including those at the legislative, organizational, technical and financial levels.
- The improper management of solid waste will lead to increased greenhouse gas emissions from the decomposition of the waste, thereby, contributing more to worsening climate change conditions
- Extreme weather conditions such as rise in temperature or changes in precipitation patterns may lead to the spread of disease emanating from illegal dumpsites.
- The Palestinian government is well aware of this growing problem in the sector and have taken actions in recent years to address it, including the issuance of policies relevant to solid waste management. However, the sorting of waste is currently not being implemented.
- It is essential to implement solid waste management technologies that could result in reduction of overall waste volumes, proper collection and segregation of waste, recycle and re-use of materials, and reduced waste ending up in landfills.

Proposed actions under the Technology Roadmap

5.1

Overall capacity building and awareness raising

5.3

Dissemination of waste sorting technologies

5.2

Development of the enabling environment

5.4

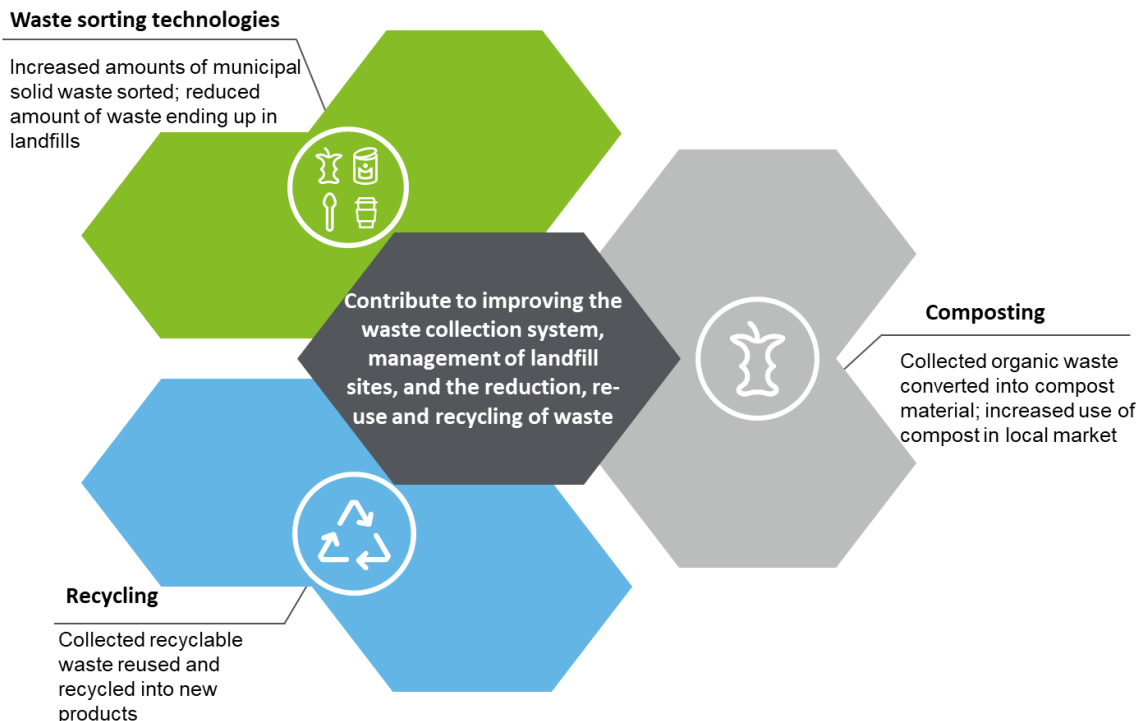
Dissemination of composting technologies

5.5

Dissemination of recycling technologies

Objectives of the Sector's Implementation Action Plan

The successful implementation of the prioritized technologies for the solid waste sector will help achieve the country's objectives for the sector, meeting its NDC targets, and achieve a low-carbon development and sustainable growth:



Outcomes under the Roadmap

Improved waste management

Cobenefits

- Decreased safety and health hazard, leading to health benefits
- Improved time management, leading to decreased domestic burden

Financing and implementation



Total expected costs:
USD 35,050,000



Expected sources of financing:
International and bilateral partners, Domestic resources, Local financial institutions, Private sector



Leading agencies:
Ministry of Local Government

For more information kindly visit:

www.environment.pna.ps/ar/

www.molg.pna.ps